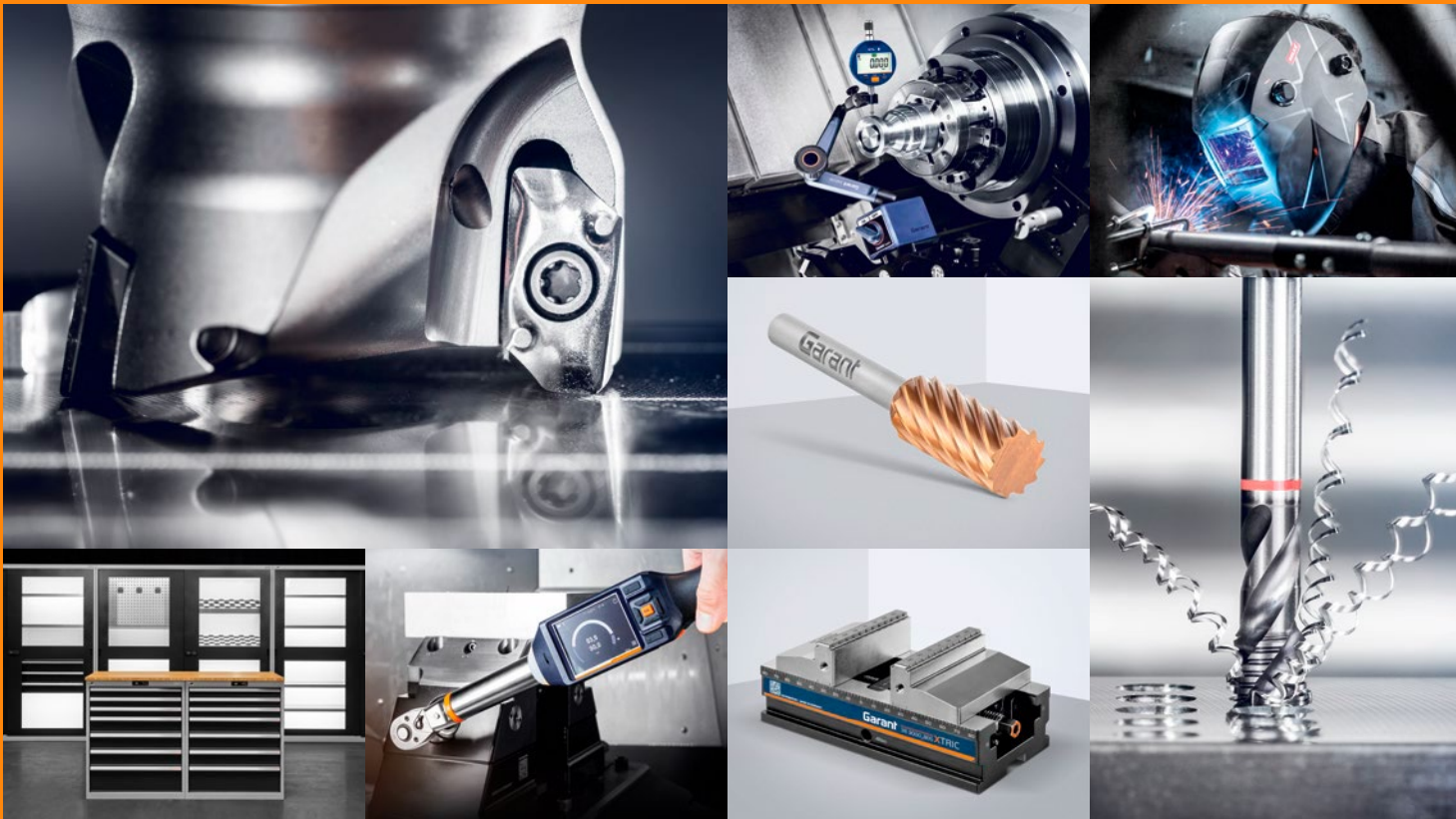


Hoffmann Group



NEW PRODUCTS

Catalogue 53

Valid from 01.08.2022 to 31.07.2023

Your customer number

ORDER BY PHONE

+44 (0) 121 716 4301

ORDER BY FAX (ORDER FORM AT THE END OF THE CATALOGUE)

+44 (0) 121 716 4303

We are happy to take your orders Monday through Thursday from 8.00 am to 5.00 pm, and Friday from 8.00 am to 3.00 pm. During out-of-office hours, orders can be placed via fax, eShop, email or voice mail.

ORDER BY EMAIL

sales-uk@hoffmann-group.com

Order quickly, reliably and around the clock.

QUESTIONS REGARDING RETURN AND WARRANTY

We issue a warranty for all tools and, in case of material or manufacturing fault, grant a replacement. Any further claims are exempt. Tools made to order cannot be returned or exchanged.

REPAIR

+44 (0) 121 716 4301

For returns, claims, or repairs please go to <https://www.hoffmann-group.com/GB/en/houk/>
Or call us Monday through Thursday from 8.00 am to 5.00 pm, and Friday from 8.00 am to 3.00 pm.

DELIVERY

For bulky factory equipment we charge an extra 11 % of the net order value for freight. For incorrect orders we charge a 5 % return processing fee, but a minimum of £ 10.00 net plus shipping costs. Next Day Express Deliveries before 9.00 am and 12.00 noon are available at extra charge and is subject to postcode. Please confirm with your sales representative.

Hoffmann UK Quality Tools Ltd.
GEE Business Centre
Holborn Hill
Birmingham
B7 5JR

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Germany, Europe, worldwide

see the last page

Order conveniently via
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We may update our **company address** and **prices** for our products from time to time. We will inform you of any changes on our website <https://www.hoffmann-group.com/GB/en/houk/>. These changes will not affect any orders that have already been placed. **Delivery times** cannot be guaranteed. Delivery of your order may be delayed or prevented for reasons beyond our reasonable control, such as import delays, material shortages, customs-related processes or higher than anticipated demand. If products are not delivered within 30 days of the estimated delivery date you may be entitled to cancel your order and receive a full refund



SIMPLY. EVERYTHING. NEW.



We make everything simple when it comes to industrial workplaces. New tools, workstations and storage, and personal protective equipment are just waiting to make life really simple for you.

Are you seeking outstanding results from your tools?
As a tool expert, we now present our selected range of new products, which takes up the latest trends and helps you to be even more successful.

In this catalogue, you will discover a lot of knowledge about correct applications and materials. And of course everything that makes your day-to-day working life easier and more efficient.

NEW



SIMPLY AT A GLANCE: OUR RANGE. FOR YOU.

These are our products, solutions and services – simply everything to make you even more successful.

A top range of selected tools,
best price-performance ratio

- **Approx. 120,000 state-of-the-art quality tools** carefully pre-selected for you.
- Product management available **around the world**.
- Catalogue available in **18 languages**, in printed form, online and as an app.

Very high reliability

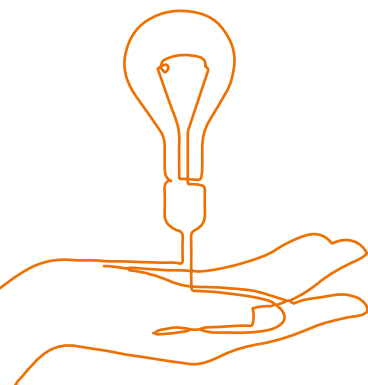
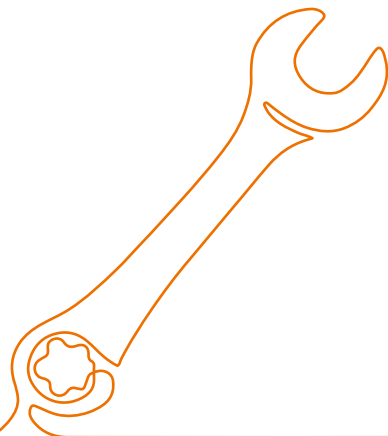
- **Maximum delivery capability.**
- **Perfect delivery accuracy.**
- **95%** of our customers class us as a preferred supplier.

Personal, flexible and digital services

- eTool
- ToolScout
- Machining planning
- Regrinding service
- Calibration service
- GARANT Tool24 industrial vending solution
- Workstations and storage planning and assembly
- Branded workwear
- Planning and assembly
- Connected Manufacturing
- Connected Data
- Connected Metrology

Efficient eBusiness solutions

- eShop for **quick and secure ordering.**
- **Electronic catalogue** in 18 languages.
- simple system – **free of charge procurement market place** for C items with over 80 million items.
- Electronic data interchange for efficient business processes.
- GARANT Tool24 industrial vending solutions.



Hoffmann Group

Competent support team

- **Throughout** Europe.
- Consistent support from field sales, key account managers, application technicians, metrology technicians, technical advisers for workstations and storage, technical advisers for occupational safety, eBusiness experts, technical advisers in internal sales.
- A total of **more than 1,400** qualified and motivated technical advisers.

Market leader for quality tools

- **Number 1** in Europe.
- **Global** availability.



Our system brand

- **The range:** More than 55,000 top certified tools of the highest quality for all application areas.
- **GARANT expertise:** Developed with users, suppliers and 12 of our own technology centres.
- **A success story:** At your side every day for almost 50 years, and recognised with more than 50 awards.
- **The quality promise:** 10-year warranty on GARANT products.*

Our quality brand

- **A wide range:** More than 17,000 tools for every standard application.
- **Focus on functionality:** Exactly those products that you really need.
- **Solid and proven:** Industrial quality for everyday use.
- **Really clever:** Impressively attractive price with impressively good performance



DO YOU WANT PEACE OF MIND WHEN IT COMES TO SUPPLIES? WE CAN DELIVER!

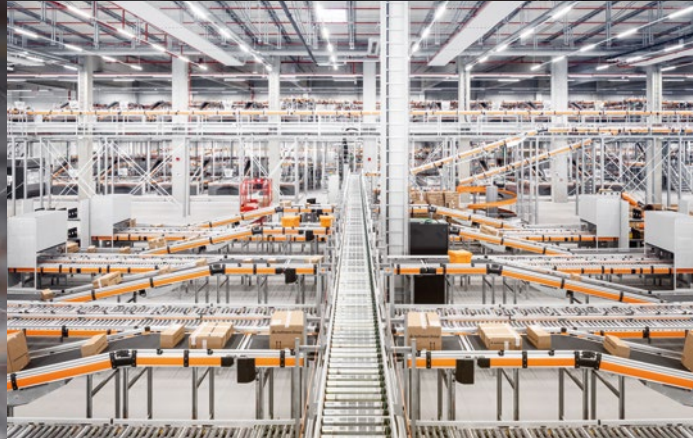
Your success builds on everything running smoothly in procurement. We ensure this happens with maximum delivery capability and perfect delivery accuracy.

We make a big thing of delivery capability: Which is why we are building big, too

To be able to supply you with goods reliably in the future, we have created something big: LogisticCity – the most powerful tooling logistics solution.

LogisticCity is a crucial step towards networked digital logistics which exploit to the full the technological opportunities available today. This reliably ensures our outstanding delivery performance for you on a long-term basis, even in times when we have to react constantly to changing market conditions.

 Hoffmann Group
LogisticCity



Hoffmann Group LogisticCity:

Taking logistics to the next level

- **100,000 m²** of logistics area, fully automatic warehouse with **500,000** container and **30,000** pallet spaces, **14 kilometres** of conveyor systems, **40,000 packages** a day.
- **TechnologyCenter** and **ServiceCenter** for calibration, regrinding, textile customisation and laser labelling.
- Numerous logistics sites worldwide.

WE PROVIDE PERSONAL ADVICE.

Our specialist consultants receive intensive training on an ongoing basis, ensuring they are always kept abreast of the latest technology – and that gives us the tools to identify the perfect solution for you every time. But we don't just provide you with the best product: we also tell you the best way to use it.



Good advice just for you:

Our specialist consultants work with you to find the ideal solution

- Our **application technicians** are specialists for **boring, milling and turning**, as well as **clamping technology**.
- **Innovative solutions** for improving the production process.
- Whether workstation systems, production sites or storage systems – our team of **specialist consultants for workstations and storage solutions** will help you kit out your premises.





GUARANTEED EASY, QUICK AND RELIABLE PROCUREMENT.

With our e-business solutions we optimise your procurement, production and manufacturing processes. We will be happy to advise you and find individual solutions perfectly matched to your requirements.



Electronic catalogues:

With individual content and prices

- The basic range comprises **over 100,000 items**
- Available in all **popular formats** (BMEcat, CIF, CSV, XLSX, txt)
- **Easy access** to extensive product information.



Simple system:

The complete solution for indirect procurement

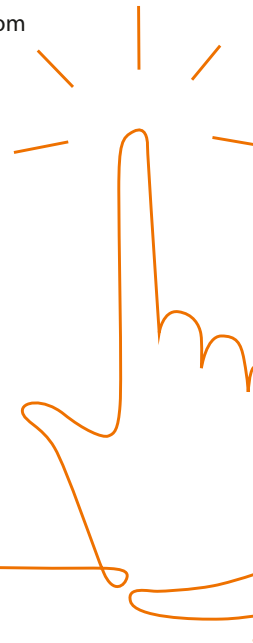
- **80 million items** from 750 leading suppliers.
- **Individual integration** into enterprise resource management and materials management systems.
- Strategic consultant for **digital transformation.**
- Find out more at www.simplesystem.com



Catalogue browser app:

All products on your smartphone or tablet

- **Quick** browsing and **effective** searching.
- Save, print or send pages directly **as a PDF.**
- Available in **18 languages.**
- All **current brochures** at a glance.





Our eShop:

Intuitive, flexible and fast

- **Individual and printable quotations** with the ordering function via the eShop.
- Purchasing statistics, cost centre and budget management.
- Individually configurable **authorisation process**.

www.hoffmann-group.com



WE WILL SUPPORT YOU IN THE DIGITALISATION OF YOUR PRODUCTION PROCESS.

Are you a small or medium-sized company?
Do you want to make your production process
more productive and future-proof?
Is a lot of the time in your production processes ancillary time
and do you exert a lot of effort trying to keep things in order –
and yet you still want more of an overview?

We have the solution: Our digital products speed up your
production processes, manage tools more efficiently
and, in the process, significantly increase quality.

It's simple:

step by step into the digital age

When developing our digital products, we look for **practical suitability** for **small** and **medium-sized companies**. We are constantly expanding our range of solutions and increasingly allowing them to interact with more and more tools, machines, devices and systems. Our specialists will assist you in the digitalisation of your production process and develop the appropriate technologies together with you.

In this way, we will accompany you as a partner **step by step into the digital world**.

Discover our "Connected" family now – our best solutions for digital manufacturing.



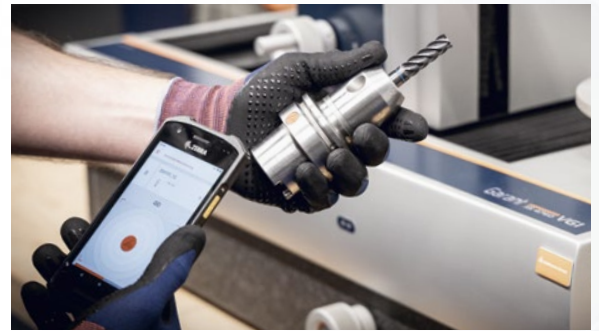
OUR SOLUTION: DIGITALISATION STEP BY STEP.

By digitalising your production process, you are increasing the **overall plant effectiveness** and **process efficiency** in the long term. We know your processes – and we offer modular solutions that are precisely aligned to them.

We will network your production process – but you decide precisely which challenge you want to tackle by choosing from our **“Connected” family**.

Connected Manufacturing:

Manage your production orders and tools



The solution to the everyday challenges of planning, controlling and organising production.

- **A clear overview** of all your existing entire tools, the required accessories and their parameters – as well as of the machine and order status.
- **Simplified workflows** by reducing search and waiting times.
- Significant **cost reduction** and **increased productivity** thanks to improved tool usage planning and utilisation.
- **Less damage** by avoiding transfer and typing errors.
- **Optimisation** of stock levels.



Connected Data:

Tool data plugin for CAM systems



The solution for the challenges of programming in CAM systems in everyday life.

- **Error avoidance** by automatically receiving all the necessary tool and cutting data as well as 3D models of tools.
- Constantly **up-to-date** technology and product data.
- Significant **reduction in the work effort** involved in component programming.

Connected Metrology:

Management of your measuring tools



The solution for all tasks involving simple and modern measuring equipment management.

- **Production organisation via scanning:** Thanks to the Hoffmann data matrix code, you always know where which measuring device is located.
- **View** and **maintain** data even on the move.
- Automatically retrieve **calibration certificates**.
- **No installation** necessary, clear menu structures and easy-to-use filter functions.

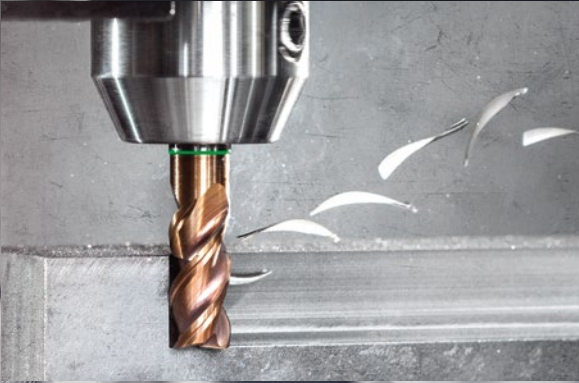
Like what we're saying?

Make a personal consultation appointment now.



Hoffmann Group Go Digital Store – all there is to know about our digital solutions digital.hoffmann-group.com

**SIMPLY.
DISCOVER.
INNOVATION.**



GARANT

Page 17 – 39

Garant

Tools with a system:

Highest quality and reliability for all applications around the industrial workplace.



HOLEX

Page 40 – 55

HOLEX

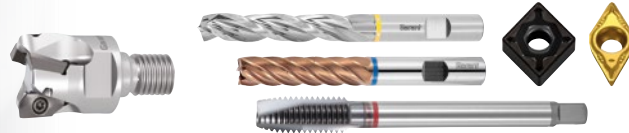
This is how clever tools can be:

The right product for every standard application. Always attractively priced and of good industrial quality.



MACHINING

Page 56 – 136



CLAMPING TECHNOLOGY

Page 137 – 160



MEASUREMENT TECHNOLOGY

Page 161 – 188



GRINDING AND CUTTING

Page 189 – 208



SCREWDRIVING / GRIPPING / CUTTING AND ASSEMBLY TOOLS

Page 209 – 236



POWER TOOLS AND WORKSHOP ACCESSORIES

Page 237 – 256



WORKSTATIONS AND STORAGE

Page 257 – 292



PERSONAL PROTECTIVE EQUIPMENT

Page 293 – 328



INFORMATION







Garant

BUILT FOR WORK: BUILT LIKE YOU.

Do you set yourself high standards at work? We have just the tool for you: more than 45,000 certified system tools in the finest quality for every job around the place. Discover your tool:

www.garant-tools.com



Industrial Tooling and Equipment by Hoffmann Group



GARANT comfort safety shoes in K52
volume 4 **Page 344 - 347**
Personal protective equipment
available only within the EU.

Garant

PERFECT FOR YOU. GUARANTEED.

GARANT comfort safety shoes - a stress-free walking sensation throughout the day. Maximum protection combined with minimal weight.



GERMAN
DESIGN
AWARD
WINNER
2021



Uncompromising comfort in series

- **For all requirements:** Available as safety shoes, boots and sandals.
- **Genuine multi-width system across all sizes:** Different widths and tweaked production technique.
- **Seriously ergonomic:** Exchangeable, weight-dependent damping.





Garant

MY MOST ACCURATE COLLEAGUES. IF IT GETS REALLY HARD.

GARANT Master Tap Steel^{HT} - developed for difficult-to-machine steels and materials with high tensile strength.

The specialist for high-tensile steels

- **Maximum performance:** Optimised coatings, adapted to the requirements for tapping blind holes and through holes.
- **Long tool life:** HSS-E-PM substrate of the latest generation with maximum cutting edge stability and wear resistance.
- **Absolute process reliability:** Special spiral point on the through hole taps and optimised guide threads on the blind hole tap ensure very high stability.



The GARANT Master family

Discover our **best drilling, threading, milling and turning tools**. For high demands in different materials and applications.

DRILLING



THREADING



MILLING





GARANT Master Tap Steel^{HT}
Page 76 - 81



TURNING





GARANT aluminium shoulder mill
Page 94 - 97

**Garant**

MY BEST ASSURANCE. FOR EFFICIENT PROCESSES.

GARANT shoulder mill for aluminium - special carrier design for very high efficiency and process reliability in aluminium machining.



Best performance for roughing and finishing in aluminium.

- **Speed professional:** High-performance milling system for high cutting speeds.
- **Absolutely stable:** Perfected insert bedding and screw fit.
- **Impressive process reliability:** Exceptional torsional stiffness thanks to optimised protection against centrifugal force.





Garant

MY FIRST CHOICE. FOR STAINLESS STEELS.

GARANT HB7130-2 - the all-round turning grade.



Impressive characteristics for greater efficiency

- **All-round use:** For continuous cutting and slightly interrupted cutting (scale, uneven material, saw cuts).
- **Efficient turning:** For moderate/high cutting speeds.
- **Impressively cost-effective:** Outstanding tool life due to coatings with directional crystal structures.

The GARANT Master family

Discover our **best drilling, threading, milling and turning tools**. For high demands in different materials and applications.

DRILLING



THREADING



MILLING





GARANT HB7130-2
Page 116 - 119, 123 - 126



TURNING







Garant

MY PERFECT COMBINATION. A SYSTEMATIC APPROACH TO SHRINK FITTING AND COOLING.

GARANT SU1 shrink-fit unit and CU1 cooling unit - impresses with an unique, modular design and ease of use.



Intuitive design meets sophisticated technology

- **Easy to use:** New touch panel control on the SU1 shrink-fit unit.
- **Modular design:** Shrink fit and cooling unit can be combined as required.
- **Ergonomically designed:** Everything is in the right place for the individual work steps.

GARANT SU1 shrink-fit unit
Page 153

Garant

MY PRECISE CONNECTION. IN MEASUREMENT TECHNOLOGY.

GARANT HCT digital dial indicator and mechanical magnetic measuring stand - a perfect combination for accurate measurement results.

Data transmission via Bluetooth combined with precise mechanism

- **Optimum legibility:** Digital dial indicator with very large display with integral three-colour tolerance LEDs.
- **HCT capable:** Compatible with the optional HCT (Hoffmann Group Connected Tools) mobile app.
- **Ergonomic and sturdy:** Mechanical measuring stand with stepless central clamping.

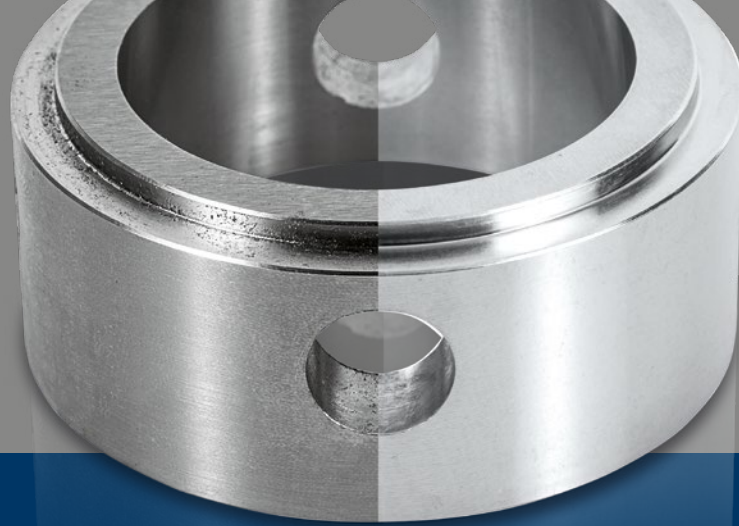


GARANT HCT digital dial indicator
Page 168

GARANT mechanical measuring stand
Page 176







Garant

MY SIMPLE SOLUTION. SO THAT EVERYTHING GOES SMOOTHLY.

GARANT GMT35 vibratory finishing machine - the Plug & Play solution for a quick entry into automated post-processing.



Vibratory finishing has huge potential

- **Many applications:** Polishing, deburring, finishing 3D structures and much more.
- **Close by:** Right next to the machine, everything in view at all times.
- **No more shipping out to external service providers:** Production and finishing from a single source.

GARANT GMT35 vibratory finishing machine **Page 190 - 194**

Available only in Germany, Italy, France and the Netherlands.

Garant

MY PERFECT COMPANION. FOR PRECISE WORKING.

GARANT HCT electronic torque/rotational angle wrench - offers many options for saving, digitalisation and documentation of all screw tightening profiles.



The key to very special rotational torques

- **Error-free data transmission:** The measured values are transmitted directly to the HCT mobile or HCT Windows app.
- **Everything at a glance:** Large sharp contrast illuminated 2.8 inch TFT display with double scale with viewing angle stability.
- **Simple individualisation:** Various modes are programmable via the app or directly at the tool.





GARANT HCT electronic torque/
rotational angle wrench
Page 218



Garant **GRIDLINE**

MY WORKSTATION – A SYSTEMATIC APPROACH. IT ALL FITS.

The GARANT GridLine range impresses thanks to its completely consistent modularity. The G grid system (25 mm) can be applied both internally and externally. Everything fits together – not only the modular arrangement system in the drawers, but also the workstations and storage units to each other.



Simple planning with maximum design freedom

- **Universal grid system:** Helps achieve faultless planning based upon the modular principle.
- **Completely modular:** A wide range of combination and extension options.
- **Top functionality:** Innovative detailed solutions for more efficiency and optimised workflow.



Garant GREENPLUS

CLEANING AND ADHESIVE BONDING. WITH PEACE OF MIND.

The GARANT GreenPlus product range - a real alternative to hazardous substances that have been used until now. Requires no hazard labels and conserves resources for greater sustainability.

A plus for people and the environment

- **Quick and pleasant working:** Simple application, as there are no hazardous substance regulations to follow.
- **Protects both people and the environment:** Better health and safety due to non-irritating product properties and limited hazard potential.
- **High performance combined with sustainability:** Quick drying time and outstanding holding and bonding force for adhesives.



A small selection of the wide variety of GARANT GreenPlus cleaning agents and adhesives.





Inox Care

DE Inox Care

Reinigt, schützt und pflegt Edelstahl, Aluminium, Kupfer sowie Kunststoffe. Entfernt einfach und sicher Staub, Fettflecke und Öle von Geländern, Maschinen- und Transporter-Oberflächen.

- hinterlässt strahlenden Glanz
- einfach in der Anwendung – keine Putzstreifen
- schützt vor Fingerabdrücken und erneuter Verschmutzung
- universell einsetzbar, silikonfrei

Anwendung: Flächig dünn aufsprühen mit einem weichen Lappen gleichmäßig verteilen und trocken wischen. Bei glanzoberflächen Verträglichkeit testen.

Sicherheitsdatenblatt auf Anfrage erhältlich.
Bei Einsatz in der Lebensmittelindustrie: Oberflächenreinigung mit Wasser

Clean & Weld

DE Clean & Weld

Premium 2 in 1 Schweißtrennmittel mit bester Qualität. Entfernt effektiv das Halten von Spritzlötlut und Laserschneiden.

- lösmittel-, öl- und silikonfrei - nichtbrennend
- höchste Kompatibilität mit Beschichtung - Lackprozessen
- wirksam - durch exzellente Benetzung
- Schweißen einsetzbar
- sichere Anwendung - kein Zerschneiden

Anwendung: Werkstück, Schweißnaht mit dem Spray sprühen und den Schweißvorgang beenden. Lappen abwischen. Vor Frost schützen.



GARANT GreenPlus products
Page 249 - 251

**TOUGH AND
EXPENSIVE.**



TOUGH AND INEXPENSIVE.

H



This is how clever tools can be: With over 17,000 tools, HOLEX has the right product for every standard use. Always reasonably priced and in good industrial quality. Discover the clever way:

www.holex-tools.com

Industrial Tooling and Equipment by Hoffmann Group

HOLEX



HOLEX automatic welding mask
Page 301
Personal protective equipment
available only within the EU.

HOLEX

CLEVER PROTECTION: ALL IMPORTANT FUNCTIONS FOR WELDING WORK.

The robust construction of the HOLEX automatic welding mask in the classic design ensures reliable protection.



Clever welding at an attractive price

- **Clever and variable:** Sensitivity can be adjusted steplessly. With exchangeable visors.
- **Clever and practical:** The headband can easily be adjusted individually to suit any shape of head.
- **Clever and versatile:** Can be combined as required with other PPE, such as safety glasses or a particle filter mask.



CLEVER OVERVIEW: BRINGS AN INSPECTION LIGHT INTO DARK PLACES.

HOLEX video endoscope with large LCD display true to detail and with comprehensive functions. Exceptionally robust and ideally suited for use outdoors.

Clever viewing and documenting of inaccessible places

- **Clever and handy:** Intuitive touch display with full screen display.
- **Clever protection:** Sun shield for outdoor use.
- **Clever and helpful:** Built-in microphone for comments during the video inspection operation.





HOLEX video endoscope
Page 187

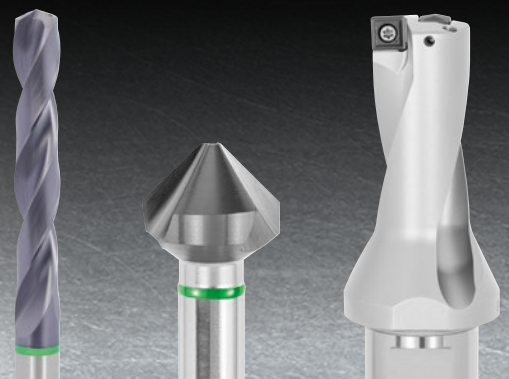


HOLEX Pro UNI solid carbide milling cutter HPC **Page 86**

The HOLEX Pro family

The clever solution for everyday production work: Sturdy drilling, threading and milling tools, which simply always get results.

DRILLING



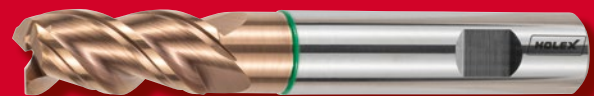

HOLEX

REALLY CLEVER: HIGH PERFORMANCE AT LOW COST.

HOLEX HPC pro UNI solid carbide milling cutters impress with outstanding production results and tool life in a variety of materials.

Clever machining made easy

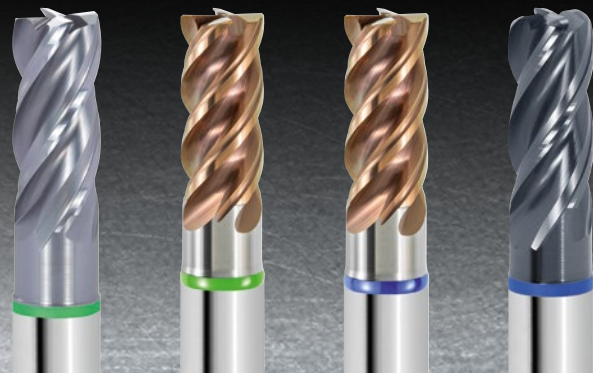
- **Clever performance:** Roughing at very high feed rates with smooth cutting action.
- **Cleverly made:** Clever macro geometry for cutting forces and intrinsic stability.
- **Clever and efficient:** Tool material with long life and high-performance coating.



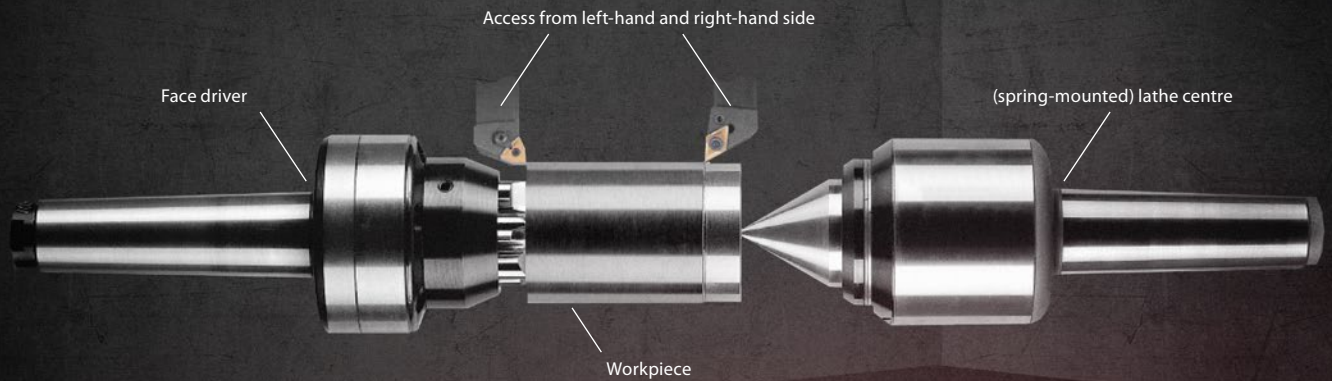
THREADING



MILLING



Face driver in use

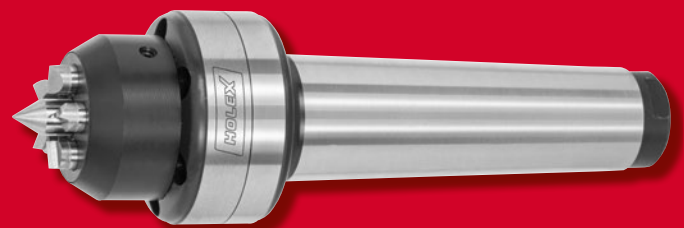


CLEVER TURNING: MACHINE COMPLETE EXTERNAL CONTOUR USING ONLY ONE CLAMPING.

HOLEX constant speed face drivers ensure high torque transmission from the machine spindle to the workpiece.

Clever clamping when turning, grinding and hobbing

- **Clever handling:** Straightforward to use.
- **Clever and flexible:** Extends the clamping options.
- **Clever and versatile:** Reversible.





HOLEX constant speed face drivers
Page 152



HOLEX textile tool bags in K52
volume 2 **Page 698 - 699**



CLEVER COMPANION: MORE TIDINESS FOR EVERY DAY.

The HOLEX textile tool bags are full of clever ideas for day-to-day working life. And all that at an impressively attractive price.

Clever storage space in all variants

- **Clever and robust:** Hard-wearing and washable polyester fabric.
- **Clever and spacious:** Generous interior space and handy outside pockets for sufficient storage space.
- **Clever and complete:** Available with high-quality HOLEX tool assortments as a set.
See page 222 – 224





THAT'S CLEVER: YOUR WORK IN THE BEST LIGHT.

HOLEX LED cordless work lamps illuminate everyday working life with handy functions.

Clever ideas brought to light

- **Clever and variable:** Rotary knob for stepless dimming capability.
- **Clever and bright:** Translucent cover for non-dazzle 360° illumination.
- **Clever and stable:** Stand with integral magnet and suspension hook.





HOLEX LED cordless work lamp in K52
volume 2 Page 1076



HOLEX 24seven in K52 Volume 3
Page 498 - 499


HOLEX

CLEVER, RELIABLE SUPPLY: INDUSTRIAL VENDING, EASIER THAN EVER.

The HOLEX 24seven industrial vending solution combines clever functionality with ease of use. Immediately ready for use, the HOLEX 24seven SPACE offers generous space for up to 192 items; the FLEX with its clever division system even has space for an unbelievable 540 items.



Clever – 24 hours a day

- **Clever start:** Easy commissioning thanks to pre-configuration.
- **Clever use:** Intuitive handling via touch screen.
- **Clever filling:** Lots of room in the SPACE version. Your own configuration options in the FLEX version.



OUR CONSULTANTS KNOW VIRTUALLY EVERY MILLING CUTTER, LIKE THE BACK OF THEIR HAND.

Your projects are as important to us as if they were our own. More than 1,400 consultants are always ready to offer you personal and expert assistance. Worldwide.

www.hoffmann-group.com

 Hoffmann Group

Daniel,
field sales consultant

NEW PRODUCTS

Machining – drilling/thread machining

GARANT Master – a growing family



Page 62-63
GARANT Master Steel MICRO deep hole drill 30xD.
With optimised cooling strategy thanks to large coolant hole cross-section.
Other versions available in 5xD, 8xD, 12xD and 20xD.



Page 66
GARANT Master Alu FEED solid carbide drill 6xD.
3-cutter tool for high feed rates.
3 guide chamfers generate precise bore roundness.



Page 70-71
GARANT Master Titan HPC high-performance reamer.
Especially for titanium and titanium alloys.
High cutting performance values due to extra-short cutting edges.



Page 72-75
GARANT Master Tap universal machine tap.
Extra-long metric version to DIN 376 and various tolerances.



Page 76-81
GARANT Master Tap Steel^{HT} machine tap.
New product line from the Master Tap range.
Especially for high-strength steels and materials that are difficult to machine.



Page 82-83
GARANT Master Form Steel fluteless tap.
Expansion in G threads, UNC, UNF and various tolerances.

Expansion of the range



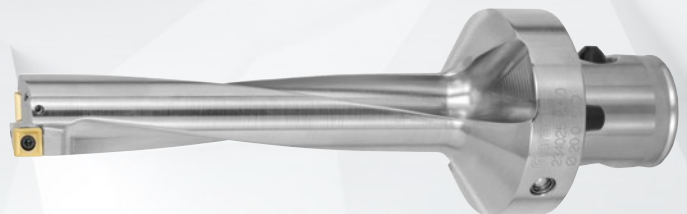
Page 58-61
HOLEX CleverDrill HSS drills.
Sturdy drills for all standard applications.
Versions to DIN 1897/338/340.



Page 64-65
GARANT solid carbide drill HPC 4xD/6xD – for titanium.
Especially in titanium-based and nickel-based alloys.
Ultra-smooth TiAlSiN high-performance coating.



Page 67
GARANT solid carbide drill-reamer 5xD.
Drilling and reaming in a single operation. Pyramid tip ensures optimum roundness and tolerance accuracy.



Page 68-69
GARANT Power Drill 3xD/5xD with ABS shank.
Maximum stability and dimensional accuracy.



Page 84
GARANT solid carbide end cutting thread mill for Whitworth pipe thread G-thread.
Combined production in a single operation.
For hardened and difficult-to-machine material.



11 3006

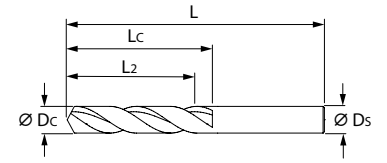
HOLEX HOLEX CleverDrill jobber drill, plain shank

Sturdy drills for all standard applications. Improved spot drilling behaviour due to cross-ground form. Standard core thickness and core taper. Profile ground. Surface: Bronze-coloured tempered helical flutes.

Recommendation: Maximum drilling depth:

$$L_2 = L_c - 1.5 \times D_c$$

Note: Successor product to No. 113005.



Suitable for/ v _c [m/min]	Alu plastics	Alu > 10% Si	Alu cast	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 70 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	CuZn	Oil	Water	Latex	Acid	Alkali	
113006	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	K	N						

Ø D _c h8	11 3006					f	Ø D _c h8	11 3006					f	
	12B	HOLEX CleverDrill HSS jobber drill			L _c			L	12B	HOLEX CleverDrill HSS jobber drill				L _c
mm		v _c	ISO	ISO	mm	mm	mm	v _c	ISO	ISO	mm	mm	mm/rev.	
2		0.61	10	35	12	38	0.05	7,2		2.53	10	34	74	0.08
2,1		0.70	10	35	12	38	0.05	7,3		2.53	10	34	74	0.08
2,2		0.70	10	35	13	40	0.05	7,4		2.53	10	34	74	0.08
2,3		0.70	10	35	13	40	0.05	7,5		2.53	10	34	74	0.08
2,4		0.70	10	35	14	43	0.05	7,6		2.81	5	37	79	0.08
2,5		0.70	10	35	14	43	0.05	7,7		2.81	5	37	79	0.08
2,6		0.79	10	35	14	43	0.05	7,8		2.71	5	37	79	0.08
2,7		0.79	10	35	16	46	0.05	7,9		2.71	5	37	79	0.08
2,8		0.79	10	35	16	46	0.05	8		2.62	5	37	79	0.1
2,9		0.79	10	35	16	46	0.05	8,1		3.18	5	37	79	0.1
3		0.79	10	35	16	46	0.05	8,2		3.18	5	37	79	0.1
3,1		0.98	10	35	18	49	0.05	8,3		3.18	5	37	79	0.1
3,2		0.98	10	35	18	49	0.05	8,4		3.18	5	37	79	0.1
3,3		0.98	10	35	18	49	0.05	8,5		3.18	5	37	79	0.1
3,4		0.98	10	35	20	52	0.05	8,6		3.83	5	40	84	0.1
3,5		0.98	10	35	20	52	0.05	8,7		3.83	5	40	84	0.1
3,6		1.03	10	35	20	52	0.05	8,8		3.83	5	40	84	0.1
3,7		1.03	10	35	20	52	0.05	8,9		3.83	5	40	84	0.1
3,8		1.03	10	35	22	55	0.05	9		3.74	5	40	84	0.1
3,9		1.03	10	35	22	55	0.05	9,1		4.02	5	40	84	0.1
4		1.03	10	35	22	55	0.05	9,2		4.02	5	40	84	0.1
4,1		1.13	10	35	22	55	0.05	9,3		4.02	5	40	84	0.1
4,2		1.13	10	35	22	55	0.05	9,4		4.02	5	40	84	0.1
4,3		1.13	10	35	24	58	0.05	9,5		4.02	5	40	84	0.1
4,4		1.13	10	35	24	58	0.05	9,6		4.49	5	43	89	0.1
4,5		1.13	10	35	24	58	0.05	9,7		4.49	5	43	89	0.1
4,6		1.22	10	35	24	58	0.05	9,8		4.49	5	43	89	0.1
4,7		1.22	10	35	24	58	0.05	9,9		4.49	5	43	89	0.1
4,8		1.22	10	35	26	62	0.05	10		4.49	5	43	89	0.1
4,9		1.22	10	35	26	62	0.05	10,2		5.45	5	43	89	0.1
5		1.22	10	35	26	62	0.08	10,5		5.45	5	43	89	0.1
5,1		1.40	10	35	26	62	0.08	11		6.30	5	47	95	0.1
5,2		1.40	10	35	26	62	0.08	11,5		7.20	5	47	95	0.1
5,3		1.40	10	35	26	62	0.08	11,8		7.52	5	47	95	0.1
5,4		1.40	10	35	28	66	0.08	12		7.52	5	51	102	0.16
5,5		1.40	10	35	28	66	0.08	12,5		7.79	5	51	102	0.16
5,6		1.68	10	35	28	66	0.08	13		8.15	5	51	102	0.16
5,7		1.68	10	35	28	66	0.08	13,5		10.98	5	54	107	0.16
5,8		1.68	10	35	28	66	0.08	13,8		10.98	5	54	107	0.16
5,9		1.68	10	35	28	66	0.08	14		10.98	5	54	107	0.16
6		1.68	10	35	28	66	0.08	14,5		13.19	5	56	111	0.16
6,1		1.87	10	35	31	70	0.08	15		13.19	5	56	111	0.16
6,2		1.87	10	35	31	70	0.08	15,5		15.62	1	58	115	0.16
6,3		1.92	10	35	31	70	0.08	16		15.62	1	58	115	0.2
6,4		1.92	10	35	31	70	0.08	16,5		18.18	1	60	119	0.2
6,5		1.92	10	35	31	70	0.08	17		18.18	1	60	119	0.2
6,6		2.11	10	35	31	70	0.08	17,5		20.97	1	62	123	0.2
6,7		2.11	10	35	31	70	0.08	18		20.97	1	62	123	0.2
6,8		2.24	10	35	34	74	0.08	18,5		24.21	1	64	127	0.2
6,9		2.24	10	35	34	74	0.08	19		24.21	1	64	127	0.2
7		2.24	10	35	34	74	0.08	19,5		27.45	1	66	131	0.2
7,1		2.53	10	35	34	74	0.08	20		27.45	1	66	131	0.2



HOLEX HOLEX Sets of stub drills DIN 1897 in a case

Type		1-10
12B 11 3515	HOLEX CleverDrill stub drill set HSS No. 113006, type N in a case	45,54
Drill range	mm	1 – 10
Number of drills		19
Incremental steps of drills	mm	0.5



11 3515



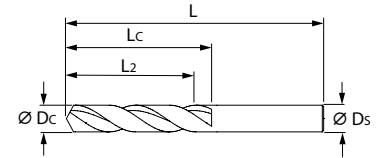
HOLEX Jobber drills, plain shank

HOLEX CleverDrill: Sturdy drills for all standard applications. Improved spot drilling behaviour due to cross-ground form. Standard core thickness and core taper. Profile ground. Surface: Bronze-coloured tempered helical flutes.

Recommendation: Maximum drilling depth:
 $L_2 = L_c - 1.5 \times D_c$



Note: Successor product to No. 114030.
 Size 13.2 – 20: With stepped shank \varnothing 12.7 mm.



Suitable for/ v_c [m/min]	Alu plastics	Alu	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	CuZn	Oil	Water	Latex	Wood	Concrete	
114031	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	K	N						
	80	60	50	35	32	22	18										30	40						

$\varnothing D_c$ h8	12B 114031 HOLEX CleverDrill HSS jobber drill	L_c	L	f < 750 N
mm	N	mm	mm	mm/rev.
0,2	2.90	5	19	0.03
0,3	2.30	5	19	0.03
0,35	2.30	5	19	0.03
0,4	1.96	5	20	0.03
0,45	1.96	5	20	0.03
0,5	1.73	5	22	0.03
0,55	1.73	5	24	0.03
0,6	1.73	5	24	0.03
0,65	1.73	5	26	0.03
0,7	1.59	5	28	0.03
0,75	1.59	5	28	0.03
0,8	1.54	5	30	0.03
0,85	1.54	5	30	0.03
0,9	1.40	5	32	0.03
0,95	1.40	5	32	0.03
1	1.22	5	34	0.03
1,05	1.17	5	34	0.03
1,1	1.17	5	36	0.03
1,15	1.17	5	36	0.03
1,2	1.17	5	38	0.03
1,25	1.17	5	38	0.03
1,3	1.17	5	38	0.03
1,35	1.17	5	40	0.03
1,4	1.17	5	40	0.03
1,45	1.17	5	40	0.03
1,5	0.98	5	40	0.03
1,55	1.17	5	43	0.03
1,6	0.98	5	43	0.03
1,65	1.17	5	43	0.03
1,7	1.17	5	43	0.03
1,75	1.17	5	46	0.03
1,8	0.89	5	46	0.03
1,85	1.17	5	46	0.03
1,9	0.89	5	46	0.03
1,95	1.17	5	49	0.03
2	0.75	5	49	0.03
2,05	1.13	5	49	0.03
2,1	0.89	5	49	0.03
2,15	1.13	5	53	0.03
2,2	0.89	5	53	0.03
2,3	0.89	5	53	0.03
2,4	0.94	5	57	0.03
2,5	0.94	5	57	0.03
2,6	0.98	5	57	0.03
2,7	0.98	5	61	0.03
2,8	0.98	5	61	0.03
2,9	0.98	5	61	0.03
3	0.85	10	61	0.03
3,1	1.03	10	65	0.03
3,2	1.03	10	65	0.03
3,25	1.26	10	65	0.03

$\varnothing D_c$ h8	12B 114031 HOLEX CleverDrill HSS jobber drill	L_c	L	f < 750 N
mm	N	mm	mm	mm/rev.
3,3	1.03	10	65	0.03
3,4	1.03	10	70	0.03
3,5	0.98	10	70	0.03
3,6	1.13	10	70	0.03
3,7	1.17	10	70	0.03
3,8	1.17	10	75	0.03
3,9	1.17	10	75	0.03
4	0.98	10	75	0.05
4,1	1.36	10	75	0.05
4,2	1.17	10	75	0.05
4,3	1.36	10	80	0.05
4,4	1.36	10	80	0.05
4,5	1.26	10	80	0.05
4,6	1.36	10	80	0.05
4,65	1.59	10	80	0.05
4,7	1.36	10	80	0.05
4,8	1.36	10	86	0.05
4,9	1.45	10	86	0.05
5	1.22	10	86	0.05
5,1	1.59	10	86	0.05
5,2	1.59	10	86	0.05
5,3	1.59	10	86	0.05
5,4	1.77	10	93	0.05
5,5	1.64	10	93	0.05
5,55	2.15	10	93	0.05
5,6	1.77	10	93	0.05
5,7	1.77	10	93	0.05
5,8	1.83	10	93	0.05
5,9	1.87	10	93	0.05
6	1.59	10	93	0.07
6,1	2.01	10	101	0.07
6,2	2.01	10	101	0.07
6,3	2.06	10	101	0.07
6,4	2.20	10	101	0.07
6,5	2.06	10	101	0.07
6,6	2.34	10	101	0.07
6,7	2.34	10	101	0.07
6,8	2.71	10	109	0.07
6,9	2.71	10	109	0.07
7	2.43	10	109	0.07
7,1	2.76	10	109	0.07
7,2	2.90	10	109	0.07
7,3	2.90	10	109	0.07
7,4	2.99	10	109	0.07
7,45	3.28	10	109	0.07
7,5	2.71	10	109	0.07
7,6	3.18	5	117	0.07
7,7	3.18	5	117	0.07
7,8	3.28	5	117	0.07
7,9	3.28	5	117	0.07
8	2.71	5	117	0.1





Ø D _c h8	12B 11 4031 HOLEX CleverDrill HSS jobber drill		L _c	L	 < 750 N f
mm	N		mm	mm	mm/rev.
8,1	3.46	5	75	117	0.1
8,2	3.46	5	75	117	0.1
8,3	3.74	5	75	117	0.1
8,4	3.74	5	75	117	0.1
8,5	3.56	5	75	117	0.1
8,6	4.11	5	81	125	0.1
8,7	4.11	5	81	125	0.1
8,8	4.21	5	81	125	0.1
8,9	4.39	5	81	125	0.1
9	3.92	5	81	125	0.1
9,1	4.39	5	81	125	0.1
9,2	4.39	5	81	125	0.1
9,25	5.27	5	81	125	0.1
9,3	4.39	5	81	125	0.1
9,4	4.39	5	81	125	0.1
9,5	4.39	5	81	125	0.1
9,6	5.00	5	87	133	0.1
9,7	5.00	5	87	133	0.1
9,8	5.54	5	87	133	0.1
9,9	5.54	5	87	133	0.1
10	4.68	5	87	133	0.1
10,1	5.90	5	87	133	0.1
10,2	6.08	5	87	133	0.1
10,3	7.11	5	87	133	0.1
10,4	7.11	5	87	133	0.1
10,5	6.30	5	87	133	0.1
10,6	7.97	5	87	133	0.1
10,7	8.42	5	94	142	0.1
10,8	8.51	5	94	142	0.1
10,9	8.42	5	94	142	0.1
11	7.29	5	94	142	0.1
11,1	8.73	5	94	142	0.1

Ø D _c h8	12B 11 4031 HOLEX CleverDrill HSS jobber drill		L _c	L	 < 750 N f
mm	N		mm	mm	mm/rev.
11,2	9.27	5	94	142	0.1
11,3	8.73	5	94	142	0.1
11,4	8.42	5	94	142	0.1
11,5	8.06	5	94	142	0.1
11,6	11.07	5	94	142	0.1
11,7	11.07	5	94	142	0.1
11,8	10.31	5	94	142	0.1
11,9	11.07	5	101	151	0.1
12	8.82	5	101	151	0.16
12,2	11.79	5	101	151	0.16
12,5	10.04	5	101	151	0.16
12,8	12.83	5	101	151	0.16
13	11.07	5	101	151	0.16
13,2	14.22	1	101	151	0.16
13,5	12.83	1	108	160	0.16
13,8	17.87	1	108	160	0.16
14	16.02	1	108	160	0.16
14,5	15.93	1	114	169	0.16
14,75	18.63	1	114	169	0.16
15	19.44	1	114	169	0.16
15,25	20.43	1	120	178	0.16
15,5	19.53	1	120	178	0.16
15,75	26.64	1	120	178	0.16
16	20.88	1	120	178	0.2
16,5	23.31	1	125	184	0.2
17	23.40	1	125	184	0.2
17,5	26.01	1	130	191	0.2
18	26.82	1	130	191	0.2
18,5	29.97	1	135	198	0.2
19	32.49	1	135	198	0.2
19,5	34.47	1	140	205	0.2
20	36.18	1	140	205	0.2



HOLEX Jobber drill sets, DIN 338

Composed of jobber drills DIN 338.

11 5051 Size 1-10C – **Large assortment case** from 1 mm – 10 mm, with 150 jobber drills:

10 pieces each Ø 1 – 6, 5 pieces each Ø 6.5 – 10. **Ideal for sitework and workshop use.**

Suitable for/ v _c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	 < 500 N	 < 750 N	 < 900 N	 < 1100 N	 < 1400 N	 < 55 HRC	 < 60 HRC	 < 65 HRC	 < 67 HRC	 < 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	CuZn	
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	K	N	
11 5051/5056	80	60	50	35	32	22	18										30	40	



11 5051

Type		1-6	6-10	1-10	1-10,5	1-13	1-13KB	1-10C
12B 11 5051	HOLEX CleverDrill jobber drill set HSS No. 114031 in a case	81.36	185.40	48.24	73.80	100.35	111.15	336.60
12B 11 5056	HOLEX CleverDrill HSS jobber drill set No. 114031 as a refill set	60.84	137.25	38.25	55.08	87.30	98.10	–
Drill range	mm	1 – 6	6 – 10	1 – 10	1 – 10.5	1 – 13	1 – 13	1 – 10
Number of drills		51	41	19	24	25	29	150
Tapping hole Ø	mm	–	–	–	3.3; 4.2; 6.8; 10.2	–	3.3; 4.2; 6.8; 10.2	–
Incremental steps of drills	mm	0.1	0.1	0.5	0.5	0.5	0.5	0.5



HOLEX Long jobber drills, deep hole drills, plain shank

HOLEX CleverDrill – Sturdy drill for all standard applications. Improved spot drilling behaviour due to cross-ground form. Standard core thickness and core taper. Profile ground. Surface: Bronze-coloured tempered helical flutes.

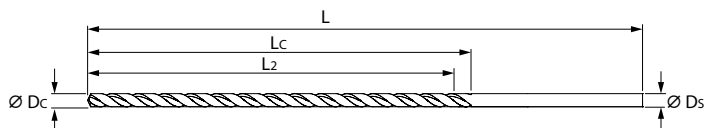
Recommendation: Maximum drilling depth:

$$L_2 = L_c - 1.5 \times D_c$$

Note: Successor product to No. 116050.



11 6051



Suitable for/ v _c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	CuZn	Oil	Water	Latex	Acid	Alkali
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	K	N	●	●	●	●	●
11 6051	64	52	40	26	26	20	15										24	32					

Ø D _c h8	12B 11 6051 HOLEX CleverDrill HSS jobber drill, long N	12B 11 6051 HOLEX CleverDrill HSS jobber drill, long N	L _c	L	f < 750 N
mm	mm	mm	mm	mm	mm/rev.
2	1.22	5	56	85	0.02
2,1	1.45	5	56	85	0.02
2,2	1.45	5	59	90	0.02
2,3	1.45	5	59	90	0.02
2,4	1.45	5	62	95	0.02
2,5	1.45	5	62	95	0.02
2,6	1.54	5	62	95	0.02
2,7	1.54	5	66	100	0.02
2,8	1.54	5	66	100	0.02
2,9	1.54	5	66	100	0.02
3	1.54	5	66	100	0.02
3,1	1.77	10	69	106	0.02
3,2	1.77	10	69	106	0.02
3,3	1.77	10	69	106	0.02
3,4	1.77	10	73	112	0.02
3,5	1.77	10	73	112	0.02
3,6	1.77	10	73	112	0.02
3,7	1.77	10	73	112	0.02
3,8	1.77	10	78	119	0.02
3,9	1.77	10	78	119	0.02
4	1.77	10	78	119	0.04
4,1	2.01	10	78	119	0.04
4,2	2.01	10	78	119	0.04
4,5	2.01	10	82	126	0.04
4,8	2.48	10	87	132	0.04
5	2.48	10	87	132	0.04
5,1	2.81	10	87	132	0.04

Ø D _c h8	12B 11 6051 HOLEX CleverDrill HSS jobber drill, long N	12B 11 6051 HOLEX CleverDrill HSS jobber drill, long N	L _c	L	f < 750 N
mm	mm	mm	mm	mm	mm/rev.
5,5	2.81	10	91	139	0.04
5,8	2.99	10	91	139	0.04
6	2.99	10	91	139	0.05
6,2	3.56	10	97	148	0.05
6,5	3.56	10	97	148	0.05
6,8	4.30	5	102	156	0.05
7	4.30	5	102	156	0.05
7,2	5.00	5	102	156	0.05
7,5	5.00	5	102	156	0.05
7,8	5.45	5	109	165	0.05
8	5.45	5	109	165	0.07
8,2	6.21	5	109	165	0.07
8,5	6.21	5	109	165	0.07
9	7.11	5	115	175	0.07
9,5	7.61	5	115	175	0.07
9,8	8.82	5	121	184	0.07
10	8.82	5	121	184	0.07
10,5	10.40	1	121	184	0.07
11	11.07	1	128	195	0.07
11,5	13.01	1	128	195	0.07
12	13.10	1	134	205	0.11
12,5	13.95	1	134	205	0.11
13	14.22	1	134	205	0.11
14	19.44	1	140	214	0.11
15	23.31	1	144	220	0.11
16	27.81	1	149	227	0.14





Technical precision at the highest level.

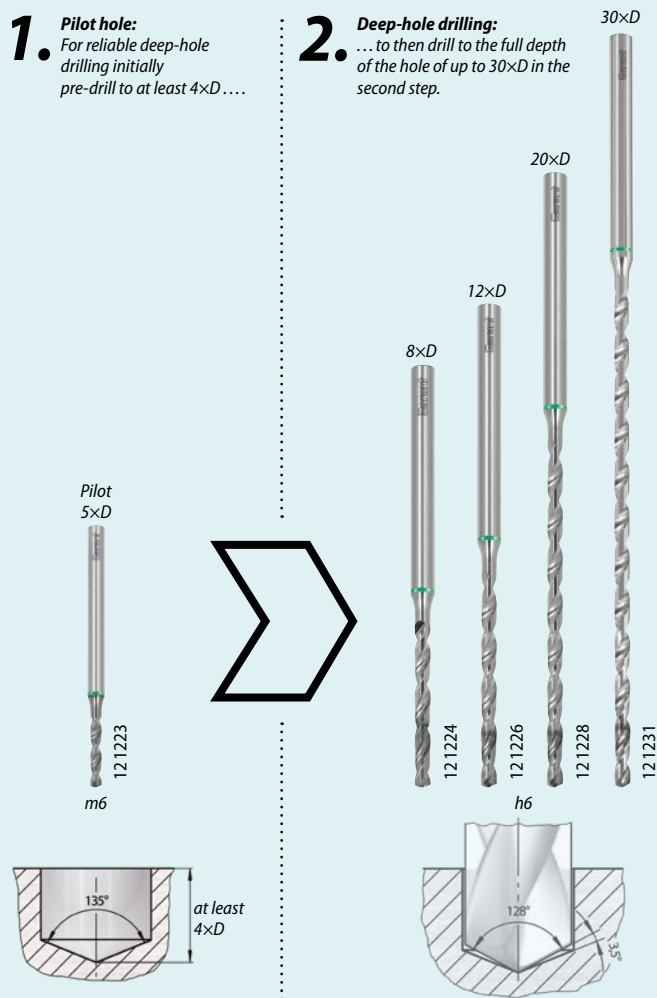
Process-reliable, general high-performance precision boring in the micro-range – now up to a drilling depth of 30×D!

Exactly matching tools within the overall system.

1. Pilot hole:
For reliable deep-hole drilling initially pre-drill to at least 4×D....

2. Deep-hole drilling:
... to then drill to the full depth of the hole of up to 30×D in the second step.

New: up to 30×D drilling depth in the micro range



Central high-pressure cooling

Increased coolant hole cross-section in the shank area for increased flow of coolant and maximum extended range. Top flow speed and optimum cooling over the entire shank length for all versions and sizes.

Transition to spiralled coolant hole.

Ultra-micrograin substrate with 10% cobalt proportion

Specially developed for micro-machining.

Lapped flute surface

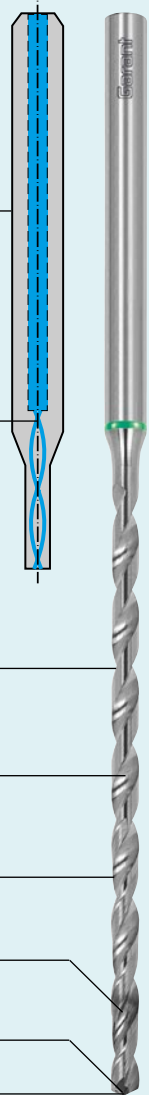
For optimum chip evacuation.

Diameter range 0.8 mm – 3 mm

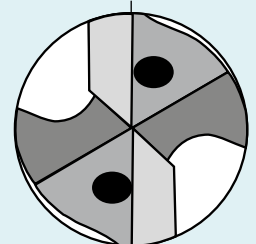
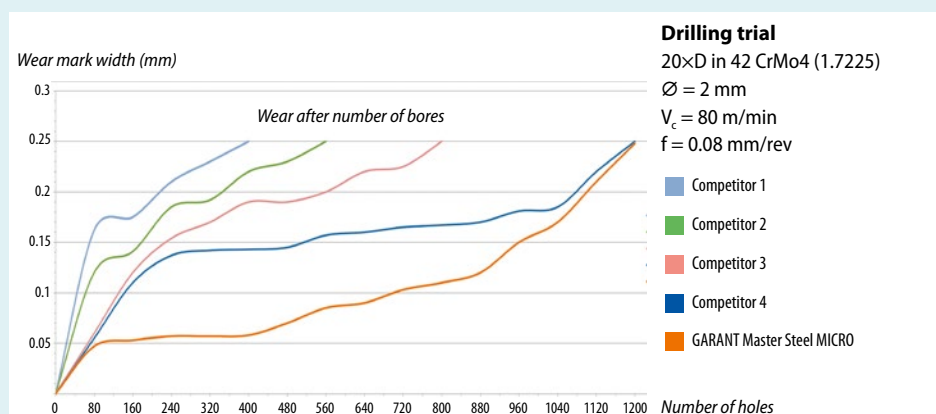
Wear-resistant and ultra-smooth AlCrN-based high-performance coating

Specially prepared and homogenised cutting edge for optimum chip shape

Very precise point geometry for reliable centring behaviour



Outstanding in steel and absolutely reliable UNI.





Garant GARANT Master Steel MICRO solid carbide drill

High-performance micro-drill for universal material use, focussing on steel processing. Maximum process reliability due to **exactly matched tools within the overall system** and **expanded guide chamfer**. Drilling of very small diameters down to the maximum depth after creating a pilot hole. **Optimum compromise between core diameter and flute size for optimum chip evacuation** – even with long-chipping materials. The **increased metal removal rates and longer tool life** ensure an economical drilling process, even with very small hole diameters combined with a large L/D ratio.

Note: For reliable use of the micro-drills from 8xD, a **pilot hole** of **at least 4xD** is required using the micro-pilot drill 121223. For vertical machining and flat workpiece surfaces, a pilot hole can be dispensed with from $D_c = \varnothing 1 \text{ mm}$ up to a length of $12 \times D$. Please always ensure that the **pilot hole is free from chips** before using the subsequent drilling tool. We recommend setting a 90° counterbore with a suitable NC spotting drill after the pilot hole has been completed. For **through holes**, reduce the feed rate of the tool by 50% before exiting the hole. Long-chipping materials may require **chips to be evacuated** in steps of $3 \times D$ each by moving the drill back slightly at pilot hole depth. Please make sure that you use a suitable **tool clamping device** (shrink-fit chuck, hydraulic clamping chuck) with a radial run-out of less than 0.003 mm, a sufficiently high **coolant pressure** (at least 30 bar), as well as sufficiently fine **filtration** of the cooling medium ($D_c < \varnothing 2 \text{ mm}$ with filter $\leq 0.010 \text{ mm}$; $D_c < \varnothing 3 \text{ mm}$ filter $\leq 0.020 \text{ mm}$). The specified L/D ratio gives the **minimum achievable depth of hole** with the respective micro-drill. Flute length $L_c = L_2 + 1.5 \times D_c$.



Suitable for/ v_c [m/min]	Alu plastics	Alu	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	CuZn	Water	Oil	Emulsion	High pressure	High speed	
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	K	N						
12 1231				60	50	45	40							35	30		50	40						

$\varnothing D_c$ h6	12 1231 GARANT Master Steel MICRO solid carbide drill, plain shank DIN 6535 HA 30xD A1CrN	L_2	L	$\varnothing D_s$	f < 1100 N	f < 900 N
	mm	mm	mm	mm/rev.	mm/rev.	
0,8	175.03	24.4	59	3	0.028	0.015
0,85	175.03	27.5	62	3	0.028	0.015
0,9	175.03	27.5	62	3	0.028	0.015
0,95	175.03	30.6	65	3	0.028	0.015
1	175.03	30.5	65	3	0.028	0.015
1,05	175.03	33.6	68	3	0.034	0.018
1,1	175.03	33.6	68	3	0.034	0.018
1,15	175.03	36.7	71	3	0.034	0.018
1,2	175.03	36.6	71	3	0.034	0.018
1,25	175.03	39.7	74	3	0.034	0.018
1,3	175.03	39.7	74	3	0.045	0.024
1,35	175.03	42.8	78	3	0.045	0.024
1,4	175.03	42.7	78	3	0.045	0.024
1,45	175.03	45.8	81	3	0.045	0.024
1,5	175.03	45.8	81	3	0.045	0.024
1,55	175.03	48.9	84	3	0.07	0.04
1,6	175.03	48.8	84	3	0.07	0.04
1,65	175.03	51.9	87	3	0.07	0.04
1,7	175.03	51.9	87	3	0.07	0.04
1,75	175.03	55	90	3	0.07	0.04
1,8	175.03	54.9	90	3	0.07	0.04
1,85	175.03	58	93	3	0.07	0.04
1,9	175.03	58	93	3	0.07	0.04
1,95	175.03	61.1	96	3	0.07	0.04
2	175.03	61	96	3	0.07	0.04
2,05	175.03	64.1	99	3	0.095	0.06
2,1	175.03	64.1	99	3	0.095	0.06
2,2	175.03	67.1	102	3	0.095	0.06
2,3	182.06	70.2	106	3	0.095	0.06
2,4	182.06	73.2	109	3	0.095	0.06
2,5	182.06	76.3	112	3	0.095	0.06
2,6	189.05	79.3	115	3	0.115	0.08
2,7	189.05	82.3	118	3	0.115	0.08
2,8	189.05	85.4	121	3	0.115	0.08
2,9	189.05	88.5	124	3	0.115	0.08
3	189.05	91.5	127	3	0.115	0.08

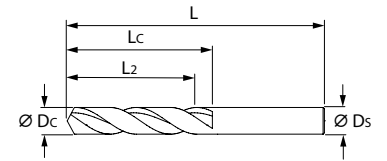
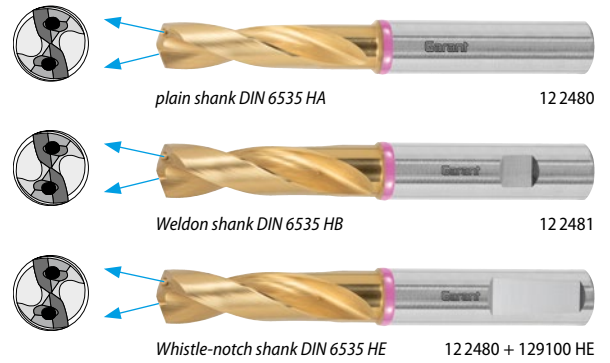




Garant Solid carbide HPC drill

Specially for machining **titanium-based and nickel-based alloys**.
 With wear-resistant, ultra-smooth TiAlSiN high-performance coating
 for a **long tool life** combined with **optimum bore quality** and
very low burr formation.

Note: Flute length $L_c = L_2 + 1.5 \times D_c$.
 HB and HE shanks are available at the same price as HA.
 For **HB**: use order **No. 122481**.
 For **HE**: use order **No. 122480** and **129100HE**.



Suitable for/ v _c [m/min]	Alu plastics	Alu	Alu cast > 10% Si											INOX < 900 N	INOX > 900 N	Ti > 850 N	Inconel [®]	Graphite GRP CRP					
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	S	N					
12 2480																45	35						

Ø D _c m7	12 2480		L ₂	L	Ø D _s	Ti > 850 N f
	Solid carbide HPC drill, plain shank DIN 6535 HA					
mm	TiAlSiN		mm	mm	mm	mm/rev.
3	55.34		15.5	62	6	0.04
3,1	55.34		15.4	62	6	0.04
3,2	55.34		15.2	62	6	0.04
3,3	55.34		15.1	62	6	0.04
3,4	55.34		14.9	62	6	0.05
3,5	55.34		14.8	62	6	0.05
3,6	55.34		14.6	62	6	0.05
3,7	55.34		14.5	62	6	0.05
3,8	55.34		18.3	66	6	0.05
3,9	55.34		18.2	66	6	0.05
4	55.34		18	66	6	0.05
4,1	55.34		17.9	66	6	0.06
4,2	55.34		17.7	66	6	0.06
4,3	55.34		17.6	66	6	0.06
4,4	55.34		17.4	66	6	0.06
4,5	55.34		17.3	66	6	0.06
4,6	55.34		17.1	66	6	0.06
4,7	55.34		17	66	6	0.06
4,8	55.34		20.8	66	6	0.06
4,9	55.34		20.7	66	6	0.07
5	55.34		20.5	66	6	0.07
5,1	55.34		20.4	66	6	0.07
5,2	55.34		20.2	66	6	0.07
5,3	55.34		20.1	66	6	0.07
5,4	55.34		19.9	66	6	0.07
5,5	55.34		19.8	66	6	0.07
5,6	55.34		19.6	66	6	0.08
5,7	55.34		19.5	66	6	0.08
5,8	55.34		19.3	66	6	0.08
5,9	55.34		19.2	66	6	0.08
6	55.34		19	66	6	0.08
6,1	74.35		24.9	79	8	0.08
6,2	74.35		24.7	79	8	0.08
6,3	74.35		24.6	79	8	0.08
6,4	74.35		24.4	79	8	0.09
6,5	74.35		24.5	79	8	0.09
6,6	74.35		24.1	79	8	0.09
6,7	74.35		24	79	8	0.09
6,8	74.35		23.8	79	8	0.09
6,9	74.35		23.7	79	8	0.09
7	74.35		23.5	79	8	0.09
7,1	74.35		23.4	79	8	0.09
7,2	74.35		23.2	79	8	0.1
7,3	74.35		23.1	79	8	0.1

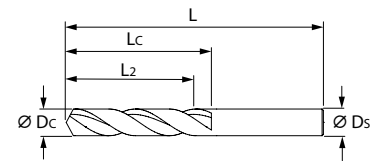
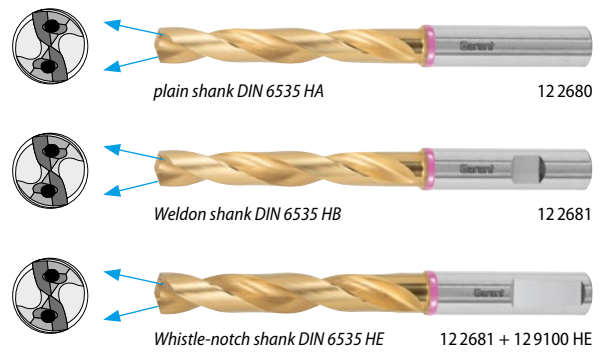
Ø D _c m7	12 2480		L ₂	L	Ø D _s	Ti > 850 N f
	Solid carbide HPC drill, plain shank DIN 6535 HA					
mm	TiAlSiN		mm	mm	mm	mm/rev.
7,4	74.35		22.9	79	8	0.1
7,5	74.35		22.8	79	8	0.1
7,6	74.35		22.6	79	8	0.1
7,7	74.35		22.5	79	8	0.1
7,8	74.35		22.3	79	8	0.1
7,9	74.35		22.2	79	8	0.1
8	74.35		22	79	8	0.1
8,1	89.89		34.9	89	10	0.11
8,2	89.89		34.7	89	10	0.11
8,3	89.89		34.6	89	10	0.11
8,4	89.89		34.4	89	10	0.11
8,5	89.89		34.3	89	10	0.11
8,6	89.89		34.1	89	10	0.11
8,7	89.89		34	89	10	0.11
8,8	89.89		33.8	89	10	0.11
8,9	89.89		33.7	89	10	0.12
9	89.89		33.5	89	10	0.12
9,1	89.89		33.4	89	10	0.12
9,2	89.89		33.2	89	10	0.12
9,3	89.89		33.1	89	10	0.12
9,4	89.89		32.9	89	10	0.12
9,5	89.89		32.8	89	10	0.12
9,6	89.89		32.6	89	10	0.12
9,7	89.89		32.5	89	10	0.12
9,8	89.89		32.3	89	10	0.13
9,9	89.89		32.2	89	10	0.13
10	89.89		32	89	10	0.13
10,2	129.29		39.7	102	12	0.13
10,5	129.29		39.3	102	12	0.13
10,8	129.29		38.8	102	12	0.14
11	129.29		38.5	102	12	0.14
11,2	129.29		38.2	102	12	0.14
11,5	129.29		37.8	102	12	0.14
11,8	129.29		37.3	102	12	0.14
12	129.29		37	102	12	0.15
12,2	167.71		41.7	107	14	0.15
12,5	167.71		41.3	107	14	0.15
13	167.71		40.5	107	14	0.16
13,5	167.71		39.8	107	14	0.16
14	167.71		39	107	14	0.16
14,5	199.49		43.3	115	16	0.17
15	199.49		42.5	115	16	0.17
15,5	199.49		41.8	115	16	0.17
16	199.49		41	115	16	0.18



Garant Solid carbide HPC drill

Specially for machining **titanium-based and nickel-based alloys**.
 With wear-resistant, ultra-smooth TiAlSiN high-performance coating for a **long tool life** combined with **optimum bore quality** and **very low burr formation**.

Note: Flute length $L_c = L_2 + 1.5 \times D_c$.
 HB and HE shanks are available at the same price as HA.
 For **HB**: use order **No. 122681**.
 For **HE**: use order **No. 122680** and **129100HE**.



Suitable for/ v _c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	Inconel [®]	Graphite GRP CRP	Oil	Water	Latex	Acrylic	Wood
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	S	N					
12 2680																45	35						

Ø D _c m7	12 2680					
	Solid carbide HPC drill, plain shank DIN 6535 HA					
mm	TiAlSiN	L ₂ mm	L mm	Ø D _s mm	Ti > 850 N f mm/rev.	
3	70.49	23.5	66	6	0.04	
3,1	70.49	23.4	66	6	0.04	
3,2	70.49	23.2	66	6	0.04	
3,3	70.49	23.1	66	6	0.04	
3,4	70.49	22.9	66	6	0.05	
3,5	70.49	22.8	66	6	0.05	
3,6	70.49	22.6	66	6	0.05	
3,7	70.49	22.5	66	6	0.05	
3,8	70.49	30.3	74	6	0.05	
3,9	70.49	30.2	74	6	0.05	
4	70.49	30	74	6	0.05	
4,1	70.49	29.9	74	6	0.06	
4,2	70.49	29.7	74	6	0.06	
4,3	70.49	29.6	74	6	0.06	
4,4	70.49	29.4	74	6	0.06	
4,5	70.49	29.3	74	6	0.06	
4,6	70.49	29.1	74	6	0.06	
4,7	70.49	29	74	6	0.06	
4,8	70.49	36.8	82	6	0.06	
4,9	70.49	36.7	82	6	0.07	
5	70.49	36.5	82	6	0.07	
5,1	70.49	36.4	82	6	0.07	
5,2	70.49	36.2	82	6	0.07	
5,3	70.49	36.1	82	6	0.07	
5,4	70.49	35.9	82	6	0.07	
5,5	70.49	35.8	82	6	0.07	
5,6	70.49	35.6	82	6	0.08	
5,7	70.49	35.5	82	6	0.08	
5,8	70.49	35.3	82	6	0.08	
5,9	70.49	35.2	82	6	0.08	
6	70.49	35	82	6	0.08	
6,1	78.61	43.9	91	8	0.08	
6,2	78.61	43.7	91	8	0.08	
6,3	78.61	43.6	91	8	0.08	
6,4	78.61	43.4	91	8	0.09	
6,5	78.61	43.3	91	8	0.09	
6,6	78.61	43.1	91	8	0.09	
6,7	78.61	43	91	8	0.09	
6,8	78.61	42.8	91	8	0.09	
6,9	78.61	42.7	91	8	0.09	
7	78.61	42.5	91	8	0.09	
7,1	78.61	42.4	91	8	0.09	
7,2	78.61	42.2	91	8	0.1	
7,3	78.61	42.1	91	8	0.1	

Ø D _c m7	12 2680					
	Solid carbide HPC drill, plain shank DIN 6535 HA					
mm	TiAlSiN	L ₂ mm	L mm	Ø D _s mm	Ti > 850 N f mm/rev.	
7,4	78.61	41.9	91	8	0.1	
7,5	78.61	41.8	91	8	0.1	
7,6	78.61	41.6	91	8	0.1	
7,7	78.61	41.5	91	8	0.1	
7,8	78.61	41.3	91	8	0.1	
7,9	78.61	41.2	91	8	0.1	
8	78.61	41	91	8	0.1	
8,1	92.07	48.9	103	10	0.1	
8,2	92.07	48.7	103	10	0.11	
8,3	92.07	48.6	103	10	0.11	
8,4	92.07	48.4	103	10	0.11	
8,5	92.07	48.3	103	10	0.11	
8,6	92.07	48.1	103	10	0.11	
8,7	92.07	48	103	10	0.11	
8,8	92.07	47.8	103	10	0.11	
8,9	92.07	47.7	103	10	0.12	
9	92.07	47.5	103	10	0.12	
9,1	92.07	47.4	103	10	0.12	
9,2	92.07	47.2	103	10	0.12	
9,3	92.07	47.1	103	10	0.12	
9,4	92.07	46.9	103	10	0.12	
9,5	92.07	46.8	103	10	0.12	
9,6	92.07	46.6	103	10	0.12	
9,7	92.07	46.5	103	10	0.12	
9,8	92.07	46.3	103	10	0.13	
9,9	92.07	46.2	103	10	0.13	
10	92.07	46	103	10	0.13	
10,2	128.30	55.7	118	12	0.13	
10,5	128.30	55.3	118	12	0.13	
10,8	128.30	54.8	118	12	0.14	
11	128.30	54.5	118	12	0.14	
11,2	128.30	54.2	118	12	0.14	
11,5	128.30	53.8	118	12	0.14	
11,8	128.30	53.3	118	12	0.14	
12	128.30	53	118	12	0.15	
12,2	179.78	58.7	124	14	0.15	
12,5	179.78	58.3	124	14	0.15	
13	179.78	57.5	124	14	0.16	
13,5	179.78	56.8	124	14	0.16	
14	179.78	56	124	14	0.16	
14,5	219.29	61.3	133	16	0.17	
15	219.29	60.5	133	16	0.17	
15,5	219.29	59.8	133	16	0.17	
16	219.29	59	133	16	0.18	





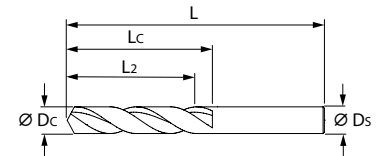
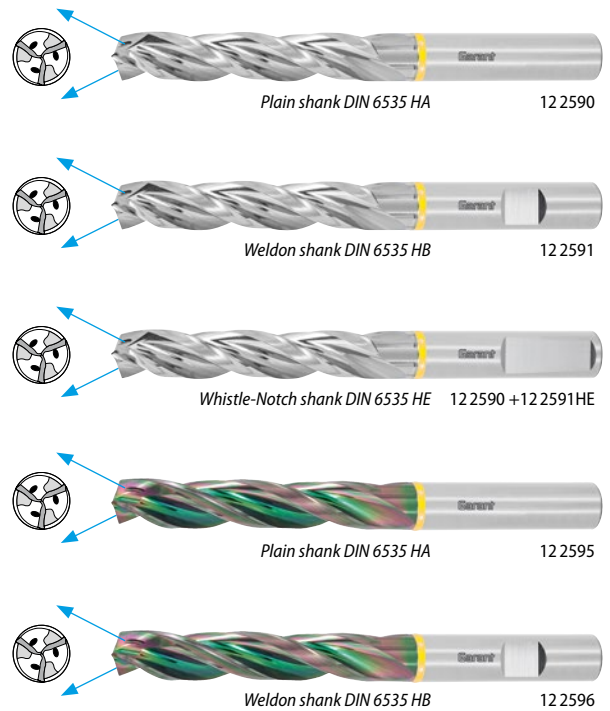
Garant GARANT Master Alu FEED solid carbide drill

3-cutter tool, specially developed for use at **very high feed rates** in aluminium. Outstandingly suitable for machines with **high power consumption** and stable machining conditions.

- Specially developed cutter geometry, designed for very high feed rates, reduced cutting pressure and controlled chip breaking.
- Precision flute profile for reliable evacuation of chips.
- Achieve outstanding feed rates and tool life thanks to the third cutting edge. The sector-leading technology of the tool's chisel edge guarantees optimum self-centring behaviour and permits spot drilling on irregular surfaces.

3 guide chamfers guarantee a stable exit from the hole and an exact roundness of the hole.
 12 2595/2596 – **With DLC coating** – for longer tool lives, especially in aluminium with a higher Si content.
 Delivery time approx. 3 weeks if the basic item is available ex stock.

Note: Flute length $L_c = L_2 + 1.5 \times D_c$.
 12 2590 – HB and HE shanks are available at the same price as HA.
 For **HB**: use order **No. 122591**.
 For **HE**: use order **No. 122590 + 129100HE**.
 12 2595 – HB shanks are available at the same price as HA.
 For **HB**: use order **No. 122596**.



Suitable for/ v _c [m/min]	Alu plastics	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	CuZn	Graphite GRP CRP	Oil	Water	Alu	Stainless	Cast Iron	
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	M	M	S	N	N						
12 2590/2595	300	250	200													200							

Ø D _c h7	12 2590		12 2595		L ₂	L	Ø D _s	Alu f	Ø D _c h7	12 2590		12 2595		L ₂	L	Ø D _s	Alu f
	GARANT Master Alu FEED solid carbide drill, plain shank DIN 6535 HA		DLC							GARANT Master Alu FEED solid carbide drill, plain shank DIN 6535 HA		DLC					
4	89.40	(98.31)	30	74	6	0.53		6,9	112.46	(123.75)	42.7	91	8	0.8			
4,1	89.40	(98.31)	29.9	74	6	0.54		7	112.46	(123.75)	42.5	91	8	0.81			
4,2	89.40	(98.31)	29.7	74	6	0.55		7,4	112.46	(123.75)	41.9	91	8	0.84			
4,3	89.40	(98.31)	29.6	74	6	0.56		7,45	112.46	(123.75)	41.8	91	8	0.84			
4,5	89.40	(98.31)	29.3	74	6	0.58		7,5	112.46	(123.75)	41.8	91	8	0.85			
4,6	89.40	(98.31)	29.1	74	6	0.59		7,8	112.46	(123.75)	41.3	91	8	0.88			
4,65	89.40	(98.31)	29	74	6	0.59		8	112.46	(123.75)	41	91	8	0.89			
4,8	89.40	(98.31)	36.8	82	6	0.61		8,1	140.98	(155.03)	48.9	103	10	0.9			
4,9	89.40	(98.31)	36.7	82	6	0.62		8,4	140.98	(155.03)	48.4	103	10	0.92			
5	89.40	(98.31)	36.5	82	6	0.63		8,5	140.98	(155.03)	48.3	103	10	0.93			
5,1	89.40	(98.31)	36.4	82	6	0.64		8,8	140.98	(155.03)	47.8	103	10	0.95			
5,2	89.40	(98.31)	36.2	82	6	0.65		9	140.98	(155.03)	47.5	103	10	0.97			
5,3	89.40	(98.31)	36.1	82	6	0.66		9,1	140.98	(155.03)	47.4	103	10	0.98			
5,5	89.40	(98.31)	35.8	82	6	0.68		9,8	140.98	(155.03)	46.3	103	10	1.03			
5,55	89.40	(98.31)	35.7	82	6	0.68		10	140.98	(155.03)	46	103	10	1.04			
5,6	89.40	(98.31)	35.6	82	6	0.69		10,2	199.78	(219.78)	55.7	118	12	1.06			
5,8	89.40	(98.31)	35.3	82	6	0.7		10,5	199.78	(219.78)	55.3	118	12	1.08			
5,9	89.40	(98.31)	35.2	82	6	0.71		11	199.78	(219.78)	54.5	118	12	1.11			
6	89.40	(98.31)	35	82	6	0.72		11,5	199.78	(219.78)	53.8	118	12	1.15			
6,1	112.46	(123.75)	43.9	91	8	0.73		11,8	199.78	(219.78)	53.3	118	12	1.16			
6,2	112.46	(123.75)	43.7	91	8	0.74		12	199.78	(219.78)	53	118	12	1.18			
6,3	112.46	(123.75)	43.6	91	8	0.75		12,5	263.54	(289.87)	58.3	124	14	1.21			
6,4	112.46	(123.75)	43.4	91	8	0.76		13	263.54	(289.87)	57.5	124	14	1.24			
6,5	112.46	(123.75)	43.3	91	8	0.77		14	263.54	(289.87)	56	124	14	1.29			
6,6	112.46	(123.75)	43.1	91	8	0.78		15	326.30	(358.97)	60.5	133	16	1.35			
6,8	112.46	(123.75)	42.8	91	8	0.79		16	326.30	(358.97)	59	133	16	1.4			

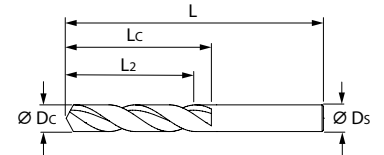


H7 ±0.003

Garant Solid carbide drill-reamer with pyramid tip

For producing tolerated holes in steel or short-chipping materials.
Reliable complete machining without separate centring and without subsequent reaming process. Significantly improved self-centring due to **additional pyramid tip** for optimum roundness and tolerance accuracy of the hole that is produced.
 Two drill cutting edges and four reaming cutting edges for an attractive surface quality of the wall of the bore.

Note: Flute length $L_c = L_2 + 1.5 \times D_c$.



12

Suitable for/ v _c [m/min]	Alu plastics	Alu	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	Graphite GRP CRP	Oil	Water	Emulsion	High pressure water	Compressed air	
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	K	N						
12 2797				100	90	80	70	60									90							

Ø D _c	TIP	12 2797	Bore Ø tolerance	L ₂	L	Ø D _s	f
mm		Solid carbide drill-reamer with pyramid tip, plain shank DIN 6535 HA TiAlN		mm	mm	mm	mm/rev.
4H7		(134.24)	H7	30	74	6	0.13
5H7		(134.24)	H7	45.5	91	6	0.13
5,98		(134.24)	±0.003	44	91	6	0.15
6		(134.24)	±0.003	44	91	6	0.15
6H7		(134.24)	H7	44	91	6	0.15
6,01		(134.24)	±0.003	44	91	6	0.15
6,02		(134.24)	±0.003	44	91	6	0.15
7H7		(134.24)	H7	42.5	91	8	0.15
7,98		(134.24)	±0.003	41	91	8	0.17
8		(134.24)	±0.003	41	91	8	0.17
8H7		(134.24)	H7	41	91	8	0.17
8,01		(134.24)	±0.003	41	91	8	0.17
8,02		(134.24)	±0.003	41	91	8	0.17
9H7		(190.69)	H7	47.5	103	10	0.17

Ø D _c	TIP	12 2797	Bore Ø tolerance	L ₂	L	Ø D _s	f
mm		Solid carbide drill-reamer with pyramid tip, plain shank DIN 6535 HA TiAlN		mm	mm	mm	mm/rev.
9,54		(190.69)	±0.003	46.7	103	10	0.22
10		(190.69)	±0.003	46	103	10	0.22
10H7		(190.69)	H7	46	103	10	0.22
10,01		(190.69)	±0.003	46	103	10	0.22
10,02		(190.69)	±0.003	46	103	10	0.22
11,98		(271.54)	±0.003	53	118	12	0.24
11,99		(271.54)	±0.003	53	118	12	0.24
12		(271.54)	±0.003	53	118	12	0.24
12H7		(271.54)	H7	53	118	12	0.24
12,01		(271.54)	±0.003	53	118	12	0.24
12,02		(271.54)	±0.003	53	118	12	0.24
12,7		(364.09)	±0.003	58	124	14	0.27
14H7		(364.09)	H7	56	124	14	0.3
16H7		(454.60)	H7	59	133	16	0.3

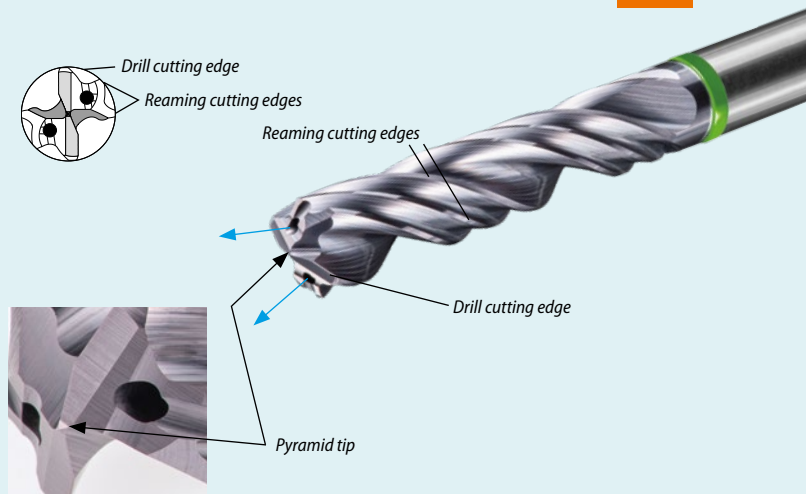
Garant Centring, drilling and reaming in a single operation

i

With the new GARANT solid carbide drill-reamer 12 2797, **multiple operations** can be combined and bore holes can be drilled to tolerance faster and more efficiently.

The additional pyramid tip ensures optimum self-centring. Two cutting edges take over the pre-machining and four reaming cutting edges ensure the required surface quality, roundness and dimensional accuracy of the hole in reaming quality.

Elimination of a separate reaming process significantly reduces both direct production times and ancillary production times. In addition the geometry of the cutting edges and guide chamfers permits precise and economical regrinding.

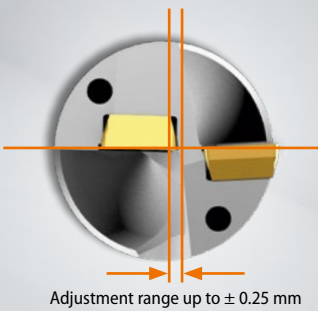


Garant POWER DRILL – THE ENTIRE RANGE

! Now also with ABS shank for more stable machining.

INDIVIDUAL ADJUSTMENT RANGE

The GARANT Power Drill has an adjustment range of up to ± 0.25 mm from the centre to cover various diameter ranges.

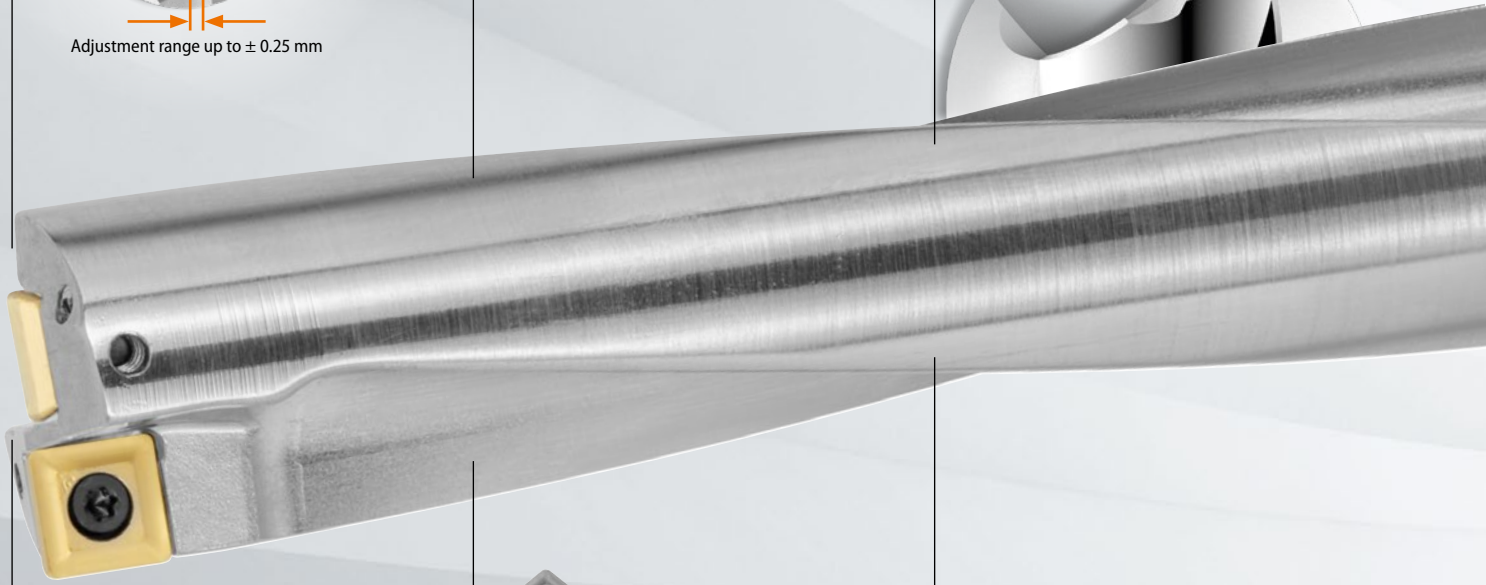


SCOPE OF RANGE:

- Diameter range: 14 – 40 mm
- Length ratio 3xD and 5xD
- ABS50 up to diameter 30 mm
- ABS63 up to diameter 50 mm

CHIP EVACUATION

Due to the larger flutes and the positioning of the cooling channels at the edges of the drill, chip evacuation and stability are significantly increased.



CLOSE BORE TOLERANCES:

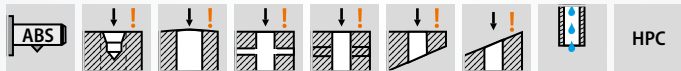
- 3xD drills: $-0.1 / +0.3$ mm
- 5xD drills: $-0.1 / +0.35$ mm

CHOICE OF INSERT

Suitable inserts and sizes are available for the different machining challenges.



EXCELLENTLY FORMED CHIPS FOR GOOD CHIP EVACUATION



Garant GARANT Power Drill indexable drill for right-hand cutting, with ABS® shank

The helical coolant ducts ensure very high stability, since they do not weaken the core of the drill.

23 4020 – **Bore tolerance:** –0.1 / +0.3 mm

23 4025 – **Bore tolerance:** –0.1 / +0.35 mm

Description: For maximum performance and dimensional accuracy. Even for very difficult drilling situations up to 5xD.

Application: With indexable inserts No. 234030 - 234098.

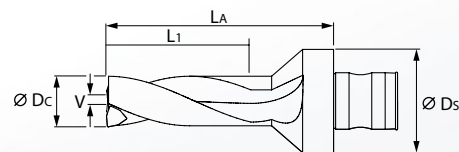
Recommendation:

23 4025 – **When spot-drilling** reduce the feed rate by 70 %.



NEW: ABS INTERFACE

- Optimum torque transmission
- Low level of noise in production



$\varnothing D_c$	23 4020		23 4025		for inch \varnothing	L_A		ABS® $\varnothing D_s$	ISO code indexable insert	Pack of insert screws
	GARANT Power Drill indexable drill					23 4020	23 4025			
	ABS® shank				in	mm	mm	mm		
mm	3xD		5xD							
14	357.12		455.31		–	69	97	50	SOGX 050204	239700 5IP (0.38 Nm)
15	357.12		455.31		19/32	73	103	50	SOGX 050204	239700 5IP (0.38 Nm)
16	357.12		455.31		–	78	110	50	SOGX 050204	239700 5IP (0.38 Nm)
17	365.31		467.28		–	82	116	50	SOGX 060305	239700 6IP2 (0.6 Nm)
17,5	365.31		467.28		11/16	85	121	50	SOGX 060305	239700 6IP2 (0.6 Nm)
18	365.31		467.28		–	85	121	50	SOGX 060305	239700 6IP2 (0.6 Nm)
19	374.49		476.46		3/4	89	127	50	SOGX 060305	239700 6IP2 (0.6 Nm)
20	374.49		476.46		–	92	132	50	SOGX 070306	239700 6IP1 (1.0 Nm)
21	385.56		493.02		–	95	137	50	SOGX 070306	239700 6IP1 (1.0 Nm)
22	385.56		493.02		–	98	142	50	SOGX 070306	239700 6IP1 (1.0 Nm)
23	385.56		493.02		–	101	147	50	SOGX 080407	239700 8IP (1.3 Nm)
24	397.44		508.59		–	104	152	50	SOGX 080407	239700 8IP (1.3 Nm)
25	397.44		508.59		–	108	158	50	SOGX 080407	239700 8IP (1.3 Nm)
26	397.44		508.59		–	111	163	50	SOGX 080407	239700 8IP (1.3 Nm)
30	445.23		564.57		–	125	185	50	SOGX 100408	239700 10IP (2.8 Nm)
32	465.39		601.29		–	135	199	63	SOGX 110509	239700 15IP (2.8 Nm)
35	495.72		615.87		1 3/8	146	216	63	SOGX 110509	239700 15IP (2.8 Nm)
40	519.57		632.52		–	163	243	63	SOGX 130511	239700 20IP (6.3 Nm)

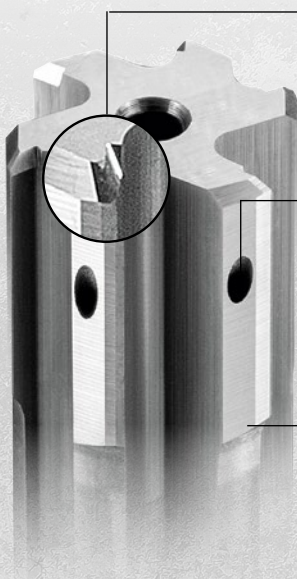
NOW ALSO AVAILABLE FOR TITANIUM: THE NEW GARANT MASTER HIGH-PERFORMANCE REAMERS.

Increase the cost-effectiveness and reliability of your processes with the GARANT solutions for materials that are hardened and difficult to machine.

For example, set new standards for machining through holes and blind holes in titanium with the new GARANT Master Titan solid carbide TPC reamer. Improved tool performance and cost-effectiveness guaranteed!

THROUGH HOLE (DL)

BLIND HOLE (GL)



LEAD CHAMFER.

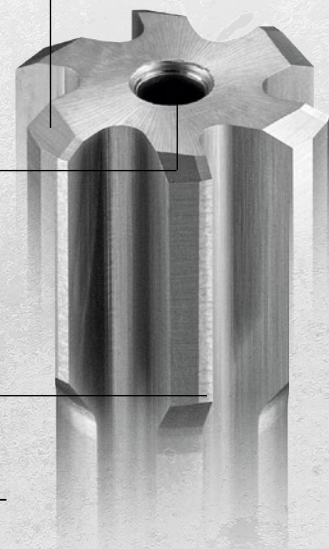
DL: Spiral point.
GL: 60° lead angle.

COOLING STRATEGY.

DL: Optimised due to radial coolant outlets.
GL: Central through-coolant.

OPTIMUM SMOOTH RUNNING CHARACTERISTICS.

Unequally spaced cutting edge arrangement and ground circular guides width.



Garant Master Alu

Our solution for aluminium.

Garant Master Titan

The new master for titanium and titanium alloys.

Garant Master Steel

The universal solution for machining steel and stainless materials.

Through hole (DL)

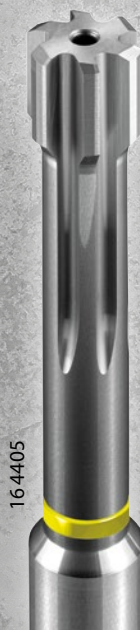
Blind hole (GL)

Through hole (DL)

Blind hole (GL)

Through hole (DL)

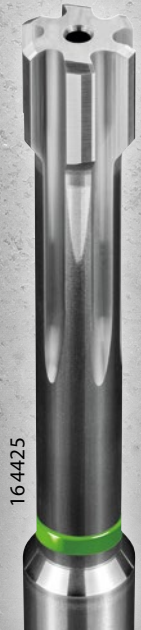
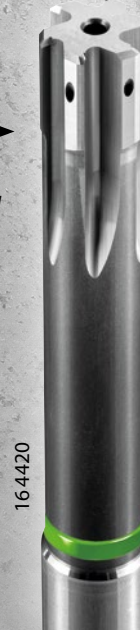
Blind hole (GL)



- Wear-resistant **DLC sp2 coating** – optimum for aluminium.
- Further developed carbide substrate.



- Wear-resistant **TiAlN coating**
- Further developed carbide substrate.





Garant GARANT Master Titan solid carbide high-performance reamers for through / blind hole, non-standard sizes and fits

Special HPC reamers of the latest generation, for **machining titanium**, with improved tooth geometry and further developed carbide substrate. Extra-short cutting edge for increased cutting performance values. Optimised cooling strategy with radially arranged coolant outlets aligned directly to the teeth.

Version suitable for NC with straight shank diameter for standard arbors especially in **hydraulic chucks** or **high precision collet chucks**. Very high concentricity and process reliability thanks to unequal spacing of the teeth and special profile of the round chamfer width. **Rreamers finish ground to match your specifications.**

Version with straight flutes with TiAlN coating.

Application:

16 4410 – Special version for through holes.

16 4415 – Special version for blind holes.

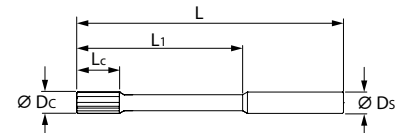
Note: Delivery time: 4 weeks.



164410



164415



Suitable for/ v _c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	Alu < 500 N	Alu < 750 N	Alu < 900 N	Alu < 1100 N	Alu < 1400 N	Alu < 55 HRC	Alu < 60 HRC	Alu < 65 HRC	Alu < 67 HRC	Alu < 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	Graphite GRP CRP	Uni	Oil	Water	Air	High Pressure	Low Pressure	
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	N							
16 4410/4415																30								

Nominal Ø D _c	GARANT Master Titan solid carbide reamer		Ø range	L _c	L ₁	L	Number of cutting edges Z	Ø D _s	Ti > 850 N	
	HPC through hole	HPC blind hole							f	Reaming oversize in Ø
mm	TiAlN	TiAlN	mm	mm	mm	mm	mm	mm/rev.	mm	
4	(193.55)	(193.55)	3.701 – 4.2	8	39	75	4	6	0.24	0.1
4,5	(195.03)	(195.03)	4.201 – 4.7	8	39	75	4	6	0.24	0.1
5	(199.98)	(199.98)	4.701 – 5.2	8	39	75	4	6	0.24	0.1
5,5	(201.96)	(201.96)	5.201 – 5.7	8	39	75	4	6	0.28	0.1
6	(203.94)	(203.94)	5.701 – 6.2	8	39	75	6	6	0.36	0.1
6,5	(219.78)	(219.78)	6.201 – 6.7	10	64	100	6	8	0.36	0.1
7	(220.77)	(220.77)	6.701 – 7.2	10	64	100	6	8	0.36	0.1
7,5	(222.75)	(222.75)	7.201 – 7.7	10	64	100	6	8	0.36	0.1
8	(224.73)	(224.73)	7.701 – 8.2	10	64	100	6	8	0.36	0.1
8,5	(239.58)	(239.58)	8.201 – 8.7	10	60	100	6	10	0.42	0.1
9	(250.47)	(250.47)	8.701 – 9.2	10	60	100	6	10	0.42	0.1
9,5	(265.32)	(265.32)	9.201 – 9.7	12	80	120	6	10	0.42	0.1
10	(278.19)	(278.19)	9.701 – 10.2	12	80	120	6	10	0.42	0.1
10,5	(294.03)	(294.03)	10.201 – 10.7	12	75	120	6	12	0.42	0.1
11	(309.87)	(309.87)	10.701 – 11.2	12	75	120	6	12	0.42	0.1
11,5	(326.70)	(326.70)	11.201 – 11.7	12	75	120	6	12	0.42	0.1
12	(345.51)	(345.51)	11.701 – 12.2	12	75	120	6	12	0.48	0.1
13	(353.43)	(353.43)	12.201 – 13.2	15	85	130	6	14	0.48	0.1
14	(365.31)	(365.31)	13.201 – 14.2	15	85	130	6	14	0.48	0.1
15	(376.20)	(376.20)	14.201 – 15.2	15	82	130	6	16	0.48	0.2
16	(389.07)	(389.07)	15.201 – 16.2	15	102	150	6	16	0.48	0.2
17	(412.83)	(412.83)	16.201 – 17.2	15	102	150	6	18	0.48	0.2
18	(436.59)	(436.59)	17.201 – 18.2	15	102	150	6	18	0.6	0.2
19	(447.48)	(447.48)	18.201 – 19.2	15	100	150	6	20	0.6	0.2
20	(459.36)	(459.36)	19.201 – 20.2	15	100	150	6	20	0.6	0.2



16

THE ALL-ROUNDER FOR PERFECT THREADS.

GARANT MASTER TAP TAPS – GENERAL-PURPOSE CAPABILITY IN A WIDE RANGE OF MATERIALS, WITH EXTREMELY LONG TOOL LIFE.

A green-ring tool for many applications: Our new GARANT Master Tap covers a comprehensive spectrum of materials. Due to the unique combination of high-quality tool material, innovative geometry and latest coating technology, the tap offers enormous performance capability in a wide range of materials, coupled with very high process reliability and cost-effectiveness.

GARANT Master Tap with green ring – the all-round talent

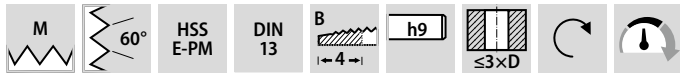
Master Tap taps combine very high process reliability with maximum universality. Be it steel, stainless steel, aluminium or cast iron – the special geometry ensures optimum chip formation. This universality reduces your tool diversity and at the same time improves your efficiency.



All material specialists – brought together in a green-ring tap.



Garant Master Tap



DIN 371	DIN 376
≤ M10	≥ M12

Garant GARANT Master Tap through hole machine tap

Universal taps, designed for use in a wide spectrum of materials with high process reliability.

- HSS-E-PM tool material for a high degree of wear resistance.
- Reduced coefficient of friction due to the new high-performance coating.
- Special geometry for optimum swarf evacuation.

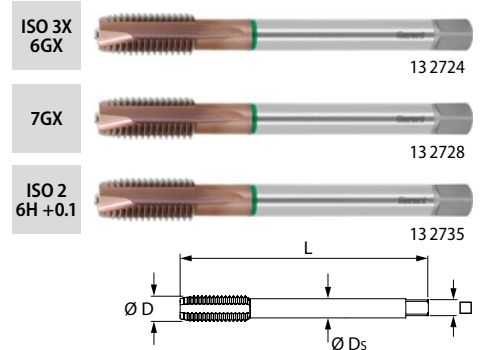
13 2724 – Tolerance class: ISO 3X/6GX

13 2728 – Tolerance class: 7GX

13 2735 – Tolerance class: ISO2/6H + 0.1

Application: For components which are galvanised or shrink slightly when hardened.

Recommendation: We recommend increasing the size of the tapping hole \varnothing by the tolerance allowance.



Suitable for/ v_c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	Alu < 500 N	Alu < 750 N	Alu < 900 N	Alu < 1100 N	Alu < 1400 N	Alu < 55 HRC	Alu < 60 HRC	Alu < 65 HRC	Alu < 67 HRC	Alu < 70 HRC	INOX < 900 N	INOX > 900 N	GG(G)	CuZn	Uni	Oil	Water	Latex	Acrylic	UV
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	K	N						
13 2724–13 2735	30	35	20	30	30	25	12	8						10	8	20	20						

M	13 2724	13 2728	13 2735	Thread pitch	L	$\varnothing D_s$	\square	Tapping hole \varnothing
	GARANT Master Tap machine tap							
	HSS-E-PM Form B 6GX	HSS-E-PM Form B 7GX	HSS-E-PM Form B 6H+0.1					
	AITIX	AITIX	AITIX	mm	mm	mm	mm	mm
M2	34.85	34.85	–	0.4	45	2.8	2.1	1.6
M3	25.74	25.74	25.74	0.5	56	3.5	2.7	2.5
M4	26.83	26.83	26.83	0.7	63	4.5	3.4	3.3
M5	27.42	27.42	27.42	0.8	70	6	4.9	4.2
M6	31.19	31.19	31.19	1	80	6	4.9	5
M8	36.04	36.04	36.04	1.25	90	8	6.2	6.8
M10	49.10	49.10	49.10	1.5	100	10	8	8.5
M12	57.22	57.22	57.22	1.75	110	9	7	10.2
M14	70.49	–	–	2	110	11	9	12
M16	84.55	84.55	84.55	2	110	12	9	14
M20	158.40	–	–	2.5	140	16	12	17.5
M24	221.76	–	–	3	160	18	14.5	21



Garant GARANT Master Tap through hole machine tap, extra-long shank

Universal taps, designed for use in a wide spectrum of materials with high process reliability.

- HSS-E-PM tool material for a high degree of wear resistance.
- Reduced coefficient of friction due to the new high-performance coating.
- Special geometry for optimum swarf evacuation.

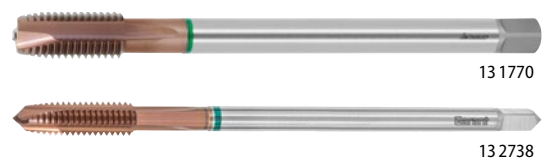
13 2738 – All sizes with shank to DIN 376 (= shank \varnothing tapered).

Therefore suitable for greater operating depths.

13 1770 Size M3–M10 – Shank to DIN 371.

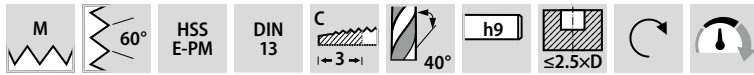
Size M12–M20 – Shank to DIN 376.

Advantage: Designed for tapping threads where access is difficult.



Suitable for/ v_c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	Alu < 500 N	Alu < 750 N	Alu < 900 N	Alu < 1100 N	Alu < 1400 N	Alu < 55 HRC	Alu < 60 HRC	Alu < 65 HRC	Alu < 67 HRC	Alu < 70 HRC	INOX < 900 N	INOX > 900 N	GG(G)	CuZn	Uni	Oil	Water	Latex	Acrylic	UV
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	K	N						
13 1770/2738	24	28	16	24	24	20	10	6						8	6	16	16						

M	13 1770	13 2738	Thread pitch	L	$\varnothing D_s$	\square	Tapping hole \varnothing
	GARANT Master Tap machine tap						
	HSS-E-PM extra long Form B 6HX	HSS-E-PM extra long Form B 6HX DIN 376			13 1770	13 2738	
	AITIX	AITIX	mm	mm	mm	mm	mm
M3	49.70	–	0.5	100	3.5	–	2.7
M4	51.68	56.43	0.7	125	4.5	2.8	2.1
M5	52.87	57.42	0.8	160	6	3.5	2.7
M6	49.70	59.40	1	160	6	4.5	3.4
M8	59.20	65.34	1.25	180	8	6	4.9
M10	71.68	79.20	1.5	200	10	7	5.5
M12	102.96	–	1.75	200	9	–	–
M14	124.25	–	2	200	11	–	–
M16	139.59	–	2	200	12	–	–
M20	197.01	–	2.5	200	16	–	–



DIN 371	DIN 376
≤ M10	≥ M12

Garant GARANT Master Tap blind hole machine tap

Universal taps, designed for use in a wide spectrum of materials with high process reliability.

- HSS-E-PM tool material for a high degree of wear resistance.
- Reduced coefficient of friction due to the new high-performance coating.
- Special geometry for optimum swarf evacuation.

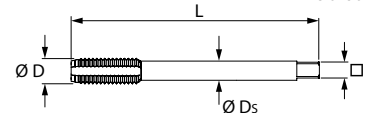
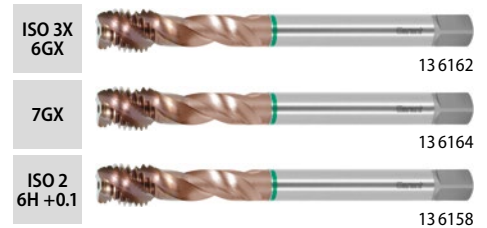
13 6158 – **Tolerance class: ISO 3X/6GX**

13 6162 – **Tolerance class: 7GX**

13 6164 – **Tolerance class: ISO 2/6H+0.1**

Application: For components which are galvanised or shrink slightly when hardened.

Recommendation: We recommend increasing the size of the tapping hole \varnothing by the tolerance allowance.



Suitable for/ v _c [m/min]	Alu plastics	Alu	Alu cast > 10% Si	Alu < 500 N	Alu < 750 N	Alu < 900 N	Alu < 1100 N	Alu < 1400 N	Alu < 55 HRC	Alu < 60 HRC	Alu < 65 HRC	Alu < 67 HRC	Alu < 70 HRC	INOX < 900 N	INOX > 900 N	GG(G)	CuZn	Uni	Oil	Water	Latex	Acrylic	Aluminum
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	K	N	●	●	●	●	●	●
13 6158–13 6164	30	35	20	30	30	25	12	8						10	8	20	20						

M	13 6158	13 6162	13 6164	Thread pitch	L	Ø D _i	□	Tapping hole Ø
GARANT Master Tap machine tap								
	HSS-E-PM Form C 6GX	HSS-E-PM Form C 7GX	HSS-E-PM Form C 6H+0.1					
	AITIX	AITIX	AITIX	mm	mm	mm	mm	mm
M2	36.83	36.83	–	0.4	45	2.8	2.1	1.6
M3	27.92	27.92	27.92	0.5	56	3.5	2.7	2.5
M4	28.51	28.51	28.51	0.7	63	4.5	3.4	3.3
M5	29.70	29.70	29.70	0.8	70	6	4.9	4.2
M6	34.16	34.16	34.16	1	80	6	4.9	5
M8	37.82	37.82	37.82	1.25	90	8	6.2	6.8
M10	44.45	44.45	44.45	1.5	100	10	8	8.5
M12	56.63	56.63	56.63	1.75	110	9	7	10.2
M14	75.83	–	–	2	110	11	9	12
M16	76.82	76.82	76.82	2	110	12	9	14
M20	138.11	–	–	2.5	140	16	12	17.5
M24	230.67	–	–	3	160	18	14.5	21



Garant GARANT Master Tap blind hole machine tap, extra long shank

Universal taps, designed for use in a wide spectrum of materials with high process reliability.

- HSS-E-PM tool material for a high degree of wear resistance.
- Reduced coefficient of friction due to the new high-performance coating.
- Special geometry for optimum swarf evacuation.

With extra long shank.

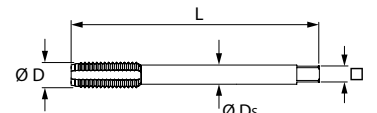
13 6168 – **All sizes** with shank to DIN 376 (= **shank Ø tapered**).

Therefore suitable for greater operating depths.

13 4680 Size M3–M10 – **Shank to DIN 371.**

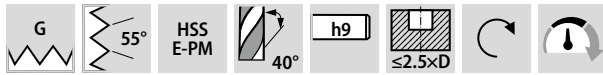
Size M12–M20 – **Shank to DIN 376.**

Advantage: Designed for tapping threads where access is difficult.



Suitable for/ v _c [m/min]	Alu plastics	Alu	Alu cast > 10% Si	Alu < 500 N	Alu < 750 N	Alu < 900 N	Alu < 1100 N	Alu < 1400 N	Alu < 55 HRC	Alu < 60 HRC	Alu < 65 HRC	Alu < 67 HRC	Alu < 70 HRC	INOX < 900 N	INOX > 900 N	GG(G)	CuZn	Uni	Oil	Water	Latex	Acrylic	Aluminum
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	K	N	●	●	●	●	●	●
13 4680/6168	24	28	16	24	24	20	10	6						8	6	16	16						

M	13 4680	13 6168	Thread pitch	L	Ø D _i	□	Tapping hole Ø		
GARANT Master Tap machine tap									
	HSS-E-PM extra long Form C 6HX	HSS-E-PM extra long Form C 6HX DIN 376			13 4680	13 6168	13 4680	13 6168	
	AITIX	AITIX	mm	mm	mm	mm	mm	mm	
M3	43.56	–	0.5	100	3.5	–	2.7	–	2.5
M4	43.56	54.45	0.7	125	4.5	2.8	3.4	2.1	3.3
M5	45.54	57.42	0.8	160	6	3.5	4.9	2.7	4.2
M6	52.87	61.38	1	160	6	4.5	4.9	3.4	5
M8	59.20	67.32	1.25	180	8	6	6.2	4.9	6.8
M10	70.69	77.22	1.5	200	10	7	8	5.5	8.5
M12	87.12	–	1.75	200	9	–	7	–	10.2
M14	108.41	–	2	200	11	–	9	–	12
M16	121.28	–	2	200	12	–	9	–	14
M20	198.99	–	2.5	200	16	–	12	–	17.5



Garant Blind hole machine tap

GARANT Master Tap Universal taps, designed for use in a wide spectrum of materials with high process reliability.

- HSS-E-PM tool material for maximum wear resistance.
 - Reduced coefficient of friction due to the new high-performance coating.
 - Special geometry for optimum swarf evacuation.
- 13 7807 – With extra long shank.
13 7808 – **Form E** (1.5 - 2 turns lead chamfer).

Advantage:

13 7807 – Designed for tapping threads where access is difficult.

Application:

For Whitworth parallel pipe threads DIN-ISO 228/1 (threads that do not form a seal within the connection).



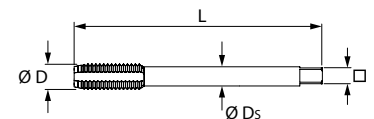
13 7805



13 7808

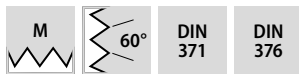


13 7807



Suitable for/ v_c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	≤ 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	GG(G)	CuZn	Uni	Oil	Water	Chips	Swarf
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	K	N					
13 7805/7808	30	35	20	30	30	25	12	8						10	8	20	20	●	●	●	●	●
13 7807	24	28	16	24	24	20	10	6						8	6	16	16	●	●	●	●	●

G	GARANT Master Tap machine tap			Threads per inch	Thread \varnothing	L		$\varnothing D_s$	□	Tapping hole \varnothing
	13 7805	13 7808	13 7807			13 7805 13 7808	13 7807			
	HSS-E-PM Form C	HSS-E-PM Form E	extra long HSS-E-PM Form C			mm	mm	mm	mm	mm
G1/16	60.19	—	—	28	7.72	90	—	6	4.9	6.8
G1/8	58.81	64.35	82.57	28	9.73	90	180	7	5.5	8.8
G1/4	75.04	82.17	118.80	19	13.16	100	200	11	9	11.8
G3/8	98.41	106.92	154.94	19	16.66	100	200	12	9	15.25
G1/2	154.44	168.30	217.80	14	20.96	125	250	16	12	19
G5/8	199.98	—	—	14	22.91	125	—	18	14.5	21
G3/4	213.84	233.64	361.35	14	26.44	140	280	20	16	24.5
G1	336.60	368.28	386.10	11	33.25	160	280	25	20	30.75



HOLEX Tap sets in a case

HOLEX Pro Tap general-purpose tap. Sturdy design suitable for a wide spectrum of materials.

Improved HSS-E tool material with low-friction TiN coating.

When the case is opened, the tools raise up vertically and can easily be selected.

Consisting of machine taps M3; M4; M5; M6; M8; M10; M12.



14 6440



14 6742

Through hole machine tap sets

for metric threads	M3-12	Content:
¹²¹ 14 6440	HOLEX Pro Tap through hole machine tap	87.75 1 each machine tap M3 – M12 No. 132680

Blind hole machine tap sets

for metric threads	M3-12	Content:
¹²¹ 14 6742	HOLEX Pro Tap blind hole machine tap	95.22 1 each machine tap M3 – M12 No. 135910

THE PROBLEM SOLVER – DEVELOPED FOR HIGH-STRENGTH STEELS.

The new GARANT Master Tap STEEL^{HT}: Developed for difficult-to-machine steels and materials with high tensile strength.

The GARANT Master Tap STEEL^{HT} impresses through its optimised coatings, which have been specially adapted to the various requirements for machining blind holes and through holes.

The latest generation of the HSS-E-PM substrate is characterised by high homogeneity in the structure, thus achieving maximum cutting edge stability and wear resistance.

The specially designed spiral point on the through hole tap ensures stability during the tapping process, even at high cutting forces.

The cylindrically offset guide thread on the blind hole tap counteracts the occurrence of chip jamming and ensures very high process reliability.

Garant MASTER TAP STEEL^{HT}

- Maximum performance.
- Outstanding for high-strength steels.
- Process reliability.



Garant

Discover the outstanding characteristics of the GARANT Master Tap Steel^{HT}

TiCN COATING.

Very smooth coating surface.
Reduction of cutting resistance in the push direction.

SPECIAL SPIRAL POINT.

High stability.

HSS-E-PM SUBSTRATE.

High cutting edge stability and wear resistance.

TiAlN COATING.

High heat resistance.
Low frictional resistance.

OPTIMISED GUIDE THREAD.

High process reliability due to avoidance of chip jamming.

WITHOUT INTERFERENCE CONTOURS.

Threads can be tapped almost to the bottom of the hole.



GARANT Master Tap Steel^{HT} – the specialist for high-strength steels



1.2379 (X 153 CrMoV 12)

High-alloy cold-working steel with high toughness and wear resistance.

Application:

Cutting punches, pressure plates and cutter inserts, general mould making.

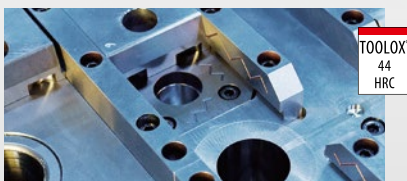


1.7225 (42CrMo4+QT)

Alloyed heat treatable steel with high strength.

Application:

General mechanical engineering, motorcar manufacture, steering knuckles, connecting rods and gear wheels.



Toolox44

Pre-hardened machinery steel and tool steel.

Application:

Extrusion moulds and machine building components, injection mould making.

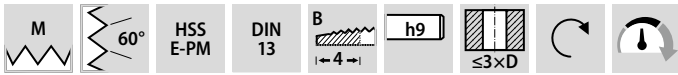


HARDOX400

Abrasion-resistant steel with a nominal hardness of 400 HBW.

Application:

Conveyor systems, excavators, gear wheels and chain wheels.



DIN 371	DIN 376
≤ M10	≥ M12

Garant GARANT Master Tap Steel^{HT} through hole machine tap

High-performance tap, specially developed for use in **steels with high tensile strength** and for **difficult-to-machine materials**. **Strong spiral point**, for process stability at high cutting forces.

- **HSS-E-PM tool material** – for **very high cutting edge stability**.
- **Optimised honed cutting edges**.
- **TiCN coating** – for **maximum wear protection**.

13 1946 – **Tolerance class: ISO 3X/6GX.**

Application:

13 1946 – For components which are galvanised or shrink slightly when hardened.

Recommendation: For **TOOLOX** and **HARDOX** materials we recommend **deviating from the DIN data** (see table) by **selecting a larger tapping hole \varnothing** .



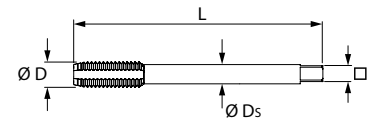
ISO 2X 6HX

13 1940



ISO 3X 6GX

13 1946



Suitable for/ v_c [m/min]	Alu plastics	Alu	Alu cast > 10% Si										TOOLOX [®] 33 HRC	TOOLOX [®] 44 HRC	HARDOX [®] 500 < 1600 N	INOX > 900 N	Ti > 850 N				
ISO code	N	N	N	P	P	P	P	H	H	H	H	H	H	H	H	M	S				
13 1940/1946				30	20	15	12	5					15	5	3	7	5				

M	13 1940	13 1946	Thread pitch	L	$\varnothing D_s$	\square	Tapping hole \varnothing
	GARANT Master Tap Steel ^{HT} machine tap						
	HSS-E-PM Form B 6HX	HSS-E-PM Form B 6GX					
	TiCN	TiCN	mm	mm	mm	mm	mm
M3	25.74	27.32	0.5	56	3.5	2.7	2.5
M4	26.73	28.41	0.7	63	4.5	3.4	3.3
M5	29.50	31.28	0.8	70	6	4.9	4.2
M6	33.56	35.64	1	80	6	4.9	5
M8	37.72	40.00	1.25	90	8	6.2	6.8
M10	50.39	53.46	1.5	100	10	8	8.5
M12	60.79	64.35	1.75	110	9	7	10.2
M14	71.28	75.74	2	110	11	9	12
M16	80.88	85.73	2	110	12	9	14
M20	132.17	140.09	2.5	140	16	12	17.5
M24	190.08	207.90	3	160	18	14.5	21



Garant GARANT Master Tap Steel^{HT} through hole machine tap

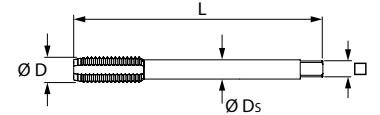
High-performance tap, specially developed for use in **steels with high tensile strength** and for **difficult-to-machine materials**.
Strong spiral point, for process stability at high cutting forces.

- HSS-E-PM tool material – for **very high cutting edge stability**.
- Optimised honed cutting edges.
- TiCN coating – for **maximum wear protection**.

Recommendation: For **TOOLOX** and **HARDOX** materials we recommend deviating from the DIN data (see table) by selecting a larger tapping hole \varnothing .



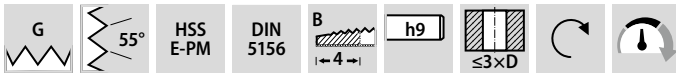
13 2855



Suitable for/ v_c [m/min]	Alu plastics	Alu	Alu cast > 10% Si											TOOLOX [®] 33 HRC	TOOLOX [®] 44 HRC	HARDOX [®] 500 < 1600 N	INOX > 900 N	Ti > 850 N					
ISO code	N	N	N	P	P	P	P	H	H	H	H	H	H	H	H	H	M	S	●	●			
13 2855					30	20	15	12	5					15	5	3	7	5					

MF	13 2855	L	$\varnothing D_s$	\square	Tapping hole \varnothing
	GARANT Master Tap Steel ^{HT} machine tap				
	HSS-E-PM Form B 6HX				
	TiCN	mm	mm	mm	mm
3×0,35	39.50	56	2.2	–	2.65
4×0,5	39.90	63	2.8	2.1	3.5
5×0,5	39.90	70	3.5	2.7	4.5
6×0,5	40.39	80	4.5	3.4	5.5
6×0,75	40.69	80	4.5	3.4	5.2
8×0,75	46.93	80	6	4.9	7.2
8×1	51.48	90	6	4.9	7
10×1	53.96	90	7	5.5	9
10×1,25	51.48	100	7	5.5	8.8
12×1	59.40	100	9	7	11

MF	13 2855	L	$\varnothing D_s$	\square	Tapping hole \varnothing
	GARANT Master Tap Steel ^{HT} machine tap				
	HSS-E-PM Form B 6HX				
	TiCN	mm	mm	mm	mm
12×1,25	58.51	100	9	7	10.8
12×1,5	68.21	100	9	7	10.5
14×1,5	82.17	100	11	9	12.5
16×1,5	98.51	100	12	9	14.5
18×1,5	111.08	110	14	11	16.5
20×1,5	127.31	125	16	12	18.5
24×1,5	173.25	140	18	14.5	22.5
26×1,5	204.93	140	18	14.5	24.5
30×1,5	248.99	150	22	18	28.5



Garant GARANT Master Tap Steel^{HT} through hole machine tap

High-performance tap, specially developed for use in **steels with high tensile strength** and for **difficult-to-machine materials**.
Strong spiral point, for process stability at high cutting forces.

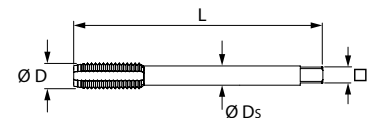
- HSS-E-PM tool material – for **very high cutting edge stability**.
- Optimised honed cutting edges.
- TiCN coating – for **maximum wear protection**.

Application: For **Whitworth parallel pipe threads** DIN-ISO 228/1 (threads that do not form a seal within the connection).

Recommendation: For **TOOLOX** and **HARDOX** materials we recommend deviating from the DIN data (see table) by selecting a larger tapping hole \varnothing .

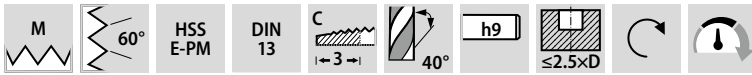


13 3312



Suitable for/ v_c [m/min]	Alu plastics	Alu	Alu cast > 10% Si											TOOLOX [®] 33 HRC	TOOLOX [®] 44 HRC	HARDOX [®] 500 < 1600 N	INOX > 900 N	Ti > 850 N					
ISO code	N	N	N	P	P	P	P	H	H	H	H	H	H	H	H	H	M	S	●	●			
13 3312					30	20	15	12	5					15	5	3	7	5					

G	13 3312	Threads per inch	Thread \varnothing	L	$\varnothing D_s$	\square	Tapping hole \varnothing
	GARANT Master Tap Steel ^{HT} machine tap						
	HSS-E-PM Form B						
	TiCN		mm	mm	mm	mm	mm
G1/8	54.05	28	9.73	90	7	5.5	8.8
G1/4	74.75	19	13.16	100	11	9	11.8
G3/8	90.09	19	16.66	100	12	9	15.25
G1/2	126.72	14	20.96	125	16	12	19
G3/4	208.40	14	26.44	140	20	16	24.5
G1	326.70	11	33.25	160	25	20	30.75



DIN 371	DIN 376
≤ M10	≥ M12

Garant GARANT Master Tap Steel^{HT} blind hole machine tap

High-performance tap, specially developed for use in **steels with high tensile strength** and for **difficult-to-machine materials**. Sturdy design with **optimised guide thread to avoid chips jamming**.

- **HSS-E-PM tool material** – for **very high cutting edge stability**.
- **Optimised honed cutting edges**.
- **TiAlN coating** – for **maximum wear protection**.

13 5374 – **Tolerance class: ISO 3X/6GX.**

Application:

13 5374 – For components which are galvanised or shrink slightly when hardened.

Recommendation: For **TOOLOX** and **HARDOX** materials we recommend **deviating from the DIN data** (see table) by selecting a larger tapping hole \varnothing .

Note: For **TOOLOX** and **HARDOX** materials: do not exceed the maximum thread depth $2 \times D!$



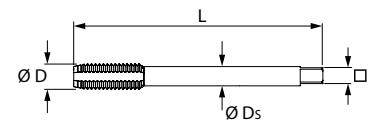
ISO 2X 6HX

13 5371



ISO 3X 6GX

13 5374



Suitable for/ v_c [m/min]	Alu plastics	Alu	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 50 HRC	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	TOOLOX [®] 33 HRC	TOOLOX [®] 44 HRC	HARDOX [®] 500 < 1600 N	INOX > 900 N	Ti > 850 N	Oil	Water	Water	Water	Water	
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	H	H	H	M	S						
13 5371/5374				30	20	15	12	5	5	5	5	5	5	15	5	3	7	5						

M	13 5371	13 5374	Thread pitch	L	$\varnothing D_s$	\square	Tapping hole \varnothing
	GARANT Master Tap Steel ^{HT} machine tap						
	HSS-E-PM Form C 6HX	HSS-E-PM Form C 6GX					
	TiAlN	TiAlN	mm	mm	mm	mm	mm
M3	24.75	28.71	0.5	56	3.5	2.7	2.5
M4	25.74	29.70	0.7	63	4.5	3.4	3.3
M5	31.38	33.26	0.8	70	6	4.9	4.2
M6	33.66	39.01	1	80	6	4.9	5
M8	41.18	43.66	1.25	90	8	6.2	6.8
M10	48.02	51.78	1.5	100	10	8	8.5
M12	60.59	65.34	1.75	110	9	7	10.2
M14	75.54	80.19	2	110	11	9	12
M16	84.65	90.09	2	110	12	9	14
M20	143.55	148.01	2.5	140	16	12	17.5
M24	183.15	203.94	3	160	18	14.5	21





Garant GARANT Master Tap Steel^{HT} blind hole machine tap

High-performance tap, specially developed for use in **steels with high tensile strength** and for **difficult-to-machine materials**. Sturdy design with **optimised guide thread to avoid chips jamming**.

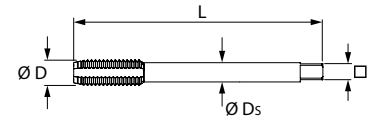
- **HSS-E-PM tool material** – for **very high cutting edge stability**.
- **Optimised honed cutting edges**.
- **TiAlN coating** – for **maximum wear protection**.

Recommendation: For **TOOLOX** and **HARDOX** materials we recommend **deviating from the DIN data (see table) by selecting a larger tapping hole diameter**.

Note: For **TOOLOX** and **HARDOX** materials: do not exceed the maximum thread depth 2xD!

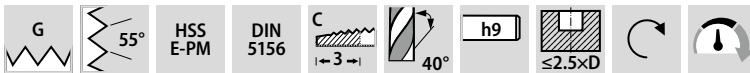


13 6350



Suitable for/ v _c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 50 HRC	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	TOOLOX [®] 33 HRC	TOOLOX [®] 44 HRC	HARDOX [®] 500 < 1600 N	INOX > 900 N	Ti > 850 N	Oil	Water	Emulsion	High Pressure	High Speed
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	H	H	H	M	S	●	●			
13 6350					30	20	15	12	5					15	5	3	7	5					

MF	13 6350	L	Ø D _s	□	Tapping hole Ø	MF	13 6350	L	Ø D _s	□	Tapping hole Ø
	GARANT Master Tap Steel ^{HT} machine tap						GARANT Master Tap Steel ^{HT} machine tap				
	HSS-E-PM Form C 6HX						HSS-E-PM Form C 6HX				
	TiAlN	mm	mm	mm	mm		TiAlN	mm	mm	mm	mm
3×0,35	43.46	56	2.2	–	2.65	12×1,25	65.74	100	9	7	10.8
4×0,5	43.86	63	2.8	2.1	3.5	12×1,5	69.80	100	9	7	10.5
5×0,5	43.86	70	3.5	2.7	4.5	14×1,5	82.17	100	11	9	12.5
6×0,5	44.55	80	4.5	3.4	5.5	16×1,5	100.98	100	12	9	14.5
6×0,75	44.55	80	4.5	3.4	5.2	18×1,5	111.67	110	14	11	16.5
8×0,75	49.40	80	6	4.9	7.2	20×1,5	128.70	125	16	12	18.5
8×1	51.48	90	6	4.9	7	24×1,5	159.39	140	18	14.5	22.5
10×1	61.58	90	7	5.5	9	26×1,5	188.10	140	18	14.5	24.5
10×1,25	61.58	100	7	5.5	8.8	30×1,5	277.20	150	22	18	28.5
12×1	65.74	100	9	7	11						



Garant GARANT Master Tap Steel^{HT} blind hole machine tap

High-performance tap, specially developed for use in **steels with high tensile strength** and for **difficult-to-machine materials**. Sturdy design with **optimised guide thread to avoid chips jamming**.

- **HSS-E-PM tool material** – for **very high cutting edge stability**.
- **Optimised honed cutting edges**.
- **TiAlN coating** – for **maximum wear protection**.

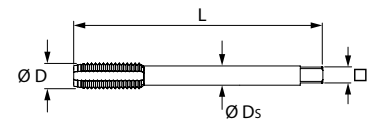
Application: For **Whitworth parallel pipe threads DIN-ISO 228/1** (threads that do not form a seal within the connection).

Recommendation: For **TOOLOX** and **HARDOX** materials we recommend **deviating from the DIN data (see table) by selecting a larger tapping hole diameter**.

Note: For **TOOLOX** and **HARDOX** materials: do not exceed the maximum thread depth 2xD!



13 7425



Suitable for/ v _c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 50 HRC	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	TOOLOX [®] 33 HRC	TOOLOX [®] 44 HRC	HARDOX [®] 500 < 1600 N	INOX > 900 N	Ti > 850 N	Oil	Water	Emulsion	High Pressure	High Speed
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	H	H	H	M	S	●	●			
13 7425					30	20	15	12	5					15	5	3	7	5					

G	13 7425	Threads per inch	Thread Ø	L	Ø D _s	□	Tapping hole Ø
	GARANT Master Tap Steel ^{HT} machine tap						
	HSS-E-PM Form C						
	TiAlN		mm	mm	mm	mm	mm
G1/8	59.40	28	9.73	90	7	5.5	8.8
G1/4	76.23	19	13.16	100	11	9	11.8
G3/8	103.95	19	16.66	100	12	9	15.25
G1/2	163.35	14	20.96	125	16	12	19
G3/4	222.75	14	26.44	140	20	16	24.5
G1	351.45	11	33.25	160	25	20	30.75



Garant GARANT Master Form Steel fluteless machine tap with oil grooves

The latest generation of **high-performance fluteless taps**, specially developed for **use in steel materials**.

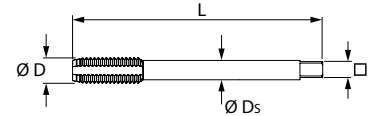
- Optimised polygon geometry for a **lower torque**.
- Multi-layer HIPIMS coating for **high wear resistance**.
- HSS-E-PM substrate for **exceptional process reliability**.

DIN 2174 (≈ DIN 371 ≤ M10; ≈ DIN 376 ≥ M12).

13 9205 – **Tolerance class: ISO 3X/6GX.**

13 9207 – **Tolerance class: 7GX.**

Application: For components which are **galvanised** or which shrink slightly when hardened.



Suitable for/ v _c [m/min]	Alu plastics	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	CuZn	Graphite GRP CRP	Oil	Water	Chips	Swarf
ISO code	N	N	N	P	P	P	P	H	H	H	H	H	M	M	S	N	N	●	●	●	●
13 9205/9207		38		37	35	27	18	12					12	7		22					

M	13 9205	13 9207	Thread pitch	L	Ø D _s	□	Tapping hole Ø guide value
GARANT Master Form Steel fluteless machine tap with oil grooves							
	HSS-E-PM Form C 6GX	HSS-E-PM Form C 7GX					
	TiAlN	TiAlN	mm	mm	mm	mm	mm
M2	47.22	—	0.4	45	2.8	2.1	1.85
M3	45.64	45.64	0.5	56	3.5	2.7	2.8
M4	50.69	50.69	0.7	63	4.5	3.4	3.7
M5	51.88	51.88	0.8	70	6	4.9	4.65
M6	51.88	51.88	1	80	6	4.9	5.55
M8	65.93	65.93	1.25	90	8	6.2	7.45
M10	76.03	76.03	1.5	100	10	8	9.35
M12	91.28	91.28	1.75	110	9	7	11.2
M16	154.44	—	2	110	12	9	15.1
M20	213.84	—	2.5	140	16	12	18.9



Garant Fluteless machine tap with oil grooves

DIN 2189 (≈ DIN 5156). **With oil grooves; optimum lubrication effect even in deeper threads.**

GARANT Master Form Steel:

The latest generation of high-performance fluteless taps, specially developed for **use in steels**.

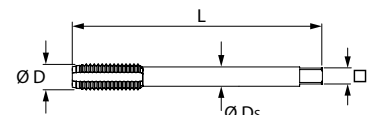
- Optimised polygon geometry for a **lower torque**.
- Multi-layer HIPIMS coating for **high wear resistance**.
- HSS-E-PM substrate for **top process reliability**.

13 9425 – **With internal coolant feed** laterally from the grooves.

Permits the longest possible tool life

when machining through holes and blind holes.

Application: For **Whitworth parallel pipe threads** DIN-ISO 228/1 (threads that do not form a seal within the connection).



Suitable for/ v _c [m/min]	Alu plastics	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	CuZn	Graphite GRP CRP	Oil	Water	Chips	Swarf
ISO code	N	N	N	P	P	P	P	H	H	H	H	H	M	M	S	N	N	●	●	●	●
13 9415		38		37	35	27	18	12					12	7		22					
13 9425		42		40	38	29	20	15					15	8		25					

G	13 9415	13 9425	Threads per inch	Thread Ø	L	Ø D _s	□	Tapping hole Ø guide value
GARANT Master Form Steel fluteless machine tap with oil grooves								
	HSS-E-PM	HSS-E-PM IC		mm	mm	mm	mm	mm
	TiAlN	TiN						
G1/8	91.08	120.78	28	9.73	90	7	5.5	9.25
G1/4	119.79	148.50	19	13.16	100	11	9	12.55
G3/8	133.65	168.30	19	16.66	100	12	9	16.05
G1/2	173.25	217.80	14	20.96	125	16	12	20.05



Garant GARANT Master Form Steel fluteless machine tap with oil grooves

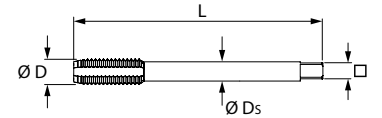
The latest generation of **high-performance fluteless taps**, specially developed for **use in steel materials**.

- Optimised polygon geometry for a **lower torque**.
- Multi-layer HIPIMS coating for **high wear resistance**.
- HSS-E-PM substrate for **exceptional process reliability**.

DIN 2174 (≈ **DIN 371** ≤ 3/8; ≈ **DIN 376** ≥ 7/16).

Form E (lead-in 1.5 – 2 turns). For deep threads with short lead-in. The thread is tapped almost to the bottom of the hole.

Application: For **UNC unified coarse threads ASME–B1.1**.



Suitable for/ v _c [m/min]	Alu plastics	Alu	Alu cast > 10% Si	≤ 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	CuZn	Graphite GRP CRP	Oil	Water	Chips	Swarf
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	N	N	●	●	●	●
13 9485	38		37	35	27	18	12							12	7		22					

UNC	13 9485	Threads per inch	Thread Ø	L	Ø D _s	□	Tapping hole Ø guide value
GARANT Master Form Steel fluteless machine tap with oil grooves HSS-E-PM			mm	mm	mm	mm	mm
TiAlN							
2-56	48.51	56	2.18	45	2.8	2.1	2
4-40	46.53	40	2.84	56	3.5	2.7	2.55
5-40	36.14	40	3.17	56	3.5	2.7	2.9
8-32	42.57	32	4.16	63	4.5	3.4	3.8
10-24	42.57	24	4.83	70	6	4.9	4.35
12-24	47.52	24	5.49	80	6	4.9	5
1/4-20	51.48	20	6.35	80	7	5.5	5.75
5/16-18	57.42	18	7.94	90	8	6.2	7.3
3/8-16	64.35	16	9.53	100	10	8	8.8
7/16-14	83.16	14	11.11	100	8	6.2	10.25
1/2-13	89.10	13	12.7	110	9	7	11.8
5/8-11	126.72	11	15.88	110	12	9	14.8
3/4-10	176.22	10	19.05	125	14	11	17.8



Garant GARANT Master Form Steel fluteless machine tap with oil grooves

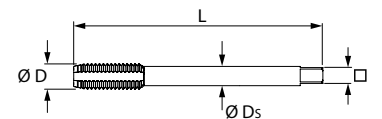
The latest generation of **high-performance fluteless taps**, specially developed for **use in steel materials**.

- Optimised polygon geometry for a **lower torque**.
- Multi-layer HIPIMS coating for **high wear resistance**.
- HSS-E-PM substrate for **exceptional process reliability**.

DIN 2174 (≈ **DIN 371** ≤ 3/8; ≈ **DIN 376** ≥ 7/16).

Form E (lead-in 1.5 – 2 turns). For deep threads with short lead-in. The thread is tapped almost to the bottom of the hole.

Application: For **UNF unified fine threads ASME–B1.1**.



Suitable for/ v _c [m/min]	Alu plastics	Alu	Alu cast > 10% Si	≤ 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	CuZn	Graphite GRP CRP	Oil	Water	Chips	Swarf
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	N	N	●	●	●	●
13 9495	38		37	35	27	18	12							12	7		22					

UNF	13 9495	Threads per inch	Thread Ø	L	Ø D _s	□	Tapping hole Ø guide value
GARANT Master Form Steel fluteless machine tap with oil grooves HSS-E-PM			mm	mm	mm	mm	mm
TiAlN							
2-64	55.04	64	2.18	45	2.8	2.1	2
4-48	52.17	48	2.84	56	3.5	2.7	2.6
5-44	38.61	44	3.17	56	3.5	2.7	2.9
8-36	46.53	36	4.16	63	4.5	3.4	3.85
10-32	47.52	32	4.83	70	6	4.9	4.45
12-28	52.47	28	5.49	80	6	4.9	5.1
1/4-28	58.41	28	6.35	80	7	5.5	5.95
5/16-24	63.36	24	7.94	90	8	6.2	7.45
3/8-24	67.32	24	9.53	90	10	8	9.05
7/16-20	84.15	20	11.11	100	8	6.2	10.55
1/2-20	94.05	20	12.7	100	9	7	12.1
5/8-18	132.66	18	15.88	100	12	9	15.2
3/4-16	178.20	16	19.05	110	14	11	18.3



Garant Solid carbide end cutting thread mill

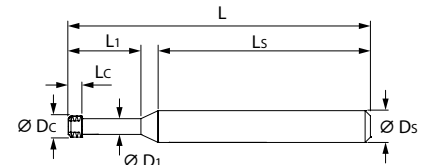
Tool for **combined production** of bore, chamfer and thread in a **single work step**.
 Pre-drilling is no longer required.
 The innovative centre cutting edge geometry makes this tool a specialist in thread production in **hardened and hard-to-machine materials**.
 The **TiAlN high-performance coating** ensures the longest possible **tool life**, especially in hardened steels **up to 67 HRC**.
 All tools have left-hand cutting and are suitable for **right-hand and left-hand threads**.

Application: For **Whitworth parallel pipe threads** DIN-ISO 228/1 (threads that do not form a seal within the connections).

Note: **Always use with cooling lubricant emulsion.**
 (Fat content min 8%).
 In the case of steels >45 HRC can only be used with **compressed air!**
 Size G1/2 – **Also suitable for thread dimensions G5/8 to G3/4.**



13 9523



Suitable for/ v _c [m/min]	Alu plastics	Alu	Alu cast > 10% Si											INOX < 900 N	INOX > 900 N	Ti > 850 N	Graphite GRP CRP	Uni						
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	N							
	13 9523							90	90	45	40	35	30	60	60	45								

G		13 9523	Threads per inch	Ø D _c	L _c	L ₁	L _s	L	Ø D _s	Ø D ₁	Programming radius		f _z
End cutting thread mill													
2xD													
TiAlN													
				mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
G1/16		158.40	28	5.8	3.2	18	37.8	57	6	4.39	2.9	0.01	
G1/8		217.80	28	7.3	3.2	22	47.6	72	10	5.9	3.65	0.01	
G1/4		237.60	19	9.8	4.5	30	40.5	72	10	7.74	4.9	0.01	
G3/8		295.02	19	11.8	4.5	37	44.5	83	12	9.76	5.9	0.01	
G1/2		376.20	14	15.7	6	47	51.2	100	16	12.92	7.85	0.01	

4 cutting edges

- More efficiency due to increased contour feed rate.

Left-hand cutting tool

- Thread milling process in climb milling with right-hand thread.
- Thread milling process in opposed milling with left-hand thread.

End face milling geometry

- Production of tapping drill holes that are true to gauge.

Machining depth 2 x D

Tool used straight

- High tool strength.
- High bending moment resistance.

Shank to DIN 6535 HA

- For clamping in a hydraulic chuck.

Innovative coating

- The latest coating technology for optimum protection against wear.
- Powerful performance on hardened materials.

45° cutting edge

- For producing thread protection countersinks.

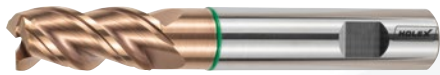
Internal coolant supply

- In all dimensions.
- Reliable chip evacuation.

NEW PRODUCTS

Machining – milling

GARANT, HOLEX solid carbide milling



Page 86
HOLEX Pro UNI solid carbide HPC milling cutter, z=3



Page 87
GARANT Master INOX solid carbide TPC milling cutter, z=6



Page 88
HOLEX solid carbide corner rounding cutter



Page 89
GARANT solid carbide micro Woodruff keyseating cutter



Page 90
GARANT solid carbide deburrer, spiral flutes, aluminium machining



Pages 92, 93
GARANT PCD milling cutter with internal cooling

GARANT indexable insert milling



Pages 94 – 97
GARANT aluminium shoulder mill for ZDHT1505 plain shank, with thread, with bore



Page 99
GARANT radius cutter for indexable inserts

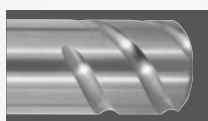


Pages 100, 101
GARANT polygon milling inserts, range extension

HAIMER solid carbide milling, interchangeable head system

shield cover

SAFE-LOCK®

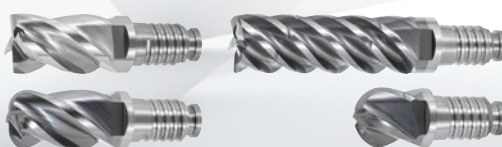
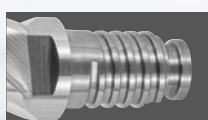


Pages 102 – 105
HAIMER solid carbide milling cutter

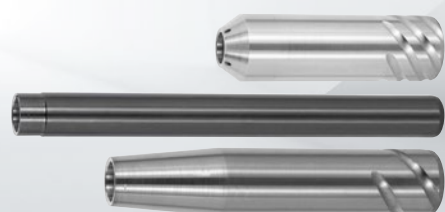


Modular interface

DUO-LOCK®



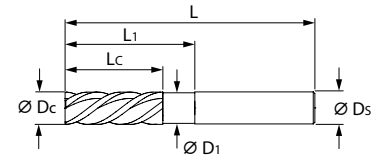
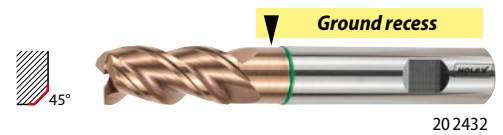
Pages 106 – 112
HAIMER interchangeable head system DUO-LOCK



Solid carbide Standard Type N e8 3 42° 45° a_e 0.3×D h6 DIN 6535 HB HPC

HOLEX Pro UNI solid carbide milling cutters, HPC

For **roughing at very high feed rates** with smooth cutting action. **Innovative geometry and high-performance coating** for outstanding production results and tool life in a variety of materials. Unequal spacing gives **high intrinsic stability** and smooth cutting action.



Suitable for/ v _c [m/min]	Alu plastics	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	TOOLOX [®] 33 HRC	TOOLOX [®] 44 HRC	INOX < 900 N	INOX > 900 N	Uni	Cooling options					
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	H	M	M		●	●	○	●	●	
20 2432		250		240	220	180	170	140							90	80	35	240					

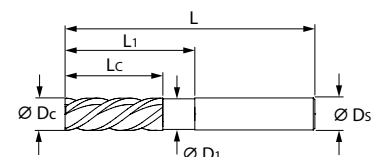
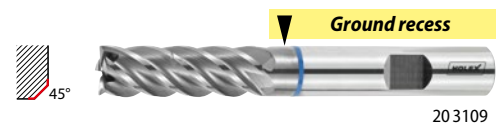
Ø e8 D _c	20 2432	L _c	L ₁	Ø D ₁	L	Ø D _s	Corner chamfer width at 45°	f _z	f _z	f _z	f _z
	Pro UNI solid carbide milling cutter										
	HPC TiSiN										
mm		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1	22.47	2.5	5	0.9	57	6	0.06	0.009	0.005	0.012	0.009
2	22.47	5	10	1.9	57	6	0.06	0.012	0.008	0.015	0.011
3	23.46	8	13	2.8	57	6	0.06	0.02	0.012	0.025	0.015
4	23.46	11	17	3.8	57	6	0.08	0.02	0.012	0.025	0.015
5	23.46	13	19	4.8	57	6	0.1	0.03	0.025	0.04	0.03
6	23.46	13	19	5.8	57	6	0.1	0.04	0.025	0.05	0.03
8	35.15	21	25	7.7	63	8	0.2	0.05	0.025	0.06	0.03
10	43.26	22	30	9.7	72	10	0.2	0.06	0.04	0.08	0.05
12	58.61	26	36	11.6	83	12	0.3	0.07	0.04	0.09	0.05
16	101.97	36	42	15.5	92	16	0.3	0.08	0.05	0.1	0.06
20	166.82	41	52	19.5	104	20	0.3	0.1	0.07	0.12	0.08

Solid carbide Standard Type N f8 5 40° 45° a_{e,max} 0.07×D h6 DIN 6535 HB G2.5 n_{max} TPC

HOLEX Solid carbide milling cutter TPC with chip separators

High-performance milling cutter with **irregular cutter spacing** and **irregular helical pitch**. Optimised bending strength due to the use of ultra-fine grain substrates. **Chip separator for controlled chip breaking**.

Note: h_{max}: The values stated in the table are maximum values.
a_{e,max} = 0.07×D for TPC machining.



Suitable for/ v _c [m/min]	Alu plastics	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	Graphite GRP CRP	Uni	Cooling options				
ISO code	N	N	N	P	P	P	P	H	H	H	H	H	M	M	S	N		●	○	●	●	
20 3109				380	340	300	230								240	170						

Ø f8 D _c	20 3109	L _c	L ₁	Ø D ₁	L	Ø D _s	Corner chamfer width at 45°	h _{max}
	Solid carbide milling cutter with chip separators							
	TPC TiAlN							
mm		mm	mm	mm	mm	mm	mm	mm
4	52.07	16	23	3.9	62	6	0.08	0.018
5	52.07	17	24	4.8	62	6	0.1	0.023
6	52.07	18	25	5.8	62	6	0.12	0.032
8	68.11	24	30	7.8	68	8	0.16	0.042
10	88.90	30	35	9.8	80	10	0.2	0.051
12	105.44	36	45	11.8	93	12	0.24	0.06
16	186.12	48	55	15.8	108	16	0.32	0.078
20	286.11	60	70	19.8	126	20	0.4	0.097

Solid carbide Type N f8 TPC

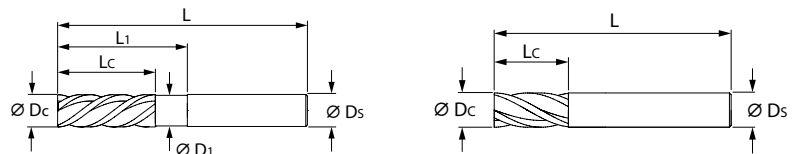
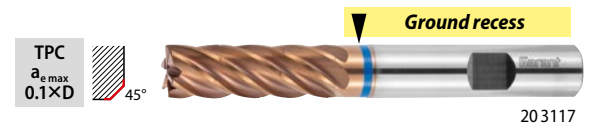
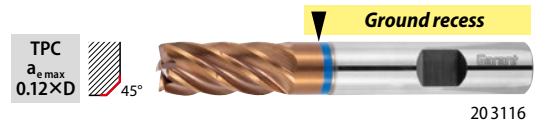
Garant Master INOX solid carbide milling cutters, TPC

High-performance milling cutter with **irregular cutter spacing** and **irregular helical pitch**.
High process reliability and **better chip evacuation** due to **increased flutes**.
Optimised carbide substrate for **higher bending strength** and **extreme tool life**, even in stainless steels in the high-performance field, especially duplex.
Chip separator positioned offset at **cutting edges**.

Advantage: Lower pull-out forces due to reduced helix angle.

Note: h_{max} : The values stated in the table are maximum values.

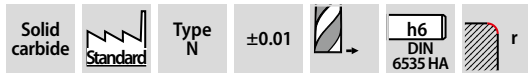
- 20 3116 – $a_{e\ max} = 0.12 \times D$ for TPC machining.
- 20 3117 – $a_{e\ max} = 0.1 \times D$ for TPC machining.
- 20 3118 – $a_{e\ max} = 0.07 \times D$ for TPC machining.
- 20 3119 – $a_{e\ max} = 0.04 \times D$ for TPC machining.



Suitable for/ v_c [m/min]	Alu plastics	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 900 N	Graphite GRP CRP	Uni		
ISO code	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	N			
20 3116/3117			380	340	300	230							240	170	120				
20 3118			320	290	260	200							220	160					
20 3119			270	240	210	160							200	140					

$\varnothing f_8$ D_c	20 3116		20 3117		L_c		L_1		$\varnothing D_1$	L	$\varnothing D_s$	Number of chip separators	Corner chamfer width at 45°	h _{max}	
	TPC		20 3116	20 3117	20 3116	20 3117	20 3116	20 3117						20 3116	20 3117
mm	TiAlN	TiAlN	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
4	61.83	75.05	11	16	–	23	3.9	57	62	6	–	1	0.08	0.026	0.024
5	61.83	75.05	13	17	–	24	4.8	57	62	6	–	1	0.1	0.032	0.03
6	61.83	75.05	13	18	19	25	5.8	57	62	6	–	1	0.12	0.039	0.036
8	81.36	97.43	19	24	25	30	7.8	63	68	8	–	1	0.16	0.052	0.048
10	101.49	126.11	22	30	30	35	9.8	72	80	10	–	1	0.2	0.065	0.06
12	130.18	153.57	26	36	36	45	11.8	83	93	12	1	2	0.24	0.078	0.072
14	–	226.79	–	42	–	50	13.8	–	99	14	–	2	0.28	–	0.084
16	197.30	260.35	32	48	42	55	15.8	92	108	16	1	2	0.32	0.104	0.096
20	303.07	398.66	41	60	52	70	19.8	104	126	20	1	2	0.4	0.13	0.12

$\varnothing f_8$ D_c	20 3118		20 3119		L_c		L		$\varnothing D_s$	Number of chip separators	Corner chamfer width at 45°	h _{max}	
	TPC		20 3118	20 3119	20 3118	20 3119	20 3118	20 3119				20 3118	20 3119
mm	TiAlN	TiAlN	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
5	84.01	–	20	–	66	–	6	2	–	0.1	0.026	–	
6	84.01	–	24	–	66	–	6	2	–	0.12	0.031	–	
8	107.80	116.96	32	40	74	81	8	2	3	0.16	0.041	0.031	
10	139.33	150.52	40	50	89	96	10	2	3	0.2	0.051	0.039	
12	169.84	202.38	48	60	100	112	12	2	3	0.24	0.061	0.047	
16	297.98	336.63	64	80	123	136	16	2	3	0.32	0.082	0.063	
20	433.24	484.09	80	100	140	160	20	2	3	0.4	0.102	0.078	

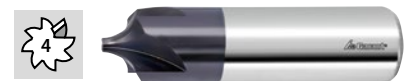


Solid carbide corner rounding cutter / solid carbide corner rounding cutter HPC

Straight fluted, without profile distortion.

Tolerance: $r = \pm 0.01$ mm.

Application: For rounding and deburring edges.



208020



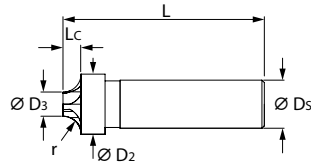
208022



208021



208023



Suitable for/ v_c [m/min]	Alu plastics	Alu cast > 10% Si	Alu cast < 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	Uni						
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	K							
208020/8022	800	600	400	190	170	160	95							90	75		120							
208021/8023	800	600	400	200	180	170	100							90	80									

Radius r	TIX 208020 Garant		TIX 208022 HOLEX		$\varnothing D_3$	$\varnothing D_2$	L_c	L	$\varnothing D_5$	f_z
	TiAlN	TiSiN	mm	mm						
0,2	87.91	—	5.6	6	0.2	58	—	6	0.018	
0,3	87.91	—	5.4	6	0.3	58	—	6	0.018	
0,4	87.91	—	5.2	6	0.4	58	—	6	0.018	
0,5	95.24	64.94	7	8	0.5	70	70	8	0.02	
0,6	95.24	—	6.8	8	0.6	70	—	8	0.02	
0,8	95.24	—	6.4	8	0.8	70	—	8	0.02	
1	95.63	67.91	6	8	1	70	70	8	0.023	
1,5	101.97	—	7	10	1.5	75	—	10	0.023	
2	101.97	76.82	6	10	2	75	80	10	0.025	
2,5	111.38	—	7	12	2.5	75	—	12	0.025	
3	111.38	84.15	6	12	3	75	82	12	0.025	
3,5	141.08	—	9	16	3.5	80	—	16	0.025	
4	141.08	91.87	8	16	4	80	82	16	0.035	
4,5	141.08	—	7	16	4.5	80	—	16	0.035	
5	196.52	157.91	10	20	5	80	92	20	0.035	
6	196.52	—	8	20	6	80	—	20	0.045	
8	324.72	—	9	25	8	100	—	25	0.05	
10	329.67	—	5	25	10	100	—	25	0.06	

Radius r	TIX 208021 Garant		TIX 208023 Garant		No. of teeth Z		$\varnothing D_3$	$\varnothing D_2$	L_c	L	$\varnothing D_5$	f_z			
	TiAlN	TiAlN	HPC	HPC	208021	208023							208021	208023	208021
0,2	63.95	85.34	3	6	0.5	5.6	1	6	0.2	50	58	3	6	0.01	0.02
0,25	63.95	—	3	—	0.5	—	1	—	0.25	50	—	3	—	0.01	—
0,3	63.95	85.34	3	6	0.5	5.4	1.2	6	0.3	50	58	3	6	0.01	0.02
0,4	63.95	85.34	3	6	0.5	5.2	1.4	6	0.4	50	58	3	6	0.01	0.02
0,5	69.30	92.66	3	6	0.5	7	1.6	8	0.5	50	70	3	8	0.01	0.02
0,6	69.30	92.66	3	6	0.5	6.8	1.8	8	0.6	50	70	3	8	0.01	0.02
0,7	69.30	—	3	—	0.5	—	2.1	—	0.7	50	—	3	—	0.01	—
0,8	69.30	92.66	3	6	0.8	6.4	2.5	8	0.8	50	70	3	8	0.01	0.025
0,9	69.89	—	3	—	0.8	—	2.9	—	0.9	50	—	3	—	0.01	—
1	69.89	93.06	3	6	0.8	6	2.9	8	1	50	70	3	8	0.01	0.025
1,25	74.05	—	4	—	0.8	—	3.4	—	1.25	50	—	6	—	0.02	—
1,5	74.05	98.41	4	6	1.5	7	4.6	10	1.5	50	75	6	10	0.02	0.03
1,75	74.05	—	4	—	1.5	—	5.6	—	1.75	50	—	6	—	0.02	—
2	74.05	98.41	4	6	1.5	6	5.6	10	2	50	75	6	10	0.02	0.03
2,25	80.19	—	5	—	1.5	—	6.6	—	2.25	50	—	8	—	0.02	—
2,5	80.19	107.91	5	6	1.5	7	6.6	12	2.5	50	75	8	12	0.02	0.035
3	—	107.91	—	6	—	6	—	12	3	—	75	—	12	—	0.035
3,5	—	136.13	—	6	—	9	—	16	3.5	—	80	—	16	—	0.04
4	—	136.13	—	6	—	8	—	16	4	—	80	—	16	—	0.04
4,5	—	136.13	—	6	—	7	—	16	4.5	—	80	—	16	—	0.04
5	—	190.58	—	6	—	10	—	20	5	—	80	—	20	—	0.05
6	—	190.58	—	6	—	8	—	20	6	—	80	—	20	—	0.06
8	—	314.82	—	6	—	9	—	25	8	—	100	—	25	—	0.07
10	—	319.77	—	6	—	5	—	25	10	—	100	—	25	—	0.07



Garant Solid carbide micro Woodruff keyseating cutter

Particularly suitable for slot milling and circular milling in holes. With optimised coating for universal application in virtually all materials.

Tolerance, nominal diameter $D_c = \pm 0.04$ mm.

Tolerance, cutter length $L_c = \pm 0.02$ mm.

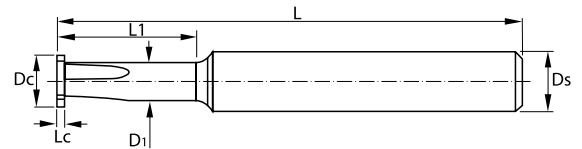
Size 5,8x0,5–5,8x1,5 – Minimum hole diameter is 6 mm.

Size 7,8x0,7–7,8x2,0 – Minimum hole diameter is 8 mm.

Note: Always use climb milling. Engage loop of 180° to achieve the full depth of cut. Make sure the depth of the slot is linear.



208033



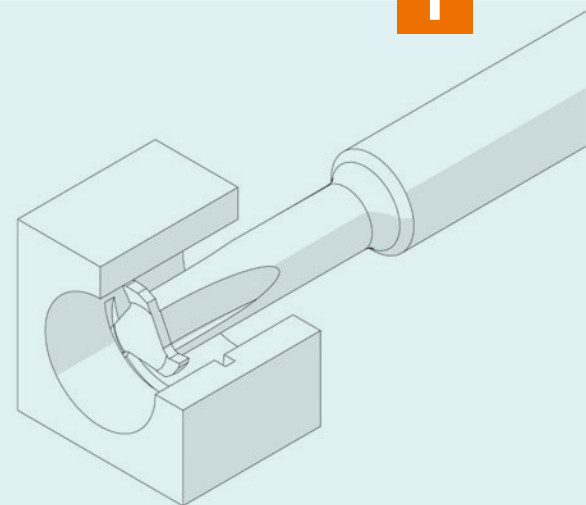
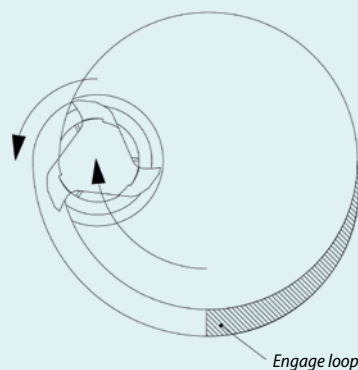
Suitable for/ v_c [m/min]	Alu plastics	Alu	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GGG	Uni					
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	K						
20.8033		300		220	190	160	150	100						100			180						

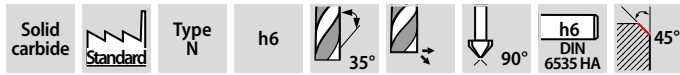
$\varnothing D_c \times L_c$	ISO	20 8033	L_1	$\varnothing D_1$	L	$\varnothing D_s$	f_z
Solid carbide micro Woodruff keyseating cutter							
mm	AlTiN		mm	mm	mm	mm	mm
5,8x0,5		47.80	15	3.8	58	6	0.02
5,8x0,6		47.80	15	3.8	58	6	0.02
5,8x0,7		47.80	15	3.8	58	6	0.02
5,8x0,8		47.80	15	3.8	58	6	0.02
5,8x0,9		47.80	15	3.8	58	6	0.02
5,8x1,0		47.80	15	3.8	58	6	0.02
5,8x1,5		47.80	15	3.8	58	6	0.02
7,8x0,7		61.02	25	5	68	8	0.03
7,8x0,8		61.02	25	5	68	8	0.03
7,8x0,9		61.02	25	5	68	8	0.03
7,8x1,0		61.02	25	5	68	8	0.03
7,8x1,5		61.02	25	5	68	8	0.03
7,8x2,0		61.02	25	5	68	8	0.03

Garant Application instructions for solid carbide micro Woodruff keyseating cutters

Due to the particularly unfavourable contact ratio of milling cutter to hole in the case of small hole diameters (D_c), please note the following:

- Always use climb milling.
- Use engage loop of 180° to achieve the full depth of cut.
- Make sure the depth of the slot is linear.





For aluminium and plastics

Garant Solid carbide deburrer, spiral flutes

Deburrer with **polished flutes** and **sharp cutting edges** especially for machining aluminium and plastic.

Tolerance: **Dimension S = +/- 0.2 mm.**

Point angle = +/- 5 arc minutes.

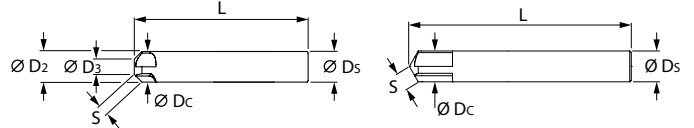
Outstanding surface qualities thanks to the 35° helix angle.

Size 6M; 10M; 12M – Extra-long deburrers for outstanding deburring results on particularly difficult-to-access contours.

Application: Perfectly suitable for **chamfering** and **deburring** component edges and for **contouring applications**.



208154



Suitable for/ v _c [m/min]	Alu plastics	Alu	Alu cast > 10% Si	PMMA acrylic	PE-HD	PA 66	PEEK	PF 31	AFRP aramid	PVDF GF20	POM GF25	PA 66 GF30	PEEK GF30	PTFE CF25	PEEK CF30	Honey-comb sandwich	Cu	CuZn						
ISO code	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N					
208154	480	440	400	210			150			150	150	150	130	160		300	160	200						

Ø h6 D _c	TIX	208154										Ø D ₃	Alu f _z	PMMA acrylic f _z					
		Solid carbide deburrer, spiral flutes																	
		90° uncoated																	
mm												mm	mm	mm	mm	mm	mm		
0,5												–	–	3	0.3	50	3	0.01	0.01
0,8												–	–	3	0.5	50	3	0.01	0.01
1												–	–	3	0.7	50	3	0.01	0.01
2												–	–	4	1.4	50	3	0.02	0.02
3												–	–	4	2.1	50	3	0.02	0.02
4												–	–	4	2.8	50	4	0.03	0.03
6												–	–	4	4.2	57	6	0.045	0.045
6M												3	6	4	2.1	100	6	0.045	0.045
8												–	–	4	5.6	63	8	0.055	0.055
10												–	–	4	7	72	10	0.07	0.07
10M												5	10	4	3.5	100	10	0.07	0.07
12												–	–	4	8.5	83	12	0.085	0.085
12M												6	12	4	4.2	120	12	0.085	0.085
16												–	–	4	11.2	92	16	0.1	0.1



Garant Solid carbide deburrer, spiral flutes

Deburrer for **universal application** in virtually all materials. The newly developed coating effectively prevents built-up edges, even in aluminium or stainless steel.

Tolerance: **Dimension S = +/- 0.2 mm.**

Point angle = +/- 5 arc minutes.

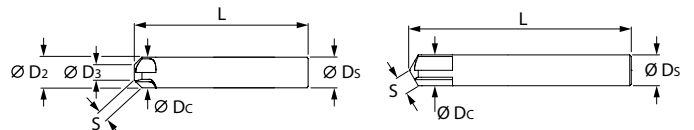
Outstanding surface qualities thanks to the 35° helix angle.

Size 6M; 10M; 12M – Extra-long deburrers for outstanding deburring results on particularly difficult-to-access contours.

Application: Perfectly suitable for **chamfering** and **deburring** component edges and for **contouring applications**.



208156



Suitable for/ v _c [m/min]	Alu plastics	Alu	Alu cast > 10% Si	P	P	P	P	H	H	H	H	H	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	Uni					
ISO code	N	N	N	P	P	P	P	H	H	H	H	H	M	S	K							
208156	180	300	220	130	115	110	80	65	35				90	70	50	100						

Ø h6 D _c	TIX	208156										Ø D ₃	Ø D ₂	No. of teeth Z	Dimension S	L	Ø D _s	f _z
		Solid carbide deburrer, spiral flutes																
		90° TiSiN																
mm												mm	mm	mm	mm	mm	mm	
0,5												–	–	3	0.3	50	3	0.02
0,8												–	–	3	0.5	50	3	0.02
1												–	–	3	0.7	50	3	0.02
2												–	–	4	1.4	50	3	0.03
3												–	–	4	2.1	50	3	0.03
4												–	–	4	2.8	50	4	0.04
6												–	–	4	4.2	57	6	0.05
6M												3	6	4	2.1	100	6	0.03
8												–	–	4	5.6	63	8	0.06
10												–	–	4	7	72	10	0.07
10M												5	10	4	3.5	100	10	0.05
12												–	–	4	8.5	83	12	0.08
12M												6	12	4	4.2	120	12	0.06
16												–	–	4	11.2	93	16	0.1



Garant Solid carbide deburrer, spiral flutes / solid carbide deburrers

Deburrer specially developed for **hard machining**.
The further development of the Diabolo coating permits even longer tool life and improved surface quality.

Tolerance: **Dimension S = ± 0.2 mm.**

Point angle = ±5 arc minutes.

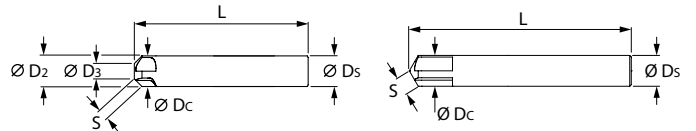
Outstanding surface qualities thanks to the 35° helix angle.

Size 6M; 10M; 12M – Extra-long deburrers for outstanding deburring results on particularly difficult-to-access contours.

Application: Perfectly suitable for **chamfering** and **deburring** component edges and for **contouring applications**.



20 8158



Suitable for/ v _c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	Graphite GRP CRP	Uni	Oil	Water	Latex	Acrylic	Aluminum
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	N						
20 8158								140	120	100	90	60	35										
Ø h6 D _c	20 8158											Ø D ₃	Ø D ₂	No. of teeth Z	Dimension S	L	Ø D _s	< 60 HRC f _z					
	Diabolo solid carbide deburrer, spiral flutes 90°																						
mm	TiAlN											mm	mm		mm	mm	mm	mm	mm				
6	42.27											–	–	6	4.2	57	6	0.03					
6M	50.29											3	6	6	2.1	100	6	0.02					
8	53.86											–	–	6	5.6	63	8	0.04					
10	63.56											–	–	6	7	72	10	0.045					
10M	76.43											5	10	6	3.5	100	10	0.035					
12	85.73											–	–	6	8.5	83	12	0.055					
12M	113.85											6	12	6	4.2	120	12	0.045					
16	155.43											–	–	6	11.2	93	16	0.07					



Garant Solid carbide deburrer

With special flute geometry, smooth cutting.

Tolerance: **Dimension S = ± 0.2 mm.**

Application: Perfectly suitable for **chamfering** and **deburring** component edges and for **contouring applications**.



20 8162



20 8164



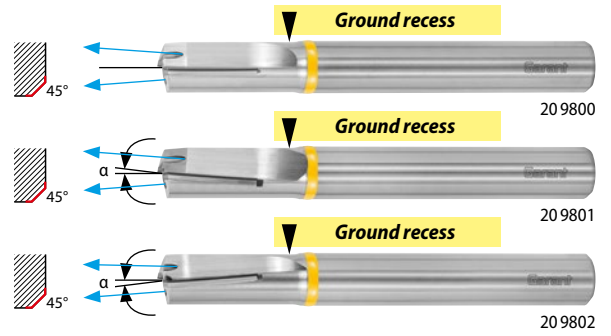
Suitable for/ v _c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	Uni	Oil	Water	Latex	Acrylic	Aluminum
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	K						
20 8162	180	140	105	70	60	55	35							40	30		55	●	●	○	○	○	○
20 8164	280	200	120	105	100	70	60	35						80	60		90	●	●	○	○	○	○
Ø h6 D _c	20 8162				20 8164				No. of teeth Z					Dimension S		L	Ø D _s	< 900 N f _z					
	Solid carbide deburrer 90°																						
mm	uncoated				TiAlN									mm	mm	mm	mm	mm					
6	27.32				35.94				6					4.2	57	6	0.03						
8	33.86				45.54				6					5.6	63	8	0.04						
10	40.89				54.05				6					7	72	10	0.05						
12	58.61				79.60				6					8.5	83	12	0.06						
16	104.45				139.59				8					11.2	92	16	0.08						
20	–				180.68				8					14	104	20	0.1						



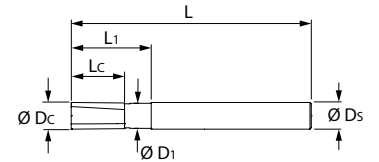
Garant PCD slot drill with internal cooling

High performance PCD slot drill for high metal removal rates.

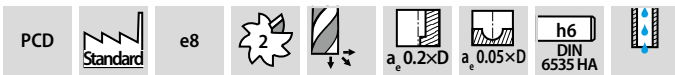
- 20 9800 – **Axial angle 0°.**
Straight flutes for a neutral cut.
- 20 9801 Size 3–8 – **Axial angle positive. $\alpha = 2^\circ$.**
Dragging cut for standard applications.
- 20 9801 Size 10–16 – **Axial angle positive. $\alpha = 4^\circ$.**
Dragging cut for standard applications.
- 20 9802 Size 3–8 – **Axial angle negative. $\alpha = -2^\circ$.**
Compacting cut.
The material is pushed down on to the substrate.
Highly suitable for thin materials.
- 20 9802 Size 10–16 – **Axial angle negative. $\alpha = -4^\circ$.**
Compacting cut.
The material is pushed down on to the substrate.
Highly suitable for thin materials.



Improved version!



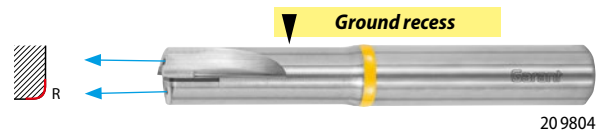
Suitable for/ v_c [m/min]	Alu	Alu	Alu	PMMA	PE-HD	PA 66	PEEK	PF 31	PVDF	POM	PA 66	PEEK	PTFE	PEEK	Hybrid	MMC	GRP	CRP	Material Symbols				
ISO code	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N				
20 9800–20 9802	2400	2000	1500	1000	900	900	800		1200	1200	1000	1000	1000	800	●	400	500	500					
\varnothing h10 D_c	100	20 9800			100	20 9801			100	20 9802			L_c	L_1	$\varnothing D_1$	L	$\varnothing D_s$	Corner chamfer width at 45°					
		straight cut		dragging cut		compacting cut													f_z	f_z	f_z	f_z	
mm		PCD		PCD		PCD													mm	mm	mm	mm	
3		164.34		164.34		164.34		2.5	15	2.8	60	6	0.1	0.01	0.05	0.02	0.05						
4		170.28		170.28		170.28		2.5	15	3.8	60	6	0.1	0.01	0.07	0.02	0.07						
5		174.24		174.24		174.24		3	15	4.6	60	6	0.1	0.02	0.09	0.03	0.09						
6		232.65		232.65		232.65		15	20	5.4	60	6	0.1	0.03	0.1	0.04	0.1						
8		293.04		293.04		293.04		20	30	7.4	80	8	0.1	0.04	0.11	0.05	0.11						
10		341.55		341.55		341.55		20	30	9.4	90	10	0.1	0.06	0.12	0.07	0.12						
12		388.08		388.08		388.08		20	30	11	100	12	0.1	0.08	0.14	0.09	0.14						
16		481.14		481.14		481.14		20	30	15	125	16	0.1	0.1	0.15	0.11	0.15						



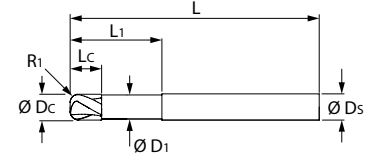
Garant PCD torus cutter with internal cooling

High performance PCD slot drill for high metal removal rates.

Straight flutes for a neutral cut.
Tolerance for corner radius $R_1 = \pm 0.01$ mm.



Improved version!

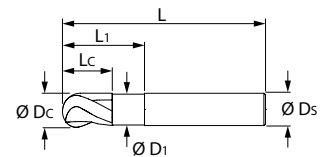


Suitable for/ v_c [m/min]	Alu	Alu	Alu	PMMA	PE-HD	PA 66	PEEK	PF 31	PVDF	POM	PA 66	PEEK	PTFE	PEEK	Hybrid	MMC	GRP	CRP	Material Symbols				
ISO code	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N				
20 9804	2400	2000	1500	1000	900	900	800		1200	1200	1000	1000	1000	800	●	400	500	500					
\varnothing e8 D_c / R_1	100	20 9804			L_c	R_1	L_1	$\varnothing D_1$	L	$\varnothing D_s$									f_z	f_z	f_z	f_z	
mm		PCD																	mm	mm	mm	mm	
3/0,3		181.17		2.5	0.3	14	2.8	50	6	0.03	0.06	0.05	0.1										
4/0,5		189.09		2.5	0.5	14	3.8	50	6	0.03	0.06	0.05	0.1										
5/0,5		198.00		3	0.5	18	4.6	54	6	0.04	0.07	0.07	0.12										
6/0,5		211.86		6	0.5	21	5.5	57	6	0.04	0.07	0.07	0.12										
6/1,0		211.86		6	1	21	5.5	57	6	0.04	0.07	0.07	0.12										
8/0,5		239.58		7	0.5	27	7.4	63	8	0.05	0.09	0.08	0.14										
10/0,5		272.25		8	0.5	32	9.2	72	10	0.06	0.1	0.09	0.14										
10/1,0		272.25		8	1	32	9.2	72	10	0.06	0.1	0.09	0.14										



Garant PCD ball nose slot drill with internal cooling

High-performance PCD slot drill for the highest demands in respect to material removal rates. Straight flutes for a neutral cut.



Suitable for/ v_c [m/min]	Alu plastics	Alu cast > 10% Si	PMMA acrylic	PE-HD	PA 66	PEEK	PF 31	PVDF GF20	POM GF25	PA 66 GF30	PEEK GF30	PTFE CF25	PEEK CF30	Hybrid	MMC	GRP	CRP	Material Symbols			
ISO code	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N				
20 9806	2400	2000	1500	1000	900	900	800	1200	1200	1000	1000	1000	800	●	400	500	500				
$\varnothing e8$ D_c	20 9806										L_c	L_1	$\varnothing D_1$	L	$\varnothing D_s$	Material Symbols					
	PCD ball nose slot drill with internal cooling															Alu cast > 10% Si	Graphite	Alu cast > 10% Si	Graphite		
	straight cut															f_z	f_z	f_z	f_z		
mm	PCD										mm	mm	mm	mm	mm	mm	mm	mm	mm		
3											2.5	9	2.8	60	6	0.03	0.06	0.05	0.1		
4											2.5	15	3.8	60	6	0.03	0.06	0.05	0.1		
5											3	15	4.6	60	6	0.04	0.08	0.07	0.12		
6											6	15	5.5	80	6	0.04	0.08	0.07	0.12		
8											10	20	7.4	80	8	0.05	0.09	0.08	0.14		
10											10	26	9.4	80	10	0.06	0.1	0.09	0.14		
12											10	35	11.2	100	12	0.06	0.1	0.09	0.14		
16											10	35	15	125	16	0.07	0.11	0.1	0.15		

Garant PCD milling cutter– new version



1 Polished PCD blank:

To avoid material clogging and to ensure process reliability as you work.

2 Optimised flute:

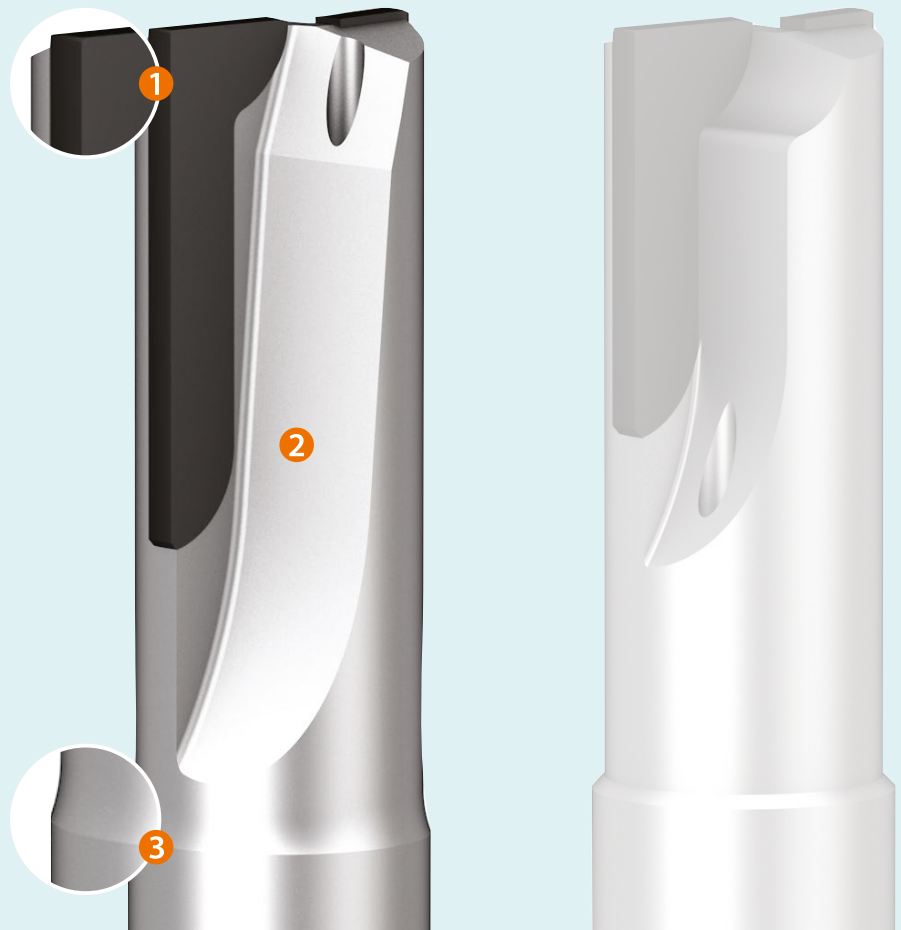
Large flute without interference contour for better chip evacuation.

3 Adapted tool geometry:

Flat transition from shank diameter to recess diameter for improved tool stiffness and increased stability.

New GARANT version

Previous version



BEST PERFORMANCE WHEN ROUGHING AND FINISHING IN ALUMINIUM.

Simply better: no more programming required, even after changing inserts.

The high-performance aluminium milling cutter is characterised by a special carrier design. There is no need to make length corrections when changing to indexable inserts with smaller or larger radii; no programming is necessary.

SHANK TOOL

G6.3 balanced at 30,000 rpm

Garant

INDEXABLE INSERTS

Radii from 0.4 mm to 6 mm available.

CUTTING DEPTH

All indexable inserts designed for a cutting depth of $a_{pmax} = 13.5$ mm.

SPECIAL OPERATIONS

Effective ramping and circular interpolation milling can be performed.

LARGE SELECTION OF CARRIER TOOLS

Plain shank dia. 25 – 40 mm
Screw-in milling cutters dia. 25 – 32 mm
Shell-type milling cutters dia. 40 – 80 mm

Practical example. AlMg4.5Mn on a "Grob G350"



Carrier tool Indexable insert

No. 21 1759_50/3
No. 21 1764_ALU

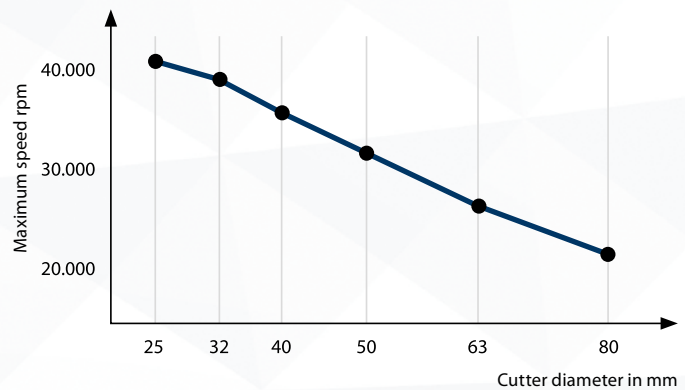
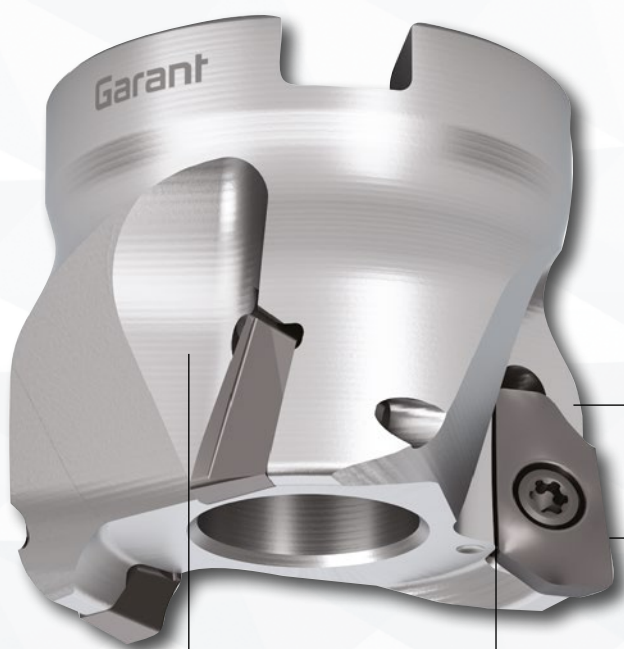
Cutting width a_c :	32 mm
Cutting speed v_c :	2,400 m/min
Infeed rate a_p :	6 mm
Feed rate per tooth f_z :	0.17 mm

OPTIMISED ROTATIONAL SPEED DUE TO PERFECTED SEATING AND SCREW FIT.

With precise bedding of the indexable insert and stable fitted screws, the new GARANT cutter head impresses even in demanding applications.

For stable conditions:
Positive engagement of the axial contact

Maximum speed depending
on the cutter diameter



CARRIER WITH CORROSION-RESISTANT SPECIAL COATING

PRECISE 90° ACCURACY

GENEROUSLY DIMENSIONED FLUTES

AXIAL SUPPORT OF THE ENTIRE INSERT LENGTH

Exceptional torsional stiffness thanks to optimised protection against centrifugal force

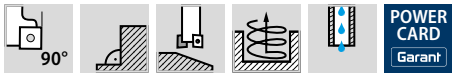
The centrifugal forces that occur during the machining process – some of which are extremely high – are absorbed and compensated by means of the screw neck fit.

This ensures the positional stability of the insert – and thus the process reliability – at all times.

SCREW NECK FIT

Positions the indexable insert in the insert seat.



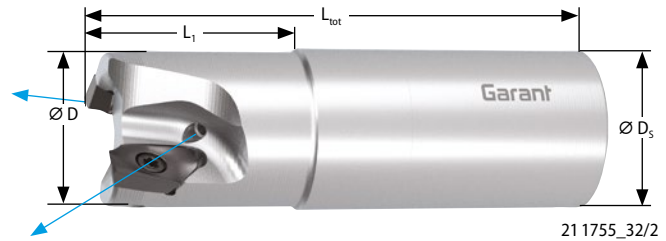


Garant Aluminium shoulder mill for ZDHT 1505

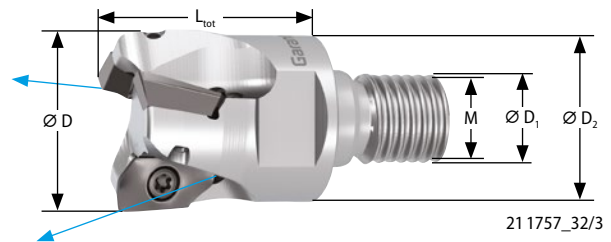
High-performance milling system for high cutting speeds.
 Absolutely precise insert bedding.
 Exceptional torsional stiffness thanks to optimised protection against centrifugal force.

Attention: Before using the indexable insert No. 211777 ALU (r = 6.0 mm), the insert seats of the carrier must be modified.

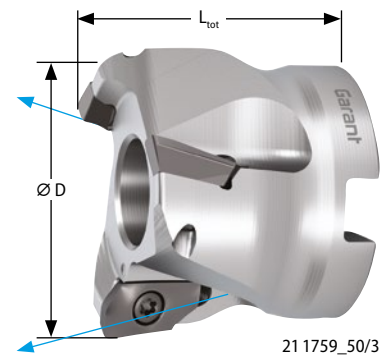
Note: The **recommended torque** for fastening the insert screws No. 219878 4 and 219878 5 is **3.2 Nm**.



$\varnothing D$ / number of effective cutting edges Z	210 21 1755 Aluminium shoulder mill Plain shank	L_1	L_{tot}	$\varnothing D_s$ h6	Circular interpolation milling $\varnothing D_{min}$	Circular interpolation milling $\varnothing D_{max}$	Circular interpolation milling a_p	Ramping angle α_{max}	Ramping length L for α_{max}	Pack of insert screws
25/2	243.54	32	88	25	36	48.4	7.6	17	44	219878 4 (15IP)
32/2	260.37	40	100	32	51	62.4	8	10.5	72	219878 4 (15IP)
40/3	329.67	50	110	32	69	78.4	9	7	109	219878 4 (15IP)



$\varnothing D$ / number of effective cutting edges Z	210 21 1757 Aluminium shoulder mill with threaded shank	L_{tot}	$\varnothing D_1$ h6	$\varnothing D_2$	Mounting thread M	Circular interpolation milling $\varnothing D_{min}$	Circular interpolation milling $\varnothing D_{max}$	Circular interpolation milling a_p	Ramping angle α_{max}	Ramping length L for α_{max}	Pack of insert screws
25/2	246.51	35	12.5	21	M12	36	48.4	7.6	17	44	219878 4 (15IP)
32/2	262.35	35	17	29	M16	51	62.4	8	10.5	72	219878 4 (15IP)
32/3	285.12	35	17	29	M16	51	62.4	8	10.5	72	219878 4 (15IP)



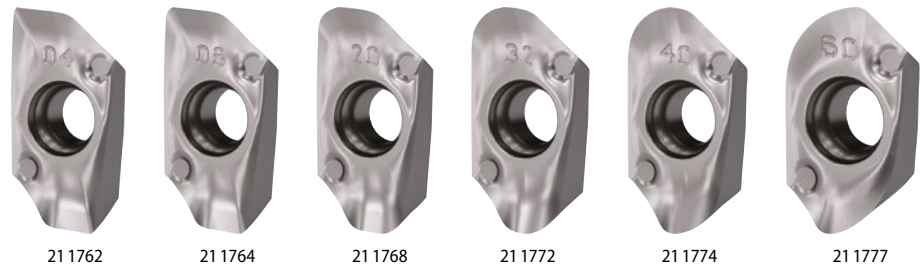
$\varnothing D$ / number of effective cutting edges Z	210 21 1759 Aluminium shoulder mill with bore	L_{tot}	Mounting bore \varnothing	Circular interpolation milling $\varnothing D_{min}$	Circular interpolation milling $\varnothing D_{max}$	Circular interpolation milling a_p	Ramping angle α_{max}	Ramping length L for α_{max}	Pack of insert screws
40/3	327.69	40	16	69	78.4	9	7	109	219878 4 (15IP)
50/3	348.48	40	22	89	98.4	8.4	5	154	219878 5 (15IP)
50/4	383.13	40	22	89	98.4	8.4	5	154	219878 5 (15IP)
63/4	404.91	40	22	115	124.4	8	3.8	203	219878 5 (15IP)
63/5	437.58	40	22	115	124.4	8	3.8	203	219878 5 (15IP)
80/5	492.03	50	27	149	158.4	7.6	2.8	276	219878 5 (15IP)

Garant Indexable milling inserts ZDHT1505.. for aluminium shoulder mill No. 211755 – 211759

Indexable inserts ground all round for a precise fit in the tool body. High-performance micro-grain substrate from the latest generation of tool materials. Optimised preparation of cutting edges for use in materials that are easy to machine.

Note:
21 1777 – Before using this insert with r = 6.0 mm, the carrier must be modified.

Suitable for/ v _c [m/min]	Alu plastics	Alu	Alu cast > 10% Si											INOX	INOX	Ti	Graphite GRP CRP	Uni						
ISO code	N	N	N	P	P	P	P	P	P	H	H	H	H	M	M	S	N							
21 1762–21 1777	2000	1800	900																					



Type				ALU	
21A 21 1762	ZDHT 150504FR-F10		HU7705	17.64	10
21A 21 1764	ZDHT 150508FR-F10		HU7705	17.64	10
21A 21 1768	ZDHT 150520FR-F10		HU7705	17.64	10
21A 21 1772	ZDHT 150532FR-F10		HU7705	17.64	10
21A 21 1774	ZDHT 150540FR-F10		HU7705	17.64	10
21A 21 1777	ZDHT 150560FR-F10		HU7705	17.64	10
f _z	mm			0.1 – 0.25	


Garant
**VERSATILE ALUMINIUM
SHOULDER MILL.**

The aluminium shoulder mill can also be used for machining plastics and aluminium composite materials. We have the answer to your machining requirements.

Just contact us!



Our ToolScout is easy to use – for intelligent tool selection and to determine technological data:
www.ho7.eu/scout





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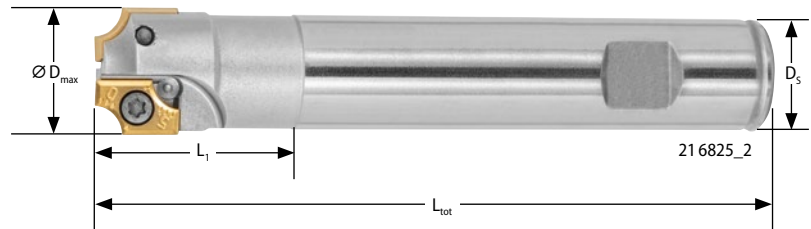


Industrial Tooling and Equipment by Hoffmann Group



Garant Radius cutter for inserts No. 216841

Application: For producing convex radii on components. The slim and compact design permits a wide variety of applications and is particularly suitable for use in deep cavities.



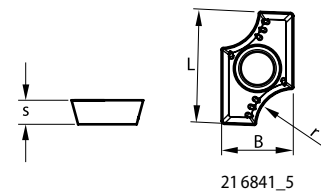
Type	210	21 6825	Number of cutting edges Z	Ø D _s	Ø D _{max}	L ₁	L _{tot}	r _{min}	r _{max}	suitable indexable insert	Insert screw
		Radius cutter		mm	mm	mm	mm	mm	mm		
		Weldon shank									
1		138.60	2	20	22	35	120	1	2.5	216841	219879 1 (TX15; 3Nm)
2		154.44	2	20	22	35	120	3	5	216841	219879 1 (TX15; 3Nm)

Garant Radius indexable inserts for radius cutter No. 216825

Application: General-purpose indexable insert, preferred for steel, high-alloy steels and cast iron. Optimised chip breaker for unobstructed chip flow.

Note: Can also be used on radius turning tool No. 294500.

Suitable for/ v _c [m/min]	Alu plastics	Alu	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	Uni	Oil	Water	Chip breaker	Chip breaker	Chip breaker
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	K	●	●	●	●	●	●
216841				390	300	220	160	90						280	180		110	●	●	●	●	●	●



Radius r		1	1,5	2	2,5	3	3,5	4	4,5	5		
21A 21 6841	Radius indexable insert	HB7525	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	10	
f _z	mm						0.1 – 0.4					
L	mm						15					
B	mm						9,52					
S	mm						3.18					

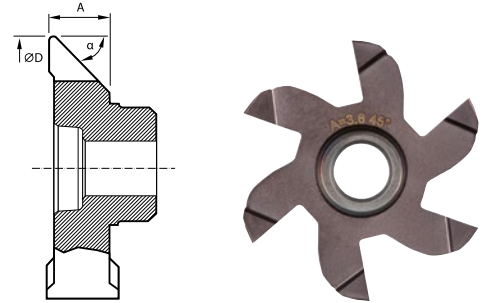
Garant Polygon milling inserts for circular mills No. 217250 / 217252 / 217253

Suitable for/ v _c [m/min]	Alu plastics	Alu	Alu cast > 10% Si													INOX	INOX	Ti	GG(G)	Uni					
ISO code	N	N	N	P	P	P	P	P	P	H	H	H	H	H	M	M	S	K							
217263–217346	400	300	250	250	180	120	100	80	60	45	35	30			120	120	60	120	●	●	●	●	●	●	

Inserts for dovetail grooves

Type P16/P26

With trailing chamfer, suitable for face machining.

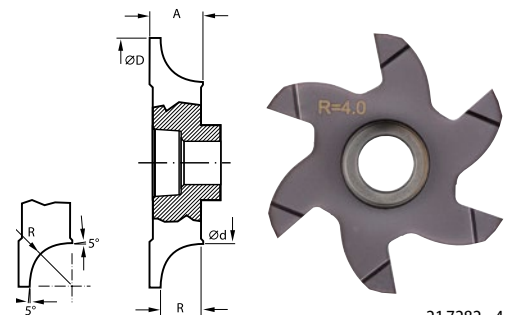


217263_45

Angle α	°	30	45		∅ D mm	Type	Z	
217263	Milling insert for dovetail groove	HB7720	43.20	45.90	3	16	P16	6
217264	Milling insert for dovetail groove	HB7720	59.40	63.90	3	26	P26	6
A (217263)	mm	4.5	3.6					
A (217264)	mm	6.1	5.9					

Radius milling inserts, reverse machining

Type P26



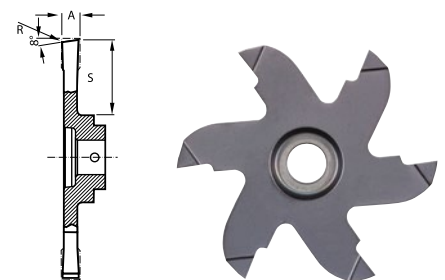
217282_4

Radius R	mm	0,5	1	1,5	2	2,5	3	4	5		∅ D mm	Type	Z	
217282	Radius milling insert	HB7720	64.53	66.96	69.30	72.72	76.23	79.56	87.75	87.75	3	26	P26	6
A	mm	3	3	3	3	4	5	6.5	6.5					
∅ d	mm	24.3	23.3	22.3	21.3	20.3	19.3	17.3	15.7					

Milling inserts for parting off, with 8° bevel

Type P26

Note: The 8° bevel facilitates process reliability when parting off components and helps to avoid vibration. Furthermore, it makes manual parting-off easier.



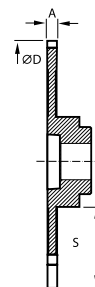
217276_2,5

Milling width A	mm	1,5	2,5		∅ D mm	Type	Z	
217276	Milling insert for parting off, with 8° bevel	HB7720	62.64	63.36	3	37	P26	6
Radius R	mm		0.1					
S _{max}	mm		11.5					

Milling inserts for parting off, high number of cutting edges

Type P16/P26

For particularly high feed rates. Ideal for effective series production.



217344_1,5



Milling width A	mm		1,5		Ø D mm	Type	Z
Z/C 21 7344	Milling insert for parting off, high number of cutting edges	HB7720	69.39	3	22	P16	9
Z/C 21 7346		HB7720	89.37	3	37	P26	9
S _{max} (217344)	mm		6.4				
S _{max} (217346)	mm		11.5				

Garant Polygon milling inserts – special profiles



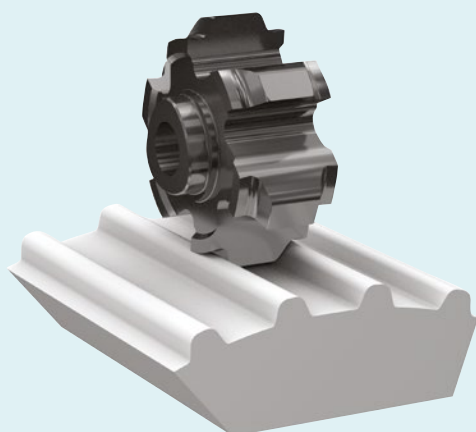
Tell us about your application. We offer an individual solution for you.

- Material and application-specific cutter geometry and tool coating.
- Adapted rake angle and chip breaker.
- Modified cut distribution and number of cutting edges.
- Can be fitted with PCD.

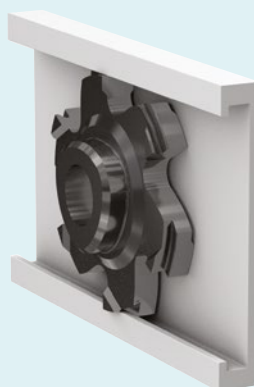
Examples of individual polygon milling inserts:



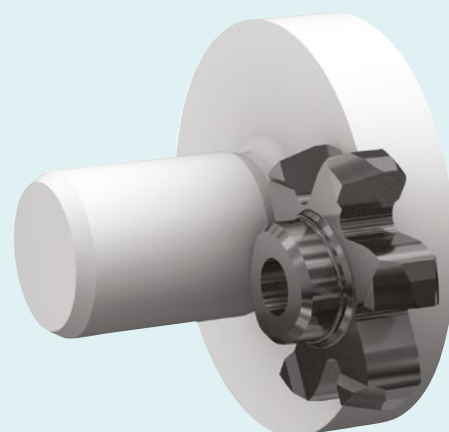
Torx profile



Special tooth profile



Slot milling



Undercut

DOUBLE HOLDS BETTER.

Clamping with high process reliability through clamping force and form fit:
HAIMER Safe-Lock pull-out protection



The challenges associated with high-performance machining, for instance of tough materials such as titanium or Inconel, are all too familiar. Extreme axial pull-out forces on the end mill are created at high speeds, especially when used on full power (TPC milling and slot milling). Tool breakage, and even total damage of the workpiece in the worst case, could be the consequence. The **HAIMER Safe-Lock pull-out protection** offers significantly greater safety here.

Damaged component due to tool breakage?
Safe-Lock will prevent the tool being pulled out accidentally.

The patented Safe-Lock pull-out protection is also available for the HAIMER DUO-LOCK interchangeable head system.



220294

HAIMER MILL solid carbide end mill with Safe-Lock on pages 104 – 105.



220298



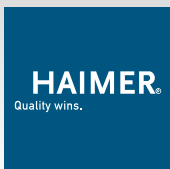
220380

HAIMER DUO-LOCK interchangeable head system with Safe-Lock on pages 107 – 112.



220353

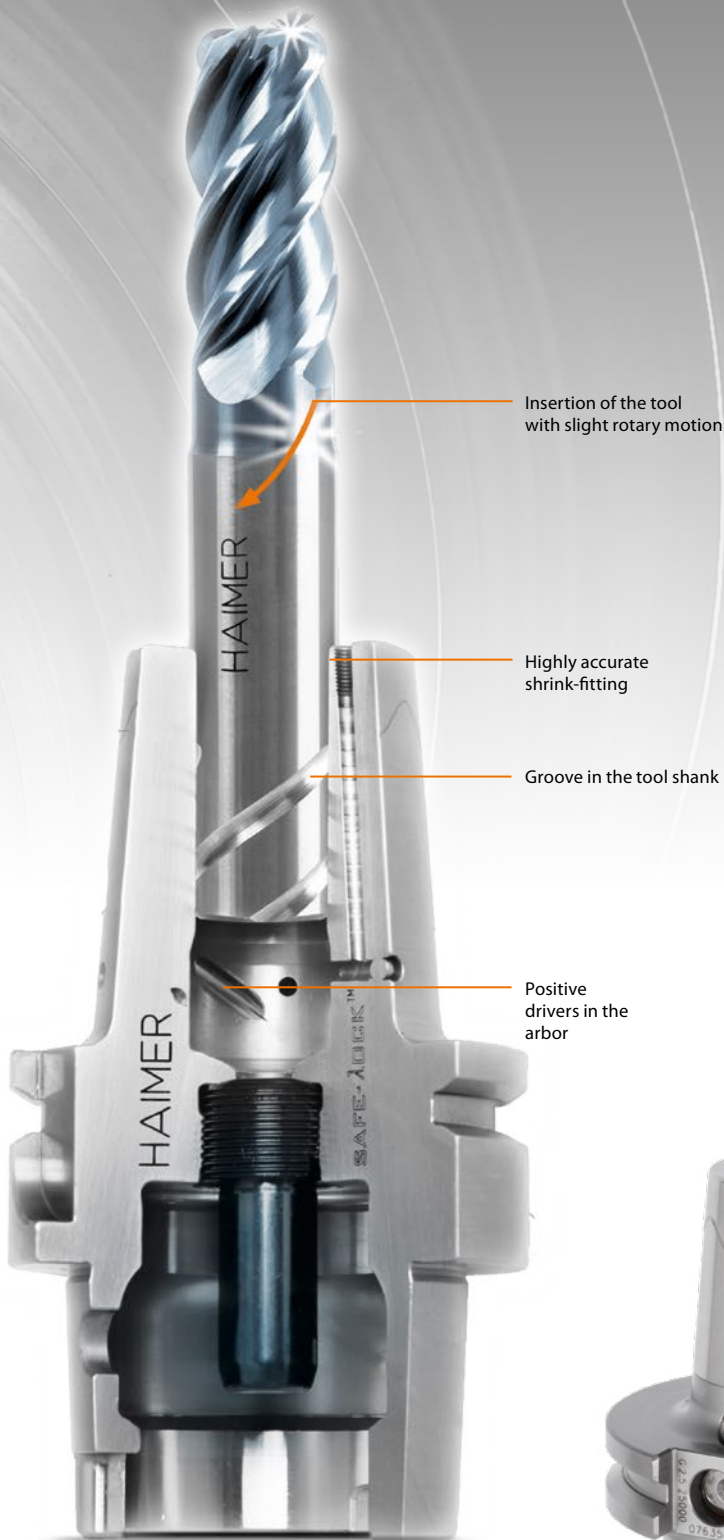
220370



HAIMER – PARTNER OF THE HOFFMANN GROUP.

HAIMER is a family-run medium-sized company and develops, manufactures and markets innovative, high-precision products for metal cutting. The product range includes arbors in all common interfaces and lengths, as well as cutting tools made from solid carbide. As a European market leader in tool clamping technology, HAIMER invests up to 8% of its turnover every year in research and development.

The strong quality claim corresponds to the Hoffmann Group's quality promise.



Insertion of the tool with slight rotary motion

Highly accurate shrink-fitting

Groove in the tool shank

Positive drivers in the arbor

SAFE-LOCK® –

simple and safe!

In addition to the clamping force in the arbor, the patented Safe-Lock form fit ensures a reliable grip – both simple and brilliant: Ground slots in the tool shank screw precisely into the counterpart (driver) of the arbor. Tool movement in the arbor is avoided.

- For high-performance machining.
- Maintains concentricity.
- High torque transmission due to clamping force and form fit.
- The tool cannot be pulled out.
- Avoidance of twisting.
- High balance quality.

Maximum metal removal rate with absolute process reliability.

302303



307935



Solid carbide DIN 6527 Type N f9      HPC

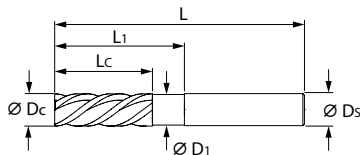
HAIMER MILL solid carbide milling cutter / HAIMER MILL solid carbide milling cutter SAFE-LOCK®






For **general-purpose use** in steel materials and high-alloy steels, especially stainless steel. With **cylindrical core** for optimised tool stiffness when milling slots. Reliable processes guaranteed when ramping and during circular interpolation milling thanks to **special end face geometry**.

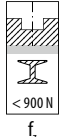
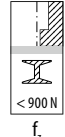
22 0288/0290/0294 – With SAFE-LOCK pull-out protection to provide an additional form fit for the tool. In conjunction with SAFE-LOCK tool holders, it secures the tool to prevent it being pulled out.

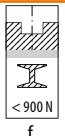
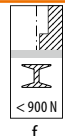
Note: Tool holders with the SAFE-LOCK pull-out protection can be found under clamping technology.








- 22 0286 – For **HB** use order **No. 220287**.
- 22 0289 – For **HB** use order **No. 220291**.
- 22 0292 – For **HB** use order **No. 220293**.



Suitable for/ v _c [m/min]	Alu plastics	Alu cast > 10% Si	Alu cast < 10% Si	Y < 500 N	Y < 750 N	Y < 900 N	Y < 1100 N	Y < 1400 N	Y < 55 HRC	Y < 60 HRC	Y < 65 HRC	Y < 67 HRC	Y < 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	Uni						
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	K							
22 0286–22 0294	480	480	350	275	255	210	190							95	75	35	155							

Ø f9 D _c	22 0286				22 0288				22 0289				22 0290				L _c	L ₁	Ø D ₁	L	Ø D _s	Corner chamfer width at 45°		
	SAFE-LOCK		SAFE-LOCK		SAFE-LOCK		SAFE-LOCK		SAFE-LOCK		SAFE-LOCK		SAFE-LOCK		f _z	f _z								
mm	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN	AITiN
2	25.25	37.33	25.25	36.23	7	9	1.9	58	6	0.04	0.011	0.013												
3	25.25	37.33	25.25	36.23	8	10	2.9	58	6	0.06	0.017	0.02												
4	25.25	37.33	25.25	36.23	11	15	3.8	58	6	0.08	0.022	0.026												
5	25.25	37.33	25.25	36.23	13	18	4.8	58	6	0.1	0.028	0.033												
6	25.25	37.33	25.25	36.23	13	20	5.7	58	6	0.12	0.033	0.039												
8	32.94	45.57	32.94	45.57	19	26	7.6	64	8	0.16	0.044	0.052												
10	45.57	58.19	45.57	58.19	22	30.5	9.5	73	10	0.2	0.055	0.065												
12	60.39	72.47	60.39	72.47	26	36.5	11.4	84	12	0.24	0.066	0.078												
16	103.21	117.49	103.21	117.49	32	42.5	15.2	93	16	0.32	0.088	0.104												
20	164.70	177.88	164.70	177.88	38	52	19	105	20	0.4	0.11	0.13												

Ø f9 D _c	22 0292		22 0294		L _c	L ₁	Ø D ₁	L	Ø D _s	Corner chamfer width at 45°		
	SAFE-LOCK		SAFE-LOCK									
mm	AITiN	AITiN	AITiN	AITiN	mm	mm	mm	mm	mm	mm	mm	mm
6	30.74	32.39	18	24	5.7	62	6	0.12	0.033	0.039		
8	41.72	43.92	24	32	7.6	70	8	0.16	0.044	0.052		
10	58.19	61.49	30	40	9.5	82	10	0.2	0.055	0.065		
12	74.66	79.06	36	48	11.4	95	12	0.24	0.066	0.078		
16	115.29	119.68	48	64	15.2	115	16	0.32	0.088	0.104		
20	178.97	185.56	60	80	19	133	20	0.4	0.11	0.13		

Solid carbide DIN 6527 Type N f9        a_c 0.5xD HPC

HAIMER MILL solid carbide torus cutter / HAIMER MILL solid carbide torus cutter SAFE-LOCK®

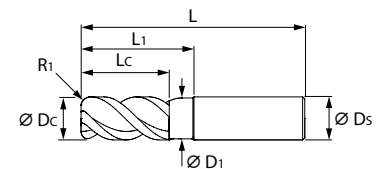
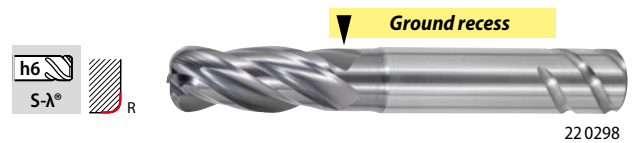
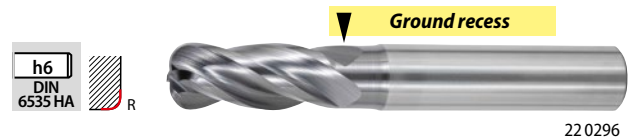
For **general-purpose use** in steel materials and high-alloy steels, especially stainless steel. With **cylindrical core** for optimum tool stiffness when milling slots.






Reliable processes guaranteed when ramping and during circular interpolation milling thanks to **special end face geometry**.

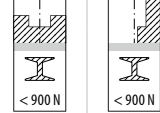
- 22 0298 – With SAFE-LOCK pull-out protection to provide an additional form fit for the tool.
- In conjunction with SAFE-LOCK tool holders, it secures the tool to prevent it being pulled out.

Note: Tool arbor with the SAFE-LOCK pull-out protection can be found under clamping technology.

22 0296 – For **HB** use order **No. 220297**.



Suitable for/ v _c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	Uni						
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	K							
22 0296/0298	480	480	375	275	255	210	190							95	75	35	155	●	●	●	●	●	●	●

Ø f9 D _c / R ₁	22 0296		22 0298		L _c	R ₁	L ₁	Ø D ₁	L	Ø D _s		
	HAIMER MILL solid carbide torus cutter		SAFE-LOCK								f _z	f _z
	mm	AITIN	AITIN	mm							mm	mm
4/0,4	34.04	39.53	11	0.4	15	3.8	58	6	0.022	0.026		
4/0,5	34.04	39.53	11	0.5	15	3.8	58	6	0.022	0.026		
5/0,5	34.04	39.53	13	0.5	18	4.8	58	6	0.028	0.033		
5/1,0	34.04	39.53	13	1	18	4.8	58	6	0.028	0.033		
6/0,5	34.04	39.53	13	0.5	20	5.7	58	6	0.033	0.039		
6/1,0	34.04	39.53	13	1	20	5.7	58	6	0.033	0.039		
6/1,5	34.04	39.53	13	1.5	20	5.7	58	6	0.033	0.039		
8/0,5	46.12	52.70	19	0.5	26	7.6	64	8	0.044	0.052		
8/1,0	46.12	52.70	19	1	26	7.6	64	8	0.044	0.052		
8/1,5	46.12	52.70	19	1.5	26	7.6	64	8	0.044	0.052		
8/2,0	46.12	52.70	19	2	26	7.6	64	8	0.044	0.052		
10/0,5	63.68	70.27	22	0.5	30.5	9.5	73	10	0.055	0.065		
10/1,0	63.68	70.27	22	1	30.5	9.5	73	10	0.055	0.065		
10/1,5	63.68	70.27	22	1.5	30.5	9.5	73	10	0.055	0.065		
10/2,0	63.68	70.27	22	2	30.5	9.5	73	10	0.055	0.065		
12/0,5	81.25	87.84	26	0.5	36.5	11.4	84	12	0.066	0.078		
12/1,0	81.25	87.84	26	1	36.5	11.4	84	12	0.066	0.078		
12/1,5	81.25	87.84	26	1.5	36.5	11.4	84	12	0.066	0.078		
12/2,0	81.25	87.84	26	2	36.5	11.4	84	12	0.066	0.078		
12/3,0	81.25	87.84	26	3	36.5	11.4	84	12	0.066	0.078		
12/4,0	81.25	87.84	26	4	36.5	11.4	84	12	0.066	0.078		
16/0,5	120.78	132.86	32	0.5	42.5	15.2	93	16	0.088	0.104		
16/1,0	120.78	132.86	32	1	42.5	15.2	93	16	0.088	0.104		
16/2,0	120.78	132.86	32	2	42.5	15.2	93	16	0.088	0.104		
16/3,0	120.78	132.86	32	3	42.5	15.2	93	16	0.088	0.104		
16/4,0	120.78	132.86	32	4	42.5	15.2	93	16	0.088	0.104		
20/1,0	176.78	191.05	38	1	52	19	105	20	0.11	0.13		
20/2,0	176.78	191.05	38	2	52	19	105	20	0.11	0.13		
20/3,0	176.78	191.05	38	3	52	19	105	20	0.11	0.13		
20/4,0	176.78	191.05	38	4	52	19	105	20	0.11	0.13		



THE SMART WAY TO SAVE.

The reliable and precise HAIMER Duo-Lock interchangeable head system impresses with maximum stability and sustainability!

Want to leverage the full potential of roughing and finish machining, whilst also saving time and materials? The new HAIMER Duo-Lock system achieves even more than twice the metal removal rate for conventional milling applications!

DUO-LOCK®

The advantages at a glance!

- Maximum concentricity and length repetition accuracy due to the modular interface with double taper on a wide variety of carbide tool heads.
- Unsurpassed productivity and stability due to a protected unique thread design and third contact area.
- Process reliability without loss of performance due to the finest, virtually unbreakable carbide grade.

Conclusion

Quick and precise changing of the Duo-Lock milling heads:

- Saves time.
- Saves material as the shank remains in place.
- Higher metal removal rate with very high process reliability.

Furthermore:

Increase safety with HAIMER Safe-Lock (more details also available on p. 102 – 103). The innovative shank shape can also be used on the Duo-Lock extensions. This provides comprehensive pull-out protection for reliable load capacity.



Superior stiffness of the interface which allows up to $1 \times D$ cutting depth for slot milling and $3 \times D$ cutting depth for side milling.

With the 3 precise mating faces of the interfaces, the Duo-Lock **has become established as the most accurate and most stable interchangeable head system.**

The double cone surfaces in combination with the third contact area in the back deliver high rigidity and precision.

Only low interface stress levels, even under heavy loading due to the ingenious fit system.



A wide range of heads can be found from p. 107.








A wide selection of Duo-Lock extensions and accessories can be found from p. 111.

Solid carbide  Type N

DUO-LOCK® interchangeable head system – milling heads for general-purpose machining

DUO-LOCK HAIMER MILL: Can be used as a universal tool. Unique end face geometry for ramping and circular interpolation milling. First choice for applications with short overhangs.

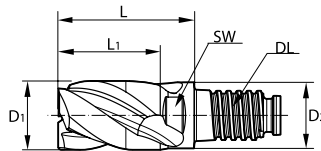
DUO-LOCK HAIMER MILL Power Series: First choice for applications with long overhangs and unstable clamping conditions. For particularly smooth running on long overhangs it is preferable to use solid carbide extensions.

Suitable for/ v _c [m/min]	Alu plastics	Alu	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 65 HRC	< 67 HRC	< 70 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	Uni					
ISO code	N	N	N	P	P	P	P	P	H	H	H	H	H	M	M	S	K						
22 0312–22 0317/ 0348	700	700	235	220	180	160	120							80	60	30	130	●	●	●	●	●	●
22 0320/0334	240	240	120	200	170	110	90							40	30	30	110	●	●	●	●	●	●
22 0322/0323	700	700	235	280	220	200	160							120	90	35	200	●	●	●	●	●	●
22 0326/0327	700	700	235	220	180	160	120							80		30	130	●	●	●	●	●	●
22 0353/0359	700	700	235	220	160	160	120							80	60	35	130	●	●	●	●	●	●

DUO-LOCK® HAIMER MILL solid carbide milling head, sharp-edged

f₉    36°     a_e 0.5×D HPC

Note:
22 0312 – Standard application values for slots milled from solid at a_{pmax} ≤ 0.5 × D.



22 0312



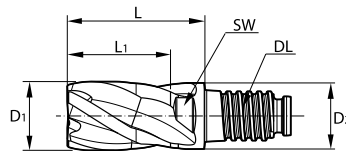
22 0314

Ø f ₉ D ₁	22 0312		22 0314		Ø D ₂	L ₁	L		DUO-LOCK interface	SW	recommended tightening torque	f _z		
	DUO-LOCK HAIMER MILL						22 0312	22 0314				mm	mm	mm
mm	AITiN		AITiN		mm	mm	mm	mm	mm	mm	N-m	mm	mm	
2	-		(74.66)		9.6	-	3	-	20	DL10	8	20	0.018	0.036
3	-		(74.66)		9.6	-	4.5	-	20	DL10	8	20	0.018	0.036
4	-		(74.66)		9.6	-	6	-	20	DL10	8	20	0.018	0.036
5	-		(74.66)		9.6	-	7.5	-	20	DL10	8	20	0.018	0.036
6	-		(74.66)		9.6	-	9	-	20	DL10	8	20	0.018	0.036
8	-		(74.66)		9.6	-	12	-	20	DL10	8	20	0.024	0.048
10	(66.98)		(74.66)		9.6	7.5	15	12.5	20	DL10	8	20	0.03	0.06
12	82.35		94.43		11.5	9	18	15	24	DL12	9.5	30	0.03	0.065
16	115.29		135.05		15.5	12	24	20	32	DL16	13	60	0.04	0.08
20	171.29		210.82		19.3	15	30	25	40	DL20	16	80	0.05	0.09

DUO-LOCK® HAIMER MILL solid carbide milling head, corner chamfer

f₉    32°     a_e 0.5×D HPC

Note:
22 0316 – Standard application values for slots milled from solid at a_{pmax} ≤ 0.5 × D.



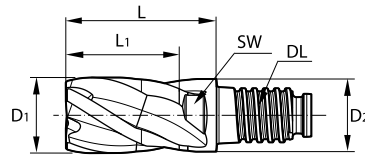
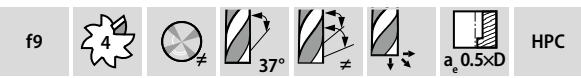
22 0316



22 0317

Ø f ₉ D ₁	22 0316		22 0317		Ø D ₂	L ₁	L		DUO-LOCK interface	SW	recommended tightening torque	f _z			
	DUO-LOCK HAIMER MILL						22 0316	22 0317				mm	mm	mm	mm
mm	AITiN		AITiN		mm	mm	mm	mm	mm	mm	N-m	mm	mm		
2	-		(68.08)		9.6	-	3	-	20	DL10	8	0.04	20	0.018	0.036
3	-		(68.08)		9.6	-	4.5	-	20	DL10	8	0.06	20	0.018	0.036
4	-		(68.08)		9.6	-	6	-	20	DL10	8	0.08	20	0.018	0.036
5	-		(68.08)		9.6	-	7.5	-	20	DL10	8	0.1	20	0.018	0.036
6	-		(68.08)		9.6	-	9	-	20	DL10	8	0.12	20	0.018	0.036
8	-		(68.08)		9.6	-	12	-	20	DL10	8	0.16	20	0.024	0.048
10	(63.68)		(68.08)		9.6	7.5	15	12.5	20	DL10	8	0.2	20	0.03	0.06
12	83.45		87.84		11.5	9	18	15	24	DL12	9.5	0.24	30	0.03	0.065
16	117.49		125.17		15.5	12	24	20	32	DL16	13	0.32	60	0.04	0.08
20	165.80		192.15		19.3	15	30	25	40	DL20	16	0.4	80	0.05	0.09

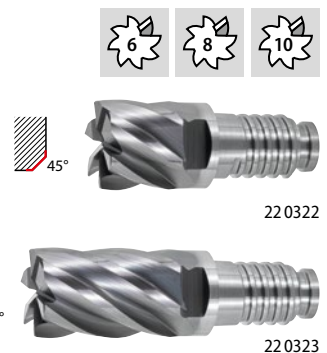
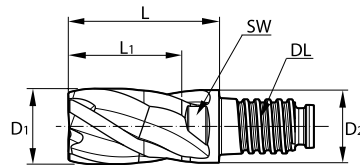
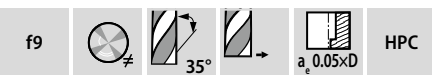
DUO-LOCK® HAIMER MILL Power Series solid carbide milling head, corner chamfer



22 0320

$\varnothing f_9$ D_1	26Y	22 0320	$\varnothing D_2$	L_1	L	DUO-LOCK interface	SW	χ 45°	recommended tightening torque	f_z
		DUO-LOCK HAIMER MILL Power Series								
		HPC								
mm		AITiN	mm	mm	mm		mm	mm	N-m	mm
10		(77.96)	9.6	15	20	DL10	8	0.2	20	0.015
12		92.23	11.5	18	24	DL12	9.5	0.24	30	0.015
16		144.94	15.5	24	32	DL16	13	0.32	60	0.03
20		(239.36)	19.3	30	40	DL20	16	0.4	80	0.03

DUO-LOCK® HAIMER MILL solid carbide milling head, corner chamfer

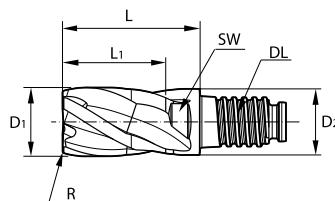
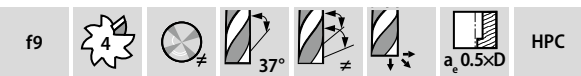


22 0322

22 0323

$\varnothing f_9$ D_1	26Y	22 0322	26Y	22 0323	Z	$\varnothing D_2$	L_1	L	DUO-LOCK interface	SW	χ 45°	recommended tightening torque	f_z
		DUO-LOCK HAIMER MILL											
		HPC											
mm		AITiN		AITiN		mm	mm	mm		mm	mm	N-m	mm
10		(71.37)		(86.74)	6	9.6	7.5	15	DL10	8	0.2	20	0.06
12		87.84		103.21	6	11.5	9	18	DL12	9.5	0.24	30	0.065
16		136.15		163.60	8	15.5	12	24	DL16	13	0.32	60	0.08
20		(181.17)		(223.99)	10	19.3	15	30	DL20	16	0.4	80	0.09

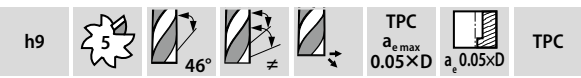
DUO-LOCK® HAIMER MILL Power Series solid carbide milling head, corner radius



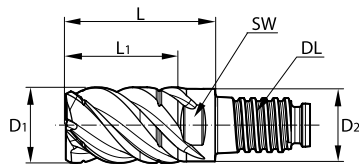
22 0334

$\varnothing f_9$ D_1/R	26Y	22 0334	$\varnothing D_2$	L_1	L	DUO-LOCK interface	SW	χ R	recommended tightening torque	f_z
		DUO-LOCK HAIMER MILL Power Series								
		HPC								
mm		AITiN	mm	mm	mm		mm	mm	N-m	mm
10/1,0		(84.55)	9.6	15	20	DL10	8	1	20	0.03
10/1,5		(84.55)	9.6	15	20	DL10	8	1.5	20	0.03
10/2,0		(84.55)	9.6	15	20	DL10	8	2	20	0.03
12/1,0		105.41	11.5	18	24	DL12	9.5	1	30	0.03
12/1,5		(105.41)	11.5	18	24	DL12	9.5	1.5	30	0.03
12/2,0		105.41	11.5	18	24	DL12	9.5	2	30	0.03
12/3,0		(105.41)	11.5	18	24	DL12	9.5	3	30	0.03
12/4,0		(105.41)	11.5	18	24	DL12	9.5	4	30	0.03
16/1,0		159.21	15.5	24	32	DL16	13	1	60	0.04
16/2,0		159.21	15.5	24	32	DL16	13	2	60	0.04
16/3,0		159.21	15.5	24	32	DL16	13	3	60	0.04
16/4,0		159.21	15.5	24	32	DL16	13	4	60	0.04
20/1,0		(243.76)	19.3	30	40	DL20	16	1	80	0.05
20/2,0		(243.76)	19.3	30	40	DL20	16	2	80	0.05

DUO-LOCK® HAIMER MILL Power Series solid carbide milling head, corner chamfer

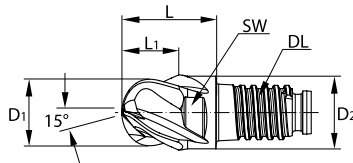
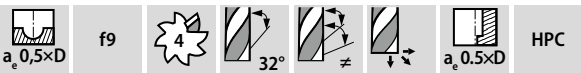


Note: h_{max} : The values stated in the table are maximum values.
 $a_{e,max} = 0.05 \times D$ for TPC machining.



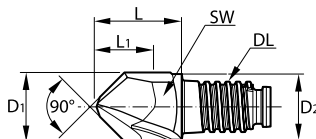
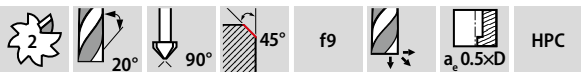
Ø h9 D ₁	22 0326		22 0327		Ø D ₂	L ₁	L	DUO-LOCK interface	SW	45°	recommended tightening torque	TPC < 900 N h _{max}		
	DUO-LOCK HAIMER MILL Power Series													
		TPC												
mm	AITiN		AITiN		mm	mm	mm	mm	mm	mm	N-m	mm		
10	(105.41)		-		9.6	15	-	20	-	DL10	8	0.3	20	0.026
12	132.86		-		11.5	18	-	24	-	DL12	9.5	0.3	30	0.028
16	185.56		242.66		15.5	24	48	32	56	DL16	13	0.5	60	0.035
20	(273.40)		(346.97)		19.3	30	60	40	70	DL20	16	0.6	80	0.039

DUO-LOCK® HAIMER MILL solid carbide milling head, full radius



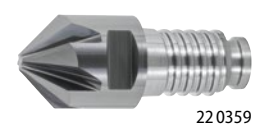
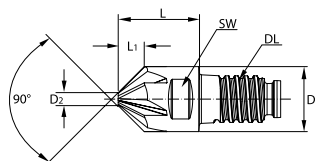
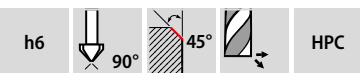
Ø f9 D ₁	22 0348		Ø D ₂	L ₁	L	DUO-LOCK interface	SW	recommended tightening torque	f _z	f _z	
	DUO-LOCK HAIMER MILL										
		HPC									
mm	AITiN		mm	mm	mm	mm	mm	N-m	mm	mm	
10	(72.47)		9.6	7.5	12.5	DL10	8	20	0.03	0.066	
12	93.33		11.5	9	15	DL12	9.5	30	0.03	0.065	
16	130.66		15.5	12	20	DL16	13	60	0.04	0.08	
20	(181.17)		19.3	15	25	DL20	16	80	0.05	0.09	

DUO-LOCK® HAIMER MILL solid carbide milling head, multi-functional



Ø f9 D ₁	22 0353		Ø D ₂	L ₁	L	DUO-LOCK interface	SW	recommended tightening torque	f _z	f _z	
	DUO-LOCK HAIMER MILL										
		90° HPC									
mm	AITiN		mm	mm	mm	mm	mm	N-m	mm	mm	
10	(61.49)		9.6	10	12.5	DL10	8	20	0.03	0.06	
12	74.66		11.5	12	15	DL12	9.5	30	0.03	0.065	
16	114.19		15.5	16	20	DL16	13	60	0.04	0.08	
20	(163.60)		19.3	20	25	DL20	16	80	0.05	0.09	

DUO-LOCK® HAIMER MILL solid carbide milling head, deburrer



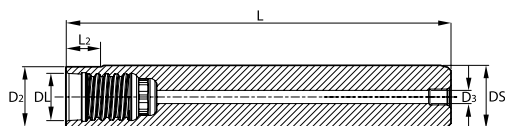
Ø h6 D ₁	22 0359		Z	Ø D ₂	L ₁	L	DUO-LOCK interface	SW	recommended tightening torque	f _z	
	DUO-LOCK HAIMER MILL										
		90° HPC									
mm	AITiN		mm	mm	mm	mm	mm	N-m	mm		
10	(58.19)		6	2	4	12.5	DL10	8	20	0.06	
12	69.17		6	2.4	4.8	15	DL12	9.5	30	0.065	
16	105.41		8	3.2	6.4	20	DL16	13	60	0.08	
20	(163.60)		8	4	8	25	DL20	16	80	0.09	

DUO-LOCK® interchangeable head system – arbors

DUO-LOCK® extension, cylindrical, steel



Coated for optimum shrinking in and out.



22 0370



22 0372



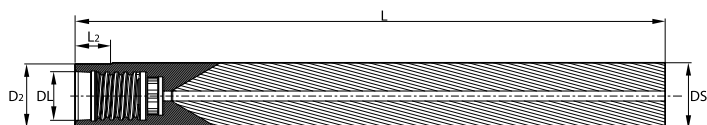
22 0374

DUO-LOCK interface	26Y	26Y	26Y	Ø D ₃	Ø D ₂	L			L ₂	Recommended torque
	22 0370	22 0372	22 0374			22 0370	22 0372	22 0374		
	DUO-LOCK extension, cylindrical, steel, short		DUO-LOCK extension, cylindrical, steel, long	mm	mm	mm	mm	mm	mm	N-m
DL10	SAFE-LOCK (113.09)	Plain shank —	Plain shank (215.21)	10	9.6	55	—	100	5	20
DL12	128.47	117.49	223.99	12	11.5	65	60	120	6	30
DL16	143.84	128.47	231.68	16	15.5	70	65	160	8	60
DL20	(162.50)	(148.23)	(269.01)	20	19.3	80	70	200	10	80

DUO-LOCK® extension, solid carbide



Special dimensions available on request.



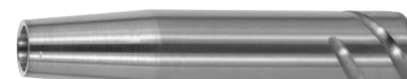
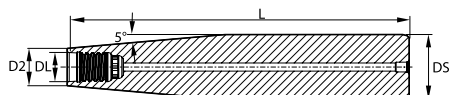
22 0375

DUO-LOCK interface	10N	22 0375	Ø D ₃	Ø D ₂	L	L ₂	Recommended torque
		DUO-LOCK extension, cylindrical, solid carbide					
		Plain shank					
DL10		(224.73)	10	9.6	77.5	37.5	20
DL12		306.90	12	11.5	93	45	30
DL16		409.86	16	15.5	108	60	60
DL20		(534.60)	20	19.3	125	75	80

DUO-LOCK® extension, conical, steel



Coated for optimum shrinking in and out.



22 0376

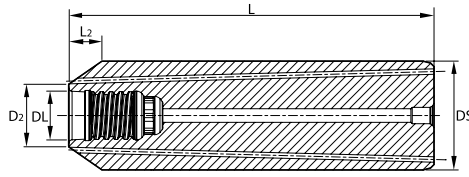


22 0378

DUO-LOCK interface / Ø D ₃	26Y	26Y	Ø D ₃	Ø D ₂	L		Recommended torque
	22 0376	22 0378			22 0376	22 0378	
	DUO-LOCK extension, conical, steel, short		mm	mm	mm	mm	N-m
	SAFE-LOCK	Plain shank					
DL10/12	(162.50)	(223.99)	12	9.6	65	120	20
DL10/16	(170.19)	(231.68)	16	9.6	90	160	20
DL10/20	(181.17)	(251.44)	20	9.6	115	200	20
DL12/16	170.19	245.95	16	11.5	80	160	30
DL12/20	181.17	263.52	20	11.5	105	200	30
DL16/20	202.03	263.52	20	15.5	80	200	60
DL16/25	208.62	274.50	25	15.5	115	250	60
DL20/25	(241.56)	(274.50)	25	19.3	95	250	80



DUO-LOCK® extension, Heavy Duty with Cool Jet, steel



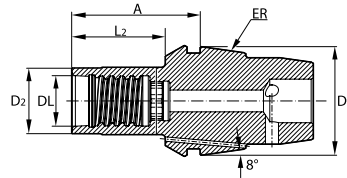
22 0380

DUO-LOCK interface	26Y	22 0380	Ø D _s	Ø D ₂	L	L ₂	Recommended torque
		DUO LOCK extension Heavy Duty with Cool Jet steel					
		SAFE-LOCK	mm	mm	mm	mm	N-m
DL10		(304.15)	16	9.6	62.5	6	20
DL12		304.15	20	11.5	67	6	30
DL16		334.89	25	15.5	78	6	60
DL20		(385.40)	32	19.3	82	6	80

DUO-LOCK® ER collets

ISO 15488-A

Note: HAIMER ER collets are incompatible with Centro P and HiRunER collet chucks.



22 0386

DUO-LOCK interface	26Y	22 0386	26Y	22 0387	L ₂		A		Ø D ₂	Recommended torque
		DUO-LOCK ER collet		22 0386	22 0387	22 0386	22 0387			
		ER 16		ER 20	mm	mm	mm	mm	mm	N-m
DL10		(247.05)		(247.05)	5,3	5.48	12	13	9,6	20
DL12		–		247.05	–	6.48	–	14	11,5	30

DUO-LOCK interface	26Y	22 0388	26Y	22 0389	L ₂		A		Ø D ₂	Recommended torque
		DUO-LOCK ER collet		22 0388	22 0389	22 0388	22 0389			
		ER 25		ER 32	mm	mm	mm	mm	mm	N-m
DL10		(247.05)		(278.89)	5,5	5	13,5	14	9,6	20
DL12		247.05		247.05	6,5	6	14,5	15	11,5	30
DL16		271.21		278.89	5,5	8	13,5	17	15,5	60
DL20		–		(316.22)	–	10	–	19	19,3	80

DUO-LOCK® accessories

Note: 22 9932 – Plug-in shank 9×12 mm. Suitable Wera torque wrench can be ordered under article number 656310 100.



22 9930

Width across flats AF		8	9,5	13	16
26Y 22 9930	DUO-LOCK hand wrench	69.17	69.17	69.17	69.17
Length L	mm	196	199	217	236
DUO-LOCK interface		DL10	DL12	DL16	DL20



22 9932

Type		8	9,5	13	16
26Y 22 9932	DUO-LOCK plug-in adaptor for torque wrench	85.64	85.64	85.64	85.64
Recommended torque	N-m	20	30	60	80
DUO-LOCK interface		DL10	DL12	DL16	DL20

NEW PRODUCTS

Machining – Turning

GARANT Master



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GARANT Master eco



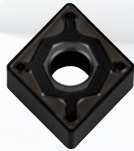
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GARANT Master Turn



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GARANT Master Mute



GARANT ISO turning



HB7130-2



HU7305-1



HU7315-1



HB7315-1



HB7415-1



HB725-1



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SVOC 140° boring bars

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Indexable inserts

SIMEK simturn Small parts machining



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simturn AX Center Line toolholder



Page 130
simturn AX Center Line cutter inserts CBN



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simturn AX toolholder ME clamping system



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simturn AX cutter inserts

GARANT radius turning



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Radius turning tool



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Radius indexable inserts

GARANT expansion of the range



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4in1 inserts



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Master Mute
set-up head



Page 136
Profile broaching insert
for stainless steel



Page 134
Grooving boring bar
for groove width 1.5 mm



Page 134
Parting-off tool with a
new clamping mechanism

Garant GARANT MASTER ECO

New generation of the tried-and-tested GARANT eco tools.

eco – efficient cooling

Highly efficient cooling of the cutting edge.

Additional flank face cooling

Reduction of the thermal load.
Optimised chip clearance.

Optional coolant transfer

Alternative coolant feed via hose connection.



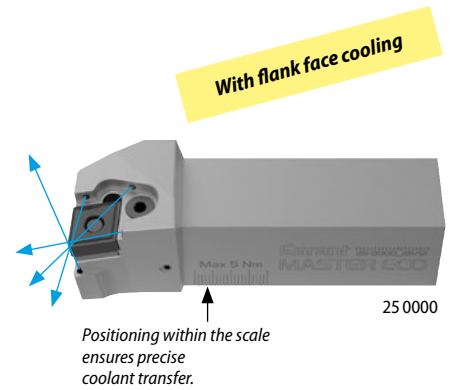
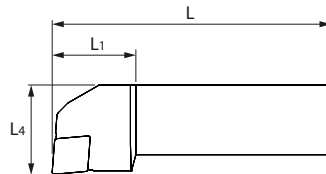
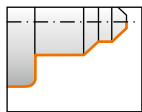
25



Garant PCLN 95° GARANT Master eco lever lock toolholder for indexable inserts CN..

Highly efficient cooling directly on the cutting edge and additional flank face cooling.

Note: Coolant transfer in conjunction with GARANT eco-system toolholder No. 319001 – 319886 or No. 317900 for shank length < 125 mm. Optional connection possibility via hose connection (G 1/8 inch).



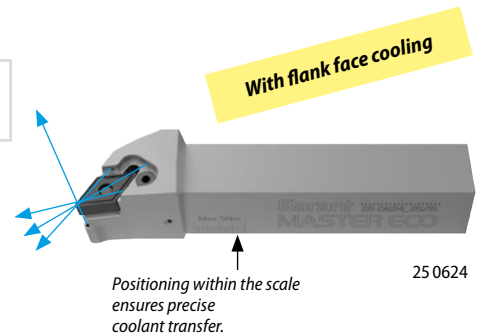
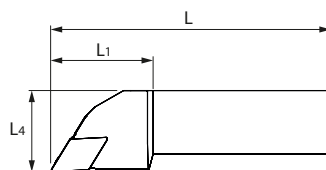
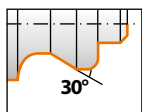
Shank / insert size	2TU 25 0000		2TU 25 0001		ISO code toolholder	suitable indexable insert	L ₄	L ₁	L	Shim	Lever	Lever screw	Spring
	GARANT Master eco lever lock toolholder short												
mm	right-hand	left-hand					mm	mm	mm				
16/12	151.53	151.53	PCLNR/L 1620F12	CN.. 1204..	25	30	80	259031 5	259015 15	259018 14	259046 4		
20/12	157.64	157.64	PCLNR/L 2020X12	CN.. 1204..	25	30	90	259031 5	259015 15	259018 15	259046 4		
25/12	177.98	177.98	PCLNR/L 2525H12	CN.. 1204..	32	30	100	259031 5	259015 15	259018 15	259046 4		



Garant PDJN 93° GARANT Master eco lever lock toolholder for indexable inserts DN..

Highly efficient cooling directly on the cutting edge and additional flank face cooling.

Note: Coolant transfer in conjunction with GARANT eco-system toolholder No. 319001 – 319886 or No. 317900 for shank length < 125 mm. Optional connection possibility via hose connection (G 1/8 inch).



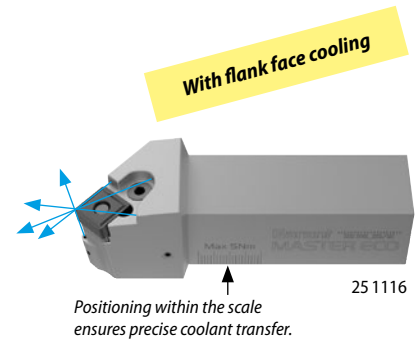
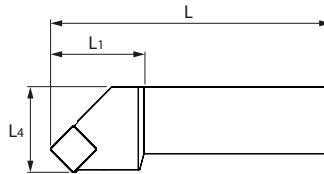
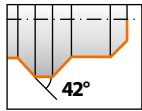
Shank / insert size	2TU 25 0624		2TU 25 0625		ISO code toolholder	suitable indexable insert	L ₄	L ₁	L	Shim	Lever	Lever screw	Spring
	GARANT Master eco lever lock toolholder short												
mm	right-hand	left-hand					mm	mm	mm				
16/11	151.53	151.53	PDJNR/L 1616X11	DN.. 1104..	20	35	85	259031 44	259015 16	259018 16	259046 5		
20/11	157.64	157.64	PDJNR/L 2020X11	DN.. 1104..	25	35	95	259031 44	259015 16	259018 16	259046 5		
20/15	157.64	157.64	PDJNR/L 2020H15	DN.. 1506..	25	40	100	259031 45	259015 17	259018 17	259046 4		
25/15	182.04	182.04	PDJNR/L 2525X15	DN.. 1506..	32	40	110	259031 45	259015 17	259018 17	259046 4		



Garant PSSN 45° GARANT Master eco lever lock toolholder for indexable inserts SN..

Highly efficient cooling directly on the cutting edge and additional flank face cooling.

Note: Coolant transfer in conjunction with GARANT eco-system toolholder No. 319001 – 319886 or No. 317900 for shank length < 125 mm. Optional connection possibility via hose connection (G 1/8 inch).



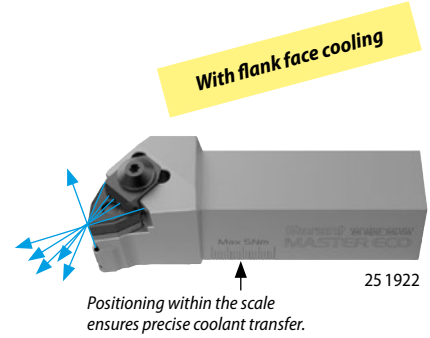
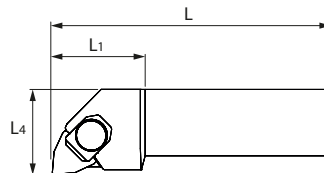
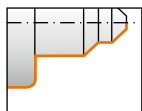
Shank / insert size	GARANT Master eco lever lock toolholder short		ISO code toolholder	suitable indexable insert	L ₄	L ₁	L	Shim	Lever	Lever screw	Spring
	right-hand	left-hand									
mm					mm	mm	mm				
16/12	151.53	151.53	PSSNR/L 1620X12	SN.. 1204..	25	35	85	259031 46	259015 15	259018 15	259046 4
20/12	157.64	157.64	PSSNR/L 2020X12	SN.. 1204..	25	35	95	259031 46	259015 15	259018 15	259046 4
25/12	177.98	177.98	PSSNR/L 2525X12	SN.. 1204..	32	35	105	259031 46	259015 15	259018 15	259046 4



Garant PWLN 95° GARANT Master eco clamping / lever lock toolholder for indexable inserts WN..

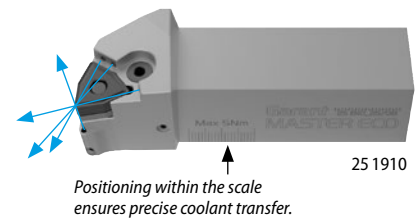
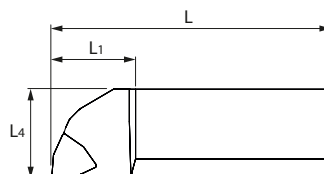
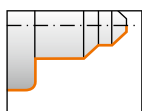
Highly efficient cooling directly on the cutting edge and additional flank face cooling.

Note: Coolant transfer in conjunction with GARANT eco-system toolholder No. 319001 – 319886 or No. 317900 for shank length < 125 mm. Optional connection possibility via hose connection (G 1/8 inch).



Shank / insert size	GARANT Master eco clamping toolholder short		ISO code toolholder	suitable indexable insert	L ₄	L ₁	L	Shim	Clamping claw	Screw for clamping claw	Pin
	right-hand	left-hand									
mm					mm	mm	mm				
20/08	171.87	171.87	MWLN/L 2020X08	WN.. 0804..	25	35	95	259033 6	259038 18	259021 6	259049 7
25/08	192.21	192.21	MWLN/L 2525X08	WN.. 0804..	32	35	105	259033 6	259038 18	259021 6	259049 7

Clamping with toggle lever



Shank / insert size	GARANT Master eco lever lock toolholder short		ISO code toolholder	suitable indexable insert	L ₄	L ₁	L	Shim	Lever	Lever screw	Spring
	right-hand	left-hand									
mm					mm	mm	mm				
16/06	151.53	151.53	PWLN/L 1616F06	WN.. 0604..	20	30	80	259031 47	259015 16	259018 14	259046 5
20/06	161.70	161.70	PWLN/L 2020X06	WN.. 0604..	25	30	90	259031 47	259015 16	259018 14	259046 5
25/06	182.04	182.04	PWLN/L 2525H06	WN.. 0604..	32	30	100	259031 47	259015 16	259018 14	259046 5
16/08	151.53	151.53	PWLN/L 1620F08	WN.. 0804..	25	30	80	259031 48	259015 15	259018 15	259046 4
20/08	161.70	161.70	PWLN/L 2020X08	WN.. 0804..	25	30	90	259031 48	259015 15	259018 15	259046 4
25/08	182.04	182.04	PWLN/L 2525H08	WN.. 0804..	32	30	100	259031 48	259015 15	259018 15	259046 4



Garant Indexable inserts CN..

CNMG Finishing



Grade		HB7130-2	HB7415-1	
2IG	25 0050 CNMG 09T304	6.26	–	10
2IG	25 0058 CNMG 120404	7.43	7.43	10
2IG	25 0060 CNMG 120408	7.43	7.43	10
●		M	S	
⚙				
Chip breaker		VS	TIS	
a _p	mm	0.3 – 2.5	0.2 – 2	
f	mm/rev.	0.15 – 0.5	0.1 – 2	
v _c main application	m/min	80 – 270	50 – 110	

CN.G Medium machining



Grade		HB7130-2	HU7305-1	HB7415-1	HB725-1	
2IG	25 0152 CNMG 09T308	6.26	–	–	–	10
2IG	25 0156 CN.G 120404	7.43	7.74	7.43	6.75	10
2IG	25 0158 CN.G 120408	7.43	7.74	7.43	6.75	10
2IG	25 0160 CNMG 120412	7.43	–	7.43	6.75	10
2IG	25 0172 CNMG 160616	–	–	–	12.96	10
●		M	N	S	UNI	
⚙						
Chip breaker		VM	AM1	TIM	UM1	
Tolerance				M		
a _p	mm	0.5 – 4	0.2 – 5	0.5 – 4	0.2 – 6	
f	mm/rev.	0.1 – 0.4	0.05 – 0.6	0.1 – 0.3	0.05 – 0.6	
v _c main application	m/min	70 – 240	400 – 700	40 – 90	50 – 250	

CNMG Roughing



Grade		HB7130-2	
2IG	25 0322 CNMG 120408	7.43	10
2IG	25 0324 CNMG 120412	7.43	10
●		M	
⚙			
Chip breaker		VG	
a _p	mm	1.5 – 6	
f	mm/rev.	0.25 – 0.6	
v _c main application	m/min	60 – 220	

Garant Indexable inserts DN..

DNMG Finishing



Grade		HB7130-2	HB7415-1	
2IG	25 0652 DNMG 110404	10.08	10.08	10
2IG	25 0658 DNMG 150604	12.02	12.02	10
2IG	25 0660 DNMG 150608	12.02	12.02	10
●		M	S	
⚙				
Chip breaker		VS	TIS	
a _p	mm	0.3 – 2	0.2 – 2	
f	mm/rev.	0.1 – 0.4	0.1 – 0.2	
v _c main application	m/min	80 – 270	50 – 110	

DN.G Medium machining



Grade		HB7130-2	HU7305-1	HB7415-1	HB725-1	
2IG 25 0752	DN.G 110404	10.08	10.62	–	9.09	10
2IG 25 0754	DN.G 110408	10.08	–	10.08	9.09	10
2IG 25 0760	DN.G 150604	12.02	12.87	12.02	11.03	10
2IG 25 0762	DN.G 150608	12.02	12.87	12.02	11.03	10
2IG 25 0764	DNMG 150612	12.02	–	12.02	11.03	10
●		M	N	S	UNI	
⚙		VM	AM1	TIM	UM1	
Chip breaker		VM	AM1	TIM	UM1	
Tolerance		M				
a _p	mm	0.5 – 5	0.2 – 5	0.5 – 4	0.2 – 6	
f	mm/rev.	0.2 – 0.5	0.05 – 0.6	0.1 – 0.3	0.05 – 0.6	
v _c main application	m/min	70 – 240	400 – 700	40 – 90	50 – 250	



DNMG Rough machining



Grade		HB7130-2	
2IG 25 0864	DNMG 150612	12.02	10
●		M	
⚙		VG	
Chip breaker		VG	
a _p	mm	1.5 – 6	
f	mm/rev.	0.25 – 0.6	
v _c main application	m/min	60 – 220	

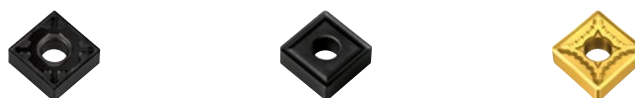
Garant Indexable inserts SNMG

SNMG Finish machining



Grade		HB7130-2	HB7415-1	
2IG 25 1142	SNMG 120404	8.78	8.78	10
●		M	S	
⚙		VS	TIS	
Chip breaker		VS	TIS	
a _p	mm	0.3 – 2	0.2 – 2	
f	mm/rev.	0.1 – 0.4	0.1 – 0.2	
v _c main application	m/min	80 – 270	50 – 110	

SNMG Medium machining



Grade		HB7130-2	HB7415-1	HB725-1	
2IG 25 1224	SNMG 120408	8.78	8.78	8.10	10
2IG 25 1226	SNMG 120412	–	–	8.10	10
●		M	S	UNI	
⚙		VM	TIM	UM1	
Chip breaker		VM	TIM	UM1	
a _p	mm	0.5 – 4	0.5 – 4	0.2 – 6	
f	mm/rev.	0.1 – 0.4	0.1 – 0.3	0.05 – 0.6	
v _c main application	m/min	70 – 240	40 – 90	50 – 250	

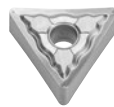
Garant Indexable inserts TN.G

TNMG Finish machining



Grade		HB7130-2	HB7415-1	
2IG 25 1432	TNMG 160404	8.78	8.78	10
●		M	S	
⚙				
Chip breaker		VS	TIS	
a_p	mm	0.3 – 2	0.2 – 2	
f	mm/rev.	0.1 – 0.4	0.1 – 0.2	
v_c main application	m/min	80 – 270	50 – 110	

TN.G Medium machining



Grade		HB7130-2	HU7305-1	HB7415-1	HB725-1	
2IG 25 1542	TN.G 160404	–	9.09	–	8.10	10
2IG 25 1544	TN.G 160408	8.78	9.09	8.78	8.10	10
●		M	N	S	UNI	
⚙						
Chip breaker		VM	AM1	TIM	UM1	
Tolerance			M			
a_p	mm	0.5 – 5	0.2 – 5	0.5 – 4	0.2 – 6	
f	mm/rev.	0.2 – 0.5	0.05 – 0.6	0.1 – 0.3	0.05 – 0.6	
v_c main application	m/min	70 – 240	400 – 700	40 – 90	50 – 250	

Garant Indexable inserts VN.G

VNMG Finish machining



Grade		HB7130-2	HB7415-1	
2IG 25 1732	VNMG 160404	10.04	10.04	10
2IG 25 1734	VNMG 160408	10.04	10.04	10
●		M	S	
⚙				
Chip breaker		VS	TIS	
a_p	mm	0.3 – 2	0.2 – 2	
f	mm/rev.	0.05 – 0.4	0.05 – 0.2	
v_c main application	m/min	80 – 270	50 – 110	

VN.G Medium machining



Grade		HB7130-2	HU7305-1	HB7415-1	HB725-1	
2IG 25 1802	VN.G 160404	10.04	10.58	10.04	9.14	10
2IG 25 1804	VN.G 160408	10.04	10.58	10.04	9.14	10
●		M	N	S	UNI	
⚙						
Chip breaker		VM	AM1	TIM	UM1	
Tolerance			M			
a_p	mm	0.5 – 4	0.2 – 5	0.5 – 4	0.2 – 6	
f	mm/rev.	0.1 – 0.5	0.05 – 0.6	0.1 – 0.3	0.05 – 0.6	
v_c main application	m/min	70 – 240	400 – 700	40 – 90	50 – 250	

Garant Indexable inserts WN.G

WNMG Finish machining



Grade		HB7130-2	HB7415-1	
2IG 25 1952	WNMG 060404	8.28	8.28	10
2IG 25 1962	WNMG 080404	8.78	8.78	10
●		M	S	
⚙		VS	TIS	
Chip breaker		VS	TIS	
a_p	mm	0.3 – 2	0.2 – 2	
f	mm/rev.	0.1 – 0.4	0.1 – 0.2	
v_c main application	m/min	80 – 270	50 – 110	

WN.G Medium machining



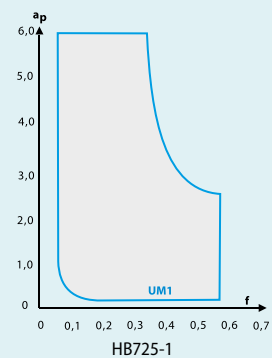
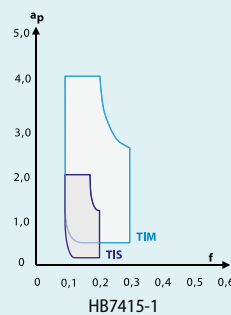
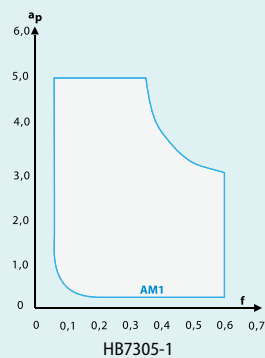
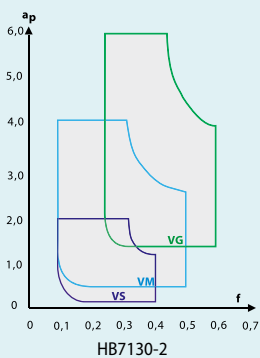
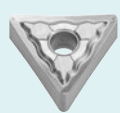
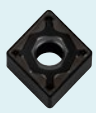
Grade		HB7130-2	HU7305-1	HB7415-1	HB725-1	
2IG 25 2062	WN.G 060404	–	8.60	–	7.65	10
2IG 25 2064	WN.G 060408	8.28	8.60	8.28	7.65	10
2IG 25 2068	WN.G 080404	–	9.09	–	8.33	10
2IG 25 2070	WN.G 080408	8.78	9.09	8.78	8.33	10
2IG 25 2072	WNMG 080412	8.78	–	8.78	8.33	10
●		M	N	S	UNI	
⚙		VM	AM1	TIM	UN1	
Chip breaker		VM	AM1	TIM	UN1	
Tolerance			M			
a_p	mm	0.5 – 4	0.2 – 5	0.5 – 4	0.2 – 6	
f	mm/rev.	0.1 – 0.5	0.05 – 0.6	0.1 – 0.3	0.05 – 0.6	
v_c main application	m/min	70 – 240	400 – 700	40 – 90	50 – 250	

WNMG Rough machining



Grade		HB7130-2	
2IG 25 2210	WNMG 080412	8.78	10
●		M	
⚙		VG	
Chip breaker		VG	
a_p	mm	1.5 – 6	
f	mm/rev.	0.25 – 0.6	
v_c main application	m/min	60 – 220	

Garant Chip shape diagrams – negative inserts

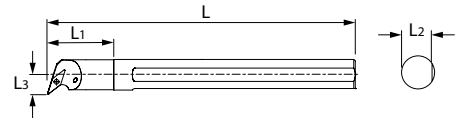
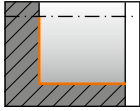




Garant A... SCLC 95° GARANT Master Turn boring bars for indexable inserts CC..



26 0030



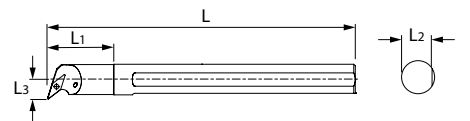
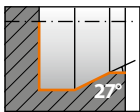
Shank Ø / insert size	GARANT Master Turn boring bar, steel spiral flutes		Ø D _s	ISO code toolholder	suitable indexable insert	Ø D _{min}	L ₃	L ₂	L ₁	L	Pack of insert screws
	right-hand	left-hand									
8/06	117.81	117.81	8	A08H SCLCR/L06	CC..0602..	10	5	7	20	100	2690287
10/06	118.80	118.80	10	A10K SCLCR/L06	CC..0602..	12	6	9	20	125	2690287
12/06	122.76	122.76	12	A12L SCLCR/L06	CC..0602..	14	7	11	24.3	140	2690287
16/09	152.46	152.46	16	A16Q SCLCR/L09	CC..09T3..	18	9	15	31	180	2690288
20/09	164.34	164.34	20	A20R SCLCR/L09	CC..09T3..	22	11	18	36	200	2690288
25/09	192.06	192.06	25	A25R SCLCR/L09	CC..09T3..	27	13.5	23	43	200	2690288
25/12	226.71	226.71	25	A25R SCLCR/L12	CC..1204..	27	13.5	23	43	200	2690289



Garant A... SDUC 93° GARANT Master Turn boring bars for indexable inserts DC..



26 0336



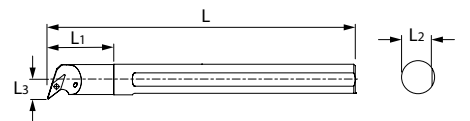
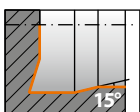
Shank Ø / insert size	GARANT Master Turn boring bar, steel spiral flutes		Ø D _s	ISO code toolholder	suitable indexable insert	Ø D _{min}	L ₃	L ₂	L ₁	L	Pack of insert screws
	right-hand	left-hand									
10/07	121.77	121.77	10	A10K SDUCR/L07	DC..0702..	13	7	9	20	125	2690287
12/07	129.69	129.69	12	A12L SDUCR/L07	DC..0702..	15	8	11	25	140	2690287
16/07	157.41	157.41	16	A16Q SDUCR/L07	DC..0702..	19	10	15	28	180	2690287
16/11	168.30	168.30	16	A16Q SDUCR/L11	DC..11T3..	23	14	15	28	180	2690288
20/11	174.24	174.24	20	A20R SDUCR/L11	DC..11T3..	25	13	18	36	200	2690288
25/11	226.71	226.71	25	A25R SDUCR/L11	DC..11T3..	31	16	23	40	200	2690288



Garant A... SDQC 107.5° GARANT Master Turn boring bars for indexable inserts DC..



26 0330

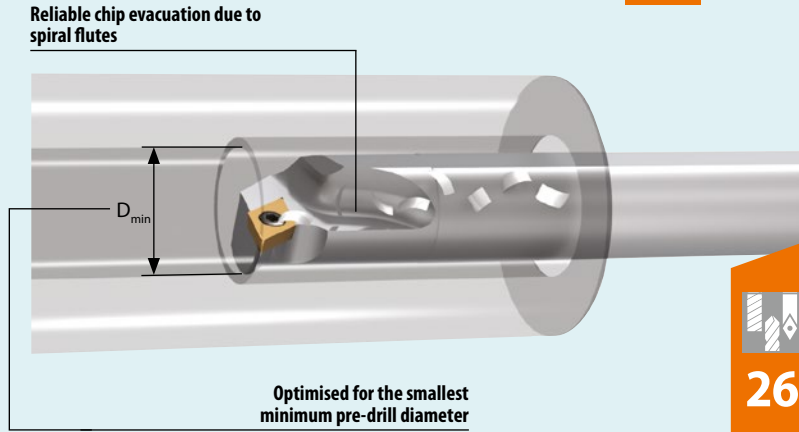
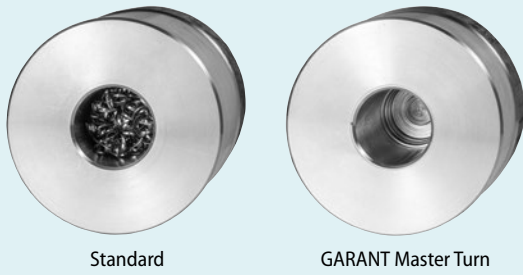


Shank Ø / insert size	GARANT Master Turn boring bar, steel spiral flutes		ISO code toolholder	suitable indexable insert	Ø D _{min}	L ₃	L ₂	L ₁	L	Pack of insert screws
	right-hand	left-hand								
10/07	121.77	121.77	A10K SDQCR/L07	DC..0702..	13	7	9	20	125	2690287
12/07	129.69	129.69	A12L SDQCR/L07	DC..0702..	15	8	11	25	140	2690287
16/07	157.41	157.41	A16Q SDQCR/L07	DC..0702..	19	10	15	28	180	2690287
16/11	168.30	168.30	A16Q SDQCR/L11	DC..11T3..	23	14	15	28	180	2690288
20/11	174.24	174.24	A20R SDQCR/L11	DC..11T3..	25	13	18	36	200	2690288
25/11	226.71	226.71	A25R SDQCR/L11	DC..11T3..	31	16	23	40	200	2690288

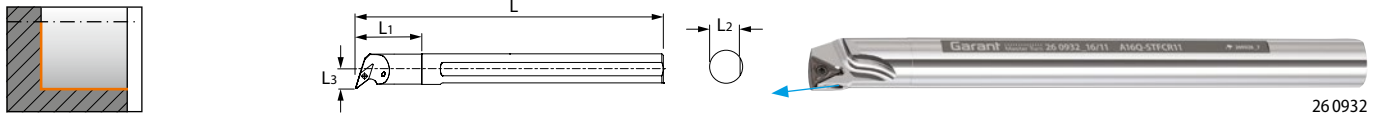
Garant GARANT Master Turn boring bars – for reliable evacuation of chips



Especially with small machining diameters - GARANT Master Turn boring bars prevent chips jamming in the workpiece.



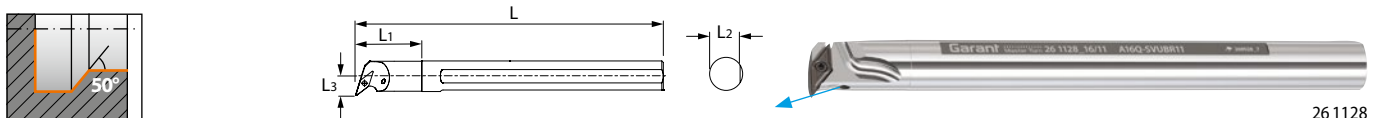
Garant A... STFC 90° GARANT Master Turn boring bars for indexable inserts TC..



Shank Ø / insert size mm	GARANT Master Turn boring bar, steel spiral flutes		ISO code toolholder	suitable indexable insert	Ø D _{min} mm	L ₃ mm	L ₂ mm	L ₁ mm	L mm	Pack of insert screws
	right-hand	left-hand								
10/11	117.81	117.81	A10K STFCR/L11	TC.. 1102..	12	6.2	9	22	125	269028 7
12/11	127.71	127.71	A12L STFCR/L11	TC.. 1102..	14	7.2	11	24.3	140	269028 7
16/11	157.41	157.41	A16Q STFCR/L11	TC.. 1102..	18	9.2	15	31	180	269028 7
20/11	177.21	177.21	A20R STFCR/L11	TC.. 1102..	22	11.1	18	36	200	269028 7



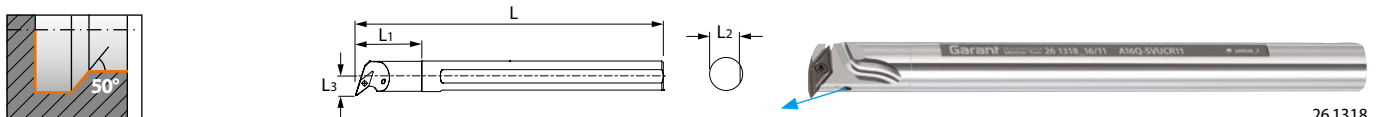
Garant A... SVUB 93° GARANT Master Turn boring bars for indexable inserts VB..



Shank Ø / insert size mm	GARANT Master Turn boring bar, steel spiral flutes		ISO code toolholder	suitable indexable insert	Ø D _{min} mm	L ₃ mm	L ₂ mm	L ₁ mm	L mm	Pack of insert screws
	right-hand	left-hand								
16/11	173.25	173.25	A16Q SVUBR/L11	VB.. 1103..	20	11	15	31	180	269028 7
20/11	187.11	187.11	A20R SVUBR/L11	VB.. 1103..	24	13	18	36	200	269028 7
25/16	236.61	236.61	A25R SVUBR/L16	VB.. 1604..	31	17	23	40	200	269028 8



Garant A... SVUC 93° GARANT Master Turn boring bars for indexable inserts VC..



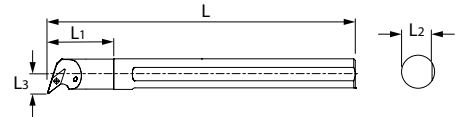
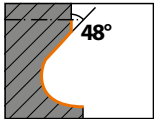
Shank Ø / insert size mm	GARANT Master Turn boring bar, steel spiral flutes		ISO code toolholder	suitable indexable insert	Ø D _{min} mm	L ₃ mm	L ₂ mm	L ₁ mm	L mm	Pack of insert screws
	right-hand	left-hand								
16/11	173.25	173.25	A16Q SVUCR/L11	VC.. 1103..	20	11	15	31	180	269028 7
20/11	187.11	187.11	A20R SVUCR/L11	VC.. 1103..	24	13	18	36	200	269028 7
25/16	236.61	236.61	A25R SVUCR/L16	VC.. 1604..	31	17	23	40	200	269028 8



Garant E... SVOC 140° boring bars for indexable inserts VC..



26 1376



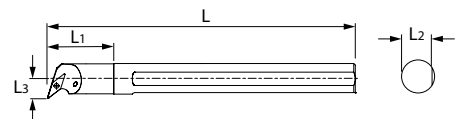
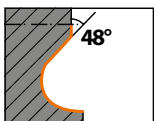
Shank \varnothing / insert size	Boring bar carbide		ISO code toolholder	suitable indexable insert	$\varnothing D_{min}$	L_3	L_2	L_1	L	Pack of insert screws
	right-hand	left-hand								
8/05	223.74	223.74	E08F SVOCR/L05	VC.. 0501..	8	3	7.5	26	80	269028 26
10/07	233.64	233.64	E10H SVOCR/L07	VC.. 0702..	11	5.5	9	32	100	269028 27



Garant A... SVOC 140° boring bars for indexable inserts VC..

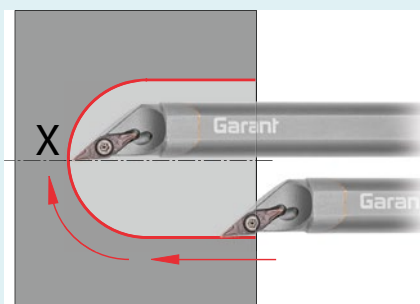


26 1378

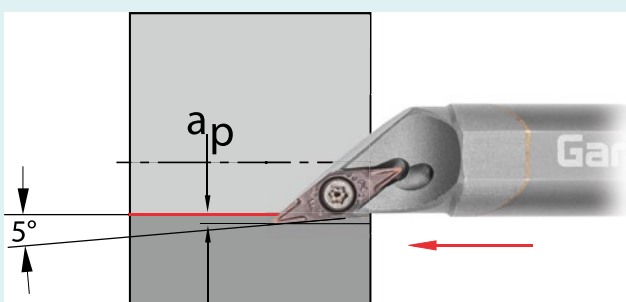
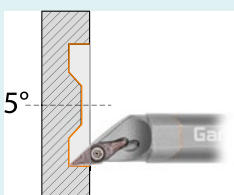


Shank \varnothing / insert size	Boring bar, steel		ISO code toolholder	suitable indexable insert	$\varnothing D_{min}$	L_3	L_2	L_1	L	Pack of insert screws
	right-hand	left-hand								
8/05	132.66	132.66	A08F SVOCR/L05	VC.. 0501..	8	3	7.5	15	80	269028 26
10/07	138.60	138.60	A10H SVOCR/L07	VC.. 0702..	11	5.5	9	22	100	269028 27
12/07	144.54	144.54	A12L SVOCR/L07	VC.. 0702..	13	6.5	11	28	140	269028 27
16/11	166.32	166.32	A16M SVOCR/L11	VC.. 1103..	22	9	15	36	150	269028 7
20/11	176.22	176.22	A20Q SVOCR/L11	VC.. 1103..	24	11	19	40	180	269028 7

Garant Application notes, SVOC 140° boring bars



Make sure that the cutting edge does not exceed the X-rotation axis.



The cutting depth a_p must be smaller than the indexable insert radius.

Indexable inserts CC..

CC.T finishing



Grade		HB7130-2	HU7315-1	HB7315-1	HB7415-1		
2IG	26 0050	CC.T 060202	6.03	9.36	10.40	6.03	10
2IG	26 0052	CC.T 060204	6.03	9.36	10.40	6.03	10
2IG	26 0056	CC.T 09T302	6.93	9.86	11.03	6.93	10
2IG	26 0058	CC.T 09T304	6.93	9.86	11.03	6.93	10
2IG	26 0062	CC.T 120402	–	11.21	12.56	–	10
2IG	26 0064	CC.T 120404	8.64	11.21	12.56	8.64	10
●		M	N	N	S		
⚙️		VS	AF	AF	TIS		
Chip breaker		VS	AF	AF	TIS		
Tolerance		M	G	G	M		
a _p	mm	0.2 – 2.5	0.05 – 0.5	0.05 – 0.5	0.2 – 1.5		
f	mm/rev.	0.1 – 0.3	0.03 – 0.1	0.03 – 0.1	0.05 – 0.3		
v _c main application	m/min	80 – 270	120 – 600	120 – 600	50 – 110		

26



Grade		HBT020	HBT130		
22D	26 0082	HOLEX CCMT 060202	4.49	4.49	10
●		P	M		
⚙️		PF	M		
Chip breaker		PF	M		
a _p	mm	0.4 – 2	0.1 – 1		
f	mm/rev.	0.1 – 0.3	0.05 – 0.2		
v _c main application	m/min	70 – 250	40 – 220		

CC.T Medium machining



Grade		HB7130-2	HB725-1		
2IG	26 0140	CC.T 060202	6.03	–	10
2IG	26 0142	CC.T 060204	6.03	5.63	10
2IG	26 0150	CC.T 09T304	6.93	6.53	10
2IG	26 0152	CC.T 09T308	6.93	6.53	10
2IG	26 0158	CC.T 120404	8.60	8.06	10
2IG	26 0160	CC.T 120408	8.60	8.06	10
●		M	UNI		
⚙️		VM	UM1		
Chip breaker		VM	UM1		
Tolerance			M		
a _p	mm		0.2 – 4		
f	mm/rev.	0.1 – 0.4		0.05 – 0.5	
v _c main application	m/min	70 – 240		50 – 250	

Indexable inserts DC..

DC.. Finishing



Grade		HB7130-2	HU7315-1	HB7315-1	HB7415-1		
2IG	26 0351	DC.T 070202	6.93	9.90	11.25	6.93	10
2IG	26 0353	DC.T 070204	6.93	9.90	11.25	6.93	10
2IG	26 0356	Garant DC.T 11T302	8.06	10.26	11.66	8.06	10
2IG	26 0359	DC.T 11T304	8.06	10.26	11.66	8.06	10
2IG	26 0361	DC.T 11T308	8.06	10.26	11.66	8.06	10
			M	N	N	S	
Chip breaker		VS	AF	AF	TIS		
Tolerance		M	G	G	M		
a _p	mm	0.2 – 1.5	0.05 – 0.6	0.05 – 0.6	0.2 – 1.5		
f	mm/rev.	0.1 – 0.3	0.03 – 0.1	0.03 – 0.1	0.05 – 0.3		
v _c main application	m/min	80 – 270	120 – 600	120 – 600	50 – 110		



Grade		HBT020	HBT130		
22D	26 0363	HOLEX DCMT 070202	5.31	5.31	10
22D	26 0377	DCMT 11T302	5.85	5.85	10
		P	M		
Chip breaker		PF	M		
a _p	mm	0.4 – 1.5	0.1 – 1		
f	mm/rev.	0.1 – 0.3	0.05 – 0.2		
v _c main application	m/min	70 – 250	40 – 220		

DC.T Medium machining



Grade		HB7130-2	HB725-1		
2IG	26 0452	DC.T 070204	6.93	6.53	10
2IG	26 0462	Garant DC.T 11T304	8.06	7.16	10
2IG	26 0464	DC.T 11T308	8.06	7.16	10
		M	UNI		
Chip breaker		VM	UM1		
Tolerance			M		
a _p	mm	0.5 – 2.5	0.2 – 4		
f	mm/rev.	0.1 – 0.4	0.05 – 0.5		
v _c main application	m/min	70 – 240	50 – 250		

Garant Indexable inserts RC..

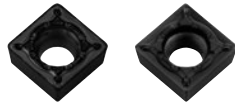
RC.. Medium machining



Grade		HB725-1		
2IG	26 0620	RC.T 0602	5.36	10
2IG	26 0630	RC.T 0803	5.72	10
2IG	26 0640	RC.X 1003	5.90	10
2IG	26 0650	RC.X 1204	6.84	10
		UNI		
Chip breaker		UM1		
Tolerance		M		
a _p	mm	0.5 – 2		
f	mm/rev.	0.1 – 0.3		
v _c main application	m/min	60 – 230		

Garant Indexable inserts SC..

SCMT Finish machining



Grade		HB7130-2	HB7415-1	
2IG	26 0742 SCMT 09T304	8.10	8.10	10
2IG	26 0748 SCMT 120404	9.90	9.90	10
●		M	S	
⊗				
Chip breaker		VS	TIS	
a_p	mm	0.2 – 1.5		
f	mm/rev.	0.1 – 0.3	0.05 – 0.3	
v_c main application	m/min	80 – 270	50 – 110	

SC.T Medium machining



Grade		HB7130-2	HB725-1	
2IG	26 0762 SC.T 09T304	8.10	7.34	10
2IG	26 0763 SCMT 09T308	8.10	7.34	10
2IG	26 0765 SC.T 120404	9.90	8.96	10
2IG	26 0766 SC.T 120408	9.90	8.96	10
●		M	UNI	
⊗				
Chip breaker		VM	UM1	
Tolerance		M		
a_p	mm	0.5 – 2.5	0.2 – 4	
f	mm/rev.	0.1 – 0.4	0.05 – 0.5	
v_c main application	m/min	70 – 240	50 – 250	

Garant Indexable inserts TC..

TCMT Finish machining



Grade		HB7130-2	HB7415-1	
2IG	26 0952 TCMT 110204	6.57	6.57	10
2IG	26 0956 TCMT 16T304	8.33	8.33	10
●		M	S	
⊗				
Chip breaker		VS	TIS	
a_p	mm	0.2 – 1.5		
f	mm/rev.	0.1 – 0.3	0.05 – 0.3	
v_c main application	m/min	80 – 270	50 – 110	

TC.T Medium machining



Grade		HB7130-2	HB725-1	
2IG	26 0982 TC.T 110204	6.57	6.08	10
2IG	26 0984 TCMT 110208	–	6.08	10
2IG	26 0986 TC.T 16T304	8.33	7.65	10
2IG	26 0988 TCMT 16T308	8.33	7.65	10
●		M	UNI	
⊗				
Chip breaker		VM	UM1	
Tolerance		M		
a_p	mm	0.5 – 2.5	0.2 – 4	
f	mm/rev.	0.1 – 0.4	0.05 – 0.5	
v_c main application	m/min	70 – 240	50 – 250	

Garant Indexable inserts VB. T

VBMT Finish machining



Grade		HB7130-2	HB7415-1	
2IG	26 1142 VBMT 110302	12.69	12.69	10
2IG	26 1144 VBMT 110304	12.69	12.69	10
2IG	26 1150 VBMT 160402	14.72	14.72	10
2IG	26 1152 VBMT 160404	14.72	14.72	10
2IG	26 1154 VBMT 160408	14.72	14.72	10
●		M	S	
⊗				
Chip breaker		VS	TIS	
a_p	mm	0.2 – 1.5		
f	mm/rev.	0.1 – 0.3	0.05 – 0.3	
v_c main application	m/min	80 – 270	50 – 110	

VB.T Medium machining



Grade		HB7130-2	HB725-1	
2IG	26 1224 VB.T 110304	12.69	11.48	10
2IG	26 1232 VB.T 160404	14.72	13.46	10
2IG	26 1234 VB.T 160408	14.72	13.46	10
●		M	UNI	
⊗				
Chip breaker		VM	UM1	
Tolerance		M		
a_p	mm	0.5 – 2.5	0.2 – 4	
f	mm/rev.	0.1 – 0.4	0.05 – 0.5	
v_c main application	m/min	70 – 240	50 – 250	

Garant Indexable inserts VC..

VC.T finishing



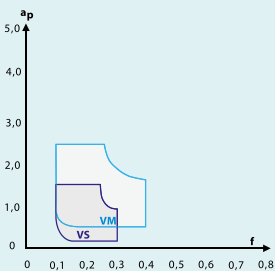
Grade		HB7130-2	HU7315-1	HB7315-1	HB7415-1	
2IG	26 1364 VC.T 110302	12.69	12.78	14.04	12.69	10
2IG	26 1366 VC.T 110304	12.69	12.78	14.04	12.69	10
2IG	26 1370 VC.T 160402	14.72	14.81	16.20	14.72	10
2IG	26 1372 VC.T 160404	14.72	14.81	16.20	14.72	10
2IG	26 1374 VC.T 160408	14.72	14.81	16.20	14.72	10
●		M	N	N	S	
⚙️		VS	AF	AF	TIS	
Chip breaker		VS	AF	AF	TIS	
Tolerance		M	G	G	M	
a_p	mm	0.2 – 1.5	0.05 – 1.5	0.05 – 1.5	0.05 – 1.5	
f	mm/rev.	0.1 – 0.3	0.03 – 0.25	0.03 – 0.25	0.05 – 0.3	
v_c main application	m/min	80 – 270	50 – 600	50 – 600	50 – 110	

VC.T Medium machining

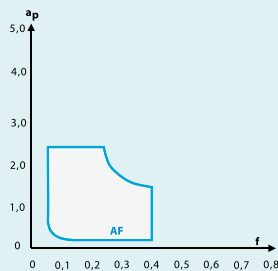


Grade		HB7130-2	HB725-1	
2IG	26 1454 VC.T 110304	12.69	–	10
2IG	26 1458 VC.T 160404	14.72	14.72	10
2IG	26 1459 VC.T 160408	14.72	14.72	10
●		M	UNI	
⚙️		VM	UM1	
Chip breaker		VM	UM1	
Tolerance			M	
a_p	mm	0.5 – 2.5	0.2 – 4	
f	mm/rev.	0.1 – 0.4	0.05 – 0.5	
v_c main application	m/min	70 – 240	50 – 250	

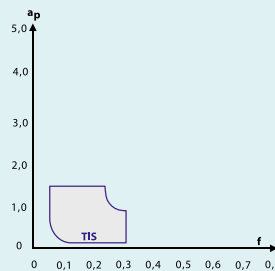
Garant Chip shape diagrams – positive inserts



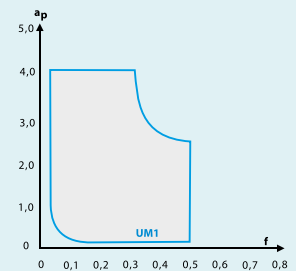
HB7130-2



HU7315-1 / HB7315-1



HB7415-1



HB725-1

Garant GARANT HB7130-2



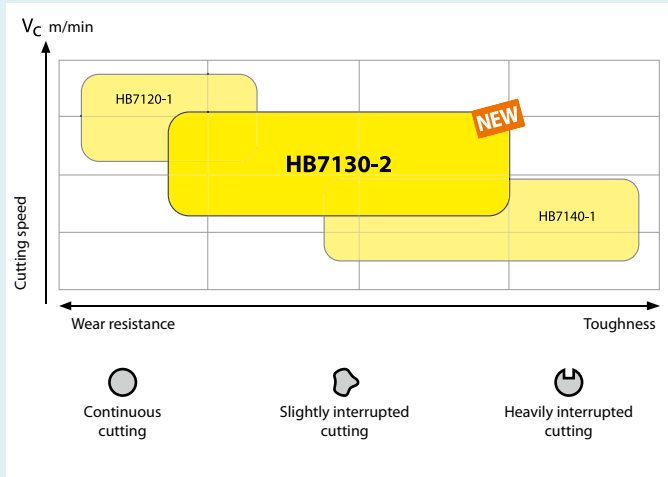
All-round turning grade for stainless steels:

- For **continuous cutting** and **slightly interrupted cutting** (scale, uneven material, saw cuts).
- For **moderate/high** cutting speeds.
- The **new first choice** for turning stainless steels.



Application example: Turning a forging blank.

The component requires the use of a grade with increased basic toughness to counteract wear when removing the layer of scale. At the same time, a grade that delivers productive results with a smooth cut is required. The GARANT HB7130-2 combines the properties of the HB7120-1 and HB7140-1 and is the right choice for this application example.



26

Garant Indexable inserts ZCMX.. for „4 in 1“ drilling and turning tools

Size HBZ030 – Harder substrate for longer tool life with thinner CVD coating. Especially for facing and longitudinal turning applications.
 Size HBZ025; HBZ035; HBZ140 – General-purpose medium grit substrate with PVD coating. First choice for turning and drilling applications.



Expanded range

Grade		HBZ025	HBZ030	HBZ035	HBZ120	HBZ140		suitable for tool dia. D _c mm
2IE 26 8433	ZCMX 10T304	12.11	12.11	12.11	12.11	12.11	10	20
2IE 26 8443	ZCMX 130404	13.05	13.05	13.05	13.05	13.05	10	25
		P	P	P	M	M		
a _p	mm	0.4 – 2						
Feed rate when turning	mm	0.1 – 0.3						
Feed rate when drilling	mm	0.03 – 0.12						
v _c main application	m/min	90 – 210	70 – 200	50 – 190	90 – 200	50 – 190		

Garant GARANT set-up head for Master Mute GL/QC/DM system



Suitable for:

- Size GL – Boring bar shanks No. 264866, 264870 and 264874.
- Size QC – Boring bar shanks No. 264890, 264894, 264898 and 264900.
- Size DM – Boring bar shanks No. 264910, 264930, 264934 and 264938.

Application: Alignment aid for checking the boring bar orientation using a dial indicator or protractor.

Type		GL	QC	DM
29D 26 5001	Set-up head universal	98.01	107.91	147.51
Cutting point / joint	mm	16	20	40



26 5001_DM



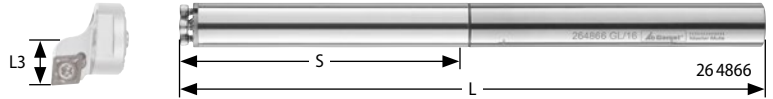
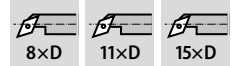
Garant GARANT Master Mute boring bar shanks GL system

26 4870/4874 – Shank carbide reinforced.

Supplied with: Reducing adaptor for coolant connection.

Note: Do not clamp on the area marked "S"!
 $D_{min} = 1/2 \text{ shank } \varnothing + \text{cutting head centre-line offset } L_3$.
 Convenient boring bar orientation by set-up head No. 265001.

Up to 15xD



System / shank Ø	29E			L			S			recommended clamping length	Assembly bolt set
	26 4866	26 4870	26 4874	26 4866	26 4870	26 4874	26 4866	26 4870	26 4874		
	GARANT Master Mute boring bar shank										
	vibration damping										
	8xD	11xD	15xD	mm	mm	mm	mm	mm	mm	mm	
GL/16	726.66	1037.52	(3455.10)	170	204	268	74	85	102	64	269026 1



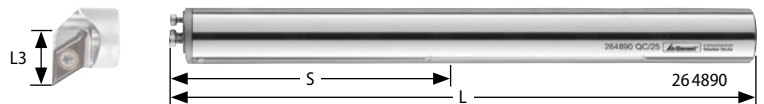
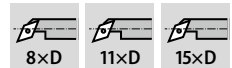
Garant GARANT Master Mute boring bar shanks QC system

26 4894 Size QC/20, 26 4898 – Shank carbide reinforced.

Supplied with: Reducing adaptor for coolant connection.

Note: Do not clamp on the area marked "S"!
 $D_{min} = 1/2 \text{ shank } \varnothing + H + \text{cutting head centre-line offset } L_3$.
 Convenient boring bar orientation by set-up head No. 265001.

Up to 15xD



System / shank Ø	29E			L			H	S			recommended clamping length	Assembly bolt set
	26 4890	26 4894	26 4898	26 4890	26 4894	26 4898		26 4890	26 4894	26 4898		
	GARANT Master Mute boring bar shank											
	vibration damping											
	8xD	11xD	15xD	mm	mm	mm	mm	mm	mm	mm	mm	
QC/20	726.66	1453.32	(4544.10)	200	260	340	–	84	119	118	80	269026 3
QC/25	830.61	1557.27	(6524.10)	255	330	430	2.5	107	125	145	100	269026 3
QC/32	934.56	1661.22	(9494.10)	320	416	544	6	124	151	179	128	269026 3



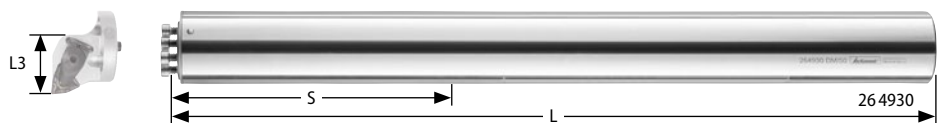
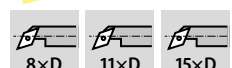
Garant GARANT Master Mute boring bar shanks DM system

26 4938 – Shank carbide reinforced.

Supplied with: Reducing adaptor for coolant connection.

Note: Do not clamp on the area marked "S"!
 $D_{min} = 1/2 \text{ shank } \varnothing + H + \text{cutting head centre-line offset } L_3$.
 Convenient boring bar orientation by set-up head No. 265001.

Up to 15xD



System / shank Ø	29E			L			H	S			recommended clamping length	Assembly bolt set
	26 4930	26 4934	26 4938	26 4930	26 4934	26 4938		26 4930	26 4934	26 4938		
	GARANT Master Mute boring bar shank											
	vibration damping											
	8xD	11xD	15xD	mm	mm	mm	mm	mm	mm	mm	mm	
DM/40	1245.42	1661.22	(13553.10)	408	528	668	–	144	196	224	160	269026 2
DM/50	1661.22	2594.79	(17513.10)	518	660	861	5	179	239	288	200	269026 2
DM/60	1979.01	3113.55	(22463.10)	628	808	1040	10	230	309	333	240	269026 2



SIMPLY MORE COMPETENCE IN TURNING.

With its new partner SIMTEK, the Hoffmann Group expands its possible solutions in the field of turning

The simturn range offers the Hoffmann Group a comprehensive turning range for micro-machining. On the following pages you will find a large selection ex stock from the Hoffmann Group. An additional 3000 standard tools are available ex stock from the manufacturer via the Hoffmann Group – individual special solutions are available on request.



simturn^{AX}

SIMTEK small part machining type AX

- From hole diameter 0.3 mm.
- CBN tools from a hole diameter of 1 mm.
- Overhang lengths up to 9×D.
- Standard range ex stock, Hoffman Group.
- 3000 standard tools ex stock, SIMTEK.
- Special solutions on request.

The entire SIMTEK catalogue range is available from the Hoffmann Group – ask your specialist adviser!



Toolholder with ME clamping principle
Secure due to force-fitted clamping.



Center Line toolholder
Precise cutting edge positioning.



CBN boring-out insert
for hard machining.



SIMTEK – PARTNER OF THE HOFFMANN GROUP.

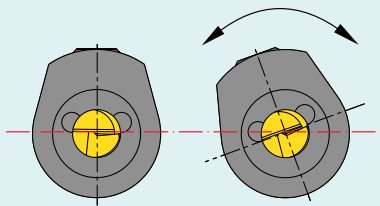
Highly efficient tools for precise component machining

SIMTEK Präzisionswerkzeuge GmbH was founded in 1994 and has been synonymous with high-quality and high-performance carbide precision tools from the start. The standard range from SIMTEK includes around 10,000 tools for grooving, turning, circular milling, slot grooving, thread whirling and polygon milling.

SIMTEK simturnAX Center Line

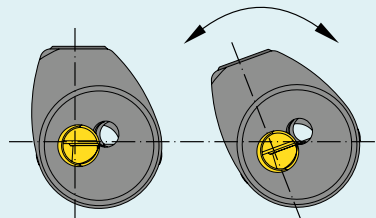


Standard version



Suitable for all cutter inserts.

Center Line version



For use only with optimised cutter inserts (for Ø range < 4.2 mm).

- The eccentric mounting of the Centre Line version ensures extremely precise cutting edge positioning, even in the event of slight variations in the tool mounting.
- The cutting results are significantly optimised, especially for very small diameters.
- Ideal coolant feed directly to the bore to be machined.



SIMTEK simturnAX Center Line toolholder

Eccentric mounting of cutter inserts.

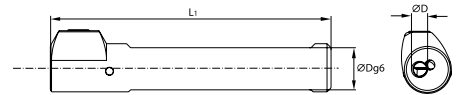
Advantage: Eccentric mounting ensures precise cutting edge positioning at all times.

Application: In particular for very small boring-out diameters.



27 0500

Ø Dg6	24U	27 0500	24U	27 0501	L ₁	Clamping screw
		simturn AX Center Line toolholder, right-hand		simturn AX Center Line toolholder, left-hand		
		ØD = 4 mm				
mm					mm	
10		81.59		81.59	65	279710 1
12		77.85		78.62	70	279710 1
16		73.13		74.57	75	279710 1
20		78.84		79.61	90	279710 1

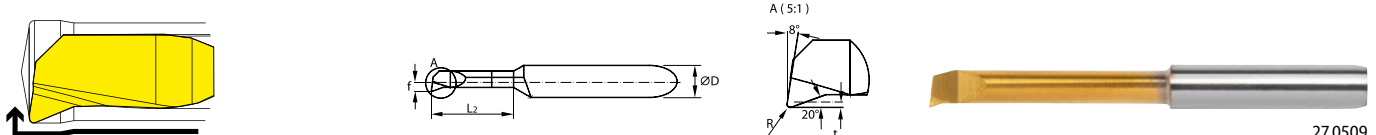


SIMTEK simturnAX Center Line cutter inserts

Suitable for/ v _c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	Y	Y	Y	Y	Y	Y	Y	INOX	INOX	Ti	GG(G)	CuZn	Graphite GRP CRP	Uni	○	○	○	○	○	
ISO code	N	N	N	P	P	P	P	P	H	H	H	M	M	S	K	N	N						
27 0503–27 0517		400	240	180		130						100	70	40	110	210		●	○		●	●	
27 0521–27 0527											90							●	○		●	●	

simturn AX Center Line cutter inserts for boring out

Tool material: X800

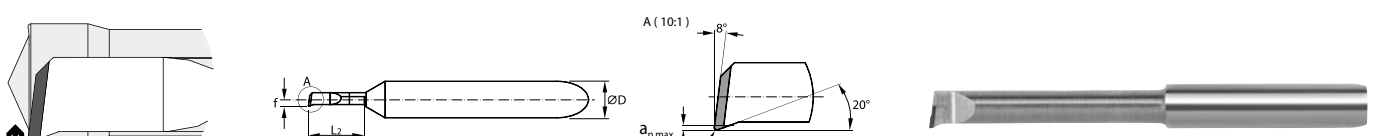


27 0509

Ø D _{min}	24U	27 0503	24U	27 0505	24U	27 0507	24U	27 0509	24U	27 0511	24U	27 0513	24U	27 0515	24U	27 0517	Ø D	R	f	t _{max}
		simturn AX Center Line, boring-out insert, right-hand						simturn AX Center Line, boring-out insert, left-hand												
mm		L ₂ = 6.1 mm		L ₂ = 10.2 mm		L ₂ = 15.2 mm		L ₂ = 20.3 mm		L ₂ = 6.1 mm		L ₂ = 10.2 mm		L ₂ = 15.2 mm		L ₂ = 20.3 mm	mm	mm	mm	mm
1		23.85		–		–		–		23.94		–		–		–	4	0.1	1.95	0.1
1,4		19.53		20.34		–		–		20.70		21.20		–		–	4	0.1	1.95	0.15
2,7		–		19.67		20.79		22.10		–		20.12		21.38		–	4	0.15	1.95	0.2
3,2		–		19.35		21.60		25.11		–		20.12		21.42		25.56	4	0.15	1.95	0.2
3,7		–		19.22		20.79		23.90		–		19.22		21.56		24.44	4	0.15	1.95	0.2

simturn AX Center Line cutter inserts for boring out – CBN

Tool material = CBN8



27 0527

Ø D _{min}	24V	27 0521	24V	27 0523	24V	27 0525	24V	27 0527	Ø D	R	f	a _p max
		simturn AX Center Line, boring-out insert, right-hand CBN										
mm		L ₂ = 6.1 mm		L ₂ = 10.2 mm		L ₂ = 15.2 mm		L ₂ = 20.3 mm	mm	mm	mm	mm
1		52.97		–		–		–	4	0.1	1.95	0.05
1,4		49.73		49.86		–		–	4	0.1	1.95	0.07
2,7		–		49.23		50.58		–	4	0.15	1.95	0.13
3,2		–		49.14		50.63		54.72	4	0.15	1.95	0.16
3,7		–		49.37		50.27		53.46	4	0.15	1.95	0.18



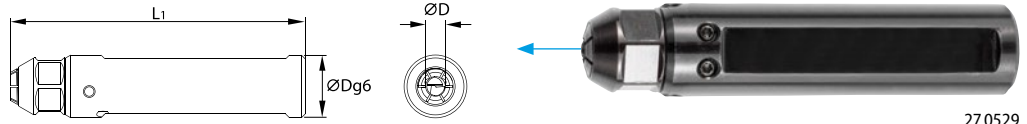
SIMTEK simturnAX Toolholder

simturn AX toolholder with ME clamping system

Optionally select 4 different types of coolant feed.
Easy to adjust using only two grub screws.

Advantage: The ME clamping system permits optimum precision and stability thanks to force-fitted clamping.

Application: Especially for long overhangs to reduce vibrations.



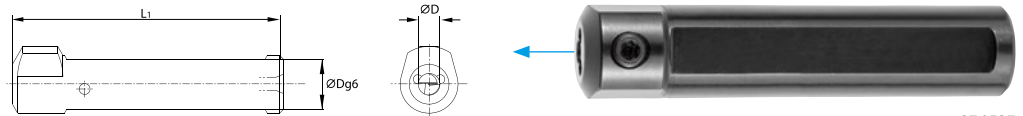
27 0529

Ø Dg6	24U	27 0529	24U	27 0531	24U	27 0533	24U	27 0535	L ₁	Union nut	
	simturn AX toolholder ME clamping system									mm	27 0529 27 0531
mm	D = 4 mm		D = 5 mm		D = 6 mm		D = 7 mm		mm		
12		127.08		131.45		131.45		—	70	279715 1	279715 2
16		122.09		123.93		122.09		123.26	75	279715 1	279715 2
20		129.60		130.23		129.20		129.20	90	279715 1	279715 2
25		134.01		135.05		134.01		136.98	110	279715 1	279715 2



simturn AX toolholder

Application: For all standard applications.



27 0537

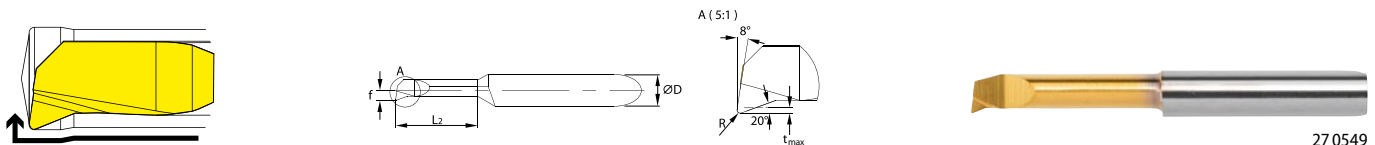
Ø Dg6	24U	27 0537	24U	27 0539	24U	27 0541	24U	27 0543	L ₁	Clamping screw
	simturn AX toolholder									
mm	D = 4 mm		D = 5 mm		D = 6 mm		D = 7 mm		mm	
10		71.96		72.99		—		—	65	279710 1
12		69.08		69.08		69.08		—	70	279710 1
16		65.30		65.30		65.30		65.30	75	279710 1
20		69.08		69.08		69.08		69.08	90	279710 1
25		73.80		75.29		73.80		74.57	110	279710 1

SIMTEK simturnAX Cutter inserts

Suitable for/ v _c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	Alu < 500 N	Alu < 750 N	Alu < 900 N	Alu < 1100 N	Alu < 1400 N	Alu < 55 HRC	Alu < 60 HRC	Alu < 67 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	CuZn	Graphite GRP CRP	Uni	○	◊	⊖	💧	✂
ISO code	N	N	N	P	P	P	P	P	H	H	H	M	M	S	K	N	N						
27 0545–27 0575/ 0591–27 0649		400	240	180		130						100	70	40	110	210			●	○		●	
27 0577–27 0589											90								●			●	

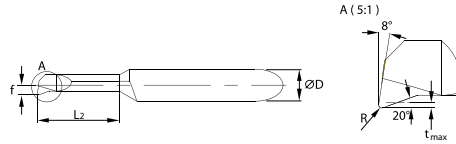
simturn AX cutter inserts for boring out

Tool material = X800.



27 0549

Ø D _{min}	24U	27 0545	24U	27 0547	24U	27 0549	24U	27 0551	24U	27 0553	24U	27 0555	24U	27 0557	24U	27 0559	Ø D	R	f	t _{max}
	simturn AX Center Line boring-out insert, right-hand															mm				
mm	L ₂ = 6.1 mm		L ₂ = 10.2 mm		L ₂ = 15.2 mm		L ₂ = 20.3 mm		L ₂ = 25.4 mm		L ₂ = 30.5 mm		L ₂ = 35.6 mm		L ₂ = 40.6 mm		mm	mm	mm	mm
1		21.60		—		—		—		—		—		—		—	4	0.1	0.45	0.1
1,4		19.71		20.21		—		—		—		—		—		—	4	0.1	0.6	0.15
2,7		—		18.14		19.40		—		—		—		—		—	4	0.15	1.2	0.2
3,2		—		18.00		19.44		23.22		—		—		—		—	4	0.15	1.45	0.2
3,7		—		18.27		19.40		22.10		—		—		—		—	4	0.15	1.7	0.2
4,2		—		18.27		19.40		22.05		23.22		—		—		—	4	0.15	1.95	0.3
5,2		—		16.20		17.19		20.34		22.86		25.79		28.26		32.49	5	0.2	2.45	0.5
6,2		—		—		17.46		20.57		23.13		26.06		28.58		32.81	6	0.2	2.95	0.5

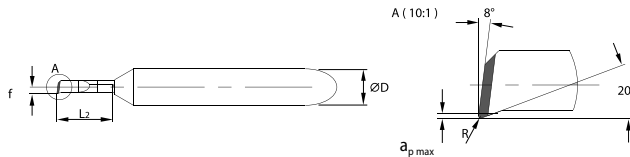
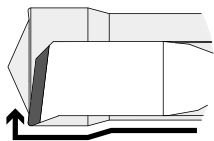


27 0565

Ø D _{min}	24U 27 0561	24U 27 0563	24U 27 0565	24U 27 0567	24U 27 0569	24U 27 0571	24U 27 0573	24U 27 0575	Ø D	R	f	t _{max}
	simturn AX boring-out insert, left-hand											
mm	L ₂ = 6.1 mm	L ₂ = 10.2 mm	L ₂ = 15.2 mm	L ₂ = 20.3 mm	L ₂ = 25.4 mm	L ₂ = 30.5 mm	L ₂ = 35.6 mm	L ₂ = 40.6 mm	mm	mm	mm	mm
1	22.55	—	—	—	—	—	—	—	4	0.1	0.45	0.1
1,4	19.71	20.21	—	—	—	—	—	—	4	0.1	0.6	0.15
2,7	—	18.54	19.71	—	—	—	—	—	4	0.15	1.2	0.2
3,2	—	18.00	19.94	23.45	—	—	—	—	4	0.15	1.45	0.2
3,7	—	18.27	19.40	22.50	—	—	—	—	4	0.15	1.7	0.2
4,2	—	18.27	19.40	22.05	23.45	—	—	—	4	0.15	1.95	0.3
5,2	—	16.20	17.19	20.34	22.86	25.79	28.62	32.76	5	0.2	2.45	0.5
6,2	—	—	17.46	20.57	23.13	26.06	29.07	32.81	6	0.2	2.95	0.5

simturn AX cutter inserts for boring out – CBN

Tool material: CBN8

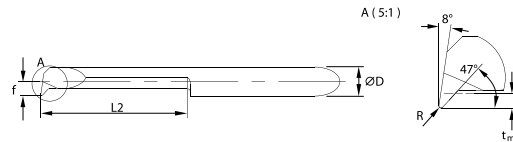
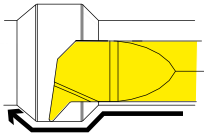


27 0581

Ø D _{min}	24V 27 0577	24V 27 0579	24V 27 0581	24V 27 0583	24V 27 0585	24V 27 0587	24V 27 0589	Ø D	R	f	a _{p max}
	simturn AX boring-out insert, right-hand CBN										
mm	L ₂ = 6.1 mm	L ₂ = 10.2 mm	L ₂ = 15.2 mm	L ₂ = 20.3 mm	L ₂ = 25.4 mm	L ₂ = 30.5 mm	L ₂ = 35.6 mm	mm	mm	mm	mm
1	51.98	—	—	—	—	—	—	4	0.1	0.45	0.05
1,4	48.74	48.92	—	—	—	—	—	4	0.1	0.6	0.07
2,7	—	47.93	49.73	—	—	—	—	4	0.15	1.2	0.13
3,2	—	48.96	49.28	53.37	—	—	—	4	0.15	1.45	0.16
4,2	—	47.75	50.58	53.42	54.50	—	—	4	0.15	1.95	0.21
5,2	—	48.60	48.87	52.97	55.67	59.49	—	5	0.2	2.45	0.26
6,2	—	—	48.96	53.51	56.16	59.31	61.88	6	0.2	2.95	0.31

simturn AX cutter inserts for copying/profile turning with 47°

Tool material = X800



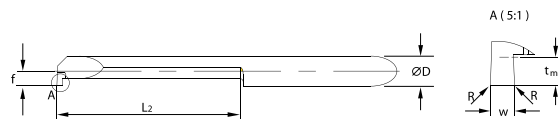
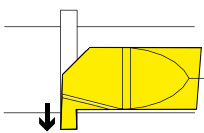
27 0591

Ø D _{min}	24U 27 0591	24U 27 0593	24U 27 0595	24U 27 0597	24U 27 0599	24U 27 0601	24U 27 0603	24U 27 0605	Ø D	R	f	t _{max}
	simturn AX copying insert, right-hand				simturn AX copying insert, left-hand							
mm	L ₂ = 15.2 mm	L ₂ = 20.3 mm	L ₂ = 25.4 mm	L ₂ = 30.5 mm	L ₂ = 15.2 mm	L ₂ = 20.3 mm	L ₂ = 25.4 mm	L ₂ = 30.5 mm	mm	mm	mm	mm
2,7	19.85	—	—	—	20.70	—	—	—	4	0.1	1.2	0.5
3,2	19.89	—	—	—	20.30	—	—	—	4	0.1	1.45	0.6
4,2	—	18.54	—	—	—	18.90	—	—	4	0.15	1.95	0.8
5,2	19.53	—	21.83	—	20.16	—	22.23	—	5	0.15	2.45	1
6,2	—	19.53	—	24.80	—	19.53	—	24.80	6	0.15	2.95	1.8

simturn AX cutting inserts for grooving

No corner radius (sharp-edged).

Tool material = X800

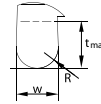
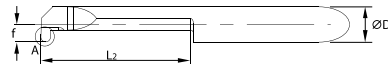
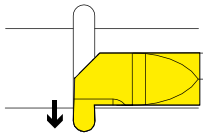


27 0611

Ø D _{min} / w	24U 27 0607	24U 27 0609	24U 27 0611	24U 27 0613	24U 27 0615	24U 27 0617	24U 27 0619	24U 27 0621	Ø D	f	t _{max}
	simturn AX grooving insert, right-hand				simturn AX grooving insert, left-hand						
mm	L ₂ = 10.2 mm	L ₂ = 12.2 mm	L ₂ = 15.2 mm	L ₂ = 20.3 mm	L ₂ = 25.4 mm	L ₂ = 30.5 mm	L ₂ = 15.2 mm	L ₂ = 25.4 mm	mm	mm	mm
2/0,5	—	24.21	—	—	—	—	—	—	4	0.85	0.4
3/0,7	—	22.46	—	—	—	—	—	—	4	1.35	0.6
4,2/1	18.18	—	20.88	23.31	—	—	21.74	—	4	1.95	0.8
5,2/1	17.28	—	20.03	23.00	25.97	—	21.24	26.64	5	2.45	1
5,2/1,5	17.64	—	20.39	23.90	25.74	—	21.24	26.46	5	2.45	1
5,2/2	17.87	—	20.84	22.55	25.97	—	21.24	26.64	5	2.45	1
6,2/1	17.82	—	20.52	23.09	25.74	—	21.33	27.09	6	2.95	1.8
6,2/1,5	17.82	—	20.52	23.09	25.74	—	21.15	26.42	6	2.95	1.8
6,2/2	17.82	—	20.52	23.09	26.19	—	21.65	27.36	6	2.95	1.8
7,2/1	18.68	—	21.78	24.57	27.77	30.02	22.55	28.17	7	3.45	2.5
7,2/1,5	18.72	—	21.29	24.30	27.09	29.93	22.14	27.45	7	3.45	2.5
7,2/2	18.54	—	21.29	24.03	26.78	29.93	21.78	27.86	7	3.45	2.5

simturn AX cutter inserts for grooving full radius grooves

Tool material = X800



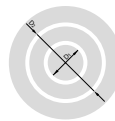
27 0625

Ø D _{min} / w	24U	24U	24U	24U	24U	24U	24U	24U	24U	Ø D	R	f	t _{max}
	27 0623	27 0625	27 0627	27 0629	27 0631	27 0633	27 0635	27 0637					
mm	simturn AX grooving insert, full radius right-hand				simturn AX grooving insert, full radius left-hand								
	L ₂ = 15.2 mm	L ₂ = 20.3 mm	L ₂ = 25.4 mm	L ₂ = 30.5 mm	L ₂ = 15.2 mm	L ₂ = 20.3 mm	L ₂ = 25.4 mm	L ₂ = 30.5 mm		mm	mm	mm	mm
4,2/1	22.05	-	-	-	22.37	-	-	-		4	0.5	1.95	0.8
5,2/1	-	22.32	-	-	-	23.18	-	-		5	0.5	2.45	1
5,2/1,5	-	22.95	-	-	-	23.18	-	-		5	0.75	2.45	1
5,2/2	-	22.82	-	-	-	23.18	-	-		5	1	2.45	1
6,2/1	-	-	25.38	-	-	-	26.78	-		6	0.5	2.95	1.8
6,2/1,5	-	-	25.97	-	-	-	27.00	-		6	0.75	2.95	1.8
6,2/2	-	26.10	26.33	-	-	26.33	27.99	-		6	1	2.95	1.8
7,2/1	-	-	-	30.83	-	-	-	30.87		7	0.5	3.45	2.5
7,2/1,5	-	-	-	31.10	-	-	-	31.10		7	0.75	3.45	2.5
7,2/2	-	-	-	30.69	-	-	-	31.23		7	1	3.45	2.5

simturn AX cutter inserts for axial grooving

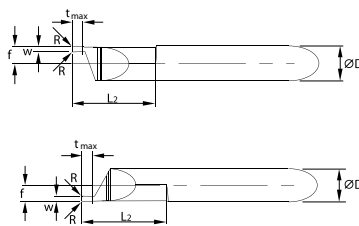
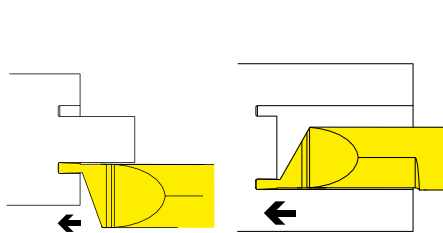
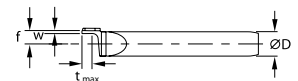
Tool material = X800

Attention: Larger groove diameters can be achieved without modifications.
 D₁ = D_{min} internal diameter.
 D₂ = D_{min} external diameter.



27 0639

Ø range Groove D ₁ / D ₂	24U	27 0639	Ø D	f	t _{max}	w
	simturn AX axial grooving insert, right-hand					
mm			mm	mm	mm	mm
3/4		48.51	4	2.2	1.6	0.5
4/5		49.19	4	2.2	1.6	0.5
4/6		48.83	4	2.2	3.3	1



27 0641



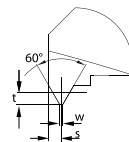
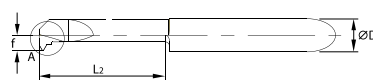
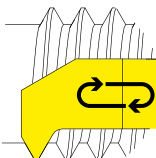
27 0645

Ø D _{min} / w	24U	27 0641	24U	27 0643	24U	27 0645	24U	27 0647	Ø D	R	f	t _{max}
	simturn AX axial grooving insert at pin, right-hand		simturn AX axial grooving insert at pin, left-hand		simturn AX axial grooving insert at bore, right-hand		simturn AX axial grooving insert at bore, left-hand					
mm		L ₂ = 15.2 mm		L ₂ = 15.2 mm		L ₂ = 15.2 mm		L ₂ = 15.2 mm	mm	mm	mm	mm
6,2/1		26.82		27.18		26.82		27.54	6	0.15	2.95	2
6,2/1,5		26.82		27.14		26.82		27.14	6	0.15	2.95	3
6,2/2		26.82		26.87		26.82		27.14	6	0.15	2.95	4
6,2/2,5		27.09		27.45		26.82		27.45	6	0.15	2.95	5
6,2/3		26.82		26.82		26.82		26.82	6	0.15	2.95	6

simturn AX cutter inserts for thread turning

Tool material = X800

Application: For producing metric ISO internal threads.



27 0649

Type	24U	27 0649	Ø D _{min}	Ø D	Pitch	f	t	w	S
simturn AX thread turning insert, partial profile, 60°, internal, right-hand									
L ₂ = 15.2 mm			mm	mm	mm	mm	mm	mm	
1		27.99	3.24	4	0.7	-	0.38	0.09	0.32
2		19.71	3.9	4	0.8 - 1	1.95	0.46	0.1	0.45
3		20.66	4.2	4	0.5 - 0.7	1.95	0.4	0.06	0.35
4		20.12	4.8	5	1 - 1.25	2.25	0.7	0.12	0.55
5		20.12	5.1	5	0.75 - 1	2.4	0.57	0.09	0.45
6		20.12	5.2	5	0.5 - 0.75	2.45	0.43	0.06	0.35
7		20.21	6.2	6	1 - 1.25	2.95	0.7	0.12	0.55
8		20.57	6.2	6	1.25 - 1.5	2.95	0.84	0.16	0.75
9		20.57	6.2	6	1.5 - 1.75	2.95	0.98	0.18	0.8



Garant Grooving toolholder – boring bar

For cutter inserts No. 275000 – 275015.

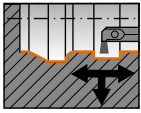
Application: For grooving from diameter $D_{min} = 14$ mm.

Attention: Please order the assembly key no. 279940 size 1 separately.



274170

New groove width of 1.5 mm



Type	27 4170		27 4171		Ø D _s	Groove width w	t _{max} internal machining	Ø D _{min}	L ₁	L
	right-hand	left-hand	right-hand	left-hand						
	Boring bar for grooving				mm	mm	mm	mm	mm	mm
16/2	179.51	179.51	179.51	179.51	16	1.5	3	14	25	78
20/2	184.59	184.59	184.59	184.59	20	1.5	3	16	30	88
20/2L	189.68	189.68	189.68	189.68	20	1.5	3	18	35	93
25/2	195.26	195.26	195.26	195.26	25	1.5	5	20	40	103



Garant Parting-off tool for parting-off inserts No. 273656 - 273749

Suitable for: Toolholder No. 273984 – 273994 or 319132 – 319133 (VDI toolholder).

Application: In conjunction with parting-off inserts No. 273656 – 273670.

Attention: Please order the assembly key No. 279940 size 1–3 separately.

Note: From 19.5 mm groove depth (up to groove width 3 mm) and from 24.5 mm groove depth (from groove width 4 mm) the second cutter comes into contact with the workpiece. This can lead to scoring. If necessary, use single-ended grooving inserts No. 273656 – 273670.

New clamping mechanism



273781

Blade height h _s / groove width w		mm	19/1,5	19/2	19/3	26/2	26/3	32/2	32/3	32/4	32/5	32/6
27 3781	Parting-off tool	neutral	87.71	87.71	87.71	97.02	97.02	107.42	107.42	107.42	107.42	107.42
for maximum workpiece Ø		mm	40	40	40	60	85	60	110	110	110	110
Overall length L _{tot}		mm	96	96	96	120	120	150	150	150	150	150

Garant Assembly key for fitting inserts

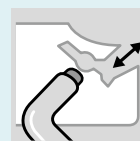


It is simple to change the inserts – precisely and in seconds.

With just a single turn of the GARANT assembly key, you can position the insert exactly where you want it. Many potential applications for GARANT grooving tools.

One key – one system!

- GARANT parting-off blades
- GARANT VARIO-smart parting-off blades
- GARANT blade carrier for radial grooving
- GARANT blade carrier for face grooving
- GARANT grooving toolholder – boring bar



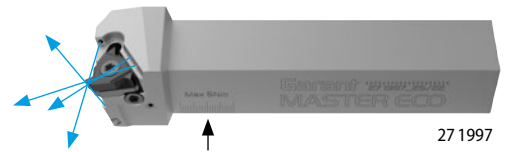


Garant GARANT Master eco screw-on toolholders for threading inserts

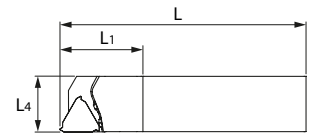
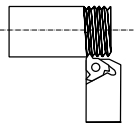
Highly efficient cooling directly on the cutting edge and additional flank face cooling.

Supplied with: With shim 1.5°.

Note: Coolant transfer in conjunction with GARANT eco-system toolholders No. 319001 – 319886 or No. 317900 for shank length < 125 mm. Optional connection possibility via hose connection (G 1/8 inch).



Positioning within the scale ensures accurate coolant transfer.



Shank size / insert size L	27 1997		27 1998		L ₄	L ₁	L	Insert screw for threading insert	Shim 1.5°		Clamping screw for shim
	GARANT Master eco screw-on toolholders short								27 1997	27 1998	
mm	right-hand	left-hand	mm	mm	mm						
16/16	167.81	167.81	20	30	80	269023 3	279819 1	279819 2	279824 1		
20/16	171.87	171.87	25	30	90	269023 3	279819 1	279819 2	279824 1		
25/16	192.21	192.21	32	30	100	269023 3	279819 1	279819 2	279824 1		
25/22	202.38	202.38	32	30	100	269023 4	279819 3	279819 4	279824 2		

ECO cut knurling tools

Grub screws in the shank for clearance angle correction.

ECO cut knurling tools for 1 knurl



29 0231_12



29 0231_20

Shank size	29 0231		for knurl \varnothing d ₁	for knurl width w	for knurl bore \varnothing d ₂	Working range	Carbide sleeve, cover disc, screw
	ECO cut knurling tool						
mm	right-hand		mm	mm	mm	mm	
12	292.50		15	4	8	3 – 50	299920 6
16	292.50		15	4	8	3 – 50	299920 6
16X	306.00		25	6	8	10 – 300	299920 7
20	306.00		25	6	8	10 – 300	299920 7
25	315.00		25	6	8	10 – 300	299920 7

ECO cut knurling tools for 2 knurls



29 0242 – **Modular design: Can be used universally as right-hand or left-hand version.** Adjustment of the production \varnothing using a scale.



29 0239_12



29 0242_20

Shank size	29 0239		29 0242		for knurl \varnothing d ₁	for knurl width w	for knurl bore \varnothing d ₂	Working range	Carbide sleeve, cover disc, screw
	Eco cut knurling tool								
mm	right-hand	universal	mm	mm	mm	mm	mm		
12	414.00	–	15	4	8	3 – 50	299920 8		
16	414.00	–	15	4	8	3 – 50	299920 8		
20	–	585.00	25	6	8	10 – 250	299920 9		
25	–	585.00	25	6	8	10 – 250	299920 9		

Garant Cutter inserts for profile broaching holders

With high-performance coating (tungsten carbide/carbon).
Optimised for profile broaching in stainless steels.

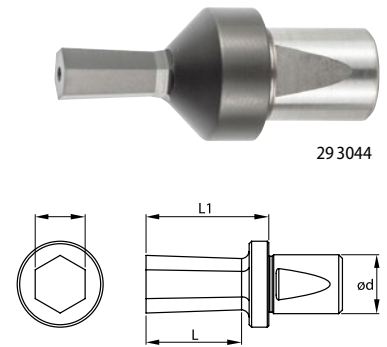
Suitable for: Profile broaching holder No. 293020 – 293079.

Application: For generation of profiles in a single pass.

Note: Special sizes and special profiles available on request.

Suitable for/ v _c [m/min]	Alu plastics	Alu cast	Alu cast > 10% Si	< 500 N	< 750 N	< 900 N	< 1100 N	< 1400 N	< 55 HRC	< 60 HRC	< 67 HRC	INOX < 900 N	INOX > 900 N	Ti > 850 N	GG(G)	CuZn	Graphite GRP CRP	○	◊	⊕	💧	🌧	🔥	
ISO code	N	N	N	P	P	P	P	P	H	H	H	M	M	S	K	N	N							
29 3041–29 3047												30	25								●	○		

Hexagon	29L 29 3041	29L 29 3044	29L 29 3047	L		Tolerance	
Profile broaching insert, hex socket metric							
	Ø d = 8 mm	Ø d = 12 mm	Ø d = 16 mm	29 3041	29 3044 29 3047	INOX < 900 N	
mm	WC/C	WC/C	WC/C	mm	mm	mm	mm
3	86.45	100.68	–	7	7	+0.06 to +0.08	0.06
4	86.45	100.68	110.85	9	9	+0.07 to +0.09	0.06
5	86.45	100.68	110.85	11	11	+0.08 to +0.1	0.06
6	90.51	100.68	110.85	13	13	+0.08 to +0.1	0.06
8	90.51	106.79	121.02	13	17	+0.08 to +0.1	0.06
10	–	106.79	121.02	–	21	+0.1 to +0.12	0.06
12	–	–	121.02	–	21	+0.11 to +0.13	0.06
14	–	–	121.02	–	21	+0.12 to +0.14	0.06
L ₁ mm	18	25	40				



Garant Radius turning tool

Application: For turning convex radii on external or internal diameters.



Holder

Suitable for: Radius indexable inserts No. 294510.

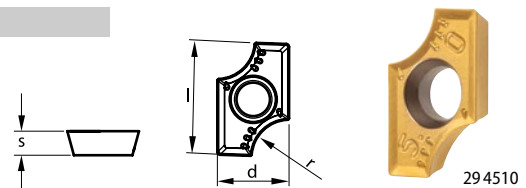
Note: D_{min} corresponds to the smallest possible internal diameter of the component to avoid collisions.



Shank height h	mm	16	20	25
2IT 29 4500 Toolholders for radius indexable inserts		102.96	107.91	137.61
suitable indexable insert		294510		
b	mm	16	20	25
D _{min}	mm	20		
L ₄	mm	30		
L	mm	100	125	150
Insert screw		269021 2 (TX15; 3 Nm)		

Radius indexable inserts

Suitable for: Toolholder No. 294500 and ball nose slot drill No. 216825.



Radius r	mm	1	1,5	2	2,5	3	3,5	4	4,5	5		
2IA 29 4510 Radius indexable insert	HB7525	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	10	
●		UNI	UNI	UNI	UNI	UNI	UNI	UNI	UNI	UNI		
⚙		⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙		
s	mm						3.18					
l	mm						15					
d	mm						9.52					
f	mm/rev.						0.1 – 0.4					
v _c main application	m/min						110 – 390					

NEW PRODUCTS

Clamping technology



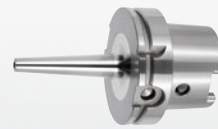
Page 138
Fahrion precision ER collet chuck HDC



Page 140
GARANT 4.5° shrink-fit chucks, nickel-plated



Page 141
GARANT vibration-damped shrink-fit chucks



Page 142
GARANT 3° shrink-fit chucks



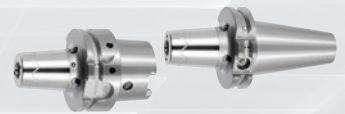
Page 142
GARANT 4.5° shrink-fit chucks



Page 142
ALBRECHT micro precision chuck extension



Page 143
GARANT solid carbide extension



Page 144
HAIMER shrink-fit chucks Power Shrink Chuck with Safe-Lock



Page 145
RÖHM geared scroll chuck



Page 147
HOLEX jaws



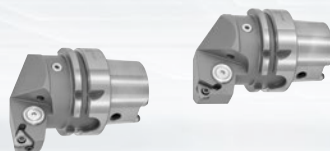
Page 149
GARANT eco adjustable base toolholders/parting off toolholders



Page 149
HOLEX VDI toolholders



Page 150
GARANT boring bar stabiliser



Page 151
SWISSTOOLS toolholders



Page 151
SWISSTOOLS boring bar shanks



Page 152
HOLEX face drivers



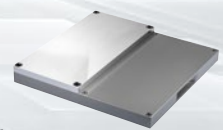
Page 153
GARANT SU1 shrink-fit unit



Page 154
HAIMER pre-setting device UNO Premium



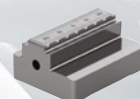
Page 156
GARANT assembly set-up station pitch 52/96



Page 156
GARANT clamping system for contour and form clamping



Page 157
GARANT XTRIC



Page 159
GARANT XTRIC top jaws



Page 159
GARANT XPENT quick-change adaptor plate



Page 159
GARANT top jaws for the centre jaw



Page 160
GARANT and HOLEX workpiece back-stops



Page 160
AMF side cover for T-slots



ISO 7388-1	Form AD	G 2.5 25000 min ⁻¹	$\frac{1}{\sqrt{A}}$ 6 μ m ER+HDC	$\frac{1}{\sqrt{A}}$ 3 μ m HP+HDC	HSC
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FAHRION® Precision ER collet chuck HDC – (formerly DIN 69871)

- **HDC = Heavy Duty Chuck**, a mount specially designed for rough machining. A **reinforced chuck body** ensures better stability and plenty of radial stiffness. Taper ground internally and externally. With Balluffchip bore.
- **System concentricity and repetition accuracy 3 μ m** at 3×D, when using a HP precision collet.
- **Very high clamping forces** due to the collet fully seated in the chuck and trapezoidal fine thread for optimum tightening torques and clamping forces. **Ball-bearing-mounted clamping nut** ensures high tightening torques and reduced vibration.
- **Vibration damping** due to the element collet and higher mass of the chuck.

Advantage: Patented optimum seating of the collet, double guides, trapezoidal fine thread and ball-bearing mounted clamping nut amalgamate when clamped into a sturdy unit, thus ensuring a very high degree of rigidity and precision.

Application: For high-precision clamping of tools with plain shank for roughing (including TPC milling) and finishing operations and machining of high-tensile or tough materials.

Supplied with: With clamping nut.

Optional extras: Pull studs (PS) No. 308600 – 308806, PS wrench No. 308820 – 308835, precision ER collets No. 308981 – 308986, HP No. 309376 – 309378 and for tapping collets No. 309414 / 309418, ER clamping nuts HDC No. 309657, roller bearing wrenches HDC No. 309745 / 309756.

Note:	■ HDC chuck clamps only nominal \varnothing up to shank \varnothing tolerance h10.
	■ Use in combination with Fahrion collets.
	■ Not compatible with CP clamping nut.

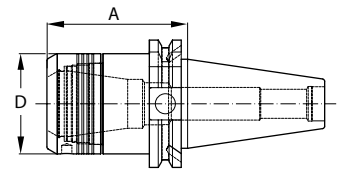
Clamping nut supplied



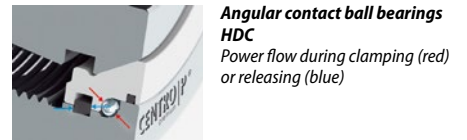
30 0694_32AD



30 0697_32AD



for ER collets			32AD
33F	30 0694	Precision ER collet chuck HDC	SK 40 A = 65 170.28
33F	30 0697		SK 50 A = 100 306.90
Clamping range		mm	2 – 20
\varnothing D		mm	53



Angular contact ball bearings HDC
Power flow during clamping (red) or releasing (blue)

ISO 7388-2	JIS B6339	Form AD	G 2.5 25000 min ⁻¹	$\frac{1}{\sqrt{A}}$ 6 μ m ER+HDC	$\frac{1}{\sqrt{A}}$ 3 μ m HP+HDC	HSC
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FAHRION® Precision ER collet chuck HDC – JIS B6339 (MAS-BT)

- **HDC = Heavy Duty Chuck**, a mount specially designed for rough machining. A **reinforced chuck body** ensures better stability and plenty of radial stiffness. Taper ground internally and externally. With Balluffchip bore.
- **System concentricity and repetition accuracy 3 μ m** at 3×D, when using a HP precision collet.
- **Very high clamping forces** due to the collet fully seated in the chuck and trapezoidal fine thread for optimum tightening torques and clamping forces. **Ball-bearing-mounted clamping nut** ensures high tightening torques and reduced vibration.
- **Vibration damping** due to the element collet and higher mass of the chuck.

Advantage: Patented optimum seating of the collet, double guides, trapezoidal fine thread and ball-bearing mounted clamping nut amalgamate when clamped into a sturdy unit, thus ensuring a very high degree of rigidity and precision.

Application: For high-precision clamping of tools with plain shank for roughing (including TPC milling) and finishing operations and machining of high-tensile or tough materials.

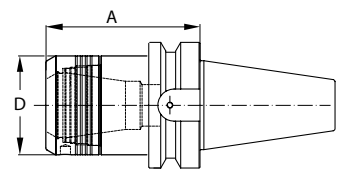
Supplied with: With clamping nut.

Optional extras: Pull studs (PS) No. 308760 – 308806, PS wrench No. 308820 – 308835, precision ER collets No. 308981 – 308986, HP No. 309376 – 309378 and for tapping collets No. 309414 / 309418, ER clamping nuts HDC No. 309657, Roller bearing wrenches HDC No. 309745 / 309756.

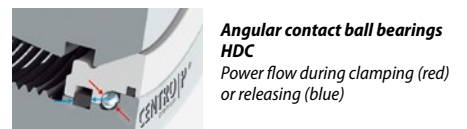
Note:	■ HDC chuck clamps only nominal \varnothing up to shank \varnothing tolerance h10.
	■ Use in combination with Fahrion collets.
	■ Not compatible with CP clamping nut.



30 2896_32AD



for ER collets			32AD
33F	30 2896	Precision ER collet chuck HDC	BT 40 A = 90 183.15
Clamping range		mm	2 – 20
\varnothing D		mm	53



Angular contact ball bearings HDC
Power flow during clamping (red) or releasing (blue)

ISO 12164-1	DIN 69893	Form A	G 2.5 25000 min ⁻¹	6µm ER+HDC	3µm HP+HDC	HSC
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FAHRION® Precision ER collet chuck HDC – ISO12164-1 (DIN 69893-1)

- **HDC = Heavy Duty Chuck**, a mount specially designed for rough machining. A **reinforced chuck body** ensures better stability and plenty of radial stiffness. Taper ground internally and externally. With Balluffchip bore.
- **System concentricity and repetition accuracy 3 µm** at 3×D, when using a HP precision collet.
- **Very high clamping forces** due to the collet fully seated in the chuck and trapezoidal fine thread for optimum tightening torques and clamping forces. **Ball-bearing-mounted clamping nut** ensures high tightening torques and reduced vibration.
- **Vibration damping** due to the element collet and higher mass of the chuck.

Advantage: Patented optimum seating of the collet, double guides, trapezoidal fine thread and ball-bearing mounted clamping nut amalgamate when clamped into a sturdy unit, thus ensuring a very high degree of rigidity and precision.

Application: For high-precision clamping of tools with plain shank for roughing (including TPC milling) and finishing operations and machining of high-tensile or tough materials.

Supplied with: With clamping nut.

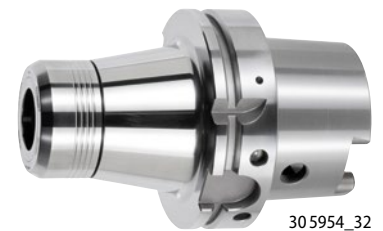
Optional extras: Coolant pipe No. 309880, socket No. 309890, Precision ER collets No. 308981 – 308986, HP No. 309376 – 309378 and for tapping collets No. 309414 / 309418, ER clamping nuts HDC No. 309657, Roller bearing wrenches HDC No. 309745 / 309756.

- Note:**
- HDC chuck **clamps only nominal Ø up to shank Ø tolerance h10**.
 - Use in combination with Fahrion collets.
 - Not compatible with CP clamping nut.

Clamping nut
supplied



305912_32

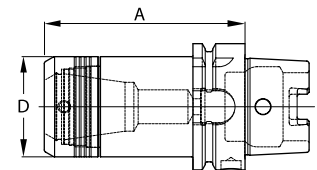


305954_32



30

for ER collets			32	
33F	30 5912	Precision ER collet chuck HDC	HSK-A 63 A = 70	205.92
33F	30 5914		HSK-A 63 A = 100	205.92
33F	30 5954		HSK-A 100 A = 100	332.64
Clamping range		mm	2 – 20	
Ø D		mm	53	



FAHRION® Accessories for HDC ER collet chucks

With trapezoidal fine thread for high clamping forces. Extra long double guidance of the ER clamping nut. Ball-bearing clamping nut for higher tightening torques.

Suitable for: FAHRION ER collet chucks HDC.

Optional extras: Precision ER collets No. 308981 – 308986, HP No. 309376 – 309378 and for tapping collets No. 309414 / 309418, roller bearing wrenches HDC No. 309754 / 309756.

- Note:** FAHRION ER clamping nuts type HDC **not suitable for ER CENTRO P collet chucks**.

Type CP for ER			32HDC
34F	30 9657	ER clamping nut HDC	68.31
Clamping range		mm	2 – 20
L		mm	27
Ø D		mm	53
maximum tightening torque		N-m	140
Thread			M22×1.5



309657_32HDC

FAHRION® Accessories for collet chucks – ER special wrenches

Special wrench for HDC clamping nut 309657.

Suitable for: FAHRION ER collet chuck HDC



309754_32HDC

Wrenches for precision ER collet chucks

Type			32HDC
34F	30 9754	Roller bearing wrench	79.20
34F	30 9756	Roller bearing wrench for torque wrench	79.20
Plug-in shank □ (309756)		mm	14×18
Suitable torque wrench No. 656055 (309756)			200



309756_32HDC

ISO 7388-1	Form ADB		G 2.5 25000 min ⁻¹		HSC	HPC
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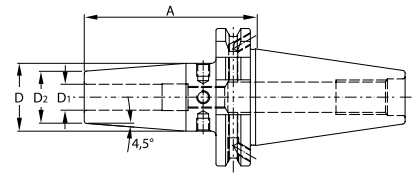
Garant Shrink-fit chucks 4.5° – (formerly DIN 69871)

- High-temperature steel.
 - All shanks hard turned (for smooth running!).
 - With Balluffchip bore.
- Premium version: nickel-plated version with 4 pluggable **cooling channel bores**. Integral tool length adjustment (adjustment track 10 mm).

Application: For clamping tools with parallel shank to h6 tolerance. Suitable for inductive, contact and hot air shrink-fit units.

Supplied with: 4 × M3 nozzle screws.

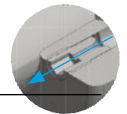
Optional extras: Pull studs (PS) No. 308600 – 308800. PS wrenches No. 308820 – 308835, shrink-fit chuck extensions No. 302410 – 302419. Shrink-fit units, accessories No. 354210 – 354450, balancing screws set No. 309906 size 180.



Corrosion protection
Special surface treatment

Optimised cooling concept

- 4 cooling channel bores instead of 2.
- Different approach angles of the cooling channel bores.
- With 4 nozzle screws to optimise the coolant pressure and alignment of the coolant stream.



Clamping Ø D ₁		mm	6	8	10	12	16	20
3/1A 30 2237	Shrink-fit chuck with 4 cooling channel bores, nickel-plated	SK 40 short	162.86	162.86	162.86	162.86	162.86	162.86
3/1A 30 2261		SK 40 A = 120	191.57	191.57	191.57	191.57	191.57	191.57
3/1A 30 2287		SK 50 short	230.67	230.67	230.67	230.67	230.67	230.67
Dimension A (30 2237, 30 2287)		mm	80					
Ø D		mm	27	27	32	32	34	42
Ø D ₂		mm	21	21	24	24	27	33

ISO 12164-1	DIN 69893	Form A		G 2.5 25000 min ⁻¹		HSC	HPC
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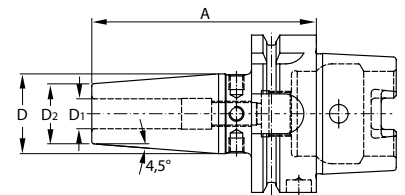
Garant Shrink-fit chucks 4.5° – ISO 12164-1 (DIN 69893-1)

- High-temperature steel.
 - All shanks hard turned (for smooth running!).
 - With Balluffchip bores.
- Premium version: Nickel plated version with 4 pluggable **cooling channel bores**. Integral tool length adjustment (adjustment track 10 mm).

Application: For holding end mills and drills with parallel shank to h6 tolerance. Suitable for inductive, contact and hot air shrink-fit units.

Supplied with: 4 × M3 nozzle screws.

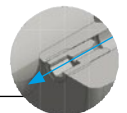
Optional extras: Coolant tube No. 309880, socket wrench No. 309890, shrink-fit chuck extension No. 302410 – 302416, shrink-fit units No. 354210 – 354450, balancing screw set No. 309906 180.



Corrosion protection
Special surface treatment

Optimised cooling concept

- 4 cooling channel bores instead of 2.
- Different approach angles of the cooling channel bores.
- With 4 nozzle screws to optimise the coolant pressure and alignment of the coolant stream.



Clamping Ø D ₁		mm	6	8	10	12	16	20
3/1A 30 8172	Shrink-fit chuck with 4 cooling channel bores, nickel-plated	HSK-A 63 short	188.60	188.60	188.60	188.60	188.60	188.60
3/1A 30 8194		HSK-A 63 A = 120	226.71	226.71	226.71	226.71	226.71	226.71
3/1A 30 8267		HSK-A 100 short	262.35	262.35	262.35	262.35	262.35	262.35
Dimension A (30 8172)		mm	80	80	85	90	95	100
Dimension A (30 8267)		mm	85	85	90	95	100	105
Ø D		mm	27	27	32	32	34	42
Ø D ₂		mm	21	21	24	24	27	33



Pull-out wrench for reducing adapters – for HD chucks

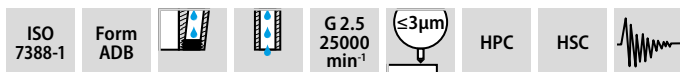
Suitable for: Reducing adapters Ø 12, 20 and 32 mm; No. 302135 – 302180.

Application: For easy removal of the reducing adapters from hydraulic clamping chucks. Can be used for all popular HD reducing adapters.



30 2183

for reducing adapters Ø	mm	12-32
30N 30 2183	Pull-out wrench for reducing adapters	15.54



Garant Shrink-fit chuck, vibration-damped – (formerly DIN 69871)

- High-temperature steel.
- Integrated length adjustment of the tools.
- For HSS and solid carbide tools.
- Shanks hard turned (smooth cutting action).
- With Balluffchip bore.
- With coolant channel bores and threads that can be sealed.
- With tapped holes on each side for balancing screws.
- **Reinforced version/contour.**
- **Polished surface.**
- **Specially mounted carbide core in the shrink-fit chuck body.**

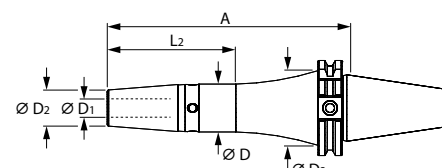
- Advantage:**
- **Vibration-damping.**
 - **Better workpiece surface finish.**
 - **Optimised tool life.**
 - **Increased process reliability.**
 - **Lower corrosion tendency due to polished surface.**

Application: For clamping tools with plain shank (h6 shank tolerance). Suitable for inductive, contact and hot air shrink-fit units.

Optional extras: Pull studs (PS) No. 308600 – 308800.
PS wrenches No. 308820 – 308835.
Shrink-fit chuck extensions No. 302410 – 302419.
Shrink-fit units, accessories No. 354210 – 354450.
Balancing screws set No. 309906 size 180.



302207_6



Clamping range $\varnothing D_1$		mm	6	8	10	12	16
31A	30 2207	Shrink-fit chuck vibration-damped, with cooling channel bores	SK 40 A = 120	207.90	207.90	207.90	207.90
31A	30 2214		SK 50 A = 120	270.27	270.27	270.27	270.27
$\varnothing D$		mm	27	27	32	32	34
$\varnothing D_2$		mm	21	21	24	24	27
$\varnothing D_3$ (30 2207)		mm			50		
$\varnothing D_3$ (30 2214)		mm			80		
L_1 (30 2207)		mm	60.9	60.9	65.9	65.9	65.9
L_1 (30 2214)		mm	50.9	50.9	58.9	62.9	65.9



Garant Shrink-fit chuck, vibration-damped – ISO 12164-1 (DIN 69893-1)

- High-temperature steel.
- Integrated length adjustment of the tools.
- For HSS and solid carbide tools.
- Shanks hard turned (smooth cutting action).
- With Balluffchip bore.
- With coolant channel bores and threads that can be sealed.
- With tapped holes on each side for balancing screws.
- **Reinforced version/contour.**
- **Polished surface.**
- **Specially mounted carbide core in the shrink-fit chuck body.**

- Advantage:**
- **Vibration-damping.**
 - **Better workpiece surface finish.**
 - **Optimised tool life.**
 - **Increased process reliability.**
 - **Lower corrosion tendency due to polished surface.**

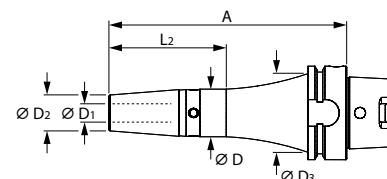
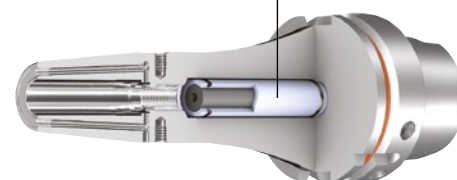
Application: For clamping tools with plain shank (h6 shank tolerance). Suitable for inductive, contact and hot air shrink-fit units.

Optional extras: HSK coolant pipe No. 309880,
socket No. 309890,
shrink-fit unit No. 354210 – 304755,
balancing screw set No. 309906 size 180.
Shrink-fit chuck extensions No. 354210 – 354450.



308342_6

Carbide core drilled through, mounted in an aluminium cylinder – optimum damping characteristics.



Clamping range $\varnothing D_1$		mm	6	8	10	12	16
31A	30 8342	Shrink-fit chuck vibration-damped, with cooling channel bores	HSK-A 63 A = 120	249.48	249.48	249.48	249.48
31A	30 8346		HSK-A 100 A = 120	326.70	326.70	326.70	326.70
$\varnothing D$		mm	27	27	32	32	34
$\varnothing D_2$		mm	21	21	24	24	27
$\varnothing D_3$ (30 8342)		mm			53		
$\varnothing D_3$ (30 8346)		mm			88		
L_1 (30 8342)		mm	57	57	62	62	65
L_1 (30 8346)		mm	50	50	60	63	68



30

DIN 69893	ISO 12164-1	Form A	G 2.5 25000 min ⁻¹		HSC
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Garant Shrink-fit chucks 3° (for tool and mould making) – ISO 12164-1 (DIN 69893-1)

- All shanks hard turned (for smooth running!).
- HSK mating faces machined.
- **Slim design (3° contour).**

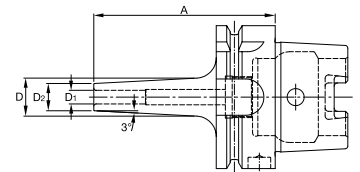
With Balluffchip bore.

- Application:**
- **Especially in tool and mould making.**
 - For clamping tools with shank tolerance h6.

Optional extras: Coolant pipe No. 309880. Socket No. 309890. Shrink-fit chuck extensions No. 302410 sizes 12/3 and 12/4. Shrink units No. 354210 – 354450.



308322_6



Clamping Ø		mm	4	6	8	10	12
31A	308322	Shrink-fit chuck 3°, slim	HSK-A 100 A = 120	295.02	262.35	262.35	262.35
Ø D		mm	20	22	24	26	28
Ø D ₂		mm	10	12	14	16	18

DIN 69893	ISO 12164-1	Form A	G 2.5 25000 min ⁻¹		HSC
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Garant Shrink-fit chucks 4.5°, long version – ISO 12164-1 (DIN 69893-1)

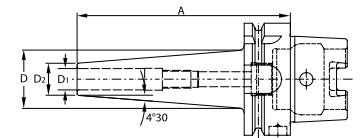
- External taper 4°30'.
- With Balluffchip bore.
- HSK mating faces machined.

- Application:**
- **For working in places where access is difficult.**
 - For clamping tools with parallel shank to h6 tolerance.

Optional extras: Coolant pipe No. 309880, socket No. 309890, shrink extensions No. 302410 sizes 12/3 and 12/4. Shrink units No. 354210 – 354450.



308339



Clamping range Ø D ₁		mm	6	8	10	12
31A	308339	Shrink-fit chuck, slim, long 4°30'	HSK-A 100 A = 120	246.51	246.51	246.51
Ø D		mm	30	30	33	33
Ø D ₂		mm	15	15	18	18

	G 2.5 25000 min ⁻¹		HSC
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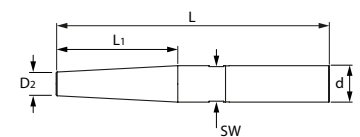
ALBRECHT Präzisions Spannfutter **Micro precision chuck extension with plain shank**

- Very slim version for difficult-to-access machining zones. High clamping force and accuracy due to flat taper angle.
- Quick tool change is performed from behind using a hexagon key (supplied).
- Maintenance-free. Sealed against coolant and dirt.
- Also for clamping plain shanks to DIN 1835 A, B and DIN 6535 HB, HA.
- Plain shank tolerance h6.
- The collet is clamped by a threaded connection from behind **through** the chuck, **no clamping nut required.**

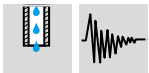
Optional extras: ALBRECHT collets No. 309572 – 309573.



300774



Clamping range		mm	1-6
34F	300774	Micro precision chuck extension with plain shank	270.27
Ø d		mm	20
Ø D ₂		mm	13
AF		mm	19
L		mm	150
L ₁		mm	67

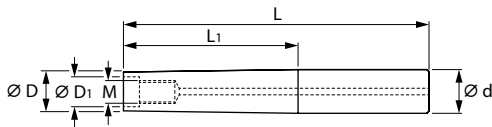


Garant Solid carbide extensions for screw-in milling cutters

Solid carbide extension with vibration-damping properties, shank tolerance h6, long and slim version.

Application: Particularly for use in shrink-fit chucks.
Perfect combination of standard steel extensions and Densimet extensions.

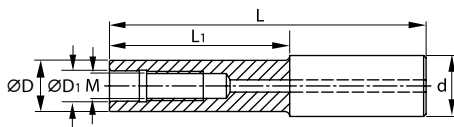
tapered extensions



30 1361

Thread M × L	31Z	30 1361	31Z	30 1362	31Z	30 1364	31Z	30 1366	31Z	30 1368	Ø D	Ø D ₁	L ₁
	Solid carbide extension for screw-in milling cutters												
	Ø d = 12 mm		Ø d = 16 mm		Ø d = 20 mm		Ø d = 25 mm		Ø d = 32 mm		mm	mm	mm
M5×100		261.36		-		-		-		-	9.8	5.5	60
M6×70		231.66		-		-		-		-	9.8	6.5	21
M6×90		256.41		-		-		-		-	9.8	6.5	40
M6×110		285.12		-		-		-		-	9.8	6.5	60
M8×95		-		297.99		-		-		-	12.8	8.5	40
M8×115		-		333.63		-		-		-	12.8	8.5	60
M8×135		-		372.24		-		-		-	12.8	8.5	80
M8×155		-		395.01		-		-		-	12.8	8.5	100
M8×175		-		420.75		-		-		-	12.8	8.5	120
M10×100		-		-		347.49		-		-	17.8	10.5	40
M10×120		-		-		382.14		-		-	17.8	10.5	60
M10×140		-		-		420.75		-		-	17.8	10.5	80
M10×160		-		-		458.37		-		-	17.8	10.5	100
M10×180		-		-		500.94		-		-	17.8	10.5	120
M12×136		-		-		-		532.62		-	23	12.5	80
M12×156		-		-		-		596.97		-	23	12.5	100
M12×176		-		-		-		669.24		-	23	12.5	120
M12×196		-		-		-		702.90		-	23	12.5	140
M12×216		-		-		-		744.48		-	23	12.5	160
M16×160		-		-		-		-		760.32	29	17	100
M16×210		-		-		-		-		939.51	29	17	150
M16×260		-		-		-		-		1129.59	29	17	200
M16×310		-		-		-		-		2043.36	29	17	250
M16×360		-		-		-		-		2977.92	29	17	300

cylindrically offset extensions



30 1381

Thread M × L	31Z	30 1381	31Z	30 1383	31Z	30 1384	31Z	30 1386	Ø D	Ø D ₁	L ₁
	Solid carbide extension for screw-in milling cutters										
	Ø d = 12 mm		Ø d = 16 mm		Ø d = 20 mm		Ø d = 25 mm		mm	mm	mm
M6×70		230.67		-		-		-	9.8	6.5	20
M6×90		256.41		-		-		-	9.8	6.5	40
M8×75		-		242.55		-		-	12.8	8.5	20
M8×95		-		297.00		-		-	12.8	8.5	40
M8×115		-		333.63		-		-	12.8	8.5	60
M8×135		-		370.26		-		-	12.8	8.5	80
M10×80		-		-		270.27		-	15.4	10.5	20
M10×100		-		-		346.50		-	15.4	10.5	40
M10×120		-		-		382.14		-	15.4	10.5	60
M10×135		-		-		418.77		-	15.4	10.5	80
M12×125		-		-		-		440.55	20.8	12.5	60
M12×145		-		-		-		539.55	20.8	12.5	80
M12×165		-		-		-		638.55	20.8	12.5	100



30



Shrink-fit chuck Power Shrink Chuck with SAFE-LOCK®

Shrink-fit chuck for very high metal removal rates during high-performance cutting (HPC). The optimised design combines excellent stiffness with vibration damping. This protects the machine, spindle and tool.

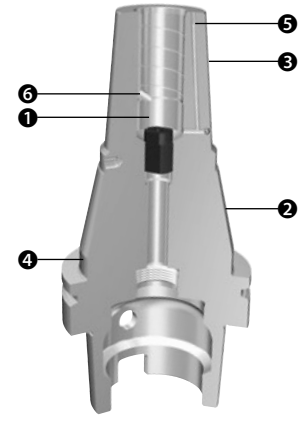
- **Safe-Lock tool pull-out protection** prevents the tool being pulled out accidentally.
- Higher metal removal rate due to higher speeds, higher feed rates and greater cutting depth.
- Shorter machining times.
- Runs more smoothly, which improves the surface quality and protects the tool, spindle and machine.
- With tapped holes for balancing with screws.
- With pluggable Cool Jet holes.
- With length adjustment screw (adjustment path 10 mm).

Application: For clamping tools with parallel shank to h6 tolerance with **Safe-Lock ground surface**. Suitable for all types of shrink-fit unit such as inductive, contact and hot air shrink-fit units.

Optional extras: For milling cutters with Safe-Lock clamping flat, see solid carbide milling cutters.

Note: Other shrink-fit chucks with **Safe-Lock** available on request.

Detailed information on Safe-Lock can be found under milling.

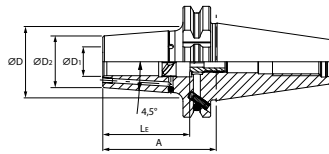


- Key characteristics:**
- ❶ High concentricity (< 0.003 mm).
 - ❷ Low tendency to vibrate due to optimised outer contour.
 - ❸ Slim design at the tip.
 - ❹ Very stiff shank.
 - ❺ Cool-Jet as standard (can be re-locked).
 - ❻ Safe-Lock.

Shrink-fit chuck Power Shrink Chuck with SAFE-LOCK® – (formerly DIN 69871)

ISO 7388-1	Form ADB
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Optional extras: Pull studs (PS) No. 308600 – 308800, PS wrenches No. 308820 – 308835. Shrink-fit units, accessories No. 354210 – 354450, balancing screws set No. 309906 size 180.

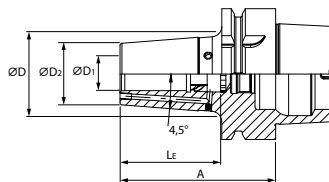


Clamping range Ø D,	mm	6	8	10	12	14	16	18	20	25	32
341 30 2303	Shrink-fit chuck Power Shrink Chuck with Safe-Lock	SK 40 ultra short	(306.34)	(306.34)	(306.34)	(306.34)	(306.34)	(306.34)	(306.34)	(306.34)	(306.34)
341 30 2307		SK 50 short	(619.27)	(619.27)	(619.27)	(619.27)	(619.27)	(619.27)	(619.27)	(619.27)	–
Dimension A (30 2303)	mm	65	65	65	65	65	65	65	65	75	80
Dimension A (30 2307)	mm	80	80	80	80	80	80	80	80	100	–
Ø D (30 2303)	mm	29.5	29.5	34	34	37	37	43	43	50	50
Ø D (30 2307)	mm	70	70	55	55	43	43	54.5	54.5	78	–
Ø D₂ (30 2303)	mm	22	22	26.5	26.5	29.5	29.5	35.5	35.5	45.5	45.5
Ø D₂ (30 2307)	mm	21	21	27	27	33.3	33.3	44.7	44.7	44	–
maximum clamping depth L _c	mm	36	36	42	47	47	50	50	52	58	58

Shrink-fit chuck Power Shrink Chuck with SAFE-LOCK® – ISO 12164-1(DIN 69893-1)

ISO 12164-1	DIN 69893	Form A
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Optional extras: Coolant pipe No. 309880, socket wrench No. 309890, shrink-fit units No. 354210 – 354450, balancing screw set No. 309906 size 180.



Clamping range Ø D,	mm	6	8	10	12	14	16	18	20	25	32
341 30 7935	Shrink-fit chuck Power Shrink Chuck with Safe-Lock	HSK-A 63 ultra short	(330.50)	(330.50)	(330.50)	(330.50)	(330.50)	(330.50)	(330.50)	(330.50)	(330.50)
341 30 7940		HSK-A 100 short	(643.43)	(643.43)	(643.43)	(643.43)	(643.43)	(643.43)	(643.43)	(643.43)	–
Dimension A (30 7935)	mm	70	70	70	70	75	75	75	75	85	85
Dimension A (30 7940)	mm	85	85	90	95	95	100	100	105	115	–
Ø D (30 7935)	mm	29	29	33.5	33.5	37.5	37.5	43.5	43.5	51	51
Ø D (30 7940)	mm	60	60	53	73	60	78	76	85	85	–
Ø D₂ (30 7935)	mm	22	22	26.5	26.5	29.5	29.5	35.5	35.5	45	45
Ø D₂ (30 7940)	mm	21	21	27	27	33	33	44	44	44	–
maximum clamping depth L _c (30 7935)	mm	38	38	43	46	48	49	49	49	57	59
maximum clamping depth L _c (30 7940)	mm	36	36	42	47	47	50	50	52	58	–

Three-jaw lathe chucks / geared scroll chucks

- Manual chucks with gear scroll, centrally clamping.
- Weight-reduced body of steel.
- Gear scroll drop-forged, balanced, and hardened.
- Flanks of scroll and of jaw serrations are ground.
- High concentricity.

Supplied with: 1 clamping wrench and fastening screws or studs depending on the chuck.

Optional extras: **Spare and additional jaws** see No. 314000 – 315200.
Swarf protection see No. 312800.

Note: For self-centring three-jaw lathe chucks see No. 313110 - 313140.

See information block on
spindle noses/DIN
Main catalogue from p. 1135



31 0505

With recessed mount

Standard: DIN 702-4.

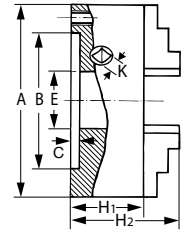
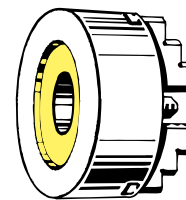
Application: For machine spindles with recessed centring mount or for mounting using a flange. Secured with screws from the rear. The flange blanks must always be fitted first to the machine and then to the chuck.

Supplied with:

31 0505 – 1 set = 3 hard inside jaws, stepped on the outside and
1 set = 3 hard inside jaws, stepped on the inside.

31 0600 – Reversible jaws **with elliptical-bevelled teeth**.

Note: DIN 702-4 satisfies the old standard DIN 6350-1.



External Ø A	31R	31 0600		Aperture E	Height without jaws H ₁	Height with jaws H ₂	Centring Ø B	Centring depth C	Chuck key square K	Weight	maximum speed	
		Garant	RÖHM								31 0600	31 0505
mm		DIN 702-4		mm	mm	mm	mm	mm	mm	kg	min ⁻¹	min ⁻¹
80		–	404.17	19	39.5	53.5	56	3	6	1.5	–	7000
100		–	445.89	20	50	68	70	3	8	3.3	–	6300
125		–	528.39	32	56	78.5	96	4	9	5.4	–	5500
160		618.75	577.52	42	65	91	125	4	10	8.8	4000	4600
200		810.81	713.79	55	73.5	106	160	4	11	15.2	3400	4000
250		1063.26	966.86	76	82	122	200	5	12	25.6	2700	3000
315		–	(1587.95)	103	95	141	260	5	14	51.2	–	2300
400		–	(2844.96)	136	105	148	330	5	17	80.5	–	1800
Colour code for accessories												

With short taper mount

Standard:

31 0670/0655 – DIN 702-2.

31 0750/0705 – DIN 702-3.

Application: The chuck is always fitted to the spindle nose directly without an intermediate flange.

31 0670/0655 – For spindle noses DIN 55029 with **Camlock studs**.

31 0750/0705 – For spindle noses DIN 55027 **with studs and collar nuts**.

Supplied with:

31 0655/0705 – 1 set = 3 hard inside jaws, stepped on the outside and
1 set = 3 hard outside jaws, stepped on the inside.

31 0670/0750 – 1 set reversible jaws **with elliptical-bevelled serrations**.

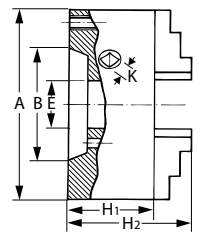
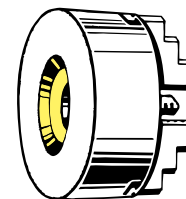
Note:

31 0670/0655 – DIN 702-2 satisfies the old standard DIN 55029.

31 0750/0705 – DIN 702-3 satisfies the old standard DIN 55027.



31 0750



Outer Ø A / taper	31R	31 0670		Aperture E	Height without jaws H ₁	Height with jaws H ₂	Number of studs		Size of studs		Chuck key square K	Weight	maximum speed		
		Garant	RÖHM				31 0670	31 0750	31 0670	31 0750			31 0670	31 0750	
mm		DIN 702-2	DIN 702-3	mm	mm	mm					mm	kg	kg	min ⁻¹	min ⁻¹
125/4		–	–	32	69	93	–	3	–	M10	9	–	6.2	–	5500
160/4		682.11	–	42	66	92	3	3	PG11	M10	10	9.5	9.5	4000	4600
160/5		–	651.42	42	66	92	–	4	–	M10	10	–	9.5	4000	4600
200/5		–	–	55	74.5	107	6	4	1/2-20	M10	11	–	16.7	–	4000
200/6		893.97	853.38	55	74.5	107	6	4	5/8-18	M12	11	16.7	16.7	3400	4000
250/6		1171.17	1117.71	76	83	124	6	4	5/8-18	M12	12	28.5	28	2700	3000
250/8		–	–	76	83	124	6	4	3/4-16	M16	12	–	28.5	–	3000
315/6		–	–	76	96	142	–	4	–	M12	14	–	52.5	–	2300
315/8		–	–	103	96	142	6	4	3/4-16	M16	14	–	54	–	2300
Colour code for accessories															

Colour code: Röhme geared scroll chucks and jaws



31

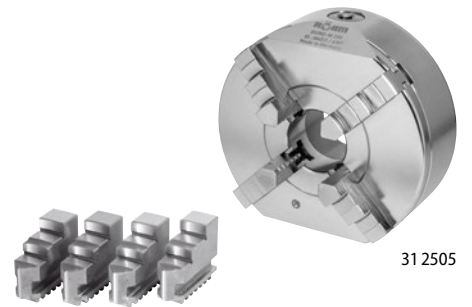
RÖHM Four-jaw lathe chuck / geared scroll chuck

- Gear scroll drop-forged, balanced, and hardened.
- Flanks of scroll and of jaw serrations are ground.
- Weight-reduced body of steel.
- High concentricity.

Drop-forged, resulting in a long working life and **suitability for high speed machines.**

Supplied with: 1 set = 4 hardened inside jaws, stepped on the outside.
 1 set = 4 hardened outside jaws, stepped on the inside.
 1 clamping wrench and fastening screws or studs depending on the chuck.

Optional extras: For spare and additional jaws see No. 314100 – 315300.
 For swarf protection see No. 312800.

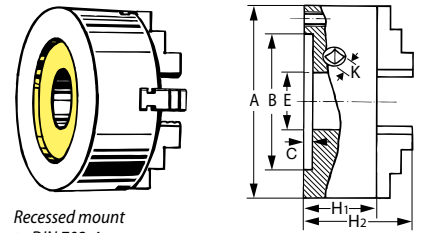


31 2505

With recessed mount

Standard: DIN 702-4.
Application: For machine spindles with recessed centring mount or for mounting using a flange. The flange blanks No. 317000 must always be adapted first to the machine and then to the lathe chuck.

Note: DIN 702-4 satisfies the old standard DIN 6350-1.



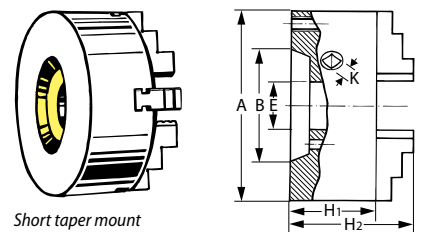
Recessed mount to DIN 702-4 (fastening screw from rear).

External Ø A	31 2505	Aperture E	Height without jaws H ₁	Height with jaws H ₂	Centring Ø B	Centring depth C	Chuck key square K	Weight	maximum speed
mm	DIN 702-4	mm	mm	mm	mm	mm	mm	kg	min ⁻¹
80	500.58	19	39.5	53.5	56	3	6	1.7	7000
100	527.46	20	50	68	70	3	8	3.3	6300
125	(651.68)	32	56	78.5	95	4	9	5.3	5500
160	796.29	42	65	91	125	4	10	9.2	4600
200	903.83	55	73.5	106	160	4	11	15.8	4000
250	1146.70	76	82	122	200	5	12	26.8	3000
315	(1836.39)	103	95	141	260	5	14	52.3	2300
Colour code for accessories									

With short taper mount

Standard: DIN 702-3.
Material: Steel
Application: For spindle noses DIN 55027 with studs and collar nuts. The chuck is always fitted to the spindle nose directly without an intermediate flange.

Note: DIN 702-3 satisfies the old standard DIN 55027.



Short taper mount to DIN 702-3 (stud and collar nut).

Outer Ø A / taper	31 2705	Aperture E	Height without jaws H ₁	Height with jaws H ₂	Number of studs	Size of studs	Centring taper Ø B	Chuck key square K	Weight	maximum speed
mm	DIN 702-3	mm	mm	mm			mm	mm	kg	min ⁻¹
125/4	(725.84)	32	69	93	3	M10	63.525	9	6.7	5500
160/4	(864.89)	42	66	92	3	M10	63.525	10	9.9	4600
160/5	864.89	42	66	92	4	M10	82.575	10	9.8	4600
200/5	(952.03)	55	74.5	107	4	M10	82.575	11	17.2	4000
200/6	952.03	55	74.5	107	4	M12	106.39	11	17.3	4000
250/6	1384.01	76	83	124	4	M12	106.39	12	28.8	3000
250/8	(1384.01)	76	83	124	4	M16	139.735	12	30.3	3000
Colour code for accessories										

Colour code: RöhM geared scroll chucks and jaws

HOLEX Spare and additional jaws – self-centring chucks

Unstepped, for boring out to individual clamping \emptyset . **Milled** location faces, **not burnished**.

Suitable for: Schunk self-centring chucks No. 313115; 313117; 313135; 313137, Röhms self-centring chucks Duro No. 313120; 313130; 313140 and other self-centring chuck systems.

Material: Quality product made of 16MnCr5.

Application: For fitting to hardened base jaws. For clamping irregularly shaped or already machined components which have to be protected against damage. The jaws are machined according to the contours of the component.

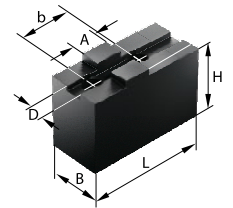


31 3315

Note: **Size 400 also suitable for chuck size 500.**
Aluminium top jaws **on request**.

Soft top jaws

for chuck type		160	200	250	315	400	suitable for colour code
32R	31 3315 Soft top jaw set, 3 pieces	32.97	38.61	56.43	81.18	141.08	
L	mm	85	105	125	145	180	
B	mm	20	22	30	35	50	
H	mm	36.5	40	50	50	73	
D	mm	8	10	12	12	18	
b	mm	32	40	40	54	60	
A	mm	18	20	20	26	30	



31

HOLEX Spare and additional jaws – heavy-duty chucks

Clamping jaws with sharp serrations 1/16 inch \times 90°.

Precision milled slots and serrations, **not burnished**.

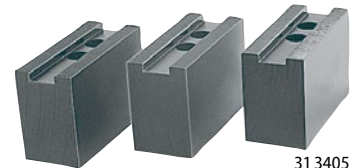
Suitable for: **Heavy-duty chucks** from Schunk, Röhms and other heavy-duty chuck manufacturers.

Material: Quality product made of 16MnCr5.

Optional extras: T-nuts No. 313505 – 313605.

Note:

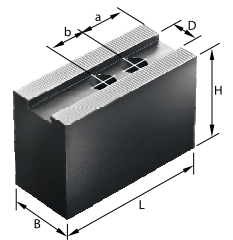
- **When fitting to a chuck, please check serrations, slot width (D), and hole spacing (a, b).**
- **Aluminium top jaws on request.**



31 3405

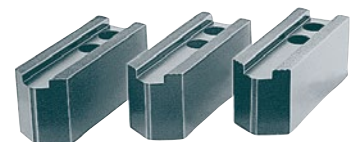
Soft top jaws, standard, serrations 90°

for chuck type		160	200	250	400
32R	31 3405 Top jaws set, 3 pieces	48.51	55.04	98.80	157.41
L	mm	67	75	95	130
B	mm	36	36	45	50
H	mm	53	53	54	80
a	mm	12	12	15	20
b	mm	19	19	25	31
D	mm	17	17	21	25.5
for thread DIN 912		M12	M12	M16	M20
also suitable for chuck type	mm	–	–	315	500/630



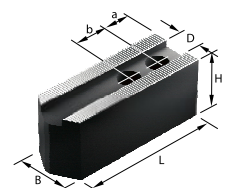
Soft top jaws, long, serrations 90°

Bevelled for small clamping \emptyset .



31 3475

for chuck type		160	200	250
32R	31 3475 Top jaws set, 3 pieces	60.98	61.58	76.23
L	mm	78	98	120
B	mm	35	35	50
H	mm	40	40	50
a	mm	15	15	20
b	mm	22	22	28
D	mm	17	17	21
for thread DIN 912		M12	M12	M16

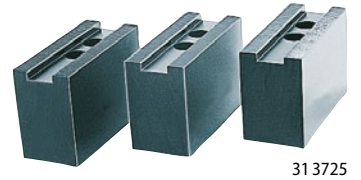


Colour code: Röhms self-centring chucks and jaws

Schunk self-centring chucks and jaws

Soft top jaws with sharp serrations 1.5 mm×60°

Suitable for: Heavy-duty chucks from Schunk, Röhm and other heavy-duty chuck manufacturers.
Material: Quality product made of 16MnCr5.
Optional extras: T-nuts No. 313505 – 313605.



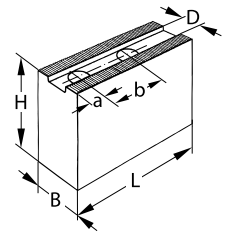
Note:

- When fitting to a chuck, please check serrations, slot width (D), and hole spacing (a, b).
- Aluminium top jaws on request.

Soft top jaws, standard, serrations 1.5×60°

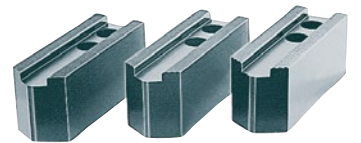
Precision milled slots and serrations, not burnished.

for chuck type		170	210	254	315	315/21	suitable for colour code
32R	31 3725 HOLEX Top jaws set, 3 pieces	40.10	42.87	48.71	60.39	66.33	■
L	mm	72	95	110	130	130	
B	mm	32	35	50	50	50	
H	mm	40	45	45	50	58	
a	mm	15	24	30	40	39	
b	mm	20	25	30	30	30	
D	mm	12	14	16	18	21	
for thread DIN 912		M10	M12	M12	M14	M16	

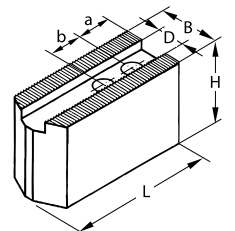


Soft top jaws, long, serrations 1.5×60°

Precision milled slots and serrations, not burnished.
 Bevelled for small clamping Ø.



for chuck type		170	210	254	315	suitable for colour code
32R	31 3745 HOLEX Top jaws set, 3 pieces	54.75	54.75	63.95	79.60	■
L	mm	82	102	125	145	
B	mm	31	35	40	50	
H	mm	32	40	40	50	
a	mm	15	20	30	30	
b	mm	20	25	30	30	
D	mm	12	14	16	18	
for thread DIN 912		M10	M12	M12	M14	

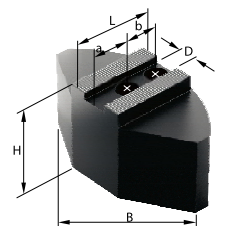


Soft top jaws, long, serrations 1.5×60°

Precision milled slots and precision ground serrations, burnished.
Application: All-round low-distortion clamping.



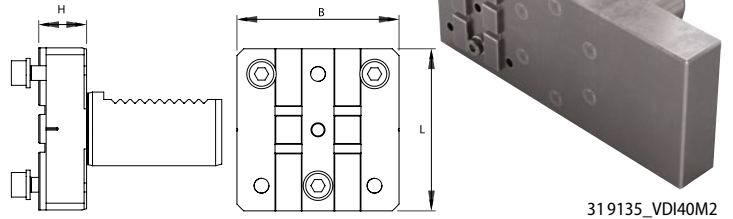
for chuck type		165	210	250	315	suitable for colour code
33T	31 3738 SCHUNK Segment jaws set, 3 pieces, Steel	200.70	276.30	313.20	(465.30)	■
L	mm	59.5	72.5	87.5	117	
B	mm	120	140	180	240	
H	mm	58	80	80	78	
a	mm	25	35	40	45	
b	mm	20	25	30	30	
D	mm	12	14	16	21	



Colour code: ■ Schunk heavy-duty chucks and jaws

Garant eco adjustable base toolholders / parting-off toolholders

Suitable for: VDI40M1 and 40M2 - MAZAK Nexus Quick-Turn 100, 150, 200, 250.
Advantage: Precisely adjustable tip height, permitting ideal machining results with consistent tool life. Turret misalignments can be compensated.



Type	VDI25	VDI30	VDI40	VDI40M1	VDI40M2	VDI50	HSK-T63	PSC50	PSC63
31V 31 9135 Modular toolholder	351.45	351.45	363.33	(394.02)	(425.70)	363.33	391.05	378.18	391.05
L mm	61.2	66	85	175	175	100	63	63	63
B mm	60	66	85	76	83	90	63	63	63
H mm	15.5	16.5	16.5	25	40	25	57.5	36	38
suitable for parting-off blade holder	Type 1	Type 1	Type 2	Type 1	Type 2	Type 2	Type 1	Type 1	Type 1

Form E

HOLEX VDI toolholders

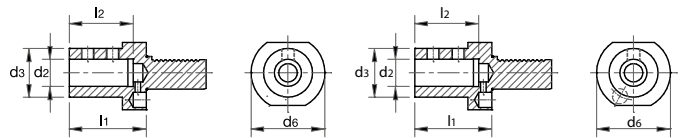
Standard: DIN 69880 / VDI 3425, sheet 2.



31

Form E1

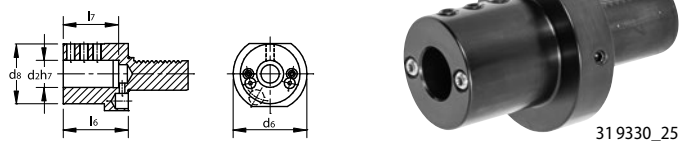
Application: For drilling with indexable drill with internal coolant supply.



Bore d ₂ (H6)	mm	16	20	25	32	40	50	d ₆ mm	Colour code for VDI shanks
32U 31 9155	VDI 20	68.04	67.41	67.41	-	-	-	50	
32U 31 9165	VDI 25	71.10	71.10	71.10	-	-	-	58	
32U 31 9175	VDI 30	68.40	68.40	68.40	68.40	68.40	-	68	
32U 31 9205	VDI 40	75.60	72.09	72.09	72.09	72.09	-	83	
32U 31 9215	VDI 50	-	99.00	92.70	92.70	92.70	92.70	98	
∅ d ₁	mm	36	40	45	52	65	75		
l ₁ -0.2	mm	67	67	75	71	90	100		
l ₂	mm	54	54	59	63	73	83		

Form E2

Application: For internal machining with boring bar holder.



Bore d ₂ (H7)	mm	6	8	10	12	16	20	25	32	40	50	d ₆ mm	Colour code for VDI shanks
32U 31 9305	VDI 16	75.78	75.78	75.78	75.78	75.78	-	-	-	-	-	40	
32U 31 9310	VDI 20	-	62.73	62.73	62.73	62.73	62.73	62.73	-	-	-	50	
32U 31 9315	VDI 20	-	72.99	72.99	72.99	72.99	72.99	72.99	-	-	-	58	
32U 31 9320	VDI 20	-	62.73	62.73	62.73	62.73	62.73	62.73	62.73	-	-	68	
32U 31 9330	VDI 40	-	64.62	64.62	64.62	64.62	64.62	64.62	64.62	64.62	64.62	83	
32U 31 9335	VDI 50	-	-	-	89.10	89.10	89.10	89.10	89.10	89.10	89.10	98	
l ₆ (31 9305)	mm	44	44	44	44	44	-	-	-	-	-		
l ₆ (31 9310, 31 9315)	mm	-	50	50	50	50	50	60	-	-	-		
l ₆ (31 9320)	mm	-	60	60	60	60	60	60	75	-	-		
l ₆ (31 9330)	mm	-	75	75	75	75	75	75	75	90	100		
l ₆ (31 9335)	mm	-	-	-	76	90	90	90	90	90	100		
l ₇ (31 9305)	mm	34	34	34	34	34	-	-	-	-	-		
l ₇ (31 9310, 31 9315)	mm	-	41	41	41	41	41	51	-	-	-		
l ₇ (31 9320)	mm	-	51	51	51	51	51	51	61	-	-		
l ₇ (31 9330)	mm	-	61	61	61	61	61	61	61	76	86		
l ₇ (31 9335)	mm	-	-	-	76	76	76	76	76	76	86		

Colour code: VDI 20 VDI 25 VDI 30 VDI 40 VDI 50 VDI 16



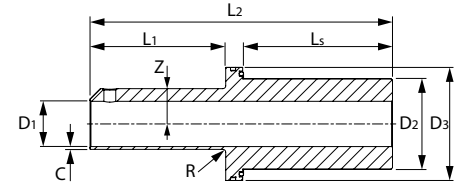
Garant Boring bar stabiliser

Base body of high-quality tool steel, surface and functional faces hardened.

Suitable for: All popular boring bars.

Advantage: Reduces oscillation and vibration when used with all types of boring bars.

Note: To determine the right type of boring bar stabiliser, it is essential to perform a collision check using the Hoffmann e-Tool data from the eShop or via the ToolScout! We recommend a maximum overhang length of $3 \times D$ of the types of boring bar used. Maximum overhang, stabiliser incl. boring bar $10 \times D$.



Type		10R	10L	12R	12L	16R	16L	20R	20L
31V 31 9467	Boring bar stabiliser 7×D mini	251.46	251.46	264.33	264.33	315.81	315.81	353.43	353.43
31V 31 9468	Boring bar stabiliser 7×D midi	251.46	251.46	264.33	264.33	286.11	286.11	–	–
31V 31 9469	Boring bar stabiliser 7×D maxi	251.46	251.46	264.33	264.33	305.91	305.91	343.53	343.53
Cutting direction		right-hand	left-hand	right-hand	left-hand	right-hand	left-hand	right-hand	left-hand
∅ D ₁	mm	10	10	12	12	16	16	20	20
∅ D ₂	mm					32			
∅ D ₃	mm					40			
L ₁	mm	70	70	84	84	112	112	140	140
L _s	mm	53	53	53	53	53	53	60	60
Overall length L ₂	mm	129	129	143	143	171	171	206	206

Garant Boring bar stabiliser



Shorter leverage minimises deflection

Additional screw increases the stability

Reinforced back increases stability

Tight fit

Wrapping ensures a secure fit and increased support.



Best load distribution of the machining forces

Mounting using the boring bar holder

Alignment surfaces for boring bar stabiliser

Application example:



Turning contour and thread without boring bar stabiliser.



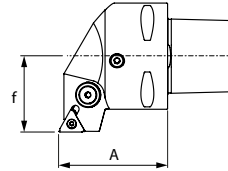
Turning contour and thread with boring bar stabiliser.



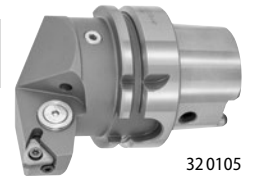
In the application example with a boring bar stabiliser, the machining speed has been increased by almost three times. Despite the considerable increase in cutting speed, virtually no "vibration traces" of any sort can be detected. Perfect dimensional stability and significantly better tool life, despite increased cutting data.


SWISS TOOLS Toolholder for indexable inserts

Note: Order the suitable **HP nozzle** No. 320001 separately. PSC clamping stud on request.

R/L external thread screw-on toolholder, radial, for 16E...


ISO 12164-3



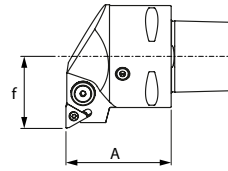
32 0105

ISO 26623-1

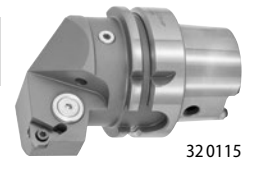


32 0415

Shank Ø / insert size	Screw-on toolholder				Dimension A		f	suitable indexable insert
	36D 32 0105	36D 32 0106	36D 32 0415	36D 32 0416	mm	mm		
	right-hand				32 0105	32 0415		
mm	HSK-T	HSK-T	PSC	PSC	32 0106	32 0416	mm	
40/16HP	(294.03)	(294.03)	(374.22)	(374.22)	55	50	27	16E..
50/16HP	–	–	(374.22)	(374.22)	–	60	35	16E..
63/16HP	(374.22)	(374.22)	(374.22)	(374.22)	70	65	45	16E..

R/L external thread screw-on toolholder, axial, for 16E...


ISO 12164-3



32 0115

ISO 26623-1



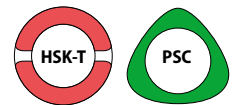
32 0420

Shank Ø / insert size	Screw-on toolholder				Dimension A		f	suitable indexable insert
	36D 32 0115	36D 32 0116	36D 32 0420	36D 32 0421	mm	mm		
	right-hand				32 0115	32 0420		
mm	HSK-T	HSK-T	PSC	PSC	32 0116	32 0421	mm	
40/16HP	(294.03)	(294.03)	(372.24)	(372.24)	55	50	27	16E..
50/16HP	–	–	(374.22)	(374.22)	–	60	35	16E..
63/16HP	(374.22)	(374.22)	(374.22)	(374.22)	70	65	45	16E..



ISO 26623-1

ISO 12164-3


SWISS TOOLS ST boring bar shanks, vibration damped, for exchangeable heads

- For efficient turning.
- For left-hand and right-hand turning.

Advantage:

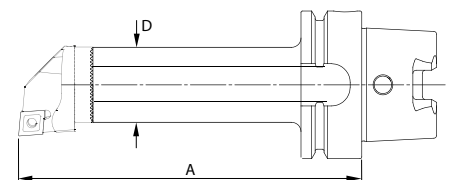
- Productivity gain - thanks to suppression of vibration the cutting data can be significantly increased.
- Improved surface quality.
- Improved process reliability.
- Improved chip clearance.

Application: For mounting exchangeable cutting heads.

Note: For suitable interchangeable heads see No. 264826 – 264827.



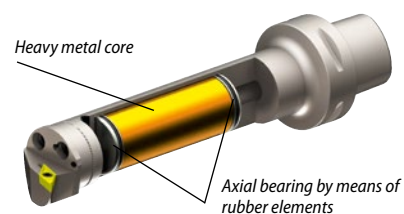
32 0409



32 0104

Boring bar shanks for HP ready

Shank Ø / Ø D - A dimension	Boring bar shank vibration-damped	
	36D 32 0104	36D 32 0409
mm	HSK-T	PSC
63/25-161	(1121.67)	–
63/32-186	(1270.17)	–
63/40-226	(1390.95)	–
63/25-167	–	(1121.67)
63/32-194	–	(1270.17)
63/40-238	–	(1390.95)



HOLEX Constant face drivers

- Tip angle 60°, clamping \varnothing 17 mm – 54 mm.
- Clockwise and anti-clockwise rotation.
- Outstandingly suitable for use on lathes and when hobbing.

Suitable for: Lathe centres No. 321405, No. 321720, No. 321730 and 321740.

Application: For mounting in the headstock taper of the lathe.

Supplied with: Face driver with centring points 327410 and driver 327412.

Optional extras: No. 327410 centring point, No. 327412 driver, No. 327414 damping elements.

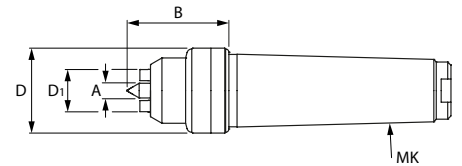
Note: Suitable taper sleeves for adapting in lathe chucks available on request.



327400

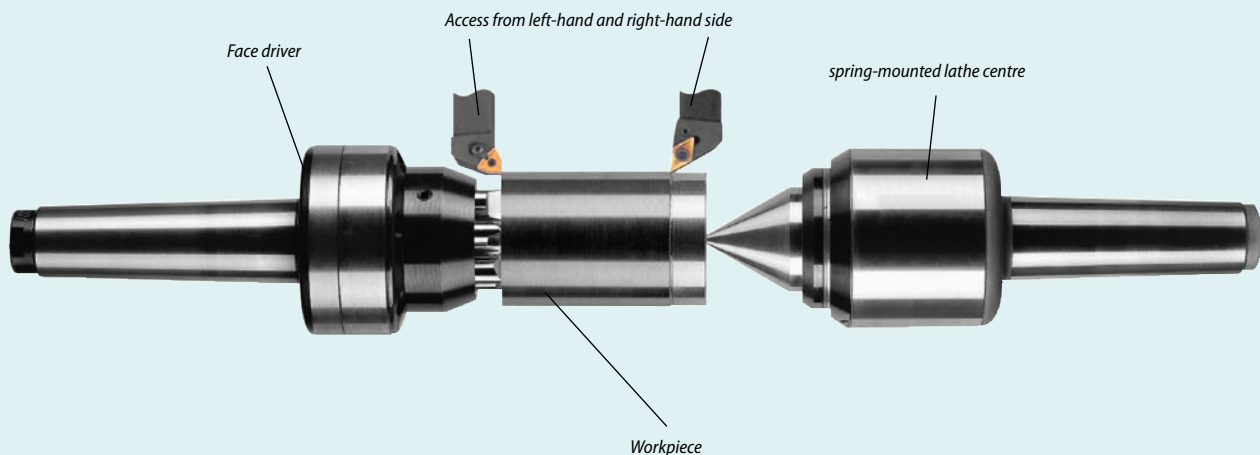
Face driver with working range \varnothing 19 - 100 mm

Morse taper (MK)		4	5
32P 327400	Face driver with Morse taper	623.70	–
32P 327401		727.65	755.37
32P 327402		787.05	794.97
32P 327403		1089.00	1122.66
Working range \varnothing (327400)	mm	19 – 34	–
Working range \varnothing (327401)	mm		28 – 50
Working range \varnothing (327402)	mm		40 – 72
Working range \varnothing (327403)	mm		55 – 100
Clamping \varnothing D1 (327400)	mm	17	–
Clamping \varnothing D1 (327401)	mm		26
Clamping \varnothing D1 (327402)	mm		38
Clamping \varnothing D1 (327403)	mm		54
Reach B (327400)	mm	62	–
Reach B (327401)	mm		70.3
Reach B (327402)	mm		89
Reach B (327403)	mm		104.1
Workpiece weight (327400)	kg	50	–
Workpiece weight (327401)	kg		55
Workpiece weight (327402)	kg		65
Workpiece weight (327403)	kg		100
External \varnothing (327400)	mm	42	–
External \varnothing (327401)	mm		52
External \varnothing (327402)	mm		70
External \varnothing (327403)	mm		82
largest centre point \varnothing 60° A (327400)	mm	5	–
largest centre point \varnothing 60° A (327401)	mm		9
largest centre point \varnothing 60° A (327402)	mm		14
largest centre point \varnothing 60° A (327403)	mm		20



32

HOLEX Face driver in use



Garant Shrink-fit and cooling unit

- Unique design.
- Modular
- Easy to use.
- Everything in its right place.

Ergonomic handle

High-power coil

- Shrink range \varnothing 3 – 32 mm (carbide + HSS)
- Roller spring supported coil guide
- QTH = QuickToolHolder (integrated tool tray)

Shrink-fit tool length

up to 500 mm

Basic tool holders

No. 35 4225 – 35 4227

Including air cooling

at the shrink-fit chuck position



Intuitive new touch control

Modular design

- Shrink-fit station including air cooling No. 35 4210_SU1
- Cooling unit including cooling air supply No. 35 4215_CU1

Perforated panel

for using GARANT Easyfix systems
No. 96 3001 – 96 3058.

Contact cooling

- Positively driven
- Contour-dependent

Storage for the cooling inserts

Tool storage

Stainless steel surface

Storage for screening plates

\varnothing 3 – 32 mm (no. 35 4240)



35

Garant Shrink-fit and cooling unit

Shrink-fit unit with integral cooling at the shrink-fit chuck position.
Maximum shrink-fit tool length 500 mm.
Storage for screening plates.

- Application:**
- For contour-dependent cooling.
 - For shrinking shanks of carbide and HSS in and out.
 - Shrink range 3 – 32 mm.

Supplied with:

- Size SU1 –
- 4 screening plates \varnothing 3 – 32 mm No. 354240.
 - Clamping ring.
 - 1 pair heat-resistant gloves.

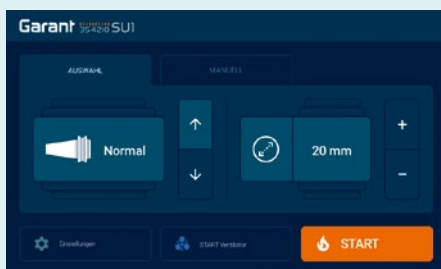
Optional extras:

- Size SU1 –
- Suitable base cabinet No. 354291.
 - Spare screening plates No. 354240.
 - Basic tool mountings No. 354225 – 354227.
 - Cooling adaptor for air cooling No. 354235 – 354236.
 - **Cooling unit No. 354215 CU1.**



Type	SU1	
31E 35 4210	Shrink-fit unit	5274.00
Width	mm	700
Height	mm	986
Depth	mm	533
Power supply	3-AC 400 V/50 Hz + N + PE 230 V/50 – 60 Hz	
Power	kW	11
Weight	kg	45

Overview of functions on touch panel control



Main menu (selection)

Select pre-set shrink fitting processes.

- Select shrink-fit chuck type.
- Select diameter.
- Access settings.
- Start/stop the cooling fan.
- Start the shrink fitting process.



Main menu (manual)

Here you can set your own shrink fitting processes.

- Select shrink fitting time.
- Set shrink fitting performance.
- Designate/save your own shrink fitting process.
- Access settings.
- Start/stop the cooling fan.
- Start the shrink fitting process.



Settings

- Running time for cooling fan.
- Select language.
- Select unit – mm/inch.

UNO premium pre-setting device

- **22 inch multi-touch screen** with intuitive and simple Microvision interface.
- Calibration device on the SK50 tool mounting.
- Wide variety of storage options, e.g. for tool arbors, adapters and controls such as a mouse, keyboard and printer.
- Quick adjustment of both axes using Release-by-Touch (X/Y), separately or at the same time.
- Fine adjustment of both axes (X / Z) using rotary wheel.
- Spindle with 4×90° and 3×120° indexing and pneumatic spindle brake for turning tools.
- Camera with 32x magnification.

Application: For measuring and pre-setting tools at the machine in production or when planning work.

Supplied with: Keyboard, mouse, thermal label printer with labels, cutting edge cleaner, external camera for photo management, subframe cupboard (one swing door, three drawers, measurement software in all major foreign languages, **commissioning and training included (1 day)**).

Optional extras: Reducers No. 354771; 354773; 354775; 354777 and 354779.

Note: The connection for transferring data from the pre-setting device to the machine tool using the post-processor is included. A compatibility check against the standard HAIMER post processors is required in advance. If your machine is not included in this standard package, additional costs may be incurred.

Commissioning and one-day training included



35 5020

Type	UP	UPCAM
344 35 5020 UNO premium pre-setting device	(20347.93)	(23934.71)
Base toolholder	SK50 ultra precision spindle	
Quick adjustment	pneumatic	
Measuring range X	400	
Measuring range Z	400	
Snap gauge X	100	
Width base	1294	
Overall height	1735	
Overall width	2264	
Depth	590	
Weight	230	
Spindle load	30	
Second camera in the lens carrier	no	yes

PRE-SETTING DEVICE UNO PREMIUM IN DETAIL

Technical data

- Repetition accuracy of +/- 2 µm and concentricity 2 µm.
- **Edgefinder** laser for finding the tool cutting edge quickly.
- Post processor for data transmission to the machine and editor for adapting the machine interface to the pre-setting device.
- Compatible with Hoffmann Group Connected Manufacturing. Windows 10 operating system.

„Release-by-Touch“ one-handed operation

- Easy to operate without buttons / keys.
- Intelligent sensor control for movement of axes.

Robust design

- Sturdy durable cast iron design.
- Thermally optimised material combination for better repetition accuracy.

Manual fine adjustment

- µm-precision infinite fine adjustment of the X and Z axes for high-precision positioning of the tool cutter.
- High-quality Heidenhain glass scales both in X and Z axis.



Second camera in the lens carrier (355020 UPCAM)

- For rotation centre measuring of turning tools.
- Adjustable LED incident light illumination.

Digital camera

- Camera with 32 times magnification.
- Adjustable incident light for checking the cutting edge.

Intuitive operation on large 22 inch touch screen

- High-performance processor with image processing system, Microvision.
- Integrated USB and LAN interfaces.
- External camera for taking photos of tools.
- Unlimited storage of zero points, tools, and tool lists.
- With all common measuring functions.

SK50 ultra precision spindle, manual

- Vacuum clamping: pneumatic retraction of arbors with ISO taper size 50.
- Pneumatic spindle indexing at 4 × 90° and 3 × 120°.
- Spindle brake, pneumatic.



UNO RANGE

Unique high-tech features in the entry-level class.

As well as precision, speed and reliability, the UNO range impresses with numerous features. The timeless design and improved ergonomics set new standards. High-quality components, e.g. from Festo/SMC, Bosch, Heidenhain, IDS are used. Optionally, the UNO range offers you key benefits for top-level tool measurement in the expansion level autofocus and automatic drive.

Highlights

Reduce the work load of the operator through the automation of presetting, with fully or partially automated measuring functions.



Further UNO models available on request from the Hoffmann Group.



autofocus

- Automatic focussing of the cutting edge.
- Motorised spindles.
- With convenient modular cabinet and 24" 10-point touch display as standard.



automatic drive

- For fully automatic tool pre-setting and measurement independent of the operator (CNC-controlled, 3 axes).
- With convenient modular cabinet and 24" touch display as standard.



ISS spindle

- ISS-U universal ultra precision spindle with integrated clamping system.
- Without loss of measurement path.
- Automatic adaptor recognition.
- Radial run-out $\leq 2 \mu\text{m}$ and high adaptor interchange accuracy.

VIO RANGE

Maximum comfort and BEST functionality.

Optimise the process reliability in your production thanks to the use of fully automatic measuring procedures. The integrated device concept permits integration into all existing production processes. Maximum stability and precision. The FEM-optimised and thermostable cast iron design of the VIO linear range permits precise measurement results even in the long term. Furthermore, highly dynamic linear drives with no wear characteristics ensure precise long-term quality. The parallel drive and guidance system ensures optimum distribution of forces and guarantees a measurement accuracy of $\pm 2 \mu\text{m}$.

Highlights

- Low torsion under maximum permissible load due to high stiffness
- FEM-optimised and thermostable cast iron design
- Maximum tool weight 160 kg
- Maximum tool length and diameter 1000 mm
- Quick, silent and highly accurate positioning thanks to unique linear drive (optional)
- Data exchange optionally via HQR Connect and HRFID Connect
- Fully automatic measurement cycles for very high operating comfort



VIO range available on request from the Hoffmann Group.



1. Second camera for measuring the centre of rotation (optional)



2 + 3. Fully automatic axle drive thanks to state-of-the-art linear technology



Garant Assembly set-up station pitch 52/96

The assembly station can be fitted to the workbench by means of two screws. Clamping studs (e.g. No. 363190) can be used to position the clamping device or jig with pitch 52/96 to the assembly station and can be locked and unlocked by means of the side bridge. Set-up times are optimised with high process reliability when clamping workpieces or changing clamping jaws.

- Locking and unlocking without tools.
- **Reduction in set-up times.**
- **Ensuring safety at work.**
- **Patent pending.**

Suitable for: Clamping device with pitch 52/96, e.g. Xtric No. 363000.
Application: For mounting and removing workpieces in the clamping device and for changing or turning the clamping jaws.



35 8595



for pitch		52/96
310 35 8595	Assembly set-up station pitch 52/96	233.91
Length	mm	125
Width	mm	125
Height	mm	25

Garant Clamping system for contour and form clamping

System consisting of base plate and clamping/sacrificial plate. Base plate is mounted on the zero point clamping system at 200 mm pitch, or directly on to the machine table. The clamping/sacrificial plate is mounted on the base plate and the negative of the component contour is provided individually. Alternatively, simple clamping elements from Mitee-Bite, AMF, KIPP, Halder and similar can be mounted on the clamping/sacrificial plate for component clamping.

Baseplate

Anodised aluminium.

Size 180 – Pitch 200 mm.

Size 360 – Pitch 200 mm and cross pitch 200 mm.

Suitable for: Zero point clamping systems with 200 mm pitch or 200 mm cross pitch (for size 360).

Supplied with:

Size 180 – 4 fitted screws M8, 4 blanking screws.

Size 360 – 8 fitted screws M8, 8 blanking screws.

Optional extras: Clamping stud No. 360025 18M12.

Length	mm	180	360
310 36 8010	Baseplate	260.82	397.44
Width	mm	360	
Height	mm	30	

Clamping / sacrificial plate

Face-milled aluminium plate of EN AW-5083 - Aluminium (3.3547).

Suitable for: Base plate No. 368010.

Optional extras: Clamping elements from Mitee-Bite, AMF, Kipp, Halder and similar.

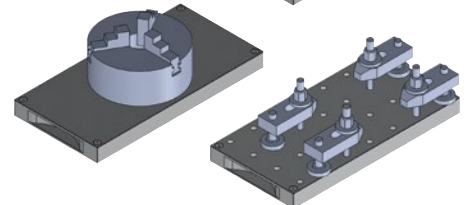
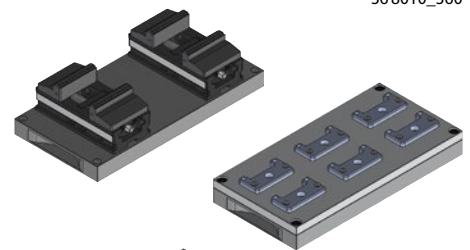
Length	mm	180	360
310 36 8015	Clamping/sacrificial plate	101.43	165.60
Width	mm	360	
Height	mm	15	



36 8010_180



36 8010_360



36 8015_180



36 8015_360

VARIABLE, QUICK, PRECISE, UNIVERSAL – AND EXCLUSIVELY FROM GARANT.

The large GARANT Xtric family offers many efficient clamping solutions for your requirements.



		50XS	50S (SP)	80XS (XSP)	80S (SP)	80M (MP)	125XS (XSP)	125S (SP)	125M (MP)
Standard		0–22	0–51	0–42	0–76	0–126	0–60	0–94	0–144
Reversed		49–65	49–94	74–110	74–144	74–194	92–146	92–180	92–230
Offset jaws		20–36	20–65	29–65	29–99	29–149	35–89	35–123	35–173
Offset jaws, reversed		35–51	35–80	51–87	51–121	51–171	63–117	63–151	63–201
Centre jaw, standard*		–	–	–	6–29.5	6–54.5	–	6–37	6–62
Centre jaw, reversed		–	–	–	40–63.5	40–88.5	–	49–80	49–105
Centre jaw, offset jaws*		–	–	–	17.5–41	17.5–66	–	20.5–51.5	20.5–76.5
Centre jaw, offset jaws, reversed		–	–	–	28.5–52	28.5–77	–	34.5–55.5	34.5–90.5
1x standard 1x reversed**		27.5–43.5	27.5–72.5	40–76	40–110	40–160	49–103	49–137	49–187
1x offset jaw, 1x offset jaw, reversed		27.5–43.5	27.5–72.5	40–76	40–110	40–160	49–103	49–137	49–187

* for each clamping point; ** no longer a centring vice

Garant XTRIC centring vice

- Very good accessibility and perfectly symmetrical.
- Fully hardened and precision milled on the underside.
- Central alignment delivers perfectly centred clamping.
- Clamps raw materials and finished parts with minimum jaw / part lift.
- Including holes for LANG positioning system, **can be adapted to GARANT ZeroClamp using an intermediate plate.**
- Jaws can be changed without using tools.
Changing the jaws may result in a change of clamping capacity.
- With coolant hole and automation interface.

Suitable for: Top jaws No. 363010 – 363045.

Application: Perfect for 5-face machining. Centred clamping.

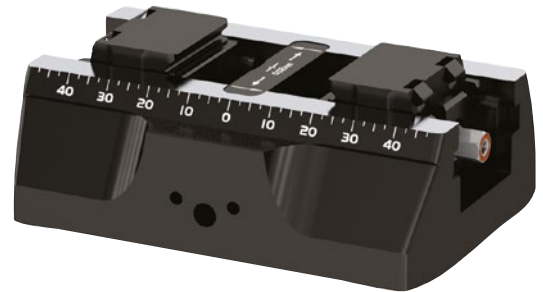
Supplied with: Base rail, spindle, spindle nuts, **spindle cover No. 363083.**

Optional extras: Hexagon screwdriver No. 627424 size 5, pin wrench 628600 size 2, torque wrench No. 656050, hexagon socket No. 642229, clamping claw No. 363081 80 and 361165 CS1, GARANT clamping stud No. 363190, adapter plates No. 363079, assembly station 358595 52/96.

Note: Suitable top jaws No. 363010 – 363045 are not included in the scope of supply.
Clamping situation S2 arises by reversing the jaws.
Use offset top jaws to overcome the clamping gaps with types XS and XSP and H.
Size 50H – **Particularly suitable for HÄBERLE automation systems.**



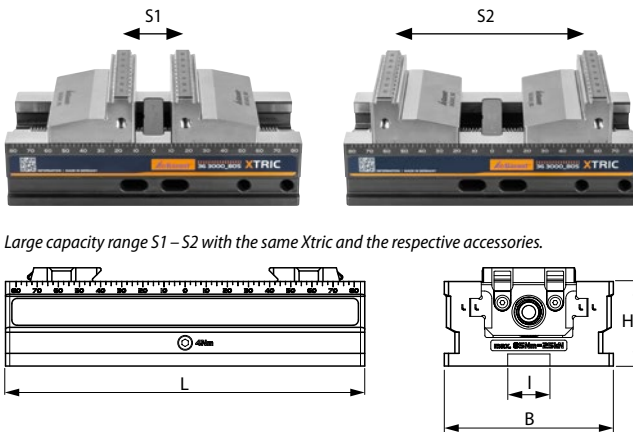
363000_50XS



363000_50H



363000_80S



Large capacity range S1 – S2 with the same Xtric and the respective accessories.

Type	310 363000 Centring vice basic device	Clamping force up to maximum	Weight	L	B	H	S1	S2	I	Swing angle	maximum torque	Width across flats	Grid scale, underside	Colour code for suitable accessories
	Xtric	kN	kg	mm	mm	mm	mm	mm	mm	°	N-m	mm	mm	
50XS	587.88	16	1.5	96	50; 80	35	0 – 22	49 – 65	20	–	40	7; 3	52	■
50H	587.88	16	1.5	110	50; 80	35	0 – 36	49 – 79	–	–	40	7; 3	52	■
50S	587.88	16	1.8	125	50; 80	35	0 – 51	49 – 94	20	–	40	7; 3	52	■
50SP	649.98	16	1.8	125	50; 80	35	0 – 51	49 – 94	20	±3	40	7; 3	52	■
80XS	609.62	25	2.7	136	80	40	0 – 42	74 – 110	20	–	85	10; 5	52	■
80XSP	672.75	25	2.7	136	80	40	0 – 42	74 – 110	20	±2	85	10; 5	52	■
80S	609.62	25	3.2	170	80	40	0 – 76	74 – 144	20	–	85	10; 5	52	■
80SP	672.75	25	3.2	170	80	40	0 – 76	74 – 144	20	±2	85	10; 5	52	■
80M	695.52	25	4	220	80	40	0 – 126	74 – 194	20	–	85	10; 5	52	■
80MP	758.66	25	4	220	80	40	0 – 126	74 – 194	20	±2	85	10; 5	52	■
125XS	909.77	32	7.8	186	125	54	0 – 60	92 – 146	20	–	132	13; 5	96	■
125XSP	986.36	32	7.8	186	125	54	0 – 60	92 – 146	20	±2	132	13; 5	96	■
125S	909.77	32	9	220	125	54	0 – 94	92 – 180	20	–	132	13; 5	96	■
125SP	986.36	32	9	220	125	54	0 – 94	92 – 180	20	±2	132	13; 5	96	■
125M	1025.69	32	10.6	270	125	54	0 – 144	92 – 230	20	–	132	13; 5	96	■
125MP	1101.24	32	10.6	270	125	54	0 – 144	92 – 230	20	±2	132	13; 5	96	■

Colour code: ■ Xtric 50 ■ Xtric 80 ■ Xtric 125



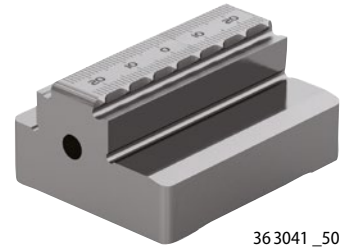
Garant Xtric accessories

36 3041 – With grip serrations in a 3 mm step and a smooth clamping face.

36 3043 – Pre-impresion of the serrated contour necessary.
With 3 mm grip step and smooth clamping face.

36 3045 – With smooth 3 mm grip step and smooth clamping face.

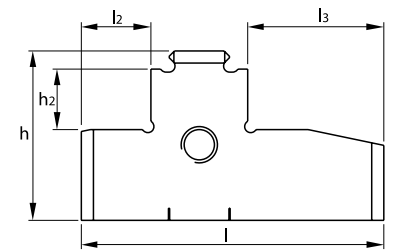
Application: To avoid clamping gaps. See clamping capacity overview.



36 3041_50



Clamping situation with 363041



36

Top jaws, offset

piece

Type		50	80	125
310 36 3041	Standard top jaw, offset	94.71	98.74	141.28
310 36 3043	Top jaw, offset, LANG system	113.85	116.44	161.46
310 36 3045	Top jaw, offset, smooth	94.71	98.74	140.76
b	mm	50	80	125
h	mm	24	28	38
h ₂	mm	8	10	15
l	mm	40	50	66
l ₂	mm	7	11.5	14.5
l ₃	mm	14.5	22.5	28.5
suitable for colour code		■	■	■

Garant Quick-change adaptor plate for XPENT

Hardened and ground. Fastening screws.

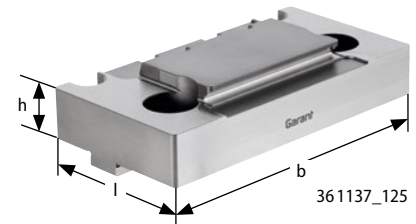
Suitable for: XTRIC top jaws No. 363010 – 363045 in size 125.

Material: Hardened steel

Application: For use of XTRIC top jaws size 125 on the XPENT size 1S, 1 and 2.

Note: Clamping width cannot be increased by rotating the clamping pillars in combination with the adaptor plate.

Important: Max. 72 Nm = 32 kN.



36 1137_125



for jaw width b	mm	125
310 36 1137	Quick-change adaptor plate for XPENT	337.41
h	mm	20.5
l	mm	66
suitable for colour code		■

Garant Top jaws

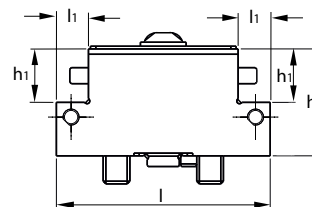
Suitable for: No. 361111.

Application:

Size 100; 125 – For mounting front jaws No. 361140 – 361151.

Size 100G; 125G – For mounting gripp inserts No. 361160.

Supplied with: Fastening screws.
Including cover plate.



36 1135_100

Top jaws for the middle jaw

piece

for type	310 36 1135	b	h	h ₁	l	l ₁	suitable for colour code
	Top jaw for centre jaw	mm	mm	mm	mm	mm	
100	425.39	100	40	20	80	12	■
125	468.86	125	45	20	90	12	■
100G	362.25	100	40	–	80	–	■
125G	403.65	125	45	–	90	–	■



36 1135_100G

Colour code: ■ Xtric 50 ■ Xtric 80 ■ Xtric 125 ■ Xpent1-2 ■ Xpent0

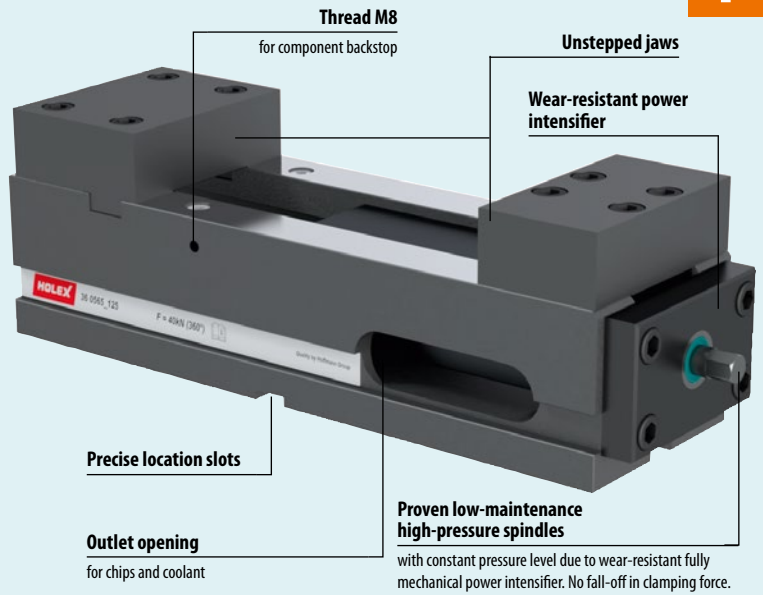
HOLEX NC high pressure vice



Small size – optimum ratio of clamping range to overall length.
 Stepless adjustment – 100% clamping force at 360°.
 Particularly rigid body made of GJS-60, **ground on top and bottom faces.**

Pairing accuracy 0.02 mm.

- Advantage:**
- Fully enclosed, low-maintenance and nitrided spindle.
 - Increased service reliability.
 - Optimised swarf protection.
 - Minimised cleaning requirement.



Garant Workpiece back-stop 3-dimensional

Stepless and quick adjustment.
 Optional maximum extension 30 mm.
 M8 mounting for T-nuts or direct mounting.
 Size 300 – Double stop.

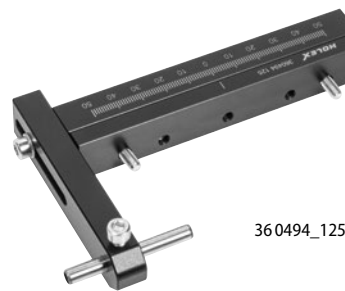
- Material:** Anodised aluminium.
Application: For use on milling and drilling machines.
Optional extras: T-nuts with M8 thread, see No. 370520 size 12 – 18.



Type		150	300
31H 36 0432	Workpiece back-stop 3-dimensional	188.10	292.05
Usable height N	mm	145 – 175	285 – 315
Overall height	mm	210 – 240	350 – 380
S axial spacing A	mm	80 – 110	

HOLEX Workpiece backstop

- Stepless and quick adjustment.
 - Direct mounting on standard front jaws for NC vices.
- Material:** Anodised aluminium.
Application: For use on milling and drilling machines.



36 0494_125

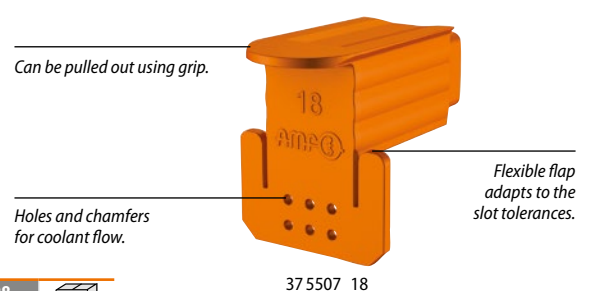


Application example

for jaw width		90	125	160
32E 36 0494	Workpiece backstop	94.05	98.01	102.96

AMP Side cover for T-slots

Flexible plastic.
Application: The side cover for T-slots provides additional protection for the machine slot against chips and liquids during 5-axis machining work.



37 5507_18

T-slot nominal size	mm	14	16	18	22	28	
35A 37 5507	Side cover for T-slot	26.73	27.72	28.71	29.70	30.99	1

NEW PRODUCTS

Measurement technology



Page 167
GARANT HCT digital caliper



Page 167
GARANT HCT digital depth gauge



Page 168
GARANT HCT dial indicator



Page 168
GARANT digital dial indicator



Page 169
TESA analogue dial indicator



Page 170/171
GARANT setting bench and adapter



Page 173
TESA Micro-Square



Page 174/175
Mahr Digimar 817 CLT



Page 176
GARANT mechanical magnetic measuring stand



Page 178
Bosch cross-hair laser



Page 180
Metlogix manual test stand, tension/compression



Page 181
Mitutoyo feeler gauge



Page 177
GARANT carbide scriber



Page 179
Benning socket tester



Page 183
MultiCheck Digital



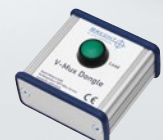
Page 184/185
GARANT MM1 with 64-bit architecture



Page 186
Leica stereo microscopes, M-series



Page 187
HOLEX video endoscope



Page 188
Brecht V-Mux dongle



Page 188
Wireless receiver for HCT Windows app





MEASURES WITH STYLE. MEASURES WITH PRECISION.



This is how clever tools can be: With over 14,000 tools, HOLEX has the right product for every standard use. Always reasonably priced and in good industrial quality. Discover the clever way:

www.holex-tools.com



Industrial Tooling and Equipment by Hoffmann Group



SIMPLY ON THE SAFE SIDE:

5 good reasons for regular calibration:

It seems obvious that new testing equipment should be calibrated before first use. But what are the advantages of this and why is it important to recalibrate measuring tools and testing equipment at certain intervals? We have summarised the most important points for you.

- 1** **The safety and cost-effectiveness** of production and reliability of products is guaranteed.
- 2** Compliance with contractually agreed **quality standards**.
- 3** **Fulfilment of requirements from legislation and regulations**, e. g. German Weights and Measures Act, warranty, product liability, manufacturer's liability.
- 4** Specifications from **quality standards and guidelines** (almost all based on ISO 9001).
- 5** **Financial savings** by reducing product liability costs and fewer new procurements.



Inspection stickers

Note: 1 sheet each with 15 pieces.

Type	49X	41 0008
		Inspection sticker Ø 25 mm
		15 pieces
2023		15.15
2024		15.15
2025		15.15
2026		15.15



2D barcode scanner

1D and 2D barcode scanner with cable connection. Scanner very quickly decodes many types of 1D and 2D barcodes, including QR, Data Matrix, PDF417, UPC/EAN Add on 2 or 5, Code 128, Code32/Code39 etc. Easy and quick connection via USB interface through plug & play. No driver necessary. Multiple scanning modes can be programmed.

Type		SCAN
49WV	41 0025 Barcode scanners 1D and 2D cable connection	53.10
Length	mm	165
Width	mm	95
Height	mm	60
Cable length	m	1.5



41 0025



Inspection punch pliers for inspection stickers can be found on page 233. Further stickers and information can be found in the main catalogue Volume 4 Page 439.

PRECISE AS ALWAYS, EASIER THAN EVER: HOFFMANN GROUP CONNECTED TOOLS.

The state-of-the-art **Bluetooth-enabled** tools of the Hoffmann Group Connected Tools are easy to use and make your work safer and more comfortable.

The HCT family is growing

Garant New HCT products:

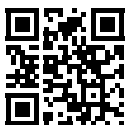


DIAL INDICATOR

- With additional analogue display and buttons for quickly setting the tolerance limits.
- Rotatable display.
- Group measurement can be performed using the HCT app.

CALIPERS

- New design.
- The latest technology: Bluetooth 5.0
- Improved battery life.



Click now!
On our **YouTube channel** you can find an application video about HCT:
[ho7.eu/tt-hct](https://www.youtube.com/channel/UC7B85_150)

MEASURED VALUES CAN BE TRANSFERRED AT THE PUSH OF A BUTTON VIA THE HUMAN INTERFACE DEVICE (HID) TO THE DESIRED APPLICATION.



All products from the HCT family are indicated by this symbol.

THE GARANT AND HOLEX HCT TOOLS CAN BE USED WITH AND WITHOUT THE HCT APP!

THE GARANT AND HOLEX HCT TOOLS WITH THE LATEST TECHNOLOGY: BLUETOOTH 5.0



New HCT products:

HOLEX dial indicators will be available from the start of 2023.

DIAL INDICATOR

- Group measurement can be performed using the HCT app.
- Unbeatable price-performance ratio.



HOLEX calipers will be available from the end of 2022.

CALIPERS

- First HOLEX HCT caliper.
- Attractively-priced entry into the HCT world.



Hoffmann Group Connected Tools: Precise, simple, error-free.

- Greater freedom of movement:** No messy data transmission cables.
- Very high reliability:** No read errors or transmission errors.
- Time saving thanks to simple documentation:** At the push of a button, the measuring result is transmitted directly to your application (such as Excel or Word) or you can export the test report as a .csv file directly to your database via the app.



IN SHORT: ALL THE IMPORTANT FACTS ABOUT THE HCT APP.



Our HCT app will raise your **quality control process** to the next level: Simply send all of the measured data to a PC, tablet or smartphone at the push of a button. With the HCT app, organising different tool groups also becomes a walk in the park.

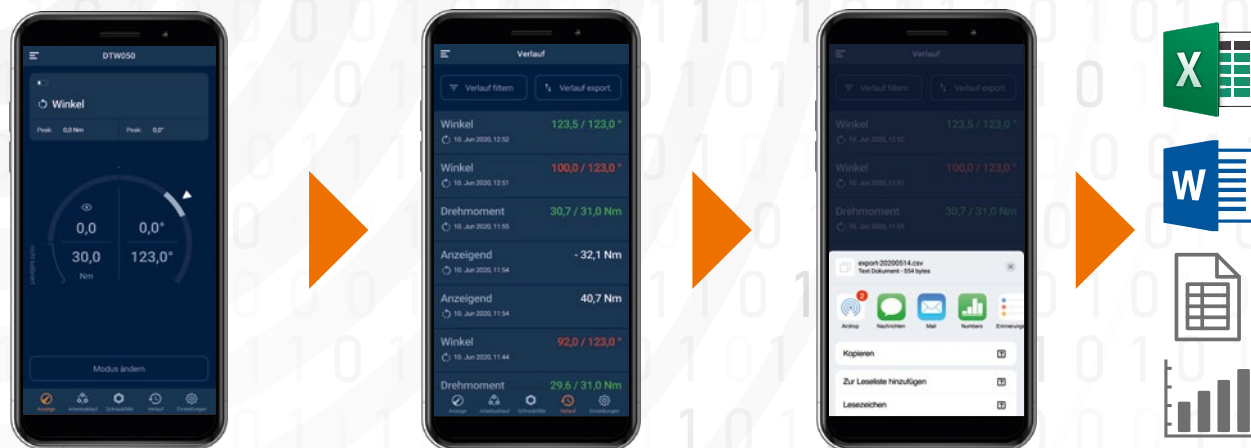
Important functions of the HCT app

- Live measured values can be read directly.
- Settings on the measuring tool can be made directly via the app.
- All HCT-capable devices can be viewed in a list.
- Measured values can be sent to the HCT app.
- Measurement results can be saved and/or sent directly to a PC, tablet or smartphone.
- Output option as a .csv file.
- Free of charge from the Apple App Store and Google Play.
- Advanced functions with Connected Metrology

Download the HCT app free of charge!



Easy to create measurement reports – in three simple steps



- 1 Measurement is performed using the HCT device.
- 2 Manage the measured data in the app.
- 3 Send the measured data as a .csv file for output in a file format of your choice (such as Excel, Word or even your own software).



NEW and available only for Android.

i All products that work with the HCT app can be found at ho7.eu/hct



HCT

Garant HCT digital caliper protection class IP67 with Bluetooth

IP 67 HCT digital caliper with **Bluetooth 5.0**.

Easy-to-read, high-contrast LCD display with 11.5 mm character height.

Very long battery running time due to modern energy-efficient measurement system.

The system switches automatically into power-saving mode after 10 minutes; moving the caliper reactivates it.

There is no loss of the measurement value or zero point.

2-component body with **non-slip Haptoprene surface**.

The caliper is resistant to water, coolant, oil, and dust.

The measuring faces are precision-lapped.

Compatible with the optional HCT (Hoffmann Group Connected Tools) mobile app.

Available free of charge for Android and iOS.

Can also be used via a Human Interface Device (HID).

Supplied with: 1 battery No. 081560 size CR2032.

Spare part: Battery holder No. 412237 size B.



41 2781_150

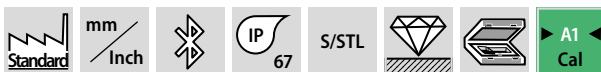


41 2783_150

Measuring range	mm	150	200	300
41A 41 2781	HCT digital caliper IP67 with Bluetooth	208.80	260.10	302.40
41A 41 2783	HCT digital caliper IP67 with Bluetooth and round depth gauge	208.80	—	—
Scale divisions	mm		0.01	
Scale divisions	in		0.0005	
Error limit	mm		0.03	
Jaw length	mm	40	50	65



41



HCT

Garant HCT digital depth gauge protection class IP67 with Bluetooth

IP67 HCT digital depth gauge with Bluetooth 5.0.

Very large high-contrast LCD display with 11.5 mm character height.

Very long battery running time due to modern energy-efficient measurement system.

The system switches automatically into power-saving mode after 10 minutes; moving the caliper reactivates it.

There is no loss of the measurement value or zero point.

2-component body with **non-slip Haptoprene surface**.

The measuring faces are precision-lapped.

Measuring beam has a slender hardened measuring pin at the front, $\varnothing 1.5$ mm, 5 mm long.

With preset (dimension selection in advance).

Compatible with the optional HCT (Hoffmann Group Connected Tools) mobile app.

Available free of charge for Android and iOS.

Can also be used via a Human Interface Device (HID).

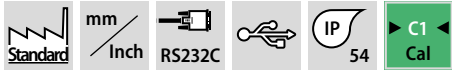
Supplied with: Including 1 battery No. 081560 size CR2032.

Optional extras: Extension base 300 mm long No. 418610,
measuring tip for caliper jaws No. 418630



41 8685_150

Measuring range	mm	150	200	300
41A 41 8685	HCT digital depth gauge IP67 with Bluetooth	368.10	422.10	476.10
Reversible reading	mm		0.01	
Reversible reading	in		0.0005	
Error limit	mm		0.03	
Bridge length	mm		100	
Cross-section measuring beam	mm		16x4	



Garant Digital dial indicator 1/100 or 1/1000 mm reading

Digital dial indicator with sturdy aluminium casing and **very large** display with integral three-colour tolerance LEDs. Power-saving mode and automatic wake-up, **absolute system**. Min./max./delta, tolerance, conversion factor, auto-off. Preset any value. Reversible direction of measurement.

43 4336 – Version with **Bluetooth 5.0**.

Compatible with the optional **HCT** (Hoffmann Group Connected Tools) mobile app. Available free of charge for Android and iOS. Can also be used via a Human Interface Device (HID).

Supplied with:

1 battery No. 081560 size CR2032.

Optional extras:

Data cable No. 498948, lifting lever No. 434212, spare and special contact points No. 434900; 434910, battery pack No. 404310.



Measuring range		12,5	25
4TC 43 4330	Digital dial indicator 0.01 mm reading	283.50	373.50
4TC 43 4334	Digital dial indicator 0.001 mm reading	378.00	423.00
4TC 43 4336	HCT digital dial indicator 0.001 mm reading	423.00	468.00
Reversible reading (43 4330)	mm	0.01	
Reversible reading (43 4334, 43 4336)	mm	0.001	
Reversible reading (43 4330)	in	0.0005	
Reversible reading (43 4334, 43 4336)	in	0.00005	
Error limit (43 4330)	mm	0.01	
Error limit (43 4334, 43 4336)	mm	0.003	0.004
Gauging force	N	0.65 – 0.90	0.65 – 1.15
Clamping shank \varnothing h6	mm	8	
Body \varnothing	mm	59,5	
Thickness of housing	mm	32,9	



Garant Digital dial indicator with 1/1000 mm reading

Digital dial indicator with sturdy aluminium casing and very large display with integral three-colour tolerance LEDs.

With additional analogue display and buttons for quickly setting the tolerance limits.

Min./max./delta, tolerance, conversion factor, auto-off.

Power-saving mode and automatic wake-up, absolute system.

43 4342 – Version with **Bluetooth 5.0**.

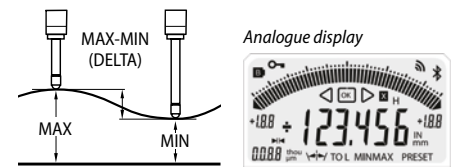
Compatible with the optional **HCT** (Hoffmann Group Connected Tools) mobile app. Available free of charge for Android and iOS. Can also be used via the Human Interface Device (HID).

Supplied with:

Includes 1 battery No. 081560 size CR2032.

Optional extras:

Data cable No. 498948, lifting lever No. 434212, spare and special contact points No. 434900; 434910, battery pack No. 404310.

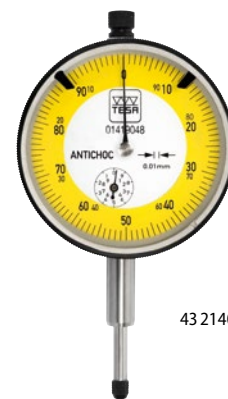


Measuring range	mm	12,5	25
4TC 43 4340	Digital dial indicator 0.001 mm reading	441.00	504.00
4TC 43 4342	HCT digital dial indicator 0.001 mm reading	486.00	–
Reversible reading	mm	0.001	
Reversible reading	in	0.00005	
Error limit	mm	0.003	0.004
Gauging force	N	0.65 – 0.90	0.65 – 1.15
Clamping shank \varnothing h6	mm	8	
Body \varnothing	mm	59,5	
Thickness of housing	mm	32,9	



TESA Shock-resistant dial indicator 1/100 mm reading

Dimensions to DIN EN ISO 463, issue June 2006. **Shock-resistant** precision dial indicator. Clamping shank \varnothing 8 mm h6, hardened and ground. Outer ring of dial face can be rotated to zero the dial. Outer ring with 2 adjustable tolerance pointers. Central pointer for 1/100 mm reading, small pointer on sub-scale for 1 mm reading.
Optional extras: Special contact points No. 434900; 434910; 434915.



43 2140

Measuring range / Body \varnothing	mm	10/58
43 2140 Precision dial indicator, shock-resistant		55.58
Graduation	mm	0.01
Reading per pointer revolution	mm	1
Gauging force	N	0.56 – 0.84



TESA Shock-resistant and waterproof dial indicator 1/100 mm reading

Precision dial indicator with shock protection, **protection against splashed water, oil and dirt.** Contact point on plunger spindle sealed by rubber bellows, sealed by protective sleeve at the top. Back wall sealed, glass and outer ring tightly screwed. Clamping shank \varnothing 8 mm h6.
Optional extras: Special contact points No. 434900; 434910; 434915.



43 2230

Measuring range / Body \varnothing	mm	10/61,5
43 2230 Precision dial indicator IP67, shock-resistant		161.60
Graduation	mm	0.01
Reading per pointer revolution	mm	1
Gauging force	N	1.04 – 1.56



TESA Precision dial indicators 1/1000 mm reading

Strong, satin chrome plated brass casing; unbreakable dial glass. Clamping shank \varnothing 8 mm h6, hardened and ground. High accuracy version. The important parts of the mechanism are **jewel-mounted.** Central pointer for **1/1000 mm reading.** Outer ring of dial face can be rotated to zero the dial. Nearly constant measuring force over the entire measuring range.
Optional extras: Special contact points No. 434900; 434910; 434915.



43 3407

43 3407

Measuring range / Body \varnothing	mm	1/44,5	1/61,5
43 3407 Precision dial indicator, shock-resistant		212.90	200.93
Graduation	mm	0.001	
Reading per pointer revolution	mm	0.2	
Gauging force	N	0.8 – 1.2	1.12 – 1.68



Garant Setting bench SB 1

Easy and convenient-to-use horizontal adjustment device with touch screen that is suitable for the workshop for setting internal and external measurement devices. The device is high-quality and has a solid granite base and high-precision guides. The highly accurate motor control regulates the set values in real time even with a variety of gauging forces. Multilingual software. USB interfaces for printers and scanners.

- Function:**
- Input of internal and external dimensions possible in millimetres or inches.
 - Integrated tolerance calculator with quick selection of minimum, maximum and average values.
 - Saving of favourites for repeated setting of measuring tools.
 - The history is recorded and can be accessed at any time.

Supplied with: Supplied with power supply unit, dust cover, factory calibration, instruction handbook, transport restraints.

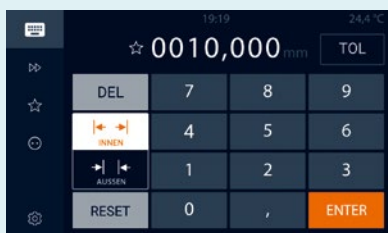
Optional extras: Adaptor no. 439910; 439912; 439915; 439916, printer No. 085505, 2D barcode scanner No. 439930 size 1950GHD, socket strip No. 081163; 081179.

Note: Limit value of measurement deviation (MPE) according to VDI/VDE/DGQ/DKD 2618 sheet 17.2. Permissible ambient conditions 20°C ±3 K, measured with calibrated standards or standard measuring equipment using the integrated temperature compensation.

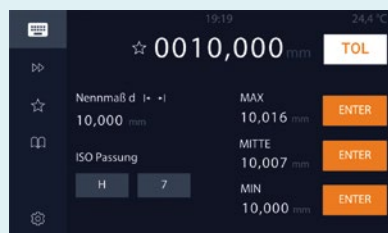


Type		300	600	1000	1500
4TR 43 9900	Setting Bench SB 1	-	-	-	-
Measuring range outside	mm	40.1 – 345	40.1 – 655	40.1 – 1056	40.1 – 1556
Measuring range inside	mm	1 – 305	1 – 615	1 – 1016	1 – 1516
Scale divisions	mm	0.001			
Accuracy	µm	1.5 + L(mm)/300			
Repetition accuracy (2 σ)	µm	1			
Interface		USB interface			
Display size	in	10			
Type of display		TFT touch screen			
Footprint length	mm	840	1140	1540	2240
Baseplate depth	mm	320			
Height	mm	573	596	626	706
Weight	kg	110	140	210	430
Power consumption	W	150			
Power supply	V	100 – 240			

Garant Advantages of the setting bench SB 1



Large intuitive touch display.



Integrated tolerance calculator based on the nominal size and fit.



The setting data at the tool can always be traced using the optional printer No. 085505 and the optional scanner No. 439930.

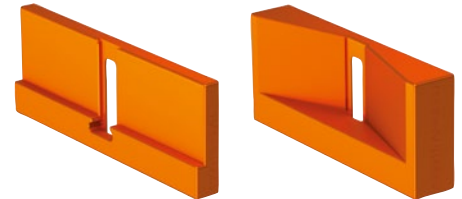
Garant Adapter for Setting Bench SB1

Adapter for two-point bore gauges

Suitable for:

Size FLAT – GARANT two-point bore gauges No. 435190 and many two-point bore gauges from additional manufacturers.

Size ANGLED – Two-point bore gauge No. 435203 size 160-250.



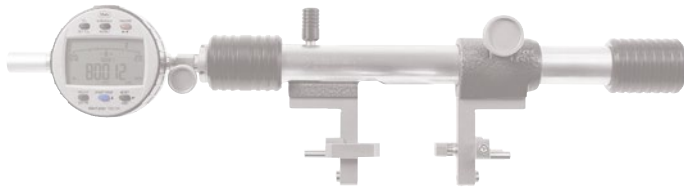
43 9915_FLAT

43 9915_ANGLED

Type		FLAT	ANGLED
4TR 43 9915	Adapter for two-point bore gauges 1 piece	(261.00)	(261.00)
	for measurement range Ø	mm 18 – 800	160 – 250

Adapter for universal measuring instruments

Suitable for: Universal measuring instruments No. 428051 and No. 428300.



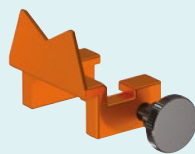
43 9916

Type		UNIVERSAL
4TR 43 9916	Adapter set for universal measuring instruments	(441.00)
Content:		No. 439918 size BASE
2× adapter		No. 439920 size 31
4× attachment, height 31 mm		No. 439920 size 19
2× attachment, height 19 mm		

For further adapters see the main catalogue Volume 2, page 125



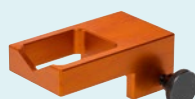
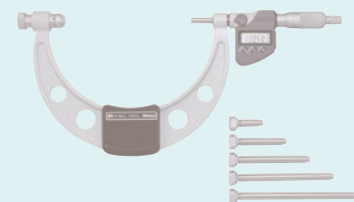
Adapter:



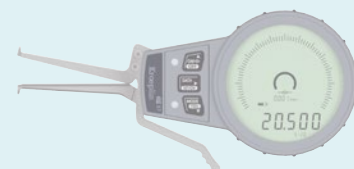
43 9910_OUTSIDE



Suitable for setting of:



43 9912_INSIDE





PLANOLITH Measuring beam and measuring angle set in a case

Measuring beam and 90° measuring angle of specially selected natural granite. Vertical faces and angle faces are precision diamond lapped. Accuracy class 00. Free from defects, homogeneous structure. Resistant to deflection and to warping. Absolutely rustproof and resistant to acid, low thermal conductivity. Harder than hardened steel (Mohs hardness scale 6 - 7), non-magnetic and electrically non-conductive.

Supplied with: 1 × measuring beam, accuracy 00, No. 431810 size 500 mm.
1 × 90° measuring angle, triangular, accuracy 00, No. 431850 size 400×250 mm.
1 × case, incl. trolley.



Shank size		SET1
46H 43 1830	Measuring beam and measuring angle set in a case Accuracy class 00	(1926.54)



Mitutoyo Precision bore gauges with dial indicator

Self-centring precision bore gauge with three-point contact. Gauge holder and dial indicator matt chrome-plated. Shock-resistant plastic dial indicator housing. Gauge holder compensated for hand temperature. The gauge is set to the bore \varnothing by exchangeable contact points of different lengths and intermediate rings. Measuring pins with spherical carbide tips.

Application: Dial bore gauge for checking bores for \varnothing accuracy, cylindrical form, and roundness.



Supplied with: Supplied with dial indicator No. 432051 size 10/58 with 1/100-mm scale.



43 5203

Measuring range	mm	18-35	35-60	50-150	160-250
44A 43 5203	Precision bore gauge with dial indicator	235.13	238.55	246.24	481.37
Repetition accuracy without dial gauge	μm	0.5			
Measurement depth	mm	100	150	150	250
Number of contact points		9	6	11	6
Centring plate width	mm	12.7	20	38	90

Bore gauge set for \varnothing 18-150 mm



Supplied with: Supplied with dial indicator No. 432051 size 10/58 with 1/100-mm scale. 3 precision bore gauges No. 435203, additionally with measuring pins, extension and setting rings.



43 5207

Measuring range	mm	18-150
44A 43 5207	Precision bore gauge set with dial indicator	455.72
Repetition accuracy without dial gauge	μm	0.5
Measurement depth	mm	100 - 150
Number of precision bore gauges		3
Number of contact points		26
Number of measuring discs		4



TESA TESA MICRO-SQUARE squareness measurement instrument

Set for highly accurate measurement of right angles. The slide slides evenly over a highly accurate guide rail, thus ensuring repeatability to 0.5 µm. Quick display of the measurement result using the TWIN-T10 display unit and the inductive measuring probe GT31. Clear and error-free reading due to the highly detailed scale display. Robust design for use in the production environment.

- Advantage:**
- High precision of right angle measurement.
 - Quick measurement.
 - Can be used in workshops.
 - Easy to use.
 - Free-of-charge SCS calibration certificate.

Supplied with: Supplied with display unit TWIN-T10 No. 434716 size T10; inductive lever dial indicator No. 434779 size GT31, screwdriver, **SCS calibration certificate.**

Optional extras: Measuring stand for angular measurement, contact point holder, cylindrical measuring tip for GT31.



Use measuring stand for angular measurements (optional) to check stock squares, try squares or bevel edge squares without removing them from the measuring structure. The inside and outside jaw of the test piece can thus be checked quickly and easily.



The contact point holder (optional) permits measurement of hard-to-reach inner areas in the simplest way.



Checking the sides of bevel edge squares using the cylindrical measuring probe (optional) for GT31, since the measuring face is larger than with a ball-shaped measuring probe.



44 5225

Measuring range	mm	360	610
^{45B} 44 5225	Set for right angle measurement TESA MICRO-SQUARE	(5234.40)	(5895.00)
maximum application range	mm	0 – 360	
Repetition accuracy (2 σ)	µm	0.5	
Rectangularity error (frontal)	µm	1.5	2.4
Height	mm	447	697
Width	mm	140	
Depth	mm	167	
Weight	kg	5.8	7.7

Mahr

INTUITIVE MEASUREMENT AT A TOUCH – THE NEW DIGIMAR 817 CLT OFFERS SIMPLY MORE CONVENIENCE.



Measurement by touch

Intuitive and simple operation with large, clear buttons for reliable performance of measurements and calculation functions.

Pivoting display

10-inch touch panel with turn/tilt joint for individual settings – depending on the working position, height or light conditions.

Interface diversity

Data transfer is wireless or via USB cable via the MarConnect interface.

Interface for dial indicators

An interface integrated into the slide enables error-free measurement of squareness and straightness in conjunction with the new digital precision dial indicators Millimes 2000/2001W.



Easy to use

With thumbwheel for quick movement of the measurement slide and easy start of the measurement.

Best ergonomics

Ergonomic handles with integrated control button on both sides for the air bearings ensure precise and trouble-free movement of the device on the measuring plate.

44 5375



Mahr Digimar 817 CLT digital height gauges

Measuring system:

- Incremental optical measurement system gives outstanding measuring accuracy and reliability.
- Air bearings system for easy movement without jerking.
- Easy measuring procedures due to motorised measurement slides.
- Integrated rechargeable battery for cordless measurements.
- Temperature compensation using internal temperature sensor.

Control and display unit:

- Large, clear touch display with backlight.
- User guidance via self-explanatory icons in several languages.
- Facility for setting additional zero points on the component.
- Additional measuring device can be connected to the Mahr-Connect interface.
- Future-proof as it can be updated.
- Automatic stand-by circuit (no loss of measured values).

Functions:

- Approaching at bottom/top.
- Protrusion width/slot spacing incl. protrusion/slot centre.
- Bore/shaft diameter incl. bore/shaft centre.
- Reversal point of bores (top/bottom).
- Reversal point of shaft (top/bottom).
- Calculate spacing/symmetry.
- Dynamic measurement functions.
- Squareness measurement.
- Straightness measurement.
- Measure in 2D mode.
- Measurement programmes.
- Processing of measurement data.
- Direct print-out on USB or Bluetooth printer.
- Measurement reports in PDF format or can be saved as a CSV file.

Supplied with: Control and display unit.
Carrier No. 445410 size T6, contact point No. 445420 size K6/51, adjustment block, USB cable, safety guard, power supply unit, lithium-ion battery and instruction manual.

Optional extras: Bluetooth printer set No. 499017 size PRINTER, iwi radio receiver No. 498912 size STICK, contact point set No. 445400, data connection cable No. 498941 size DK-M1.



Optional accessories:
Bluetooth printer set
No. 499017 size PRINTER



Measurement report
in PDF format.



Simply measure using
touch functionality.



Pivoting display.

Type		350	600	1000
43B 44 5375	Digital 2D height gauge Digimar	(5607.00)	(6120.00)	(9315.00)
Measuring range	mm	350	600	1200
maximum application range	mm	170 – 520	170 – 770	170 – 1170
Graduations can be switched over	mm	0.01 / 0.005 / 0.001 / 0.0005 / 0.0001		
Error limit (L = meas. length in mm)	µm	1.8 + L / 600		
Repeatability plane	µm	0.5		
Repeatability hole	µm	1		
Rectangularity error (frontal)	µm	5	6	10
Gauging force	N	1.0 ± 0.2		
Length of base	mm	255		
Width footprint	mm	278		
Overall height	mm	688	938	1338
Weight	kg	22	26	29

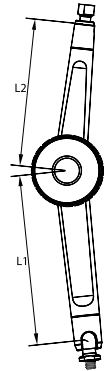
Garant Mechanical magnetic measuring stand

Mechanic measuring stand with central clamping – all joints are rigidly clamped by means of the central boring head. Clamping force can be steplessly adjusted. **Large rubberised handwheel** (Ø approx. 45 mm or approx. 55 mm) for easy tightening and releasing of the clamp. The dial indicator mounting on the jointed arm rotates 360°, can be twisted 180° and is suitable for dial indicators with shank Ø 6 and 8 mm or vee block. Connection thread for magnetic base M8, connection thread for jointed arm at the top M6.

44 1600 – Stand with magnetic base and **ergonomic rotary switch**. High performance ferrite magnet with ground contact faces on the back and ground Vee underneath for placing on shafts and cylindrical bodies. **Plastic enclosure** of the magnetic base for easy handling, enhanced shock protection and thermal insulation.

Supplied with:

44 1600 – Measuring stand with magnetic base No. 440620 size 1.



Throat		mm	240	290
4ID 44 1600	Mechanical measuring stand (with magnetic base)		154.80	172.80
4ID 44 1610	Mechanical jointed measuring stand (without magnetic base)		116.10	134.10
Length of jointed arm L ₁		mm	110	130
Length of jointed arm L ₂		mm	101	110
Connection thread			M8	
Alignment of connecting thread			side	
Magnetic force (44 1600)		N	1000	

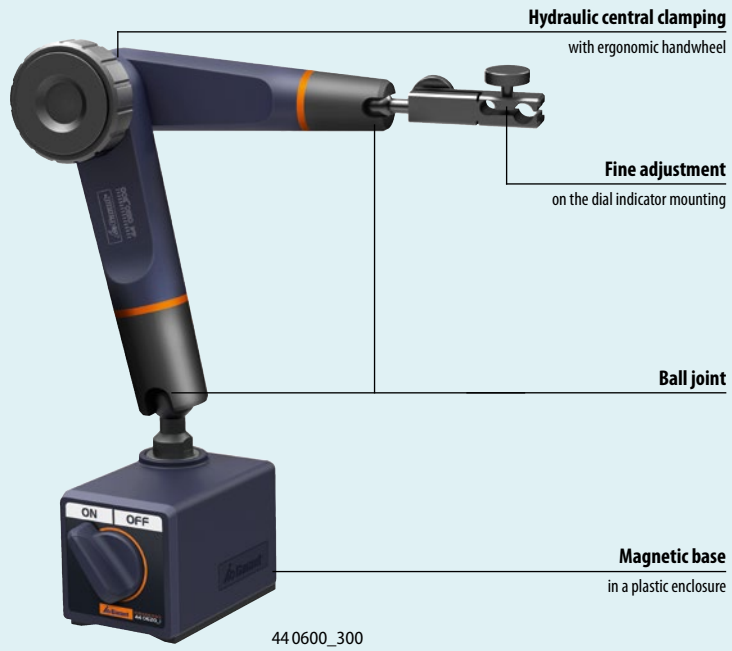
Magnetic base with Vee sole and rear face. Strong magnet with ergonomic rotary switch. **Plastic enclosure** of the magnetic base for easy handling, enhanced shock protection and thermal insulation.

Type		1
4ID 44 0620	Magnetic base	46.08
Version		Switchable magnet
Magnetic force	N	1000
Connection thread		M8
Alignment of connecting thread		side
Length	mm	75
Width	mm	56
Height	mm	58



Garant Hydraulic magnetic measuring stands

Alongside the mechanical magnetic measuring stand, the hydraulic magnetic measuring stand No. 44 0600 with central clamping is also available. See main catalogue page 128.



Garant Carbide scribers

Carbide scriber with extremely high wear resistance. Very precise marking line thanks to the 30° angle and special geometry of the carbide tip. 6 mm hexagonal handle. Straight shape.

Application: Particularly suitable for marking extra hard materials.



45 8780



Type	HM	overall length mm
41G 45 8780 Straight carbide scriber	4.91	152

EG III

BMI® Wooden folding rules

Graduations in mm at both bottom and top. Easy-to-read graduations. Decimal figures red. Sections of high quality beech wood.

46 5960 – Folding wooden rule with jointed sections of reinforced plastic.

46 6005 – Yellow dip painted throughout.

46 6016 – Natural colour – slim sections for high flexibility.

46 6005/6016 – Enclosing high-strength jointed sections with hardened steel springs and concealed rivet.



46 5960



46 6005



46 6016

Length	m	1	2
46M 46 5960 Wooden folding rule, white		–	3.33
46M 46 6005 Wooden folding rule, yellow		–	4.36
46M 46 6016 Wooden folding rule, natural		4.64	6.69
Number of sections		6	10
Width	mm		16
Thickness (46 5960, 46 6005)	mm	–	3.3
Thickness (46 6016)	mm		2.5



BOSCH Laser distance meters

Laser distance measurement device with robust, shock-resistant casing, splash-proof and dust-proof (IP 54). Illuminated three-row display for optimum legibility. Laser class 2 to IEC 825-1.

Precision over long distances. Measurements transmitted via Bluetooth to the new MeasureOnApp.

Size GLM150-27C – Save images in the internal memory and transfer images to the PC via USB.

Integrated Li-ion battery makes for very flexible working and improves sustainability.

Supplied with: Includes protective case and carrying loop.

Size GLM100-25C – Incl. batteries No. 081551 LR6.

Size GLM150-27C – Incl. Li-ion battery + micro-USB cable.

Optional extras: Measuring stand No. 468558.



46 5560



46 5560

Type	GLM100-25C	GLM150-27C
46T 46 5560 Laser distance meter	262.35	335.61
Measuring accuracy	mm	±1.5
Threaded socket for stand	in	1/4
Range	m	100 150
Addition/subtraction		yes
Minimum / maximum measurements		yes
Surface and volume calculations		yes
indirect measurements (Pythagoras)		yes
Clinometer	°	360
Digital target search		yes
Recall last measurements		yes
Power supply	081551 LR6	Li-ion battery
Length	mm	176
Width	mm	111
Height	mm	77
Weight	g	230 210



BOSCH Self-levelling cross-hair laser

Compact cross-hair laser with self-levelling laser lines. Quick horizontal and vertical alignment of lines. Robust design soft-grip coating protects against impact loads. Dust-proof and splash-proof.

Size 2-15G – **Green laser lines for optimum visibility** even under poor lighting conditions. Up to 400% better visibility than red laser lines.

IP64 protection. Sturdy construction with recessed glass and rubberised casing for use under demanding working conditions. Convenient, quick and secure attachment thanks to the LB 10 Professional universal holder with very strong magnets.

Supplied with:

Size 2-15G – 4× battery No. 081561 LR6, LB 10 universal holder, laser target plate, protective bag.



46 8490

Type	2-15G	
46T 46 8490	Self-levelling cross-hair laser GLL	182.16
Error limit	mm/m	±0.3
Laser class		2
Colour of the laser		green
Range	m	15
Levelling range	°	±4
Threaded socket for stand	in	1/4 UNC
Length	mm	126
Width	mm	63
Height	mm	115
Weight	g	570



Convenient, quick and secure attachment thanks to the LB 10 Professional universal holder with very strong magnets.



Leica Self-levelling multi-line laser Leica LINO

Self-levelling multi-lines laser with 3× 360° laser lines. One horizontal and two vertical 360° laser lines. Laser lines thin, sharp and clearly visible. Laser power can be set in 3 stages for better visibility or longer operating time. Self-levelling over long distances in the event of inclined positions. Time saving by easy setting up of the zero point. Fixed zero point thanks to integral base. Simple and precise alignment of the laser lines by ±10°.

Memory function of personal settings. Dust-proof and splash-proof.

Size L6GS – **With green laser lines for optimum visibility. Up to 400% better visibility than red laser lines.** The triple power-supply concept permits uninterrupted work. Can optionally be operated with Li-ion battery, AA batteries or power supply unit.

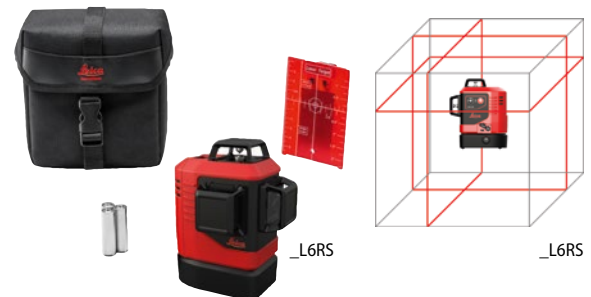
Supplied with:

Size L6RS – 3× battery No. 081561 LR6, laser target plate, bag.
 Size L6GS – Li-ion battery, charger with mains adaptor, laser target plate, bag.



46 8486

Type	L6RS	L6GS
47C 46 8486	Self-levelling cross-hair laser LINO	375.21 549.45
Error limit	mm/m	±0.2
Colour of the laser	red	green
Range	m	25 35
Range with receiver	m	70
Diameter with receiver	m	140
Levelling range	°	±4
Threaded socket for stand	in	1/4 UNC
Working time	h	25 11
Width	mm	60
Height	mm	110
Depth	mm	100
Weight	g	530



BENNING Socket tester

Quick and easy check of earthed plug sockets for correct connection. Wiring errors such as missing PE, N and L lines as well as mixing up of L and PE lines are clearly displayed via 3 LEDs. Easily understandable status table gives information about the correct connection (OK, green) and the type of error (red) of the earthed plug socket.

- Active PE test with contact electrode and LC display warns about the presence of a dangerous touch voltage (>50 V) at the earth conductor connection (PE).
- Test button for triggering 30 mA FI/RCD earth leak trip switches.
- Clear display via LEDs and LC display.

Application: Socket test, 30 mA test FI/RCD earth leak trip switches.



Type	SDT1	
47A 47 3275 Socket tester		49.40
Length	mm	78
Width	mm	72
Depth	mm	80
Weight	g	70



BENNING Digital current clamps

Robust and ergonomic plastic casing with illuminated LCD display. Reliable AC and DC measurements without breaking the operating circuit. Recording of measured value and maximum value, relative measurement.

Standard: IEC / EN 61010-1 (DIN VDE 0411-1).

Application: Digital service multimeters for a wide range of applications. These provide a high level of safety and other additional functions.

Size CM2-1 – AutoV for automatic AC/DC detection. Low input impedance (LoZ) to suppress “reactive voltages”. Low-pass filter (HFR 800 Hz) for measurements on pulsed motor drives. Voltage sensor for non-contact phase and cable-break testing. Memory (HOLD, MAX/MIN). Zero setting.

Size CM9-1 – The **leakage current clamp multimeter CM9-1** is ideal for troubleshooting in electrical equipment, machines and systems. Insulation errors and unreliably high leakage currents can be located at an early stage, thus reducing downtime. In contrast to insulation resistance measurement, the measurement is performed in ongoing operation of the system/device and has no negative effects on sensitive components. Protection against external magnetic fields, filter circuit for damping signal components above the limit frequency, low-pass filter.

Size CM12 – The **professional power current clamp multimeter CM12** is particularly suitable for demanding measurement tasks. Measured values can be monitored, saved and distributed via the free APP for further evaluation. Interesting and modern additional functions for an indispensable current clamp: Data logger LOG (10000 measured values), data memory (1000 measured values), Bluetooth®, app, effective power measurement, power factor measurement, harmonic and switch-on current measurement (INRUSH). Bipolar phase sequence test, low-pass filter, voltage sensor, zero balancing.

Supplied with: Batteries, probe leads, compact protective case, operating instructions.

Manufacturer's designation	CM2-1	CM9-1	CM12
47A 47 3305 Digital current clamp	215.33	447.38	410.16
Information displayed	4000	6000	9999
Basic accuracy	% 0.5	1	1
acoustic continuity test	0 – 200 Ω	0 – 45 Ω	30 – 100 Ω
Measurement process	TRUE RMS (AC)	TRUE RMS (AC)	TRUE RMS (DC+AC)
Memory function	HOLD; MAX/MIN; ZERO	HOLD; PEAK; ZERO	Data logger function; HOLD; MAX/MIN/AVG; PEAK
AC voltage	0.1 mV – 600 V	10 mV – 600 V	10 mV – 1000 V
DC voltage	0.1 mV – 600 V	10 mV – 600 V	10 mV – 1000 V
AC current	10 mA – 400 A	10 μA – 60 A	10 mA – 600 A
DC current	10 mA – 400 A	–	10 mA – 600 A
Resistance	0.1 Ω – 40 MΩ	0.1 Ω – 600 kΩ	0.1 Ω – 100 kΩ
Capacitance	1 nF – 10 mF	–	1 nF – 4 mF
Frequency	0.01 Hz – 50 kHz	–	0.01 Hz – 10 kHz
maximum jaw aperture	mm 27	23	33
Overvoltage category	CAT III 1000 V; CAT IV 600 V	CAT II 600 V; CAT IV 300 V	CAT III 1000 V; CAT IV 600 V
Article no of the battery / rechargeable battery fitted		081561 LR3	





Digital force gauge, tension – compression



- Advantages:**
- Take accurate measurements of tensile and compressive force.
 - Can be used both as a hand-held unit and on the manual force test bench.
 - Easy-to-read colour display provides an ideal overview.
 - Sturdy die-cast housing.
 - Further information can be found in the main catalogue K52, page 205.

New: Now also in sizes 20 and 250.



Manual test stand, tension/compression

- Robust test stand for digital manual force gauge.
- Precise linear guide mechanism, can be individually positioned.
 - Size 500; 1500 – Lever version with long travel range per lever rotation. Operating handle can be turned to an angle and position, for optimum operation.
 - Size 2000 – Handwheel version for slow build-up of high test force.

Application: For simple non-speed-dependent tests on materials and components in quality assurance and production.

Supplied with: Supplied with 4 fastening screws for force gauges and instruction manual.

Optional extras: Digital force gauges No. 479025 – 479027 and accessories No. 479033 – 479039.

Type		500	1500	2000
47F 47 9029	Manual test stand – vertical	(970.20)	(1282.05)	(1425.60)
maximum application range	N	500	1500	2000
Drive		Lever	Lever	Handwheel
Feed rate (maximum stroke)	mm	150	150	100
Feed rate (per revolution)	mm	76	76	0.76
Weight	kg	8.2	9.1	10
Length	mm		279	
Width	mm		203	
Height	mm	578	799	799

Accessories

Application: For attaching clamping tools with connection Af159.

Supplied with: Adaptor, retaining pin, slot nut and hook spanner.

Suitable for measuring range	N	10-20	50-1000	2500
47F 47 9031	Clamping tool adaptor for manual force gauge	(103.95)	(130.68)	(130.68)
Thread		M6 internal	M6 internal	M10 internal

Suitable for type		500	1500-2000
47F 47 9033	Clamping tool adaptor for test stand	(130.68)	(130.68)
Thread		M6 external	M10 external

Application: For general pressure tests. Only in combination with No. 479031 and 479033.

External Ø D	mm	56	96
47F 47 9034	Pressure plate, 1 pair	(113.85)	(183.15)

Application: For universal holding of samples. Only in combination with No. 479031, 479033 and 479036.

Clamping Ø	mm	0-10	0-20
47F 47 9035	Universal clamping tool, 1 pair	(335.61)	(420.75)

Pyramidal surface. Size 30×30 mm

Suitable for: Universal clamping tool No. 479035.

Type		1
47F 47 9036	Jaw set (4 pieces)	(188.10)

Application: For determining the position for simple force-travel tests.

Suitable for type	N	500-1500	2000
47F 47 9038	Digital scale for deflection measurement	(193.05)	(193.05)

Kit for use of test bench No. 479029 in horizontal position.

Supplied with: 1 pair feet and 1 cover cap.

Type		H
47F 47 9039	Kit horizontal	(252.45)





KERN Counting scales

- Precision counting scales with automatic reference optimisation (refines the average piece weight value in stages).
- The counting process can be supported visually and/or acoustically.
- Three displays for weight display, reference weight, total quantity.
- Cumulative quantity memory for totalling weighings of identical parts by total quantity and total weight.
- Selectable reference piece numbers or reference weight.
- Selectable mains and battery operation.
- **CAL calibration programme:** For accuracy adjustment (required external calibration weight available on request).
- Display selectable between pieces and weight.
- Checkweighing display: Acoustic or visual feedback if weighing is outside a pre-determined limit value.

Supplied with: Mains adapter 230 V / 50 Hz, battery and protective hood.



47 9541



Optical checkweighing signal

maximum weighing range	kg	3	6	15	30
47D 47 9541 Counting scales, type CIB		220.50	220.50	220.50	220.50
Scale divisions	g	0.2	0.5	1	2
Reproducibility	g	0.2	0.5	1	2
Linearity	g	±0.4	±1	±3	±4
Settling time	s	2			
Minimum unit weight	g	1	2	5	10
Dimensions of weighing plate	mm	315×215			
Width	mm	350			
Depth	mm	330			
Height	mm	120			
Net weight	kg	3.5	3.6	4	3.6



47



Mitutoyo Feeler gauge

Ideal for a wide variety of measurement tasks. Equal width steel blades, pivoted on a riveted joint to fold away. Size clearly stamped on each blade. The blades are easy to remove and can be opened and locked separately. Precision according to the factory standard.

Accuracy:

Size 10 – 0.05 – 0.15 mm ±0.005; 0.2 – 0.5 mm ±0.012; 0.55 – 0.8 mm ±0.020.

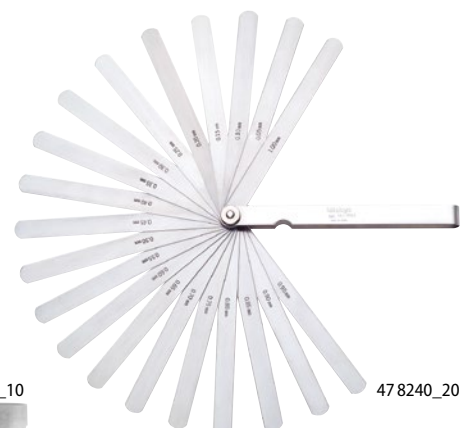
Size 20 – 0.05 – 0.15 mm ±0.005; 0.2 – 0.5 mm ±0.012; 0.55 – 1.0 mm ±0.020.

Supplied with:

47 8242 – Incl. manufacturer's calibration certificate.



47 8242_10



47 8240_20

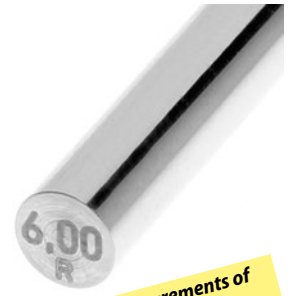
Number of blades		10	20
44A 47 8240 Steel feeler gauge		(22.23)	(44.46)
44A 47 8242 Steel feeler gauge, calibrated		(45.41)	(90.80)
Blade thicknesses	mm	0.05 – 0.2 (0.05 increments); 0.3 – 0.8 (0.1 increments)	
Blade length	mm	150	

DIN 2269 L5 Cal

Single test pins stainless and acid-resistant

Test pin of stainless and acid-resistant material, hardened (58-62 HRC) and tempered. Surface ground and lapped. From \varnothing 1.50 the dimension is marked on the sleeve; from \varnothing 3.00 on the end face. From \varnothing 1.00 mm, one end chamfered.

Note: When ordering, please additionally state the desired \varnothing , e.g. No. 483915 size 5 **10.008**.



Now also available in increments of 0.001 mm



48 3915

Individual test pins in increments of 0.001 mm

Type		0	1	2	3	4	5	6
48A 48 3915	Individual stainless steel test pin Tolerance class 1	(195.53)	(152.96)	(146.03)	(155.93)	(171.77)	(193.55)	(212.85)
Nominal size	mm	0.301 – 0.499	0.501 – 0.999	1.001 – 2.999	3.001 – 5.999	6.001 – 9.999	10.001 – 11.999	12.001 – 13.999
Increments	mm	0.001						
Gauging pin length	mm	40	40	70	70	70	70	70



48

DIN 2269 L5 Cal

Single test pins with handle

Test pins of alloyed tool steel 60 ± 2 HRC. Pin: Hardened, tempered, ground, and lapped. Handle: \varnothing value engraved.

Note: Specify desired \varnothing when ordering, e.g. No. 483945 size 2, **0.305** as additional \varnothing .

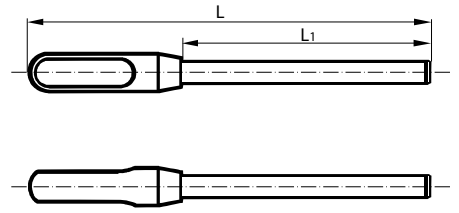


48 3945

Now also available in increments of 0.001 mm

Individual test pins in increments of 0.001 mm

Type		0	1	2	3	4	5	6
48A 48 3945	Single test pin Tolerance class 1	(278.19)	(229.68)	(166.32)	(137.61)	(136.13)	(156.92)	(168.30)
Nominal size	mm	0.101 – 0.199	0.201 – 0.299	0.301 – 0.499	0.501 – 0.999	1.001 – 2.999	3.001 – 4.999	5.001 – 5.999
Increments	mm	0.001						
Test length	mm	33	33	33	33	63	60	60
Overall length	mm	53	53	53	53	83	90	90



Gauge Scout



Quick and easy selection of the desired gauge.

- Direct and simple ordering process.
- Clear enquiry form for special gauges.
- Handy upload option for workpiece drawings.



<http://ho7.eu/lehre>

Visit us online at www.toolsout.com and discover the wide range of solutions offered by the ToolScout.

MultiCheck Digital with interchangeable gauge inserts

Base unit, measuring sleeve, assembly wrench

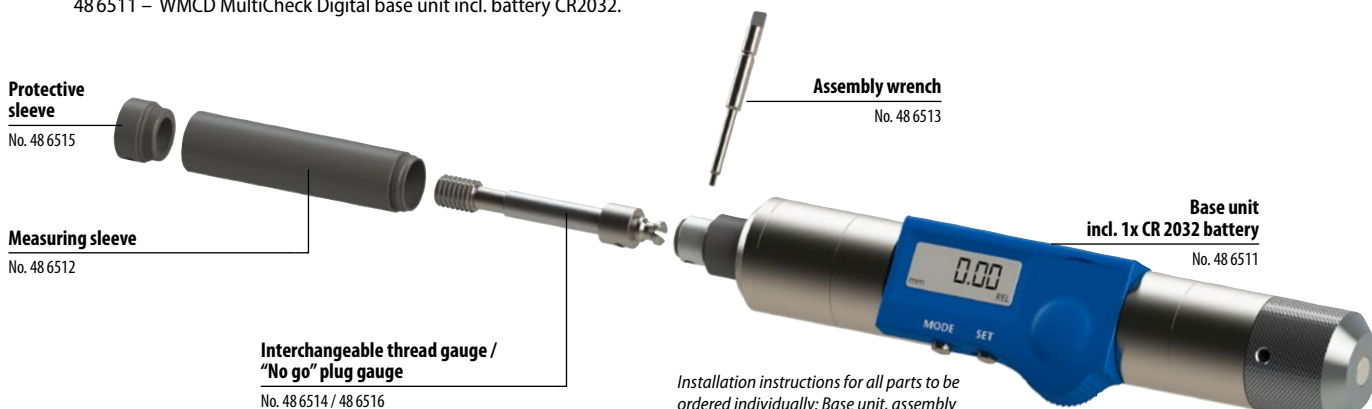
48 6511 – MultiCheck Digital base unit with interchangeable gauge inserts, measuring sleeve and protective sleeve for checking the conformity to gauge and measuring thread depths. Measuring depth of up to $4 \times D$, max. 80 mm.

Advantage:

48 6511 – Testing of various thread sizes using a single base unit.
 Checking the thread gauge conformity and the thread depth in a single operation.
 Time saved for one inspection task up to 50%.
 Easy replacement of worn "Go" / "No Go" gauges.

Supplied with:

48 6511 – WMCD MultiCheck Digital base unit incl. battery CR2032.



For thread M		2-10	12-20	2-20	
48B	48 6511	Digital base unit, thread "Go" / "No Go" plug gauge WMCD MultiCheck Digital	(874.17)	(1123.65)	–
48B	48 6512	Measuring sleeve for thread gauge/"No Go" plug gauge for MultiCheck Digital	(101.97)	(101.97)	–
48B	48 6513	Assembly wrench for MultiCheck Digital	–	–	(14.95)
Suitable for: Thread size		M2; M3; M4; M5; M6; M8; M10	M12; M14; M16; M18; M20	M2 – M20	

Interchangeable thread gauge, protective sleeve, "No Go" plug gauge

Standard:

48 6514/6516 – Tolerances and dimensions to **DIN ISO 1502**.

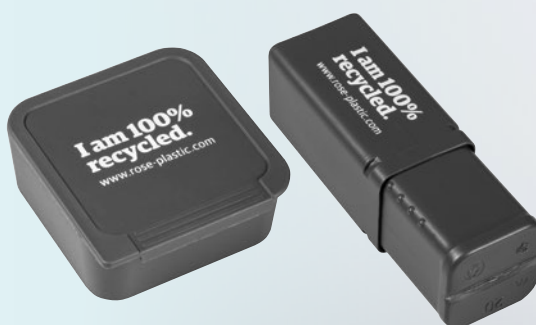
Threads	48B 48 6514	48B 48 6515	48B 48 6516	Thread pitch
	Interchangeable thread gauge for	Protective sleeve for measuring sleeve for	Thread "No Go" plug gauge for	
	MultiCheck Digital			mm
M2	(359.37)	(138.60)	(71.28)	0.45
M3	(337.59)	(138.60)	(52.87)	0.5
M4	(333.63)	(138.60)	(50.89)	0.7
M5	(277.20)	(97.61)	(50.09)	0.8
M6	(263.34)	(97.61)	(49.01)	1
M8	(264.33)	(102.96)	(48.21)	1.25
M10	(268.29)	(102.96)	(50.49)	1.5
M12	(293.04)	(111.38)	(53.46)	1.75
M14	(297.00)	(111.38)	(56.23)	2
M16	(302.94)	(116.82)	(59.00)	2
M18	(308.88)	(116.82)	(62.57)	2.5
M20	(313.83)	(116.82)	(65.93)	2.5



Environmentally friendly packaging: 100 % recycled

Our contribution to sustainability:

We are switching all thread gauge rings and a large proportion of thread plug gauges to 100 % recycled packaging material.

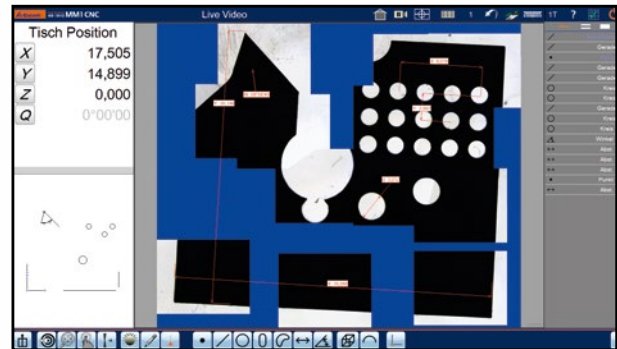


Garant KEEP YOUR EYES OPEN FOR EVEN MORE COMFORT.

Now with 64-bit architecture; experience high precision in the GARANT MM1 measuring microscope even more quickly.

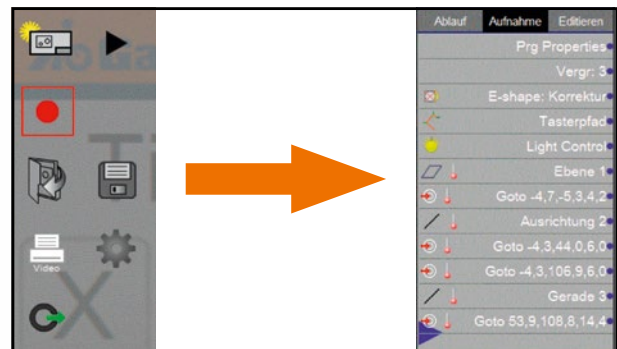
With modern 64-bit application:

- For even faster stitching function for linking multiple images for precise measurement of larger parts. Save time and record only the contours that you really need for measurement.
- For faster use of your software options and full access to entire system memory.
- For comfortable handling of large data.



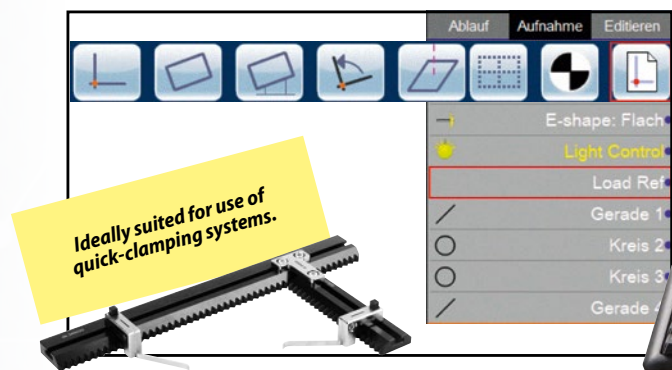
Extended measurement program recording mode:

- Choice of standard or extended recording mode.
- Full access to the editing functions during the measurement program recording in extended mode.
- All program steps including Goto's, changes to light.
- User instructions and data outputs are displayed during the recording.



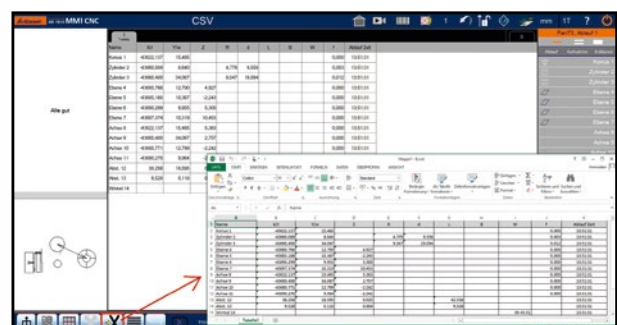
Save and load reference system:

- Transfer the position of a clamping system to the measurement program.
- Improved handling of component palletisation.
- Separation of part reference and measurement program for easier editing.
- Use a part program on several identical measuring microscopes.



New export functions:

- Direct export in „PDF“.
- Improved speed for direct export in Excel.
- Export of measured data to open Excel tables.
- Incremental export in a program sequence.



Garant Video measuring microscope MM1

Measuring microscope with quick image processing, high-resolution colour camera, and a multi-touch panel PC that is easy to operate and suitable for the workshop environment, with **intuitive M3 measurement software**.

Incident illumination: 56 white LEDs in 2 concentric rings. 1 ring and 4 segments can each be separately switched and dimmed.

Transillumination: Long-life LEDs, telecentric, can be switched and dimmed. **Solid granite base** with surface-hardened indexing table and high-precision guides.

Ergonomic quick adjustment with one-handed operation in both axes (X and Y). **Diode laser** as positioning guide. Very high repetition accuracy thanks to **automatic edge detection**.

Size 200/6X; 300/6X – With 6-stage raster zoom lens, magnification 0.35× to 2.25×.

- Application:**
- In goods receiving, in the inspection room, in manufacturing.
 - Suitable for general purpose use due to flexible four-quadrant incident light and compact measurement computer.
 - A wide variety of geometric shapes and materials can be reliably measured in a user-friendly manner. Documentation can also be performed.

Supplied with: All-in-One PC, wireless mouse and keyboard, dust cover, power supply unit, test certificate, and user manual.

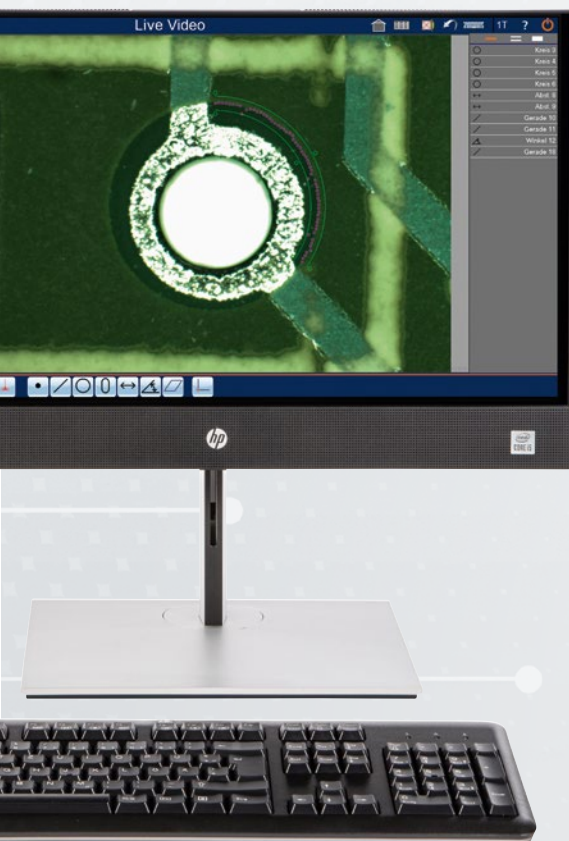
Optional extras: Lens No. 491912, software option No. 491913, cutting edge cleaner No. 354788.

Note: Length measurement variation $E_{UXY, MPE}$ to DIN EN ISO 10360-7 for magnification factor = 0.5.
Permissible ambient conditions: $20\text{ °C} \pm 1\text{ K}$, temperature gradient $\Delta_{tm} = 0.5\text{ K/h}$, $\Delta_{tm} = 4.0\text{ K/d}$, measured with a calibrated standard.

For all GARANT video measuring microscopes we can offer you the following on request:

- Maintenance contract.
- Installation and commissioning with brief instruction on use.
- Individual training for your employees.
- On-site calibration.

We reserve the right to make technical changes and to change the touch panel version.



Zoom step	Display presentation	Field of view
0.35×	16×	20 × 13 mm ²
0.5×	23×	14 × 9 mm ²
1×	43×	7 × 4 mm ²
1.5×	65×	4 × 3 mm ²
2×	90×	3 × 2 mm ²
2.25×	100×	3 × 2 mm ²

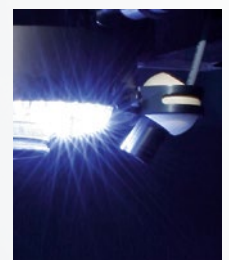


MM1_200

Type		200	300	200/6X	300/6X
4TP 49 2500	Video measuring microscope MM1	(17577.90)	(22463.10)	(20509.20)	(26371.80)
Measuring range X	mm	200	300	200	300
Measuring range Y	mm	100	200	100	200
Measuring range Z	mm	100	200	100	200
Length measurement variation $E_{UXY, MPE}$ optically (2D)	µm	2.9 + L / 100 (L in mm) at 20 °C ± 1 K			
Lens (times)		0.5	0.5	0.35 – 2.25	0.35 – 2.25
Magnification at the screen (times)		23	23	16 – 100	16 – 100
Field of view	mm	14×9	14×9	20×13 – 3×2	20×13 – 3×2
Camera		6.4 megapixels			
Working distance	mm	80			
maximum component height	mm	100	200	100	200
Nominal voltage	V	230 / 240			
Length	mm	500	730	500	730
Width	mm	600	900	600	900
Height	mm	770	950	770	950
Weight	kg	60	115	60	115
maximum component weight	kg	20			



MM1 size 200/6X and 300/6X with 6-step raster zoom lens.



56 LEDs can be switched and dimmed flexibly in rings and segments for optimum illumination of the workpiece.



49

Leica High quality stereo microscopes M-series

- Modular product range and thus optimum adaptation of the microscope to the application.
- Parfocal matching optics system: When the magnification is changed, sharpness remains constant.
- Ergonomic design.
- ESD version avoids damage due to static discharges.
 - Size M50 – Five-stage magnification changer: 6.3x; 10x; 16x; 25x; 40x.
 - Size M60 – Zoom positions: 7 configurable positions, for repetitive tasks.
 - Size M80 – Zoom positions: 8 configurable positions, for repetitive tasks. Base plate with anti-shock.

Supplied with: Lens carrier, binocular inclined tube 45°, 2x eyepieces suitable for glasses wearers, lens achromat 1.0x, stand, dust cover (antistatic).

49 1753 – Incident illumination incl. table insert black/white.
49 1754 – Swingarm stand.

Optional extras: LED illumination No. 491755 and transillumination No. 491777 size BLI.

Type		M50	M60	M80
49B 49 1753	Stereo microscope with incident illumination, without lighting	(4235.40)	(5187.60)	(6030.90)
49B 49 1754	Stereo microscope with swingarm stand, without lighting	(4395.60)	(5346.90)	(7526.70)
Optics system		Greenough parfocal		
Magnification (x-times)		6.3 – 40	6.3 – 40	7.5 – 60
Zoom		5:1	6:1	8:1
Field of vision Ø	mm	5.75 – 36.5	5.75 – 36.5	3.8 – 30.7
Eyepiece		10x/23B		
Working distance	mm	89.6	89.6	83.4
Base length (49 1753)	mm	301		330
Base length (49 1754)	mm	260	260	330
Base width (49 1753)	mm	278		220
Base width (49 1754)	mm	220		13.7
Depth of focus	mm	13.7		

Lighting and accessories

For 58 mm lens.

- Size RL – Ring light for very bright and even illumination. Switchable segments using the integral control panel.
- Size NVI – **Near Vertical Illumination**, to look at recesses and holes, since the light falls almost vertically on the sample.
- Size SLI – 2-arm swan neck 300 mm long, 2 power LEDs and control unit on separate swan neck.

Suitable for: Stereo microscope No. 491753, 491754 and S series No. 491785.

Supplied with: 1 power supply unit incl. 2-metre mains cable.
Size RL – 1 high-performance diffuser.

Note:

Size SLI – The adaptor set No. 491757 is required for installation.

Type		RL	NVI	SLI
49B 49 1755	LED 3000 light	(875.70)	(1106.10)	(797.40)
Colour temperature	K	5600		
Working distance	mm	65 – 150	60 – 150	60 – 150

With engagement in the case of crossed polarisation, to minimise gloss points.

Suitable for: Ring lamp No. 494755 size RL.

for type		RL
49B 49 1756	Polarisation set	(468.00)

Suitable for:

- Size 1 – M series with incident illumination No. 491753.
- Size 2 – M series with swingarm stand No. 491754.

Application: For fitting the swan neck LED No. 491755 size SLI.

Type		1	2
49B 49 1757	Adaptor set	(90.00)	(54.90)



49 1753_M50



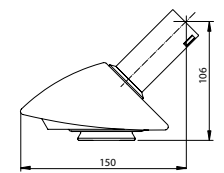
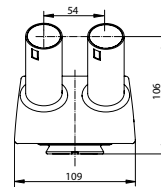
49 1753_M60



_M80 detail



_M80



All stereo microscopes are supplied with a 45° binocular inclined tube. Different product image for 491754.



LED display for active segments



Size RL with high-performance diffuser, mounted



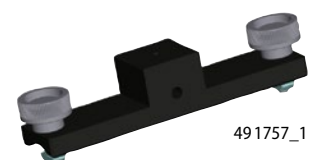
49 1755_NVI



49 1755_SLI



49 1756



49 1757_1

HOLEX Video endoscope

HOLEX video endoscope with large LCD display showing true-scale details, and comprehensive functions. The sun shade offers additional protection when in sunlight. The unit can be held steady using the two handles.

The base unit is compatible with all HOLEX endoscope probes No. 492932 – 492944.

■ **Base unit with 7 inch LCD display** (image cut-out 6 inches).

■ **Zoom mode;** 3 stages of digital zoom: 1.5x, 2x and 5x.

■ **Images and video recordings can be saved.**

■ **USB and AV output.** The integral USB and AV outputs allows your images and videos to be transferred to a PC.

■ **Integral rechargeable Li-ion battery with 5 hour capacity.**

■ **180° image rotation** / reflection.

Advantage:

- Intuitive touch display with full screen display.
- Exceptionally sturdy, highly suitable for outdoor use.
- Very large image aperture of 6 inches.
- Image aperture can be divided for parallel display of 0° and 90° viewing when using a probe with an attached mirror.
- Facility for adding comments by sound recording. The built-in microphone can be used during **video operation** for recording comments during the inspection. This eliminates the need for laborious writing and compilation of notes.
- Notes can be added **for images**.
- Comparison of saved images with live images.
- Selected settings can be clearly shown directly on the display.

Supplied with: Sturdy watertight and dust-tight transport case, SD memory card, power supply unit (AC 100 – 240 V / 50 – 60 Hz), USB data cable, AV cable, cleaning kit. **Without probe.**

Optional extras: Endoscope probes No. 492932 – 492944.



IP
55

49 2923

Type	F1100
42L 49 2923 Video endoscope without probe	1376.10
Recording format	JPEG / AVI (30fps)
Display resolution	px 640×480
depth of focus when focussed	mm 16 – 60
Operating temperature	°C 0 – 40



Touch screen

49

Accessories

Adapter for splitting the image in 0° and 90° direction of view.

Suitable for: Probe No. 492942 size 1000.

Application: For parallel display on the screen of 0° and 90° views.

42L 49 2898 Adapter for 0° and 90° directions of view	55.44
---	-------



49 2898

IP
67

HOLEX Endoscope probes for HOLEX video endoscopes

Sturdy watertight probe head (IP67) of stainless steel with dimmable white LEDs. Direction of view 0°.

Very high image quality with 16.7 million colours.

Illumination mode: Control switch for turning the image illumination on and off.

For use in large voids and/or very dark surroundings.

Side-LED mode: When the screw-on probe mirror is used, activation of the side LEDs avoids generation of confusing reflections.

Image rotation: 90° image rotation clockwise using the control button.

Elbow bend probe head: Probe with hand grip and setting handle for bending the camera head in two directions (maximum 2× 155°). In conjunction with the probe mirror supplied, this allows inspection even of a recess that faces in the opposite direction to the insertion of the probe.

A stop function for the desired angular position allows non-fatiguing working.

Probe tip with braided metal protective sheath.

Image aperture angle 87.1°.

Suitable for: All endoscope versions No. 492923; 492924; 492925; 492928.

Supplied with: Screw-on probe mirror 70°.

Note: Other types of probe (up to 30 m) with other probe head Ø and directions of view available on request.



49 2942_1000

Probe length	mm	1000	Camera resolution px
42L 49 2942 Endoscope probe, elbow bend, flexible	6 mm Ø	927.90	640×480



Hardness comparison plates

High-quality hardness comparison plates of optimised and homogeneous steel for periodic calibration of hardness testers.

Advantage: Colour-coded and symbolic organiser system on all packaging.

Supplied with: Every hardness comparison plate is supplied with a **DAkKS calibration certificate**.

Note: Calibrations for other processes, hardness comparison plates in other sizes and with pitch lines available on request.

Quick availability ex-stock from the manufacturer.



49 5131 – 5151

49 5131_150



Label example

Hardness value approx.		150	200	250	300	350	400	450	500
49L	49 5131 Hardness comparison plate HBW 2,5 / 187,5	(326.70)	(297.00)	(297.00)	(297.00)	(297.00)	(297.00)	(297.00)	(297.00)
49L	49 5133 Hardness comparison plate HBW 5 / 750	(326.70)	(297.00)	(297.00)	(297.00)	(297.00)	(297.00)	(297.00)	(297.00)
49L	49 5135 Hardness comparison plate HBW 10 / 3000	(326.70)	(297.00)	(297.00)	(297.00)	(297.00)	(297.00)	(297.00)	(297.00)
Ø	mm	125	–	–	–	–	–	–	–
Length	mm	–	100	100	100	100	100	100	100
Width	mm	–	100	100	100	100	100	100	100
Height	mm	16							



Label example

Hardness value approx.		20	25	30	35	40	45	50	55	60	62
49L	49 5151 Hardness comparison plate HRC	(391.05)	(391.05)	(391.05)	(391.05)	(391.05)	(391.05)	(391.05)	(391.05)	(391.05)	(391.05)
Length	mm	100									
Width	mm	100									
Height	mm	16									

BRECHT ELEKTRONIK V-MUX Dongle

Dongle with software (in German and English) for easy integration of several tools into CAQ systems under Windows 10 and 11.

Communication is performed with EUROMux protocol or MUX10 / MUX50 / Dmx16.

Connects measuring devices that are connected to a PC via USB, Bluetooth or other radio technology.

Brecht hardware multiplexers (498902; 498904) can be incorporated as a data source.

Foot switch No. 498903 can also be incorporated.

Suitable for: GARANT HCT, HOLEX HCT, Mahr i-wi (calipers, dial indicators, external micrometers), TESA TLC, Mitutoyo U-Wave Bluetooth, Sylvac Bluetooth.



49 8989

Type	DONGLE	
49H	49 8989	V-MUX Dongle

Wireless receiver for HCT Windows app

Radio receiver with software solution for setting up a factory guidance, to which various HCT tools can be linked in a single workflow.

The collected data can be provided in various formats to the CAQ software (e.g. in ASCII format or as MUX50).

The workpiece's serial number is linked directly and automatically to the associated measurement value.

Connection of 16 HCT tools to a PC simultaneously.

Suitable for: GARANT electronic torque wrench/rotational angle wrench 655010, HOLEX electronic torque wrench 655025.



49 8999

Type	STICK	
49H	49 8999	Receiver for HCT

NEW PRODUCTS

Grinding and cutting



Pages 190 – 194
GARANT vibratory finishing machine GMT35 and processing media



Pages 196 – 200
GARANT STEEL Cut burrs



Pages 198 – 201
GARANT INOX Cut burrs



Page 203
Overlap slotted disc (A)



Page 205
Actirox grinding disc
AF 890 and AF 799



Page 203
Fleece finishing disc PN-DR



Page 204
GARANT quick-change system range



Page 204
GARANT CaraFin flower-shaped
polishing tool



Page 204
Abrasive sheets, triangular



Page 205
Actirox AK890Y linishing belt



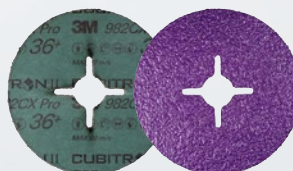
Page 203
GARANT felt polishing points



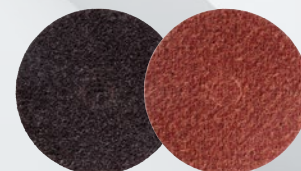
Page 205
Blade sharpening stone set



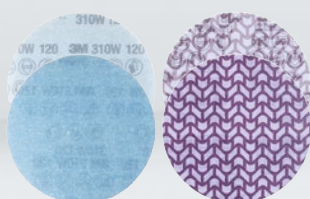
Page 206
Purple Grain grinding disc
Easy and Double



Page 206
982CX PRO fibre disc



Page 208
Fleece velour-backed abrasive disc
PN-DH



Page 208
3M Xtract Cubitron II Net Disc 710W
3M Xtract Net Disc 310W



Page 206
Hand pad with hook-and-loop
fastening



Page 207
PU hook and loop backing pad



Page 207
Compact finishing wheel
(SiC)



A SYSTEMATIC APPROACH TO SURFACE FINISHING.

Vibratory finishing has huge potential.

Vibratory finishing, also known as barrel finishing, is used to finish the surface of metal and plastic workpieces.

The workpieces are placed in a trough together with grinding or polishing media and an additional agent (compound) in an aqueous solution. The oscillating movement (vibratory finishing) of the container causes a relative movement between the workpiece and the media.

The abrasive media, so-called grinding bodies or chips, remove the material as required. Depending on the specific requirements, the removal rate can be set higher or lower by different process parameters.

Your requirements:

- Wide variety of components necessitates a high degree of flexibility when post-processing.
- You handle small to medium-sized batches (1 – 500 pieces).
- You work in up to 3 shifts.
- Post-processing work is time-consuming, and the pressure to use automation is growing.
- You are looking to avoid high investment costs that would make you less flexible.
- You need a mobile solution that can be used exactly where it is needed.
- No need for major maintenance work or inspections.
- You would like to keep the process in-house in order to retain expertise and transparency in all production steps.
- Process several workpieces at the same time.

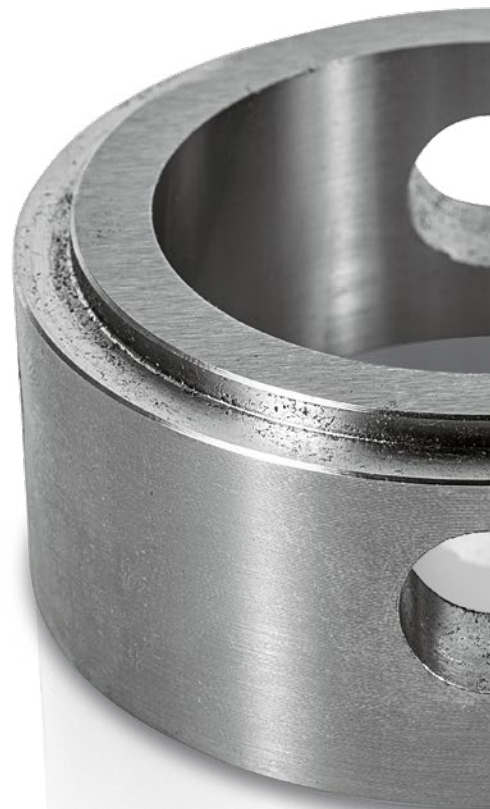
METAL



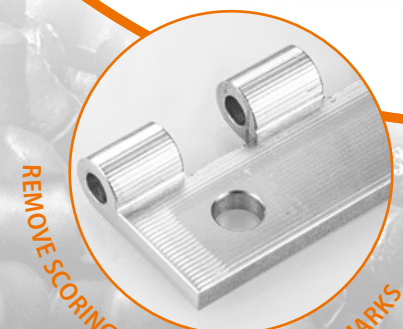
DEBURRING



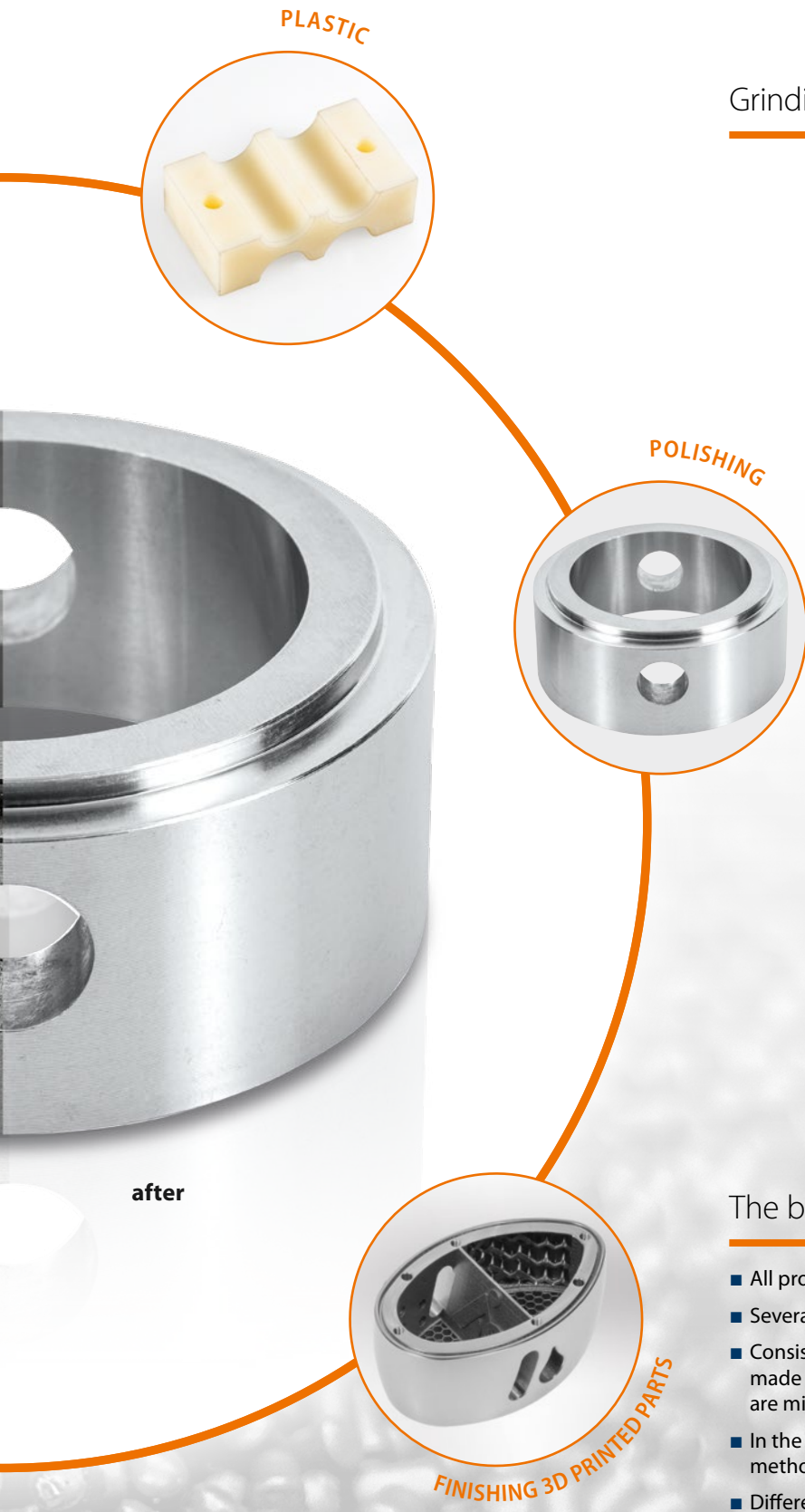
ROUNDING EDGES



before



REMOVE SCORING AND SMALL MILLING MARKS



Grinding bodies:

CERAMIC GRINDING BODIES



PLASTIC GRINDING BODIES



PORCELAIN GRINDING BODIES



after

The benefits for you:

- All processes from deburring to polishing can be implemented.
- Several components can be processed at the same time.
- Consistent quality. Rejected products caused by errors made in the last and critical work step – finishing – are minimised.
- In the overall cost analysis, it is an inexpensive method compared with manual post-processing.
- Different materials and geometries can be processed.
- Gentle deburring method.



Not available in all countries! Only available in Germany, Italy, France and the Netherlands.

THE EFFICIENT SOLUTION FOR YOUR FINISHING PROCESS.

GARANT GMT35 vibratory finishing machine – mobile, compact, economical.

Plug & Play solution to help you get started with automated post-processing quickly

- All functions included on board (from the water circuit to separation).
- Mobile solution – can be used where it is needed. (Footprint < 1.5 m²)
- High-quality abrasive media.
 - > Different shapes and dimensions.
 - > Coordinated grinding intensity for deburring and polishing work.
 - > Processing of metals and plastics.
- Workpiece processing can be set to run with a delay.
- Low investment costs.
- Working area is divided – this allows different process steps (deburring, polishing) to run simultaneously. This also makes it possible to separate delicate workpieces.



CONTAINER (TROUGH) CAN BE DIVIDED INTO TWO CHAMBERS

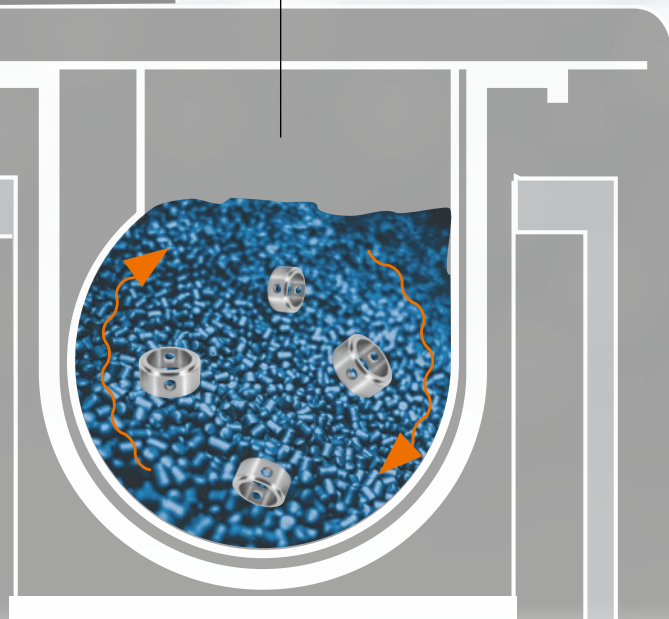


Illustration of the mass finishing process.



TRANSPORT TROLLEY

- Quick and easy transportation.
- 3 storage boxes for abrasive media and components.

SEPARATING STATION

- Workpieces and abrasive media are automatically separated.
- 3 sieves with different hole patterns.
- Easy to change the grinding bodies.

SOUNDPROOFING

- Machine housing for soundproofing with noise-absorption hood.
- Trough and funnel outlet lined with polyurethane.
- Noise level < 80 dB.

CONTROL

- Protected against splashed water and vibrations.
- Intuitive operation via touch screen.
- Numerous setting options such as processing time, speed, pump control etc.
- Individual processing steps can be programmed.



VIBRATORY TROUGH FINISHING MACHINE

- Powerful motor.
- 35 litre steel trough, lined (15 mm polyurethane layer).
- Trough can be divided using divider.
- Constant water supply of 45 l/min via two outlets.

MOBILITY

- Rollers on the underside for easy transportation.
- Only 230 V connection – no compressed air or permanent water line required.
- Space-saving – machine with transport trolley (W×D×H) 2030×710×1380 mm.

INTEGRATED WATER TREATMENT

- Large water tank (45 litres) for wet processing.
- Water treatment with settling tank.



Not available in all countries! Only available in Germany, Italy, France and the Netherlands.

Garant COMPOUND CLEAN

- Ideal for processing dirty components.
- Extends the change interval for the process water.
- For processing the following materials: Steel, stainless steel, copper, brass and aluminium.



Not available in all countries! Only available in Germany, Italy, France and the Netherlands.

50

Garant Compound

Compounds (liquid treatment agents / treatment agents in powder form) are added during the wet process in vibratory finishing machines. They **will improve the grinding performance** and **clean workpieces** and **grinding bodies**.

50 1650/1655 – With **corrosion protection** for all ferrous metals.

Application: Only add the compound to the process water in the water tank in the specified dose. The measuring jug supplied with the vibratory finishing machine facilitates correct dosing.

Note: Unavailable in some countries. Express delivery not available.



50 1655

	AlMg	< 900 N	< 1400 N	< 55 HRC	< 60 HRC	< 67 HRC	Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
50 1650–50 1657	○	●	●	●	●	●	●	●	●	●	○					●	●	●
50 1660	●							○									●	●
50 1665	○							○			●						●	●
50 1670												●					●	●

Type		UNI	SHINY	ALUMINIUM	COPPER	PLASTIC	CLEAN
58F 50 1650	Liquid treatment agent, 5 l Steel, stainless steel	Grinding and polishing	–	–	–	–	–
58F 50 1655	Liquid treatment agent, 5 l Steel, stainless steel	High gloss mirror finish	–	–	–	–	–
58F 50 1657	Treatment agent in powder form, 5 kg Steel, stainless steel	Grinding and polishing	–	–	–	–	25.34
58F 50 1660	Liquid treatment agent, 5 l Aluminium, zinc	Grinding and polishing	–	–	–	–	–
58F 50 1665	Liquid treatment agent, 5 l Copper, brass	Grinding and polishing	–	–	–	–	–
58F 50 1670	Liquid treatment agent, 5 l Plastics	High gloss mirror finish	–	–	–	–	–
pH value	%	7.6	7.6	9.5	3.3	8.6	12
Dosage	%	5–7	5–7	3–5	2–4	2–4	2–3

THE RIGHT COMBINATION MAKES THE DIFFERENCE.

The right interaction between grinding tools, grinding machine and personal protective equipment is a guarantee for optimum grinding results.



Professional grinding and cutting – check out our pro tips for advice not tied to specific manufacturers, to help you reach your goals more quickly. <http://ho7.eu/ratgeber>

GARANT STEEL CUT – LONG TOOL LIFE, SMOOTH CUTTING ACTION, HIGH MATERIAL REMOVAL RATE.

A new unique geometry ensures significantly lower vibration and thus delivers significant advantages when it comes to application comfort, quality and tool life.

Burrs are indispensable in metal processing. These sturdy tools improve surfaces, weld seams and fillet seams, and break edges – no matter whether they are used manually or on robots. With a variety of shapes and sizes and the coating tailored to steel materials, you can master every task with ease.

UNBEATABLE ON STEEL MATERIALS

- Long tool life with all steels.
- State-of-the-art substrate – optimised for an extremely long tool life.
- Available in 6 shapes.

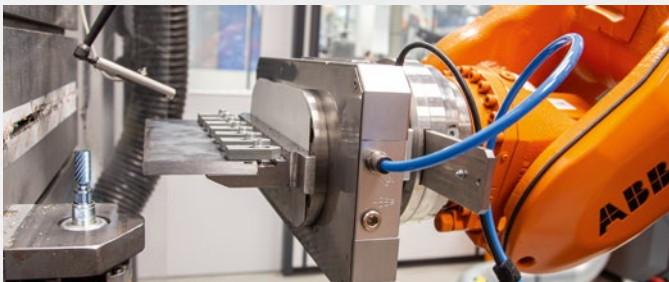
The standard for steel – exclusively from us

However, the challenge is strong vibrations – disruptive to users and bad for the milling results.

Thanks to our many years of experience, we have succeeded in overcoming this challenge! We have developed a new geometry, which enables the burrs to run **considerably** more smoothly, giving better guidance accuracy.

Discover the new GARANT STEEL Cut.

DESIGNED FOR MANUAL AND INDUSTRIAL ROBOT USE



OUTSTANDING SURFACE RESULTS





30%
less vibration

35%
longer tool life

45%
higher metal removal rate

105%
greater cutting performance

WITH HIGH-PERFORMANCE COATING AS STANDARD

- Longer tool life.
- Less heat input.
- Better chip evacuation.

LOWEST VIBRATION LEVELS – MAXIMUM ERGONOMICS

- Newly developed innovative pitch.
- Particularly ergonomic for the user.
- Maximum smooth cutting despite high plunge depth.
- Highest material removal rate.

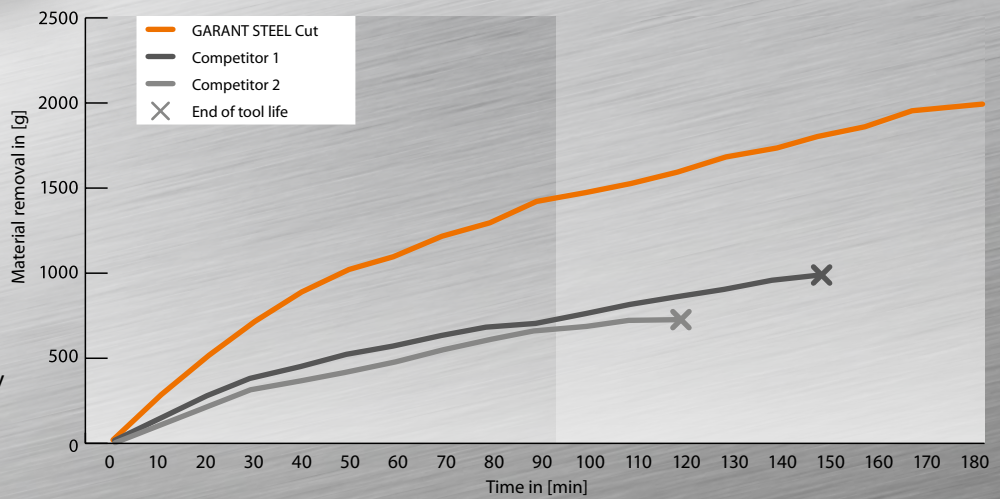
SECURE RETENTION IN COLLET

- Defined shank roughness prevents slipping.

Try it now!
Experience the performance.

PERFORMANCE OVERVIEW

based on the example of unalloyed structural steel S235JR



MAXIMUM PERFORMANCE

- Long tool life.
- High material removal thanks to newly developed tooth geometry and specially tailored edge honing.

Extended periods of **vibration exposure** can lead to damaged nerves, blood vessels and tendons in your fingers, hands and wrists. This reduces tactile sensitivity, dexterity and strength. According to the **Occupational Health and Safety Regulation**, employers must ensure that **employees are not exposed to vibration-related risks**, or at least **reduce these risks**.



GARANT INOX CUT – THE QUANTUM LEAP FOR MACHINING STAINLESS STEEL.

Developed specifically for stainless steel, the GARANT INOX Cut burr ensures the best results. It also provides the best possible ergonomics for the user.

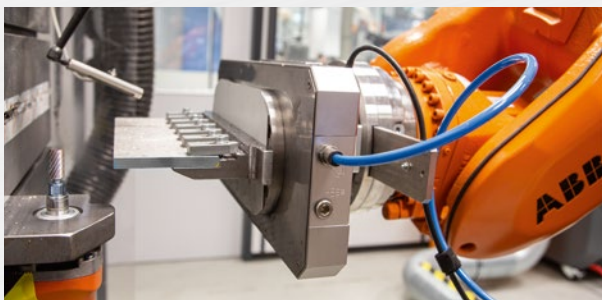
Try it now!
Experience the performance.

SECURE RETENTION IN COLLET

- Defined shank roughness prevents slipping.

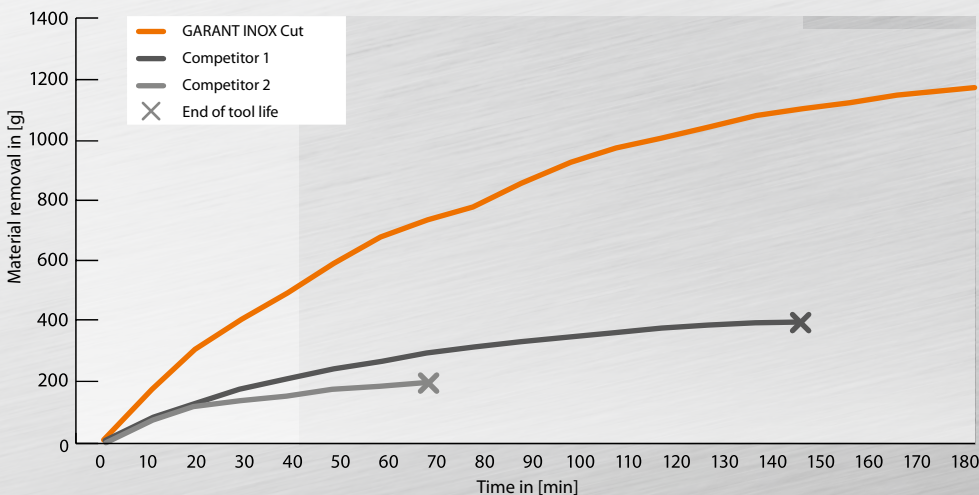


DESIGNED FOR MANUAL AND INDUSTRIAL ROBOT USE



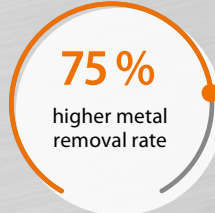
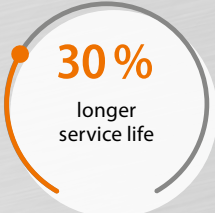
PERFORMANCE OVERVIEW

on stainless steel 1.4301



MAXIMUM POWER

- Long working life.
- High material removal thanks to newly developed tooth geometry and specially tailored edge honing.



LOWEST VIBRATION LEVELS – MAXIMUM ERGONOMICS

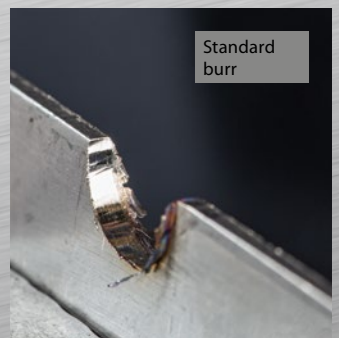
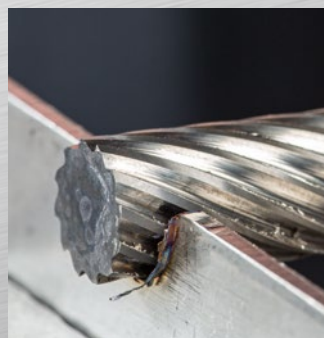
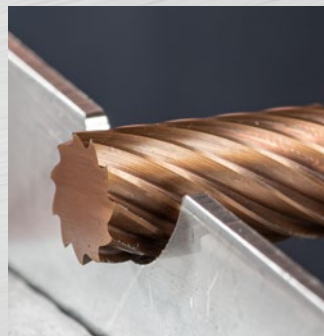
- Newly developed innovative pitch.
- Particularly ergonomic for the user.
- Maximum smooth cutting despite high plunge depth.
- The highest material removal rate.

UNBEATABLE ON STAINLESS STEEL MATERIALS

- Long tool life with all stainless steels.
- State-of-the-art substrate – optimised for an extremely long tool life.
- Available in 6 shapes.




LOW BURR FORMATION AND NO DISCOLOURATION



WITH HIGH-PERFORMANCE COATING AS STANDARD

- Longer tool life.
- Less heat input.
- Better chip evacuation.

Extended periods of **vibration exposure** can lead to damaged nerves, blood vessels and tendons in your fingers, hands and wrists. This reduces tactile sensitivity, dexterity and strength. According to the **Occupational Health and Safety Regulation**, employers must ensure that **employees are not exposed to vibration-related risks**, or at least **reduce these risks**.




Garant Burrs tooth type STEEL / steel / STEEL Cut

The innovative tooth geometry permits very high metal removal rates combined with smooth cutting and good guidance accuracy. The optimised chip formation (no pointed chips) ensures good surface quality. Shank \varnothing 6 mm.

Application: Optimised for use on steel and steel castings.

	AlMg						Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
547400-547405		< 900 N	< 1400 N	< 55 HRC	< 60 HRC	< 67 HRC												

6mm

\varnothing

With high-performance coating for longer tool life, less heat input, better chip evacuation.



Type			A0616	A0820	A1020	A1225	C0616	C0820	C1020	C1225	C1625
54 7400	Burr, coated STEEL Cut – coarse	Carbide AlCrN	18.06	24.14	27.38	35.07	20.09	28.11	31.75	43.09	51.84
Shape description			cylindrical	cylindrical	cylindrical	cylindrical	ball nose	ball nose	ball nose	ball nose	ball nose
Head \varnothing	mm		6	8	10	12	6	8	10	12	16
Head length	mm		16	20	20	25	16	20	20	25	25
Overall length	mm		55	60	60	65	55	60	60	65	70



Type			D0605	D0807	D1009	D1210	D1614	G0618	G0820	G1020	G1225
54 7400	Burr, coated STEEL Cut – coarse	Carbide AlCrN	16.85	19.36	22.11	27.38	36.77	19.36	28.11	31.75	36.77
Shape description			ball	ball	ball	ball	ball	Pointed arch	Pointed arch	Pointed arch	Pointed arch
Head \varnothing	mm		6	8	10	12	16	6	8	10	12
Head length	mm		5	7	9	10	14	18	20	20	25
Overall length	mm		45	47	49	51	54	55	60	60	70



Type			F0618	F0820	F1020	F1225	L1020	L1230
54 7400	Burr, coated STEEL Cut – coarse	Carbide AlCrN	19.93	28.11	32.64	37.75	31.75	48.60
Shape description			round arch	round arch	round arch	round arch	round cone	round cone
Head \varnothing	mm		6	8	10	12	10	12
Head length	mm		18	20	20	25	20	30
Overall length	mm		55	60	60	65	60	70

Burr sets – tooth type STEEL / steel / STEEL Cut

6mm

\varnothing

Type			5	Supplied with:
54 7405	Burr set, coated 5 pieces, tooth configuration STEEL Cut – coarse	Carbide AlCrN	165.24	1 pc. each No. 547400 size A1225; C1225; D1210; G1225; F1225.



54 7405

Garant Burrs tooth type INOX / INOX Cut

The innovative tooth geometry permits **very high metal removal rates** combined with **smooth cutting and good guidance accuracy**. Outstanding chip formation and surface results, low heat input into the material (no tempering colouration). Shank \varnothing 6mm.

Application: Optimised for use on **austenitic, rust-resistant and acid-resistant steels**, soft titanium alloys and non-ferrous metals.

	AlMg						Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
547500-547505	○	< 900 N	< 1400 N	< 55 HRC	< 60 HRC	< 67 HRC		●	○		○							

6mm
∅

With high-performance coating for longer tool life, less heat input, better chip evacuation.



Type		A0616	A0820	A1020	A1225	C0616	C0820	C1020	C1225	C1625
547500	Burr, coated Tooth configuration INOX Cut – coarse Carbide AlTiN	19.68	26.24	29.89	38.23	21.87	30.78	34.67	47.14	48.92
Shape description		cylindrical	cylindrical	cylindrical	cylindrical	ball nose	ball nose	ball nose	ball nose	ball nose
Head \varnothing	mm	6	8	10	12	6	8	10	12	16
Head length	mm	16	20	20	25	16	20	20	25	25
Overall length	mm	55	60	60	65	55	60	60	65	70
Shank \varnothing	mm	6								



Type		D0605	D0807	D1009	D1210	D1614	G0618	G0820	G1020	G1225
547500	Burr, coated Tooth configuration INOX Cut – coarse Carbide AlTiN	19.20	21.14	24.06	29.89	37.91	21.14	30.78	34.67	40.10
Shape description		ball	ball	ball	ball	ball	Pointed arch	Pointed arch	Pointed arch	Pointed arch
Head \varnothing	mm	6	8	10	12	16	6	8	10	12
Head length	mm	5	7	9	10	14	18	20	20	25
Overall length	mm	45	47	49	51	54	55	60	60	70
Shank \varnothing	mm	6								



Type		F0618	F0820	F1020	F1225	L1020	L1230	
547500	Burr, coated Tooth configuration INOX Cut – coarse Carbide AlTiN	21.71	30.78	35.48	41.31	34.67	52.81	
Shape description		round arch	round arch	round arch	round arch	round cone	round cone	
Head \varnothing	mm	6	8	10	12	10	12	
Head length	mm	18	20	20	25	20	30	
Overall length	mm	55	60	60	65	60	70	
Shank \varnothing	mm	6						

Burr sets – tooth type INOX / INOX Cut

6mm
∅

Number of burrs		5	Supplied with:
547505	Burr set, coated 5 pieces, tooth configura- tion INOX Cut – coarse Carbide AlTiN	180.63	1 pc. each No. 547500 size A1225; C1225; D1210; G1225; F1225.



54 7505

TOOL AND MOULD MAKING



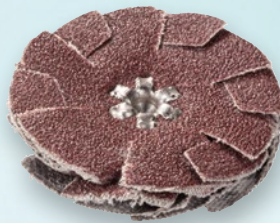
Our wide range of products opens up many possibilities to you as customers in tool and mould making, to help you achieve the goal of machining your components.

Irrespective of what kind of geometry or material you want to machine, we will find the right solution for your machining process.



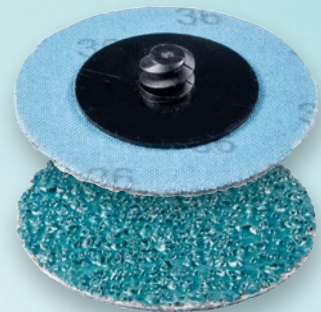
Garant

Flower-shaped polishing tool



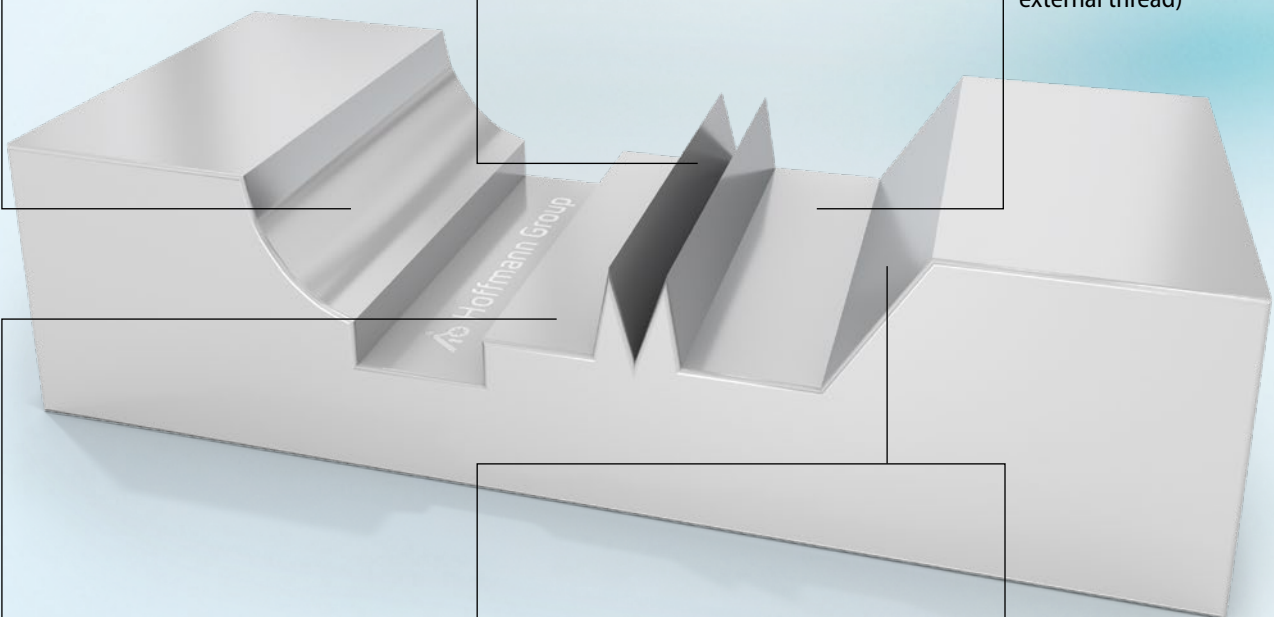
PFERD

Overlap slotted discs



VSM

Actirox abrasive discs
(quick-change system, external thread)



Garant

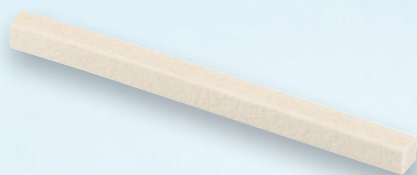
Felt polishing points

Garant

Quick-change system set

3M

Fleece abrasive finishing discs



Overlap slotted discs

	AlMg						Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
55 5170/5171	●	●	●	●	●	●				●	●							●

A

Special tool with 4-layer abrasive cloth interlocking with one another and central thread mounting.

Application: For side grinding in hard-to-access places such as grooves, hollows and slots. Top and bottom grinding can be performed.

Note: Use clamping mandrel No. 555175.

Grit			80		recommended speed min ⁻¹
55G 55 5170		Overlap slotted disc (A) 4-layer	Ø 30 mm	20	6500
55G 55 5171			Ø 50 mm	20	6500



55 5171

Clamping pin with shank Ø 6 mm for holding overlap slotted discs No. 555170 – 555171.

Suitable for disc Ø		30	50
51E 55 5175	Clamping pin for overlap slotted discs	4.55	5.64



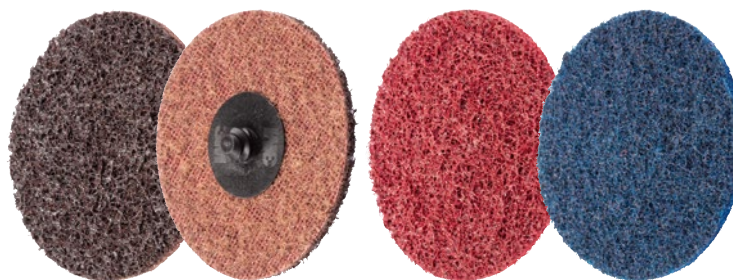
55 5175

CER Fe,S,Cl <0.1%

3M Roloc™ Fleece abrasive finishing discs, ceramic grit (CER)

General-purpose and high performance **nylon fleece** combined with **precisely formed ceramic abrasive grit (CER)** for a high material removal rate and a long working life.

Application: For cleaning, degreasing, and matt finishing of metal surfaces.



55 4069_100

55 4069_180

55 4069_280

	AlMg						Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
55 4068/4069	●	●	●	●	●	●		●	●	●	●	●	●	○	●	●	○	●

Grit equivalent			100	180	280		maximum speed min ⁻¹
53M 55 4068	Fleece abrasive finishing disc (CER) PN-DR	Ø 50.8 mm	1.26	1.26	1.26	50	23000
53M 55 4069		Ø 76.2 mm	2.41	2.41	2.41	25	18000
Grit designation			coarse	medium	fine		
Version			A coarse	A medium	A very fine		



Garant Felt polishing points

Felt polishing points, medium-hard.

Application: For polishing work, e.g. in toolmaking.

	AlMg						Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
55 2035/2036	●	●	●	●	●	●		●	●	●	●					●		●

Width × Length	mm	10×150	6×150	
51E 55 2035	Felt polishing point, hard	1.61	0.97	50
51E 55 2036	Felt polishing point, medium-hard	1.61	0.97	50
Shape description		square		
Length	mm	150		
Width	mm	10	6	
Height	mm	10	6	



55 2035_10 × 150

CaraFin flower-shaped polishing tool

- 55 3992 – CaraFin flower-shaped polishing tool made of **elastic PU material** for maximum adaptability to complex workpiece geometries. **Coated on both sides with diamond.**
- 55 3997 – Clamping pin with shank Ø 3 mm for holding flower-shaped polishing tool No. 553992.

Application:

- 55 3992 – Ideally suited for use in combination with shank No. 553997 43 and micro abrasive systems No. 078140 and 078150.

D



55 3992

	AlMg						Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
55 3992	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Grit	µm	D151	D64	recommended speed min ⁻¹
5IG 55 3992	CaraFin flower-shaped polishing tool set 5 pieces Ø 20 mm	24.03	24.03	6000
Polishing stage		Pre-polishing	Polishing	
Colour		pink		



55 3997

Overall length	mm	43
55G 55 3997	Clamping pin Shank Ø 3 mm	4.55

Garant Quick-change system set

Quick-change system set for multi-stage grinding processes with **optimally matched operations.**

- Content:**
- 5 pcs. each abrasive discs CER No. 554012 sizes 36, 80 and 120.
 - 2 pcs. coarse cleaning discs SiC No. 554050 CRS.
 - 3 pcs. each cleaning discs A No. 554054 size MED, FINE.
 - 3 pcs. each fleece abrasive finishing discs A No. 554042 size 100, 180 and 280.
 - Rubber backing pad shank Ø 6 mm, medium hard, 50 mm, No. 554093 50.



55 4077

5IE 55 4077	Quick-change system set	Ø 50.8 mm	SET
	Number of pieces		33
			52.77

A Fe,S,Cl <0.1%

STARCKE® Abrasive sheets, triangular

Starcke sanding paper 540 FK (F paper) with **high strength and dense distribution.** High material removal rates due to specially treated aluminium oxide (A).

Suitable for:

- 55 7635 – suitable for Fein MultiMaster.
- 55 7636 – suitable for Bosch Multi-Cutter.

Application: **General purpose** for grinding metal, non-ferrous metals, varnish, paint, wood, and plastic.



55 7635



55 7636

	AlMg						Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
55 7635/7636	○	●	●	●	●	○	○	○	○	○	●	●	●	○	○	●	●	

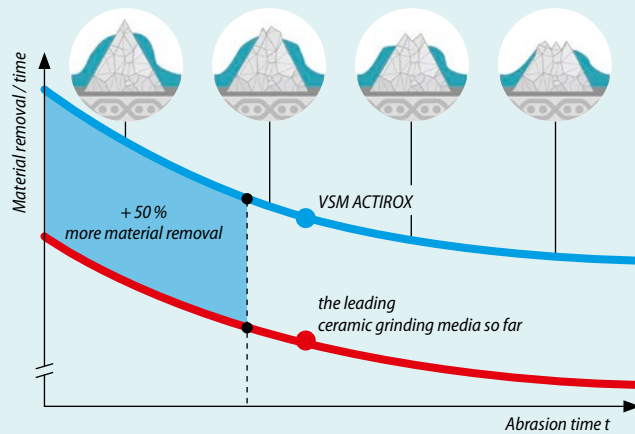
Grit		40	60	80	120	180		Width mm	Length mm
56S 55 7635	Paper velour-backed abrasive triangle (A) no holes	0.45	0.42	0.40	0.36	0.36	50	83	83
56Z 55 7636	Paper velour-backed abrasive triangle (A) 6 holes	0.48	0.45	0.42	0.39	0.39	50	88	93
Grit designation		coarse	coarse	coarse	medium	medium			

Actirox – abrasive grit at its best



The benefits for you:

- More workpieces per unit of time.
- Cooler grinding prevents discolouration of stainless steels.
- Clogging of the grinding medium is reduced – even when grinding aluminium.
- Very sturdy vulcanised fibre backing for maximum safety.



Thanks to its extremely high removal rate, VSM ACTIROX fibre discs enable you to machine more workpieces in the same amount of time.

CER

VSM Grinding discs (quick-change system, external thread)

Very high material removal rate and service life due to the use of self-sharpening ceramic grit (CER).

55 4001/4002 – Grit type: **100% geometrically shaped VSM ceramic grit** with abrasive coating (TOP SIZE).

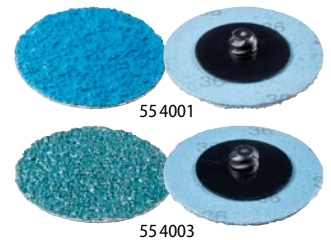
55 4003/4004 – Grit type: **100% geometrically shaped VSM ceramic grit**.

Application: Use in conjunction with hard backing pad No. 554089.

	AlMg						Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
		< 900 N	< 1400 N	< 55 HRC	< 60 HRC	< 67 HRC												
55 4001/4002	●	●	●	●	●	●		●	●	●	●						○	●
55 4003/4004	○	●	●	●	●	●		○	○	●	●						○	●

Grinding discs ceramic grit (CER)

Grit			36		maximum speed min ⁻¹
56V 55 4001	Actirox grinding disc	Ø 50.8 mm	1.36	50	25000
56V 55 4002	AF 890 (CER)	Ø 76.2 mm	1.92	50	20000
56V 55 4003	Actirox grinding disc	Ø 50.8 mm	1.28	50	25000
56V 55 4004	AF 799 (CER)	Ø 76.2 mm	1.80	50	20000



CER

Fe, S, Cl <0.1%

VSM Ceramic grit finishing belts

Actirox AK890Y finishing belt with geometrically shaped ceramic grit with very high and aggressive grinding performance.

The active grinding layer (TOP SIZE) ensures cool grinding and an outstanding working life.

Sturdy Y-polyester backing for use on **stationary grinding machines**.

Application: For grinding all steels, particularly suitable for **stainless steel and superalloys**.

	AlMg						Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
		< 900 N	< 1400 N	< 55 HRC	< 60 HRC	< 67 HRC												
55 8380–55 8382	●	●	●	●	●	●		●	●	●	●						○	●

Grit			36	
56V 55 8380		50×2000 mm	16.04	10
56V 55 8381	Actirox finishing belt AK890Y (CER)	75×2000 mm	23.92	10
56V 55 8382		150×2000 mm	46.88	10



A

Garant Blade sharpening stone set

Blade sharpening stone set for coarse and fine grinding of high-quality blades.

Optimally matched grit size sequence for perfect grinding results and gentle grinding.

Content: One each blade sharpening stone in 400/800 grit (coarse grinding) and 1000/6000 grit (fine grinding) in storage boxes made of beech wood.

Note: Do not use dry, use with water or paraffin.

Type		SET	Length mm	Width mm	Height mm
56Z 55 8890	Blade sharpening stone set aluminium oxide (A) 2 pieces	87.52	200	60	20










CER	Fe,S,Cl <0.1%	 22.23mm	Steel	Cast iron	80 m/s
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3M Fibre discs (CER)

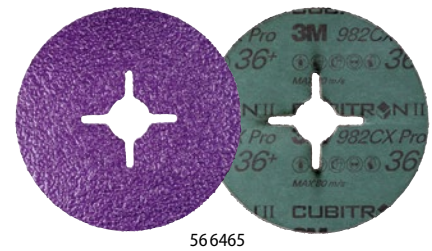
The precisely formed **high-performance abrasive grit** in 3M™ products consists of defined ceramic triangles optimally arranged on the grinding surface. **Greatly increased removal rate** with very long working life and even finish. Extremely tear-resistant but very flexible **vulcanised fibre**. Bore diameter 22.23 mm and crossed slots. High-performance fibre disc with improved precisely formed Cubitron™ II grit and a new design. For even more aggressive grinding performance and extended tool life compared to 982C.

Application: Limited to maximum 80 m/s circumferential speed with backing pads No. 566690 / 566692 on angle grinders. The quick-cutting abrasive grit permits **comfortable and ergonomic working** without the need to exert great pressure. At the same time, the high removal rate of 3M™ fibre discs makes them a real alternative to roughing discs and flap discs. For machining steel.

	AlMg	 < 900 N	 < 1400 N	 < 55 HRC	 < 60 HRC	 < 67 HRC	Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
566465-566467		●	●	●	●	●		○	○	●								●

982CX PRO fibre discs

Grit		36		
53F 56 6465	Cubitron™ II fibre disc (CER) 982CX PRO	Ø 115 mm	2.01	25
53F 56 6466		Ø 125 mm	2.09	25
53F 56 6467		Ø 178 mm	3.90	25
Manufacturer's designation		982CX PRO		










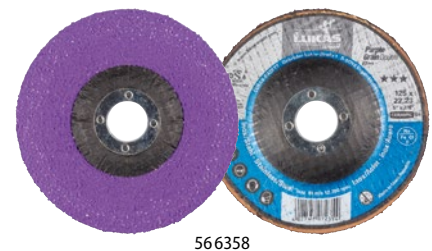
CER	Fe,S,Cl <0.1%	 22.23mm	S/STL	Steel	 5-15°	80 m/s
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LUKAS Grinding discs Purple Grain

Grinding disc with self-sharpening **ceramic abrasive grit (CER)** and integrated glass-fibre-reinforced backing pad. **Aggressive grinding properties** characteristic of a fibre disc, combined with the **smooth running** and long working life of an abrasive flap disc. 56 6358 – 2-layer abrasive cloth for very high material removal rate and double the working life.

Application: For use on surfaces and edges.

	AlMg	 < 900 N	 < 1400 N	 < 55 HRC	 < 60 HRC	 < 67 HRC	Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
56 6357/6358	○	●	●	●	●	●		●	●	●	○							●



Grit		36		
53L 56 6357	Grinding disc (CER) Purple Grain Easy	Ø 125 mm	4.15	10
53L 56 6358	Grinding disc (CER) Purple Grain Double	Ø 125 mm	6.38	10

MIRKA Hand pad

Highly flexible hand pad with hook-and-loop fastening and adjustable strap for perfect fit on the hand.

Application: For hook-and-loop fastener disc Ø 150 mm.

suitable for disc Ø	mm	150
56M 56 7859	Hand pad with hook-and-loop fastening	12.69
Height	mm	6





Innovative extraction system guarantees maximum extraction power.

Dynabrade hook and loop backing pads are perfectly tailored to Dynabrade random orbital sanders and achieve uniform, smooth surface finishes.

A single-piece mounting thread ensures optimum centring, quick assembly and smooth running for the hook and loop backing pad.



Hook and loop backing pad

56 7871 – Multi-hole backing pads in a flat design for use on orbital sanders with **5/16 inch mounting**.

56 7872 – DynaMaze hook and loop backing pad with **5/16 inch mounting**. An innovative extraction system permits the use of hook and loop grinding discs of **all popular hole patterns**.

56 7874 – PU backing pads with **1/4 inch mounting** and **6 holes**.

Suitable for:

56 7874 – Discs with holes: 6; ABRANET.

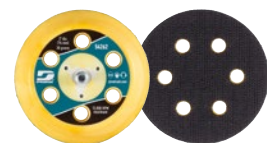
56 7871/7872 – Discs with holes: 6; 6+1; 8; 8+1; 15; 21; ABRANET.



567871



567872



567874

External Ø		mm	77	150
58B 56 7871	PU hook and loop backing pad Multiple holes		–	33.75
58B 56 7872	PU hook and loop backing pad DynaMaze		–	37.53
58B 56 7874	PU hook and loop backing pad 6 holes		21.06	–
maximum speed (56 7871, 56 7874)		min ⁻¹	15000	12000
maximum speed (56 7872)		min ⁻¹	–	13000

SiC

HOLEX Compact fleece bench grinding wheels for finishing

Fleece compact wheels create a **reproducible finish**, since fresh grinding grit is continually being exposed. **No change in the workpiece geometry, no grinding groove formation, long working life.**

Application: On **bench grinders** or portable grinders with mandrel No. 556380 size 1–2 and reducer flange No. 568782. Suitable grinding wheel dresser No. 568785. Finishing wheel made of wound fibre fleece. Creates a **fine, glossy finish**, for example, for manufacturing hydraulic cylinders, turbine blades, cutlery etc.



568742

	AlMg						Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
568742	●	●	●	●	●	●	●	●	●	●	●	●	○	●	●	●	●	●

Disc Ø×Width×Bore Ø	mm	152×25×25	152×25×32	175×25×32	203×25×51	203×51×76
52M 56 8742	Compact finishing wheel (SiC)	68.94	68.94	96.30	105.30	164.70
Grit designation					fine	
Degree of hardness					medium	
Width	mm	25	25	25	25	51
Bore Ø	mm	25	32	32	51	76
Version					65 fine	

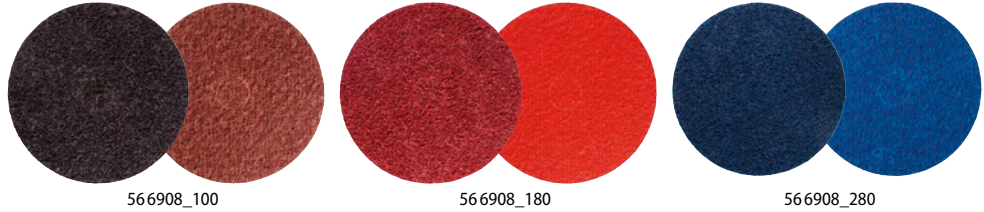
CER	Fe,S,Cl <0.1%	40 m/s
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3M Scotch-Brite™ Fleece velour-backed abrasive disc ceramic grit (CER)

General-purpose and high performance **nylon fleece** combined **with precisely formed ceramic abrasive grit (CER)** for a high material removal rate and a long working life.

Application: For **finishing, matting, smoothing** with significant reduction in roughness, and for **light cleaning** (e.g. removal of discolouration) and **deburring tasks**.

	AlMg						Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
56 6907/6908	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	○	●



Grit equivalent		100	180	280	
53M 56 6907	Fleece velour-backed abrasive disc (CER)	2.53	2.53	2.53	25
53M 56 6908	PN-DH	2.90	2.90	2.90	25
Grit designation		coarse	medium	fine	
Version		A coarse	A medium	A very fine	
Colour		brown	red	blue	

Fe,S,Cl <0.1%	40 m/s
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3M Net disc, Xtract™

Velour-backed abrasive discs consisting of a **net structure** of polyamide fabric containing thousands of holes and coated with abrasive grit.

Advantage:

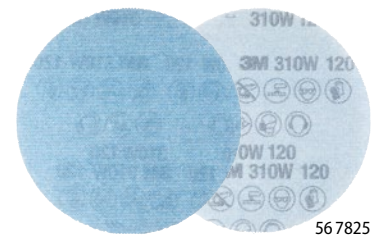
- **Dust-free grinding:** less workplace and environmental loading.
- No clogging of the abrasive disc (surface defects and dust balls are avoided).
- Guaranteed **improved surface finishes** with less abrasive material consumption.
- **High effectiveness** – the removal rate increases by several orders of magnitude depending on the surface.

	AlMg						Carbide	INOX	Ti	GG(G)	CuZn	Plastics & GRP	Wood	Stone	Varnish	Uni		
56 7814	●	●	●	●	●	○		○	○		●	●	●		●	●	●	●
56 7825	●	○									●	●	●		●		●	●

Net disc Xtract™ 310W

A

Application: Grinding of paints, fillers primers, (fibre-reinforced) plastics, non-ferrous metals and aluminium alloys, furniture components.



Grit		80	120	150	180	220	240	320	
53M 56 7825	Net disc, Xtract™ 310W	0.29	0.29	0.29	0.29	0.29	0.29	0.29	50

Net disc Xtract™ Cubitron™ II 710W

CER

The **precisely formed Cubitron™ II** abrasive grit combined with the innovative, **wave-form coating pattern** results in a maximum removal rate, service life and very low tendency to clogging.

Application: Ideal for applications on **very hard materials** such as UV paints, primers, hardwoods, and well suited to use on steel materials.



Grit		80	120	150	180	220	240	320	
53M 56 7814	Net disc, Xtract™ Cubitron™ II (CER) 710W	0.44	0.44	0.44	0.44	0.44	0.44	0.44	50

NEW PRODUCTS

Hand tools

Screwdriving tools



Page 210
HOLEX ratchet ring spanners



Page 213
GARANT screwdriver bit



Page 222
HOLEX screwdriver holder for 1/4 inch bits



Page 222
Bit-holding screwdriver Kraftform Kompakt Stubby with ratchet



Page 221
GARANT electronic torque wrench / rotational angle wrench (without BT)



Page 226
Parasherpa carrying system



Page 222-224
HOLEX textile bag range

Gripping, cutting, and striking tools



Page 228
GARANT long snipe nose pliers



Page 228
HOLEX hook set



Page 228
GARANT crimping tool for terminal sleeves



Page 229
Electrician's multi-purpose tool



Page 232
Hand riveter for pop rivet nuts

Page 232
GARANT carbide masonry drills



Page 229
Crimping tool for terminal sleeves



Page 230
Four-pin crimping tool

Hand and assembly tools



Page 233
Pipe cutter for HT pipes



Page 234
GARANT universal scraper with retractable blade



Page 235
Precision knife (scalpel)

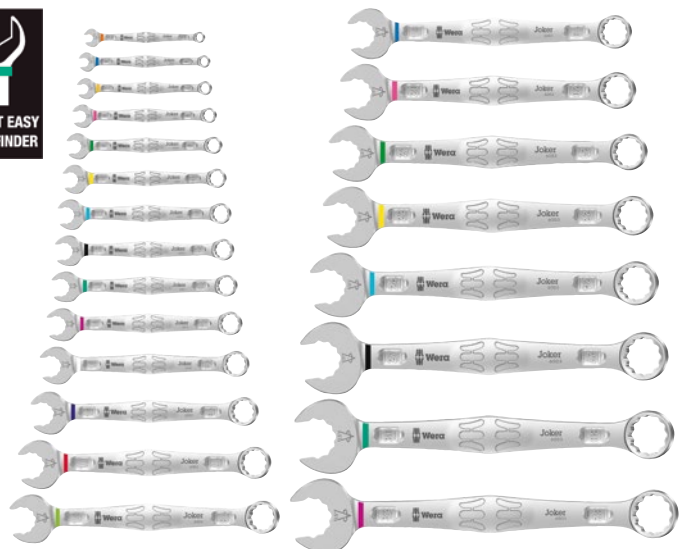


Page 236
Stand for ceiling and assembly support

Wera **Combination spanner**

Drop-forged. With close tolerance jaw width. Particularly suitable where space is tight. The combination of the 7.5° offset for the open jaws and the bi-hexagon geometry for the ring achieves a doubling of the application points. The small working arc of the open jaws allows the bolt head to be gripped every 15° of rotation.

Standard: DIN 3113 A / ISO 3318 / ISO 7738
Material: Chrome molybdenum steel, matt chrome-plated.



61 3810_22

Number of keys	63F	61 3810	Supplied with: 1 each combination spanner No. 613800
		Combination spanner set	
22		440.55	Size 5.5; 6; 7; 8; 9; 10; 11; 12; 13; 14; 15; 16; 17; 18; 19; 20; 21; 22; 24; 27; 30; 32



The small working arc of the open jaws is particularly suitable where space is tight.

HOLEX **Open ended spanner / ratchet ring spanner**

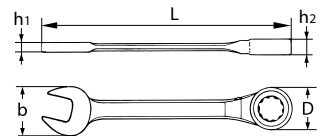
Drop forged. Ring end with especially smooth-running, robust ring ratchet. Extremely small working arc of 5°.

Material: Chrome vanadium steel, matt chrome-plated.

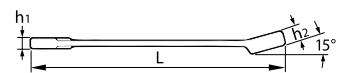
Width across flats	62A	61 4805	62A	61 4828	L	b	h ₁	h ₂	∅ D	Ratchet torque rating
	Open ended spanner/ ratchet ring spanner		reversible 15° offset							
6		9.06	—	—	125	15.4	4.1	6.9	17.4	14
7		9.06	13.32	—	135	18.4	4.6	6.9	17.4	18
8		9.06	13.32	—	135	18.4	4.6	6.9	17.4	21
9		9.21	14.01	—	153	21.9	5	7.6	20.9	34
10		9.56	14.41	—	153	21.9	5	7.6	20.9	43
11		9.70	15.64	—	166	23.9	5.4	8.2	22.9	52
12		10.05	16.09	—	179	27.9	6	9.2	26.4	59
13		10.49	16.19	—	179	27.9	6	9.2	26.4	70
14		10.94	17.48	—	192	30.4	6.4	9.3	28.4	79
15		11.44	18.67	—	207	34.4	6.9	10.5	31.4	100
16		12.13	19.76	—	207	34.4	6.9	10.5	31.4	124
17		12.83	20.10	—	223	38.4	7.4	10.8	33.4	134
18		13.52	22.08	—	223	38.4	7.4	10.8	33.4	152
19		14.01	22.97	—	242	41.9	7.7	11.4	35.4	162
21		18.86	—	—	273	46.4	9.4	13.7	41.9	186
22		18.96	—	—	273	46.4	9.4	13.7	41.9	240
24		23.27	—	—	313	51.4	10	14.5	46.9	255
27		26.43	—	—	358	56.4	10.8	15.4	52.7	366
30		31.38	—	—	403	62.4	11.4	16.6	59.7	398



61 4805



61 4828



In a handy textile tool roll.

Supplied with:

- 61 4815 Size 4 – 1 each spanner No. 614805 in sizes 10; 13; 17; 19.
- Size 10 – 1 each spanner No. 614805 in sizes 8; 9; 10; 11; 13; 14; 16; 17; 18; 19.
- 61 4838 Size 5 – 1 each spanner No. 614828 in sizes 8; 10; 13; 16; 17.
- Size 10 – 1 each spanner No. 614828 in sizes 8; 9; 10; 11; 13; 14; 16; 17; 18; 19.

Number of keys	62A	61 4815	62A	61 4838
	Open ended spanner/ ratchet ring spanner set, in a wallet		reversible 15° offset	
4		46.93	—	—
5		—	83.56	—
10		112.37	175.23	—



61 4815_10

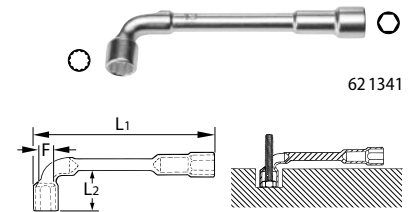


61 4838_10

HOLEX Tubular socket wrenches, angled

Drop-forged for the most arduous duties with especially close-tolerance jaw widths. Special hollow form, even for nuts on long projecting threads. Same width across flats on both sides. Sizes 6 and 7 hexagon on both sides, from size 8 with hexagon on long arm and bi-hexagon on short arm. Angled at approx. 90 – 95°.

Material: Chrome vanadium steel, chrome-plated.



62 1341

Width across flats	mm	6	7	8	9	10	11	12	13	14	15	16	17	18
62C 62 1341	Tubular socket wrench, angled	5.13	5.13	5.72	5.72	6.89	7.25	7.25	7.74	11.03	11.03	11.03	11.25	11.25
Socket length L ₁	mm	105	107	112	120	130	136	145	152	160	170	178	187	195
Socket length L ₂	mm	26	26	27	27	29	32	34	36	38	40	44	47	50
Bore Ø F	mm	5	6	6	6	7	8	8	9	9	11	11	11	13

Width across flats	mm	19	21	22	24	27	30
62C 62 1341	Tubular socket wrench, angled	11.88	16.25	16.65	18.09	24.30	27.54
Socket length L ₁	mm	205	225	225	248	280	310
Socket length L ₂	mm	50	55	55	65	68	76
Bore Ø F	mm	13	15	15	16	19	19

Tubular socket wrench set, angled

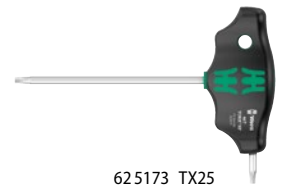
Number of tubular socket wrenches		8	11
62C 62 1346	Tubular socket wrench set, angled	72.99	102.96
Content:		Size 8; 10; 11; 13; 16; 17; 18; 19	Size 6; 7; 8; 10; 11; 12; 13; 17; 19; 22; 24
1 each tubular socket wrench No. 621341			



62 1346_11

Wera Screwdrivers with T-handle for Torx® screws

Ergonomic 2-component T-handle with finger grip hollows and pleasant feel for high transmission of force and non-fatiguing work. With side drive and holding function on the long arm for secure holding of the screw on the tool. Blade surface matt chrome-plated.



62 5173_TX25

Torx® profile		TX6	TX7	TX8	TX9	TX10	TX15	TX20	TX25	TX30	TX40	TX45
63F 62 5173	Screwdriver for Torx®, with T-handle	10.49	10.49	10.49	10.49	10.69	10.99	11.88	12.23	13.17	14.90	14.90
Blade length	mm	100	100	100	100	100	100	100	100	200	200	200
overall length	mm	132	132	132	132	132	136	136	136	248	248	248

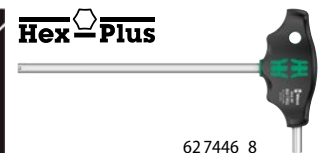
Number of screwdrivers		7
63F 62 5183	Screwdriver set for Torx®, with T-handle, in a metal rack 7 pieces	99.50
Supplied with:		Size TX10; TX15; TX20; TX25; TX30; TX40; TX45
1 each screwdriver No. 625173		



62 5183_7

Wera Hexagon screwdrivers with T-handle

Ergonomic 2-component T-handle with finger grip hollows and pleasant feel for high transmission of force and non-fatiguing work. With side drive. Blade surface matt chrome-plated. Sizes 3 – 10 with holding function on the long arm for secure holding of the screw on the tool.



62 7446_8

Hexagon	mm	2	2,5	3	4	5	6	8	10
63F 62 7446	Hexagon screwdriver, with T-handle	6.79	6.98	9.46	9.70	10.99	11.44	14.06	16.69
Blade length	mm	100	100	100	100	150	150	200	200
overall length	mm	132	132	137	137	198	198	245	247

Number of screwdrivers		7
63F 62 7448	Hexagon screwdriver set, with T-handle in a metal rack chrome-plated, 7 pieces	83.95
Supplied with:		Size 2.5; 3; 4; 5; 6; 8; 10
1 each screwdriver No. 627446		



62 7448_7

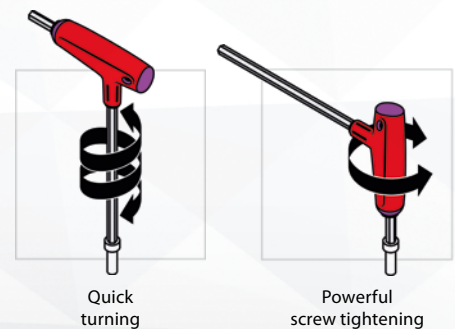
211

THE NEW PB SWISS TOOLS T-HANDLE RANGE.

Now with new handle shape for Torx, TorxPlus and hexagon. Short blades without side drive ensuring sufficient freedom of working even when space is restricted, and long blades with side drive which are ideal for reaching deeper screws.



- New handle shape fits comfortably into the palm of the hand.
- Ergonomic shape enables gentle handling and high force transmission.
- With colour coding for quickly and easily matching up the profile (e. g. purple corresponds to a hexagon profile).



GARANT reversible precision ratchet with 72 teeth.

The GARANT precision ratchet has a reversing lever for smooth-running right-hand and left-hand threads and an ejector for easy removal of sockets.

All 3 sizes have 72 teeth and a working angle of 5°.

Material: Chrome vanadium steel, chrome-plated.

Available in three sizes:

- 1/4 inch: 63 2345_1/4
- 3/8 inch: 63 5145_3/8
- 1/2 inch: 64 0495_1/2



Available from September 2022.

1/4"

Bit, 1/4 inch, short

Forged from high quality steel, internally bevelled for easy fitting to bolt heads.
Square drive socket with hole to DIN 3120 D 6.3.

Bit for cross-head screws (Phillips, Pozidriv)

Material: Chrome vanadium steel, satin chromium plated.



63 1619_2

Cross-head size	1	2	3	4
61A 63 1619 Garant Screwdriver bit for Phillips, 1/4 inch	5.63	5.63	5.85	6.48
for screw Ø	mm 2.1 – 3	mm 3.1 – 5.2	mm 5.3 – 7.2	mm 7.3 – 12.7
Ø drive end	mm 12.5			
Length	mm 36			

Bit for Torx® screws, TiN coated

TiN-coated blades for extremely high bonding strength and resistance to abrasion.
With optimised corrosion protection.

Material: Chrome vanadium steel, TiN coated.

Application: Ideally suited to sustained loads such as series screw fastenings.



63 1833_TX25

Torx® profile	TX8	TX9	TX10	TX15	TX20	TX25	TX27	TX30	TX40
630 63 1833 HABEY Screwdriver bit for Torx®, TiN coated, 1/4 inch short	9.18	9.18	9.18	9.18	9.18	9.27	9.27	9.27	9.27
A	mm 2.3	mm 2.5	mm 2.7	mm 3.3	mm 3.8	mm 4.4	mm 5	mm 5.5	mm 6.6
Ø drive end					mm 12				
Length					mm 28				

1/4"

Garant Bit, 1/4 inch, long

Forged from high quality steel, internally bevelled for easy fitting to bolt heads.
Square drive socket with hole to DIN 3120 D 6.3.

Material: Chrome vanadium steel, satin chromium plated.

Bit, long, for Torx® screws



63 1769_TX25

Torx® profile	TX8	TX9	TX10	TX15	TX20	TX25	TX30	TX40	
61A 63 1769 Screwdriver bit for Torx®, 1/4 inch long	8.01	8.01	8.01	8.01	8.01	8.01	8.01	8.01	
A	mm 2.3	mm 2.5	mm 2.7	mm 3.2	mm 3.8	mm 4.4	mm 5.5	mm 6.6	
Ø drive end					mm 12.5				
Length					mm 100				

1/4"

STAHNWERK Bit socket set 1/4 inch

Drives / accessories to DIN 3122 / 3123; sockets to DIN 3124.

Internal / external square drives to **DIN 3120**.

Material: Chrome alloy steel, chrome-plated.

Application: For internal Torx® screws with thread M2.5 – M8.

Type	63A 63 0883 Set of screwdriver bits for Torx®, 1/4 inch square drive 9 pieces
1/4	69.84
Supplied with: Bits for Torx®	9 pcs. No. 631801 size TX8; TX9; TX10; TX15; TX20; TX25; TX27; TX30; TX40



63 0883

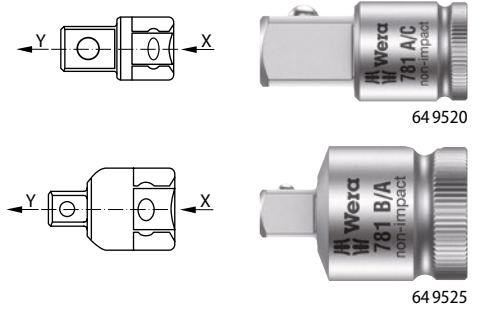


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Wera **Increaser piece / reducer piece**

External and internal square drives to DIN 3120. Forged, external square drives with ball lock, square socket drives with ball catch groove for secure locking of the connected tool. Knurling at the end for good grip.

Material: Chrome vanadium steel, satin chromium plated.



Type		1	2	4
63F 64 9520	Increaser piece	10.10	14.11	12.08
Drive square [x]	in	1/4	1/4	3/8
Drive square [y]	in	3/8	1/2	1/2

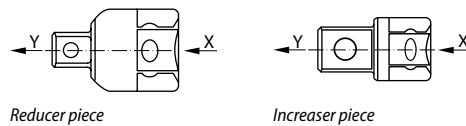
Type		3	5
63F 64 9525	Reducer piece	12.08	12.08
Drive square [x]	in	3/8	1/2
Drive square [y]	in	1/4	3/8

Wera **Adapter set**

Compact set with adapter pieces, consisting of 3 increaser and 2 reducer pieces. Supplied on a textile belt.

Material: Chrome vanadium steel, satin chromium plated.

Supplied with: (x-y) inch 1/4 - 3/8; 1/4 - 1/2; 3/8 - 1/2; 3/8 - 1/4; 1/2 - 3/8.



Number of inserts		5
63F 64 9528	Adapter set, 5 pieces	64.55
Supplied with:		No. 649520 size 1; 2; 4
1 off each increaser piece		No. 649525 size 3; 5
1 off each reducer piece		

64



STAWILLEN **"SmartCheck USB" torque tester**

Variable and flexible torque wrench analyser with rotating display and base body. Can be mounted horizontally and vertically. The display and the membrane keypad are splash-proof and the body is made of impact-resistant plastic. **Micro-USB interface for data export** and for power supply. Up to 250 measured values can be saved.

3 user modes:

- Tracking display (**track**)
- Trigger point sensing (**first peak**)
- Peak value display (**peak hold**)

Units of measure: Nm, lbfft, lbfin.

Advantage: Compact and variable torque analyser. Operation on power supply or batteries.

Application: Adjusting **torque screwdrivers and torque wrenches** with or without setting scale.

Supplied with: Including power supply unit and SmartCheck USB software for transmitting values and creating test certificates. In a sturdy plastic case.



Body and display can be rotated.

maximum torque	Nm	1500
60N 65 4651	Torque analyser for torque wrenches "SmartCheck USB"	1484.01
Measuring range	N-m	150 – 1500
Display unit width	mm	120
Display unit height	mm	124
Display unit depth	mm	167
Weight	kg	5.69
Square socket	in	1



65 4651

PRECISE AS ALWAYS, BETTER CONNECTIVITY THAN EVER: THE HCT WINDOWS APP.

With the new HCT Windows app, our HCT torque wrenches No. 65 5010 and 65 5025 can now also be easily connected to PCs and laptops with a Windows operating system. This makes quick documentation and wireless data transmission to CAQ systems easier than ever before.



An app packed full of features

- The GARANT torque/rotational angle wrench HCT No. 65 5010 and the HOLEX torque wrench No. 65 5025 can be quickly connected to the PC/laptop via a bi-directional interface.
- The HCT Windows app can then be used to easily set up operator guidance so that various HCT tools can be linked in a single workflow.
- The collected data can be provided to CAQ software in a variety of formats (e. g. as a.csv file or via the MUX50 protocol).
- The workpiece's serial number is linked directly and automatically to the associated measurement value.
- Each dongle enables up to 16 HCT tools to be connected to 1 PC/laptop at the same time.
- Processes can be planned via the app (no need to create screw tightening profiles on the tool thanks to the bi-directional interface).
- The app also expands the actual functions of the HCT torque wrench:
 - The Windows app now also allows you to create and execute screw tightening profiles and workflows for the Holey HCT torque wrench No. 65 5025.
 - Screw tightening profiles and workflows can now be identified with up to 10 digits, instead of just 4 digits previously.
 - An unlimited number of screw tightening profiles and workflows can be created.



To activate the full functions you only require the following:
Bluetooth dongle No. 49 8999 STICK (licence) and
the Windows App software, which can be downloaded via the link
<http://ho7.eu/win-app-hct> .



FOR EVERYONE. IT'S QUITE SIMPLE. THE BEST.



The electronic GARANT torque wrench/rotational angle wrench HCT No. 65 5010 – developed for anyone who wants to take their production to the next level. And for those who simply want to stay in the realm of hard facts. Intuitive operation with all the basic functions in one place. Innovative features, focused on the needs of the user. Simply put, everything the user could want.



Garant

Intuitive operation.

When developing the electronic GARANT torque wrench/rotational angle wrench HCT, we set great store by providing clear, self-explanatory and targeted menu navigation. The main screen clearly shows the current torque or rotational angle achieved and evaluates the screw tightening operation by means of a colour signal (yellow-green-red). The buttons on the torque wrench/rotational angle wrench guide the user intuitively through the menu and the substructure.

A versatile tool.

You can choose between **5 modes:**

1. Displaying torque.
2. Triggering torque.
3. Triggering rotational angle.
4. Triggering torque with rotational angle monitoring.
5. Triggering rotational angle with monitoring.

The benefit of the monitoring is that it ensures a more reliable process.

Reliable processes.

If the same screw tightening operations are repeatedly performed, it makes sense to create and save these on the torque wrench as a screw tightening case. This allows the target screw fastening data to be called up quickly and used for the following screw tightening operation. If various screw fastenings need to be tightened in a single work process, these can be created as screw tightening cases and combined into a single operation.

Reliable evaluation.

Our HTC electronic torque wrench/rotational angle wrench offers a lot of memory for evaluated screw tightening operations. A total of 1000 entries can be saved and called up. Once 1000 entries have been used, they will then start to be overwritten, starting with the oldest. The measured data can easily be exported from the wrench as a file via Bluetooth or USB-C cable.

DIGITAL PROGRESS MADE EASY.



Electric commercial vehicle manufacturer EVUM Motors drives the digitalisation of quality management forwards with HCT.



With the green EVUM aCar, Bavarian EVUM Motors GmbH launched a versatile, robust and compact commercial vehicle with all-wheel and electric drive in June 2020.

In digitalising the still-young production environment, the company is relying amongst other things on Bluetooth-enabled Hoffmann Group Connected Tools (HCT).

Evum Motors is the spin-off of a visionary research project at the Technical University of Munich. The two founders Sascha Koberstaedt and Martin Šoltés have committed themselves to enabling quick and uncomplicated entry into the field of electric mobility wherever a small and manoeuvrable transport vehicle with an all-wheel drive is required: In the agricultural and forestry sectors, in industry and municipalities, and for tradespeople. Since the end of 2020, the EVUM aCar has been in series production. „We are relying on the most future-proof technologies, and not just in our EVUM aCar, but in all areas of the company,“ says Gregor Fischer, production planner at EVUM. „We have the advantage that we can build up our entire production on the latest technologies and standards without having to deal with obsolete legacy structures.

We use the Bluetooth-enabled GARANT torque/rotational angle wrenches HCT from the Hoffmann Group in quality

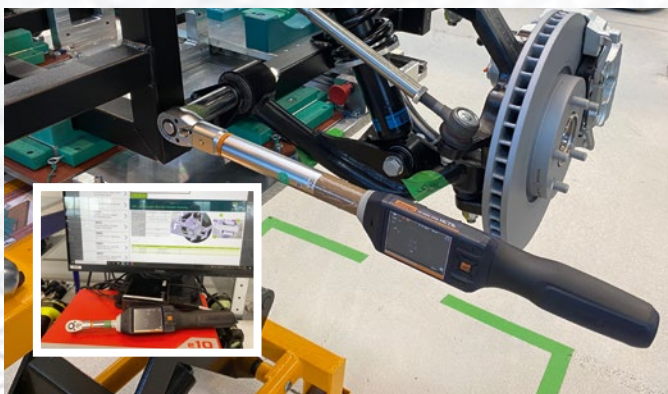
management. These offer us outstanding functions, at an unbeatable price-performance ratio.“

Added process reliability.

The electronic GARANT torque/rotational angle wrenches are mainly used to securely bolt together the body parts and wheels at EVUM. For each vehicle, this is around 200 screws. When a screw is tightened, the tool shows the measured value on a high-contrast 2.8-inch TFT colour display with stable viewing angle. This means the employee can keep an eye on the measurement at all times. In addition, a visual signal warns them before the maximum permissible tightening value is exceeded. A warning tone and vibration mode can be switched on as an option. At regular intervals the data is exported from the torque wrenches as a .csv file and stored in a database.

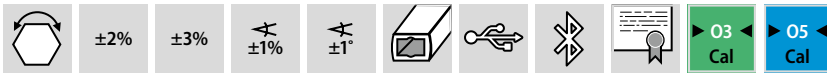
Full integration with CAQ system planned.

HCT tools and cooperation with the Hoffmann Group experts play a central role in the digitalisation of quality assurance. This is to be organised in the future by a computer-aided quality management system (CAQ): „For us it is a real advantage that, with the HCT tools, we can already transfer data wirelessly and thus increase process reliability,“ says Fischer.



At regular intervals the data is exported from the torque wrenches as a .csv file and stored in a database.





Garant Electronic torque / rotational angle wrench HCT

- **Display:** Large sharp contrast illuminated 2.8 inch TFT display with double scale with viewing angle stability. With battery display and memory display. Torque and rotational angle both displayed at the same time.
- **Display:** Peak and Track function modes.
- **Modes:** Displaying torque, triggering torque, triggering rotational angle, triggering rotational angle with rotational angle monitoring, triggering rotational angle with torque monitoring. Up to 100 screw tightening profiles can be programmed. Recurrent screw tightening profiles and be summarised into a procedure (up to 10 procedures each with up to 10 screw tightening profiles). Screw tightening profiles and procedures can be programmed both directly at the wrench and also conveniently via the app.
- **App:** available free of charge for iOS and Android. The torque/rotational angle wrench has a bi-directional interface, which allows parametrisation directly via the HCT app. The wrench can also be used independently (without an app).
- **Memory capacity:** 1000 measurement values with timestamp (incl. date and time). The memory on the wrench can be manually deactivated if the connection to the end device has been established by HID.
- **Data output:** Available via Bluetooth or USB-C. Via Bluetooth: Available via the app as a .csv file, or directly at the torque wrench via the HID interface for simple and convenient digital documentation. Via the USB C interface: The data can be exported as a .csv file.
- **Wireless approval:** The torque wrenches with Bluetooth interface have valid wireless approval in all EU countries, in Switzerland, in Norway, in Russia, and in Turkey, and may be sold there.
- **Password protection:** available as protection against unauthorised access to the menu (master password) and for verifying screw-tightening cases and procedures. In addition, you can set that reworking a screw connection that has been performed incorrectly requires input of a password.
- **Warning signal outputs** are haptic (vibration), visual (change of colour at the display, 360° LED ring with "traffic light function" clearly visible from anywhere) and acoustic (buzzer). The pre-warning point can be configured individually. Haptic and acoustic warning signals can be disabled if desired.
- **Easy input of reference dimensions:** For tools with a different pitch setting simply input the new pitch. No laborious calculations with formulae.
- **Protection class IP40:** The display is splash-proof.
- **The 2-component handle** of the torque / rotational angle wrench ensures specially good ergonomics and high torque transmission.
- **Resistant** to oils, grease, fuel, brake fluid and Skydrol.
- **Languages:** German, English, Spanish, Italian, French.
- **Factory settings:** The wrench can be reset to the factory settings.
- **Time and date** on the wrench are updated automatically as soon as it is connected to the app.
- **Display** of the software version with serial number, load cycle counter and calibration date.
- **Calibration reminder:** after number of load cycles.

Units of measure: Nm, lbfft, lbfm.

Standard: Tested to DIN EN ISO 6789.

Accuracy: Torque: Clockwise ± 2 %, anticlockwise ± 3 %.
Rotation angle: ± 1° for the measurement range up to 100°, ± 1% for the measurement range 100° and beyond.

Advantage: **HCT – Hoffmann Group Connected Tools**
Advantages of wireless transmission with Bluetooth:

- Simple data transmission: At the push of a button the measuring result is transmitted directly to your PC application (such as Excel or Word) or to your mobile phone - no dongle necessary.
- Freedom of movement: No messy data transmission cables.
- Independence of location: Measurements can be performed directly to the machine and transmitted by radio to your application.
- Reliable data transmission: No read errors and transmission errors - multiple measuring devices can be linked together.

Supplied with: USB-C data cable, plug-in ratchet (reversible) with ejector, 1 commercially available Li-ion battery type 18650 3.6V / 3400 mAh (can be charged directly within the tool via the USB-C port). Supplied in a sturdy plastic case.

Note: Suitable additional batteries can be found under No. 081574 size 3500. Charger for 4 batteries available as options under: 081590 size 4ULTRA.



655010

maximum torque	N-m	12	30	50	100	200	340
6ID 65 5010 Electronic torque wrench / rotational angle wrench HCT		-	-	-	-	-	-
Overall length L	mm	370	370	407.5	423.4	530	650
Torque range	N-m	2.4 – 12	6 – 30	10 – 50	20 – 100	40 – 200	68 – 340
Resolution	N-m	0.01	0.01	0.01	0.1	0.1	0.1
Angular resolution	°	0.1					
Weight	g	735	735	890	1052	1460	1625
Adjusted reference dimension on the torque wrench [L ₂]	mm	21.1	21.1	28	28	34.1	34.1
Square drive	in	1/4	1/4	3/8	1/2	1/2	1/2
Socket for plug-in head	mm	9×12	9×12	9×12	9×12	14×18	14×18





HOLEX HCT electronic torque wrench

- **Display:** Large sharp contrast illuminated 2 inch TFT display with viewing angle stability. With battery display.
- **Fixed ratchet** with changeover lever.
- **Display:** Peak and Track function modes.
- **Modes:** Displaying torque, triggering torque.
- **App:** available free of charge for iOS and Android. The torque wrench has a bi-directional interface, which allows parametrisation directly via the HCT app. The wrench can also be used independently (without an app).
- **Data output:** Via Bluetooth. Available via the app as a .csv file, or directly at the torque wrench via the HID interface for simple and convenient digital documentation.
- **Wireless approval:** The torque wrenches with Bluetooth interface have valid wireless approval in all EU countries, in Switzerland, in Norway, in Russia, and in Turkey, and may be sold there.
- **Password protection:** possible as protection against unauthorised access to the menu (master password).
- **Warning signals** are haptic (vibration), visual (change of colour on the display) and acoustic (buzzer). The pre-warning point can be configured individually. Haptic and acoustic warning signals can be disabled if desired.
- **Easy input of reference dimensions:** When using extensions, simply input the new value (additional reference dimension). No laborious calculations with formulae.
- **Protection class IP40:** The display is splash-proof.
- The **single-component handle** of the torque wrench ensures especially good ergonomics and high torque transmission.
- **Resistant** to oils, grease, fuel, brake fluid and Skydrol.
- **Languages:** German, English, Spanish, Italian, French.
- **Factory settings:** The wrench can be reset to the factory settings.
- **Time and date** on the wrench are updated automatically as soon as it is connected to the app.
- Display of the software version with serial number, load cycle counter and calibration date.
- **Calibration reminder:** after number of load cycles.
- **Counting function:** Load cycle counter is optionally displayed on the screen. This value can be reset at any time.
- **Last measurement:** The last measurement performed can be called up quickly and easily in the main screen.
- **Premium features:** The rotational angle measurement can be activated individually via our GO DIGITAL STORE as an additional licence. Can be found at <http://ho7.eu/holex-hct>.

Units of measure: Nm, lbfft, lbfm.

Standard: Tested to DIN EN ISO 6789.

Accuracy: Torque: Clockwise $\pm 2\%$, anticlockwise $\pm 3\%$.

Supplied with: 1 commercially available Li-ion battery type 18650 3.6 V / 3400 mAh (can be charged directly within the tool via an USB-C plug). Supplied in a sturdy plastic case.

Note: Suitable additional batteries can be found under No. 081574 size 3500. Charger for 4 batteries optionally available under No. 081590 size 4ULTRA.



65 5025

maximum torque	N-m	12	30	50	100	200	340
610 65 5025	Electronic torque wrench HCT	-	-	-	-	-	-
Overall length L	mm	355	355	398.5	418.6	535	655
Torque range	N-m	2.4 – 12	6 – 30	10 – 50	20 – 100	40 – 200	68 – 340
Resolution	N-m	0.01	0.01	0.01	0.1	0.1	0.1
Weight	g	590	590	755	910	1360	1525
Square drive	in	1/4	1/4	3/8	1/2	1/2	1/2

HOLEX Electronic torque wrench



Do you want to turn our electronic torque wrench from HOLEX into a torque/rotational angle wrench quickly and easily?

No problem! Simply have the premium feature "rotational angle measurement" for our HOLEX electronic torque wrench HCT No. 65 5025 activated via our GO DIGITAL Store: <http://ho7.eu/holex-hct>



65

THE RANGE CONTINUES TO GROW.



We are continually expanding our digital range. Our HTC range in particular continues to grow. You can already look forward to the new GARANT HCT torque analyser.

Make sure you add a reminder for December 2022 in your calendar.



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Industrial Tooling and Equipment by Hoffmann Group

Garant ELECTRONIC TORQUE WRENCH/ ROTATIONAL ANGLE WRENCH – WITHOUT BLUETOOTH.



Completely intuitive operation – completely reliable.

The electronic torque/rotational angle wrench without Bluetooth No. 65 5013 has the same basic features for measuring the torque/rotational angle as the electronic torque/rotational angle wrench HCT No. 65 5010. The only difference is the lack of HCT functions (use of the HCT app, wireless data transmission). Data can still be easily exported via USB-C as a .csv file.



Garant Electronic torque wrench / rotational angle wrench

- **Display:** Large sharp contrast illuminated 2.8 inch TFT display with double scale with viewing angle stability. With battery display and memory display. Torque and rotational angle both displayed at the same time.
- **Display:** Peak and Track function modes.
- **Modes:** Displaying torque, triggering torque, triggering rotational angle, triggering rotational angle with rotational angle monitoring, triggering rotational angle with torque monitoring. Up to 100 screw tightening profiles can be programmed. Recurrent screw tightening profiles can be summarised into a procedure (up to 10 procedures each with up to 10 screw tightening profiles). Screw tightening profiles and procedures can be programmed directly on the wrench.
- **Memory capacity:** 1000 measurement values with timestamp (incl. date and time).
- **Data output:** Available via USB-C. The data can be exported as a .csv file.
- **Password protection:** available as protection against unauthorised access to the menu (master password) and for verifying screw-tightening cases and procedures. In addition, you can set that reworking a screw connection that has been performed incorrectly requires input of a password.
- **Warning signal outputs** are haptic (vibration), visual (change of colour at the display, visible through 360° in any direction due to the LED ring with "traffic light function") and acoustic (buzzer, beep sound). The pre-warning point can be configured individually. Haptic and acoustic warning signals can be disabled if desired.
- **Easy input of reference dimensions:** For tools with a different pitch setting simply input the new pitch. No laborious calculations with formulae.
- **Protection class IP40.** The display is splash-proof.
- **The 2-component handle** of the torque / rotational angle wrench ensures specially good ergonomics and high torque transmission.
- **Resistant** to oils, grease, fuel, brake fluid and Skydrol.
- **Languages:** German, English, Spanish, Italian, French.
- **Factory settings:** The wrench can be reset to the factory settings.
- **Display** of the software version with serial number, load cycle counter and calibration date.
- **Calibration reminder:** after number of load cycles.
- **Units of measure:** Nm, lbfft, lbt-in.

Standard: Tested to DIN EN ISO 6789.

Accuracy: **Torque:** Clockwise $\pm 2\%$, anticlockwise $\pm 3\%$.

Rotation angle: $\pm 1^\circ$ for the measurement range up to 100° , $\pm 1\%$ for the measurement range 100° and beyond.

Supplied with: USB-C data cable, plug-in ratchet (reversible) with ejector, 1 commercially available Li-ion battery type 18650 3.6V / 3400 mAh (can be charged directly within the tool via the USB-C port). Supplied in a sturdy plastic case.

Note: Suitable additional batteries can be found under No. 081574 size 3500. Charger for 4 batteries available as options under: 081590 size 4ULTRA.



65 5013

maximum torque	N-m	12	30	50	100	200	340
610 65 5013 Electronic torque wrench / rotational angle wrench		-	-	-	-	-	-
Overall length L	mm	370	370	407.5	423.4	530	650
Torque range	N-m	2.4 – 12	6 – 30	10 – 50	20 – 100	40 – 200	68 – 340
Resolution	N-m	0.01	0.01	0.01	0.1	0.1	0.1
Angular resolution	°	0.1					
Weight	g	735	735	890	1052	1460	1625
Adjusted reference dimension on the torque wrench [L ₂]	mm	21	21	28	28	34	34
Square drive	in	1/4	1/4	3/8	1/2	1/2	1/2
Socket for plug-in head	mm	9×12	9×12	9×12	9×12	14×18	14×18



HOLEX Screwdriver holder for 1/4 inch bits

Multi-component power handle with grip zone optimised for comfort. Bit holder with strong permanent magnet.

Suitable for: 1/4 inch bits with C 6.3 shank.



67 6668

Blade length	mm	60
67 6668	Screwdriver holder for 1/4 inch bits with magnet	10.85
overall length	mm	150



Wera Bit-holding screwdriver with magazine Kraftform Kompakt Stubby with ratchet and 1/4 inch bits

Particularly small ergonomic 2-component handle with 1/4 inch bit holder for inaccessible areas.

With ratchet function and fine toothing for a small working arc.

Easy-to-use changeover ring. Including 6 tough universal bits C 6.3, which are in a magazine in the handle.

The strong permanent magnet in the bit holder ensures secure seating of the bit.

Suitable for: 1/4 inch bits with C 6.3 shank.



67 6565_1

Shank size		1	2	3
67 6565	Bit-holding screwdriver with magazine with 1/4 inch bits with ratchet and magnet	46.53	46.53	46.53
overall length	mm	69		
Content:				
Bits, length 25 mm, C 6.3 for Phillips		1 pc. each No. 675520 size 1/25; 2/25	1 pc. each No. 675520 size 1/25; 2/25	1 pc. each No. 675310 size 1/25; 2/25; 3/25
Bits, length 25 mm, C 6.3 for Pozidriv		-	1 pc. each No. 675540 size 1/25; 2/25	-
Bits, length 25 mm, C 6.3 for slot-head		1 pc. 0.8x5.5 mm	1 pc. 0.8x5.5 mm	1 pc. each 0.6x4.5; 1.0x5.5 1.2x6.5 mm
Bits, length 25 mm, C 6.3 for Torx®		1 pc. each No. 675550 size TX15; TX20; TX25	1 pc. No. 675550 size TX25	-

67

HOLEX Tool sets in textile bags

High-quality textile bags equipped with handy tool selections, as a companion for your day-to-day tasks.

Note: Supplied loose.

Number of pieces	9
68 6000	Assembly tool set, 9 pieces in a tool roll
Supplied with:	
Double open-ended spanner set, chrome-plated	1 pc. No. 610960 size 8 (6x7 – 19x22)
Adjustable spanner	1 pc. No. 813961 size 200
Textile tool roll with snap fastener	1 pc. No. 692255 size 390x320



68 6000_9

Number of pieces	12
68 6003	Assembly tool set, 12 pieces in a tool roll
Supplied with:	
Combination spanner set, chrome-plated	1 pc. No. 613960 size 12 (5.5 – 24)
Textile tool roll with snap fastener	1 pc. No. 692255 size 500x320



68 6003_12

Number of pieces		15
66H	68 6006	Assembly tool set, 15 pieces in a tool case
		132.17
Supplied with:		
⊖	Screwdriver for slot-head	1 pc. each No. 660701 size 2.5; 3; 3.5; 4
⊕	Screwdriver for TORX® screws	1 pc. each No. 668401 size 0, 1, 2
	Combination pliers	1 pc. No. 702995 size 180
	Water pump pliers	1 pc. No. 706145 size 250
	Diagonal cutter	1 pc. No. 725245 size 160
	Engineer's hammer	1 pc. No. 750125 size 300
	Adjustable spanner	1 pc. No. 813961 size 200
	General-purpose knife	1 pc. No. 845039 size 160
	LED torch	1 pc. No. 081437 size BLACK
	Telescopic magnetic holder	1 pc. No. 081650
	Textile tool case with snap fastener	1 pc. No. 692257 size 1



68 6006_15

Number of pieces		15
66H	68 6010	Electronics tool kit, 15 pieces in a tool case
		138.11
Supplied with:		
⊖	Screwdriver for slot-head, insulated to VDE	1 pc. each No. 663301 size 2.5; 3; 3.5; 4
	Voltage tester	1 pc. No. 665050 size 3
⊕	Screwdriver for Phillips, insulated to VDE	1 pc. each No. 668631 size 0, 1, 2
	Combination pliers, VDE insulated	1 pc. No. 701852 size 180
	Water pump pliers, insulated to VDE	1 pc. No. 705746 size 250
	Side cutters, insulated to VDE	1 pc. No. 725351 size 160
	Wire stripper, insulated to VDE	1 pc. No. 728761 size 160
	Engineer's hammer	1 pc. No. 750125 size 300
	General-purpose knife	1 pc. No. 845039 size 160
	LED torch	1 pc. No. 081437 size BLACK
	Textile tool case with snap fastener	1 pc. No. 692257 size 1



68 6010_15

Number of pieces		24
66H	68 6013	Electronics tool kit, 24 pieces in electrician's case
		204.93
Supplied with:		
	Tape measure	1 pc. No. 462010 size 5
●	Hexagon key L-wrench set long with ball point	1 pc. No. 627225 size 9 (1.5 – 10 mm)
⊖	Screwdriver for slot-head, insulated to VDE	1 pc. each No. 663301 size 3.5; 5.5
	Voltage tester	1 pc. No. 665050 size 3
⊕	Screwdriver for Phillips, insulated to VDE	1 pc. each No. 668631 size 1, 2
	Combination pliers, VDE insulated	1 pc. No. 701852 size 180
	Water pump pliers, insulated to VDE	1 pc. No. 705746 size 250
	Snipe nose pliers straight, insulated to VDE	1 pc. No. 713351 size 200
	Side cutters, insulated to VDE	1 pc. No. 725351 size 160
	Cable stripping tools	1 pc. No. 728043 size 6 – 25
	Precision wire stripper, steplessly adjustable	1 pc. No. 728501 size 016-08
	Adjustable spanner	1 pc. No. 813961 size 200
	General-purpose knife	1 pc. No. 845039 size 160
	LED torch	1 pc. No. 081437 size BLACK
	Textile electrician's case	1 pc. No. 692260 size 1



68 6013_24



68

1/4"

Number of pieces	59
66H 68 6016 Assembly tool set, 59 pieces in a tool rucksack	313.83
Supplied with:	
Heavy Duty Caliper	1 pc. No. 410625 size 150
Tape measure	1 pc. No. 462010 size 5
Double open ended spanner	1 pc. each No. 610950 size 8×9; 10×11; 12×13; 16×17; 18×19
● Hexagon key L-wrench set long with ball point	1 pc. No. 627225 size 9 (1.5 – 10 mm)
○ Socket set 1/4 inch	1 pc. No. 630368 size 6 (29 pieces)
⊖ Screwdriver for slot-head	1 pc. each No. 660701 size 3, 4, 7
⊕ Screwdriver for Phillips	1 pc. each No. 668401 size 0, 1, 2
Combination pliers	1 pc. No. 702995 size 180
Water pump pliers	1 pc. No. 706145 size 250
Snipe nose pliers, angled	1 pc. No. 713595 size 200
Diagonal cutter	1 pc. No. 725245 size 160
Engineer's hammer	1 pc. No. 750125 size 300
Adjustable spanner	1 pc. No. 813961 size 200
General-purpose knife	1 pc. No. 845039 size 160
LED torch	1 pc. No. 081437 size BLACK
Textile tool rucksack	1 pc. No. 692267 size 1



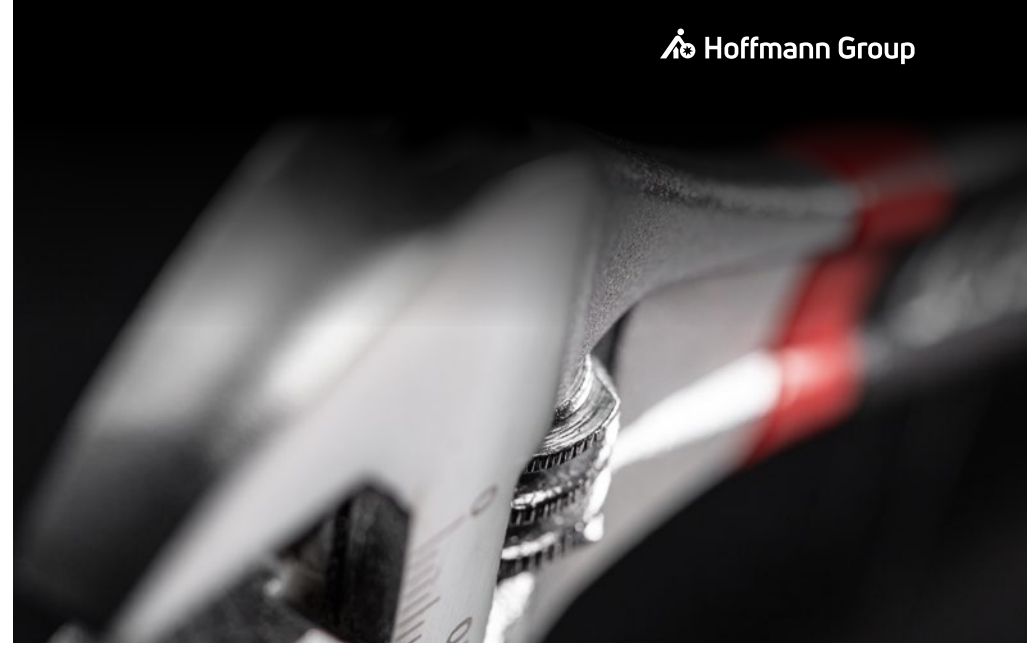
686016_59

1/4"

Number of pieces	74
66H 68 6020 Assembly tool set, 74 pieces in a tool bag	324.72
Supplied with:	
Tape measure	1 pc. No. 462010 size 5
Aluminium spirit level	1 pc. No. 467435 size 400
Files set	1 pc. No. 517419 size 200
Hacksaw frame with bimetal blade	1 pc. No. 580750 size 300
Double open-ended spanner 6 – 34 mm with toolholder	1 pc. No. 610960 size 12 (6×7 – 30×34) with 1 pc. No. 611500 size 12
● Hexagon key L-wrench set long with ball point	1 pc. No. 627225 size 9 (1.5 – 10 mm)
○ Socket set 1/4 inch	1 pc. No. 630368 size 6 (29 pieces)
⊖ Screwdriver for slot-head	1 pc. each No. 660701 size 3, 4, 7
⊕ Screwdriver for TORX® screws	1 pc. each No. 668401 size 0, 1, 2
Combination pliers	1 pc. No. 702995 size 180
Water pump pliers	1 pc. No. 706145 size 250
Snipe nose pliers, angled	1 pc. No. 713595 size 200
Diagonal cutter	1 pc. No. 725245 size 160
Engineer's hammer	1 pc. No. 750125 size 300
General-purpose knife	1 pc. No. 845039 size 160
Leather work gloves (pair)	1 pc. No. 094055 size 10
Safety glasses	1 pc. No. 096845 size CLEAR
Ear defenders	1 pc. No. 097795 size STEEL
Textile tool bag	1 pc. No. 692262 size 2



686020_74



PARAT® PARASHERPA® carrying system

In just a few simple steps, tool cases are mounted on the PARASHERPA® using the integrated straps. The system allows tool cases to be fixed quickly and stably. Finally, the case is secured with the quick-release buckle. This means the tool case can be transported easily and conveniently as a backpack on the shoulders. The unique deuter® Airstripes system provides a secure fit with ventilation, which is additionally ensured through anatomically shaped padded shoulder straps for high wearing comfort. At the same time, the weight is always kept close to the body. There are hardly any centrifugal forces and the backpack cannot break away. Load capacity: up to 15 kg.

Suitable for: Case with carrying handle and a max. circumference of 1460 mm.



Easy to mount: with just a click



Application example



69 2299

Rear view.



Front view

69 2299



Application example

Type	1	
69 2299 PARASHERPA® carrying system		78.71
External dimension length	mm	50
External dimension width	mm	245
External dimension height	mm	475
Weight	kg	0.57

EVERYONE WANTS ONE: SMART FUNCTIONALITY DAY AFTER DAY.

Our HOLEX textile tool bags are full of smart ideas for day-to-day working life. And all that at an impressively attractive price.

69



69 2265



69 2267



69 2262

- 692255 Textile tool roll with snap fastener
- 692257 Textile tool case with snap fastener
- 692260 Textile electrician's case
- 692262 Textile tool bag

- 692265 Textile tool shoulder bag
- 692267 Textile tool rucksack
- 692270 Textile tool backpack trolley, mobile



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RED AND CLEVER.



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Industrial Tooling and Equipment by Hoffmann Group



raaco Small parts case

Strong hinges and sliding locks prevent the transparent lid springing open. U-profiles in the lid ensure that the content remains in its desired place. With carrying handle for comfortable transport and removable dividers.

Material: Casing made from polypropylene. Cover made from polycarbonate.



69 3485

Number of compartments		8
64B 69 3485	"CarryLite" parts case	XXX
External dimension length	mm	413
External dimension width	mm	330
External dimension height	mm	147



69

Garant Long Nose Pliers

With long, slim jaws and flush fitting joint.
 Jaws chrome-plated, handles with ergonomically optimised multi-component coverings with non-slip **Haptoprene** surface.

Standard: DIN ISO 5745

Material: Chrome vanadium steel, drop-forged and oil-hardened.



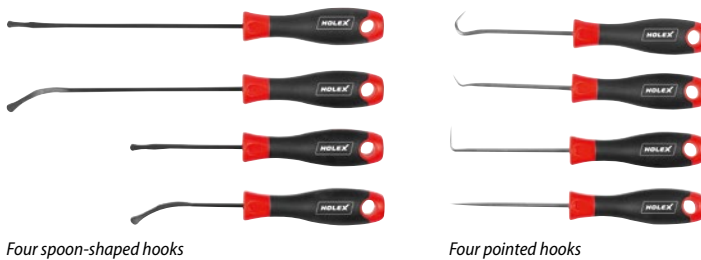
71 1580_160

Snipe nose jaws, serrated inside

overall length	mm	160
71 1580	Long snipe nose pliers, chrome-plated, with grips	18.57
Jaw length	mm	50

HOLEX Pick / hook set

Multi-component handle with ergonomic shape.
 Blade made of chrome vanadium steel, four **spoon-shaped** hooks and **pointed** hooks each.
Application: Ideal for fitting and for removing O rings and seals that are difficult to access (e.g. on engines, gearboxes, brakes, air conditioners, etc.).
 For cleaning threaded holes and seal seats.
 Particularly suitable for locating cracks in metal and for much more.



Four spoon-shaped hooks

Four pointed hooks



72 7995_8

Number of tools	8
72 7995	Hook set, 8 pieces, in a wallet
	35.05

Garant Crimping tool for terminal sleeves – with non-compound action

Body drop forged.
 Jaws chemically blackened, head bright polished.
 Notched jaws for crimping terminal sleeves to DIN 46228.
 Plastic coated handles.



72 9404_2,5

72 9404_16

for conductor cross-section	mm ²	2,5	16
72 9404	Crimping tool for terminal sleeves	18.47	25.15
overall length	mm	150	185
for conductor cross-section	mm ²	0.25 – 2.5	0.25 – 16

KNIPEX Crimping tool for terminal sleeves – with compound action

Steel body with compound action.
 Defined crimping force accurately ensured by integral stop function.
 Self-adjusting crimping tool, crimping head freely rotatable through 360° with 8 locking positions.
Trapezoidal crimp opening accessible on both sides, press up to 18 mm length in a single operation, excess lengths of terminal sleeves can be repeated.
 Crimping of twin terminal sleeves up to 2×6 mm² is possible.



Crimp opening accessible from both sides and 8 locking positions.



72 9426

for conductor cross-section	mm ²	10
73F 72 9426 Twistor® T crimping tool for terminal sleeves		161.87
overall length	mm	200
for conductor cross-section	mm ²	0.14 – 10

KNIPEX Electrician's multi-purpose tool

Very sturdy light-weight body made of glass fibre-reinforced plastic with ergonomic two-component handle.
 Stripping flexible and solid conductors of 0.03 – 10 mm² (AWG 32 – 8).
 Optimum adaptation to special materials or temperature conditions through fine adjustment.
 Quick and precise square crimping of individual terminal sleeves to DIN 46228 part 1 + 4, from 0.25 – 4 mm².
 Self-adjusting – permits quick switching between various sizes.
 With length stop and wire cutter.

- Advantage:** **Cutting and stripping** the cable as well as **crimping** of terminal sleeves **with only one tool**, no need for laborious tool changes.
- Application:** For wiring electronic devices, such as PLC (programmable logic controller), in household installations or in mobile homes.
- Spare part:** Spare blade available under No. 728714 size 10 and length stop available under No. 728715 size 10.



Stripping, cable up to 10 mm². **Cutting off**, cable up to 10 mm². **Crimping** terminal sleeves up to 4 mm².



72 9501

Type		1
73F 72 9501 Electrician's multi-purpose tool		113.85
overall length	mm	190
for conductor cross-section (crimping)	mm ²	0.25 – 4
for conductor cross-section (cutting and stripping)	mm ²	0.03 – 10

RENNSTEIG Four-pin crimping tool for industry and aerospace

72 9560 – Special crimping tool for processing turned contact pins and socket contacts in the DT series of TE Connectivity (previously: DEUTSCH contacts). Reliable crimping due to positive barrier and synchronised advance of the crimping pins. Crimp mandrel can be adjusted via Selector with 8 positions. **Optimised opening aperture, ergonomic design and reduced manual force requirement.** Quality testing by means of go-Nogo gauges (**optional No. 729561 size 3**).

Application:

72 9560 – For turned pin and socket contacts

Supplied with:

72 9560 – Four-pin crimping tool with universal contact mounting in system packaging.



729560_3



729561_3

Industrial version



Selector position can easily be read from the crimp tool.



Crimp mandrel can be adjusted via Selector with 8 positions



Delivery with universal contact mounting

Type			3
73T 72 9560	Four-pin crimping tool SelectorCrimp HDT-48, 2-component handles		438.57
for conductor cross-section	mm ²		0.35 – 3
overall length	mm		230
Type			3
73T 72 9561	Go-Nogo pair of gauges for SelectorCrimp HDT-48		104.45
overall length	mm		76.5

HOLEX Plastic cable tie pliers

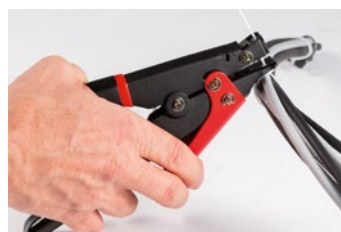
Simple and robust design.

Advantage: Quick fastening due to long travel for a fast approach.

Application: Tightening and flush cutting-off of cable ties in 2 working steps.



1. Tighten the cable tie.



2. Cut off cable tie.



729955_1

Type			1
72B 72 9955	Plastic cable tie pliers		58.61
for cable ties up to width	mm		12
for cable ties up to thickness	mm		2.3
Weight	g		335

Garant Crimping tool for hexagonal crimping

Update and change to numbers

- Extended capacity: Conductor cross-section 0.08 – 16mm² and crimping of twin terminal sleeves up to 2x10 mm² possible.
- No. 72 9465 16: Pliers burnished, jaws chrome-plated.
- No. 72 9466 16: Pliers chrome-plated, jaws burnished.



Crimping of twin terminal sleeves.

729466_16



729465_16

HellermannTyton Cutting tool for plastic cable ties

The cutting tool consists of a light-weight plastic housing and an ergonomic non-slip handle for a comfortable and secure grip. With tether attachment point for mounting a fall protection. The tool includes three interchangeable end caps for plastic cable ties of different widths and thicknesses.

- Advantage:** The cable tie can be split at any point of the bundled cables without damaging the insulation or individual conductors.
- Application:** For flexible power cables, bundles and power/water lines as well as rigid bundled cables – wherever quality and effectiveness play an important role, especially in delicate cable harnesses.

Storage of the end cap



72 9969



Easy change of the end caps without tools.



For safe removal of plastic cable ties without damaging insulation.



Type	EVO CUT	
76C 72 9969	Cutting tool for plastic cable ties	153.45
for cable ties up to width	mm	7.8
for cable ties up to thickness	mm	1.8
Weight	g	140

HOLEX Carpenter's roofing hammer with tubular steel handle

Drop-forged hammer head, hardened and tempered. Smooth and bright face, well-formed claw and nail groove. Painted head, with magnetic nail holder. Unbreakable securely fitted tubular steel handle and user-friendly rubber grip reduces the risk of accidents.

- Standard:** DIN 7239
- Material:** Special tool steel.



75 1515

Magnetic nail holder

Weight without handle	g	600
72D 75 1515	Carpenter's roofing hammer with magnetic nail holder	19.70
Handle length	mm	280

KNIPEX Electrician's and general-purpose scissors (phone wiring scissors)

Sturdy angled design. One serrated blade, one smooth blade. Cutter head made of stainless steel. Robust fibreglass-reinforced 2-component handle with angled cutting edge and optimised design for improved ergonomics. With tether attachment point for attaching a fall protection. Two crimp points for terminal sleeves (0.5 – 6 mm² and 10 – 25 mm²). With opening spring, can be locked for transport.

- Application:** Cuts thin wires, cables, insulation sleeving, rubber, leather, etc.



76 8870



overall length	mm	160
73F 76 8870	Electrician's scissors with 2-component grip and wire cutter	30.29



GESIPA® Hand riveter for pop rivet nuts

Compact design for good access to the workpiece. Very good power transmission due to the ratchet function. Quick-change system for threaded spigots and nozzles – no tools required.

Supplied with: Nozzles / threaded spigots M5; M6; M8 and M10. In a sturdy plastic box.



Type	GBM40R	
74A 77 0270	Hand riveter GBM 40-R	385.11
overall length	mm	212
for pop rivet nuts in all materials		M3 – M10
for pop rivet nuts steel/alu		M3 – M12
Weight	g	1250

GESIPA® Electro-mechanical pop rivet tool

Cordless tool for flexible use.

Advantage: High operating speed combined with equally high performance; high reliability due to electronic control.

Supplied with: Includes Li-ion push-in battery No. 770524 and charger No. 770528 size CAS in L-BOXX. Nozzles 17 / 32; 17 / 36; 17 / 40 and 17 / 45.



Type	CAS	
74A 77 0506	Cordless pop rivet tool PowerBird® Pro Gold Edition	1467.18
Tool stroke	mm	25
for pop rivets in all materials up to	mm	6.4
Setting force	N	20000
Battery capacity	A-h	2
Battery voltage	V	18
Weight including rechargeable battery	kg	2.1

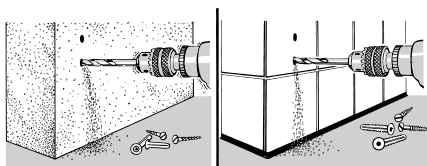


Garant Carbide masonry drills

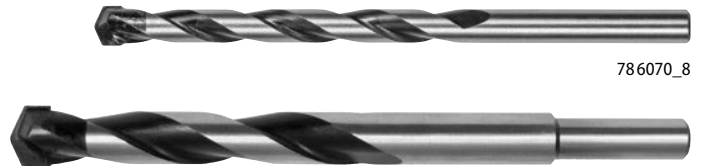
Drill tipped with hard and tough carbide inserts and brazed at high temperature. Asymmetrical flute profile for good transport of drill dust.

Hammer and rotary bits with strong carbide cutter tip.

Application: Primarily for **drilling dowel holes with hammer drills** in concrete, masonry, natural and synthetic stone. Also for rotary drilling in hard and soft wood, plastics, acrylic and ceramic.



Hammer drilling in concrete and tiles.



Size 14 – with reduced shank.

Drill Ø	mm	3	4	5	6	7	8	9	10	12	14
71C 78 6070	Carbide masonry drills	1.40	1.17	1.17	1.21	1.50	1.58	2.03	2.09	2.79	4.86
Flute length	mm	30	40	50	60	60	80	80	80	85	85
overall length	mm	60	75	85	100	100	120	120	120	150	150
Shank Ø	mm	3	4	5	6	7	8	9	10	12	10

Carbide masonry drill set

Number of drills	5		7		
71C 78 6078	Carbide masonry drill set	7.02	9.99		
Content: Drill No. 786070		1 pc. each size 4; 5; 6; 8; 10	1 pc. each size 3; 4; 5; 6; 7; 8; 10		



786078_7

KNIPEX® TubiX® pipe cutter with quick adjustment

Lightweight and long-lasting metal housing of magnesium, with needle bearing guide rollers and cutter wheel. Manual deburrer can be retracted into the body. Supplied with spare cutter wheel.

- Advantage:** Automatic stop and clamping on to the pipe by **QuickLock quick adjustment**.
- Quick and precise positioning of the cutter wheel on different pipe diameters.
- Application:** General purpose for cutting **copper, aluminium, and thin-walled stainless steel pipes** (up to 2 mm wall thickness).
- Spare part:** For spare cutter wheel with needle bearing and quick-change pivot pin, see No. 818385.



Quick adjustment.

for Ø to	mm	76
86A 81 8380	TubiX® pipe cutter with quick adjustment	83.95
for pipe outer Ø	mm	6 – 76
Weight	g	950



KNIPEX® Pipe cutter for HT pipes, 2 in 1

Tool body of glass-fibre-reinforced plastic. Exchangeable blade of high-quality ball bearing steel, can be changed with no tools required. Optimum pipe guidance and easy cutting thanks to self-adjusting rollers with plain bearings. The spring-mounted cutting blade means there is no need for tedious adjustment whilst cutting.

- Advantage:** One tool, two functions, three diameters. **Easily and neatly cut and chamfer common plastic wastewater pipes in a single step.** Smooth cut: No adjustment, no deburring and a reduced risk of clogging or damage to the seal.
- Application:** Cuts HT pipes and many other plastic pipes with Ø 32, 40 or 50 mm and a wall thickness of up to 2.4 mm. Easy to position thanks to clear view of the cut-off point. Final cuts or fine cuts are possible from a section length of approx. 10 mm.
- Spare part:** For replacement blade see No. 818191 size 1 and replacement quick-change pivot pin No. 818192 size 1.

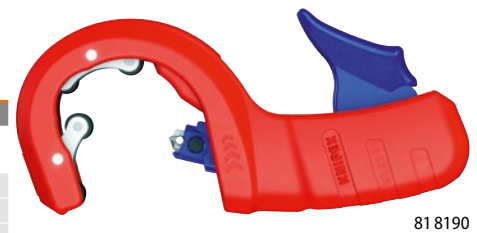
Pressing on the blue lever allows the tube to be inserted and the cutter blade to be positioned precisely.



Use the slider to set the appropriate tube size.



Type		1
86A 81 8190	Pipe cutter for HT pipes	42.08
for pipe outer Ø	mm	32; 40; 50
Length	mm	202
Weight	g	294



Inspection punch pliers for inspection stickers

Solid steel design for exceptional durability. Quick and easy to handle for efficient working. The pliers produce a circular punched hole with dia. 3 mm.

- Material:** Nickel-plated.
- Application:** For identification of inspection stickers and the like.
- Note:** Inspection stickers can be found in Vol. 4 under signs & markings.



Application example.

Punched hole Ø	mm	3
83U 83 1450	Inspection punch pliers	138.11
Length	mm	123
Jaw depth	mm	32

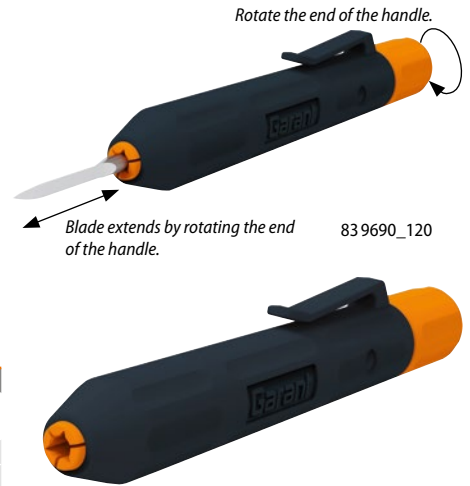


Garant Universal scraper with retractable blade

Universal toolholder with 4-jaw chuck of plastic with exchangeable three-square blade. If required, a D-blade with shank Ø 3.2 mm (No. 839676; 839677; 836420; 836425) or a T-blade with shank Ø 4.2 mm (No. 836410) can be used in the holder. The holder also comes with a practical clip for mounting.

Advantage: Turning the rear part of the holder allows the blade to be retracted and extended. This reduces the risk of injury and protects the blade at the same time.

Supplied with: Holder incl. mini scraper blade, straight 3.2 × 50 mm (No. 839677).



overall length	mm	120
83G 83 9690 Universal scraper		14.36
Ø holder	mm	17
Weight without blade	g	20

Tajima Allround knife

Strong multi-purpose knife for versatile applications. Fixed through-blade with 2-component handle, hard enduring end to the handle for impact applications. Supplied with a protective cap.

Application: All the following functions in a single tool: cutting, scraping, chiselling, roughening, cable stripping.



84 4471_40

Increased range of sizes

Blade length	mm	40
83M 84 4471 Allround knife		23.46
overall length	mm	170
Weight	g	72

Tajima Folding knife with a wide blade

Fold-away knife in compact size with sturdy and stiff blade. The safety mechanism prevents inadvertent opening and closing when using the knife. The handle of die-cast aluminium and non-slip elastomer prevents slipping, even when wearing gloves. Extra-wide blade for tough tasks. However, the very sharp blade also allows delicate cutting tasks to be performed. Ideal for vertical cutting due to the concave blade shape. The serrations on the upper side of the blade can be used for deburring. The eye at the end of the handle can be used to hold a key ring and for fall protection purposes.

Note: Please comply with the relevant national offensive weapons regulations! Germany – WaffG § 42a Section 1 no. 3 permits the carrying of fixed-blade knives only for trade use, maintenance of traditions or participation in sports.



84 4460_65



Blade length	mm	65
83M 84 4460 Folding knife with a wide blade		36.53
Handle length	mm	90
overall length	mm	185
Blade thickness	mm	3
Weight	g	107



HOLEX Cutter knife, fold-away blade

Sturdy cutter knife for trapezoidal blades (exchangeable).

Blade folds away, reducing the risk of injury.

- Size 165 – With comfortable plastic handle, storage for spare blades and belt clip.
- Thumb-pad on handle for application of maximum pressure.

Supplied with:

- Size 165 – With 5 spare blades.

Note: Suitable spare blades No. 844715 and No. 844745.



84 4895_165



overall length	mm	165
82B 84 4895 Cutter knife with fold-away blade		17.28
length when folded away	mm	97

MOZART Precision knife (scalpel)

Precision knife with exchangeable blade for very fine cutting.

Protective cap with integral hex key for changing the blades.

100% made in Germany.

- Size P1A – Powerful, ergonomic knife for fine cuts. Handle coated with TPE for optimum grip.
- Size P2A – Slim knife for very fine cuts. Handle of die-cast zinc with TPE insert for optimum grip.

Application: For deburring plastic parts and for all precise cutting tasks.

Supplied with: Handle including 1 universal blade No. 845355 size 50 and protective cap with integral hex key.



845350_P1A



845350_P2A



Protective cap with integral hex key.

Type		P1A	P2A
86E 84 5350 Precision knife with 1 blade		11.68	10.40
Length without blade	mm	138	118

Precision blades

Dimensionally stable blades of high-alloy carbon steel with edges of outstanding and sustainable sharpness.

- Size 50 – Universal shape, precision ground.
- Size 52 – Rounded shape for preventing puncture wounds.
- Size 53 – Ultra-pointed shape for very fine cutting tasks.

Suitable for: Mozart precision knife No. 845350.

Supplied with: 100 blades in safety dispenser.



84 5355

Precision blades in safety dispenser.



84 5355_50



84 5355_52



84 5355_53

Type		50	52	53
86E 84 5355 Precision blades set 100 pieces		20.20	26.14	28.22
Blade length	mm	32.8	31.1	32.8
Blade width	mm		5.7	
Blade thickness	mm		0.5	



KNIPEX Folding cable knife

Universal fold-away knife for everyday use. The ergonomically shaped handle of sturdy, impact-resistant plastic makes it comfortable to hold and guide. The sturdy stainless steel blade provides very good cutting results. Thanks to the eye at the end, the knife can also be attached to a fastener/support.



Easy to open thanks to handy diamond-shaped gripping aid on the blade.



84 4610



Blade length	mm	80
86E 84 4610	Electrician's fold-away knife	10.85
overall length	mm	120
Weight	g	85

BESSEY Construction stand and ceiling mount for "STE" ceiling and assembly support

Folding stand / mount for the "STE" ceiling and assembly support. Quick assembly without the need for tools.

"STE-BS" construction stand

Lightweight and sturdy design thanks to aluminium profiles and glass-fibre-reinforced plastic. Dimensions when folded (LxWxH): 110 mm x 333 mm x 70 mm.

Application: Stable design as the force is directed downwards in a targeted manner when the ceiling support is clamped. The ceiling and assembly supports can be positioned freely in the room with the construction stand, even without the clamping at the top, and can thus also be used outdoors.



Application example: "STE" ceiling and assembly support with "STE-BS" construction stand.

"STE-BS" construction stand when folded together.



86 1790

Type		1
83K 86 1790	Construction stand	63.56
Jaw capacity	mm	610
Weight	kg	1.5
for pipe Ø	mm	29; 32

"STE-DS" ceiling mount

Even distribution of force thanks to three-leaf contact surfaces. Dimensions when folded (LxWxH): 148 mm x 155 mm x 85 mm.

Application: For increasing the support area. Safe to use, since the all-round fixing of the steel pipe prevents tilting of the contact surface.



Application example: Ceiling and assembly support "STE" with "STE-BS" construction stand and "STE-DS" ceiling mount.

"STE-DS" ceiling mount when folded together.



Application example.



86 1795

Type		1
83K 86 1795	Ceiling mount	24.35
Jaw capacity	mm	308
Weight	kg	0.35
for pipe Ø	mm	25; 28



84

NEW PRODUCTS

Power tools and workshop supplies

Power tools



Page 238
Milwaukee flat-head angle grinder



Page 243
Cleco cordless shut-off nutrunner



Page 240
Bosch cordless drill/driver BITURBO 150 Nm

GARANT GreenPlus



from page 250
GARANT GreenPlus cleaning agents with no hazard labels and anaerobic adhesives



Factory equipment



Page 246
HOLEX cable reel



Page 254
Cejn hydraulic sets 700 bar



from page 255
Wiping cloth solutions and suitable accessories (floor stands, wall holders) from Kimberly-Clark





Milwaukee Cordless angle grinder Ø 125 mm

07 7139 Size 4933478438 – Powerful M18 FUEL™ **flat head** angle grinder for working in restricted spaces.

- Flat head design permits working at angles up to 42°.
- Integral **FIXTEC** quick-release clamping nut for changing discs without using tools.
- **RAPIDSTOP™** for quick braking of the disc in less than 2 seconds.
- Restart inhibit and kick-back stop for high user protection.

07 7143 Size 4933478436 – Compact M18 FUEL™ cordless angle grinder with **controllable speed**.

- **5 speed settings** for the best results when machining stainless steel and aluminium as well as rust and paint removal.
- **RAPIDSTOP™** for quick braking of the disc in less than 2 seconds for high user protection.
- Quick adjustment of the safety guard.

Size 4933478437 – Compact 18V cordless angle grinder with **speed control** and **dead man's switch**.

- Safety switch cannot be locked for high user protection.
- **5 speed settings** for the best results when machining stainless steel and aluminium as well as rust and paint removal.
- **RAPIDSTOP™** for quick braking of the disc in less than 2 seconds.

Supplied with: Without rechargeable batteries or charger. Comes with anti-vibration handle, safety guard, dust-protection grille, clamping set and HD box.

Note: See from No. 073808 and No. 073840 for suitable replacement batteries and chargers.



07 7139_4933478438



07 7143_4933478436



07 7143_4933478437

Type		4933478438	4933478436	4933478437
03L 07 7139	Flat-head angle grinder Cordless	278.10	–	–
03L 07 7143	Angle grinder Cordless	–	278.10	278.10
Manufacturer's designation		M18FSAGF-125XB-OX	M18FSAGV-125XB-OX	M18FSAGF125X-PDB-OX
Number of rechargeable batteries contained		0		
Type of rechargeable battery		Lithium-ion		
Battery voltage		18		
maximum speed		8500 – 8500	3500 – 8500	3500 – 8500
maximum disc Ø		125		
maximum cutting depth		–	33	33
Weight		2.6	2.7	2.7
maximum vibration to EN		4.86	5.01	5.01
Overload protection		yes		
Dead man's circuit		no	no	yes
Soft start		yes		
Restart block		yes		
Kick-back stop		yes		

Milwaukee Accessories

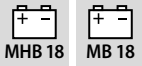
Milwaukee M18™ REDLITHIUM-ION™ rechargeable battery, resistant to chemicals.

- Perfect for applications where contact between the rechargeable battery pack and oils, greases and solvents cannot be avoided.
- New casing offers chemical resistance to oils and liquids.
- increased protection against crack formation.



07 3816_MB18-CR

Rechargeable battery type, battery voltage	V	MB18-CR
07A 07 3816	Li-ion system M18B5 resistant to chemicals	5.0 Ah 134.10
Type of rechargeable battery		Lithium-ion
Battery capacity		A·h 5
Battery voltage		V 18



MHB 18

MB 18

Milwaukee

Cordless sheet metal shears

Compact cordless sheet metal slitters / shears for clean, distortion-free cuts in steel up to max. 2.0 mm.

- 360° rotatable cutting head with 12 locking positions – ideal for accessing tight spaces.
- Electronic speed control.
- In-line design for the best possible control.

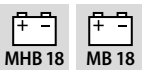
Supplied with: Without battery and without charger, in a cardboard box.

Note: Suitable replacement batteries and chargers can be found under No. 073808 – No 073840.



078104_M18BMS20-0

Type	M18BMS20-0	
031 078104 Cordless sheet metal shears		309.60
Number of rechargeable batteries contained		0
Type of rechargeable battery		Lithium-ion
Battery voltage	V	18
maximum cutting performance on aluminium	mm	3.2
maximum cutting performance on steel	mm	2
Radius of the smallest curve	mm	180
Cutting width	mm	5
Weight	kg	2.3
maximum vibration to EN	m/s ²	1.5



MHB 18

MB 18

Milwaukee

Cordless linishing machine

Powerful M18 cordless belt finisher with brushless POWERSTATE™ motor for quick material removal and reduced heat generation.

- Equivalent alternating current power 900 watt.
- Running time up to 20 minutes with a 5.0 Ah battery.
- The tool-less adjustment knob permits optimum handling of the grinder for all applications.
- "Flush To Wall" allows the linishing machine to be used close to a vertical surface or in narrow corners.
- Can be used with dust bag or external extraction.

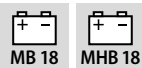
Supplied with: Without battery and without charger, including dust bag, in a box.

Note: Suitable replacement batteries and chargers can be found under No. 073808 – No 073840. Suitable linishing belts can be found under No. 558014.



077331_M18FBTS75

Type	M18FBTS75	
031 077331 Cordless linishing machine		341.10
Type of rechargeable battery		Lithium-ion
Battery voltage	V	18
Linishing belt width	mm	75
Band length	mm	457
Belt speed	m/min	230 – 410
Grinding area	mm	90 × 135
Weight without battery	kg	3.9



MB 18

MHB 18

Milwaukee

Cordless vacuum system

Powerful 18-V hand vacuum cleaner for wood, metal and coarse dirt.

- HEPA filter traps 99.97 % of all dust particles.
- Viewing window for easy checking of amount of dirt in the collection container.
- Lockable switch for continuous operation.

Supplied with: Without battery and without charger. Including flexible suction hose, 2 extension tubes, crevice nozzle, coarse dirt nozzle.

Note: Suitable replacement batteries and chargers can be found under No. 073808 – No 073840.



070233_M18CV-0

Type	M18CV-0	
031 070233 Cordless hand vacuum cleaner		107.10
Number of rechargeable batteries contained		0
Type of rechargeable battery		Lithium-ion
Battery voltage	V	18
Container volume	l	2.5
Length of suction hose	m	1.2
Volumetric flow	l/min	1019
Weight without battery	kg	1.6



07



BOSCH Cordless drill / driver 18 V

Cordless drill/driver.

Size GSR18V150C – Extremely powerful drill/driver with a maximum **torque** of **150 Nm**.

When dealing with long screws, the precise electronic angle detection ensures the correct angle every time, and the switchable kickback control reduces the risk of sudden rotation around the axis when the tool jams.

- Brushless motor with **BITURBO** technology.
- LED light to illuminate the working area and **battery charge display**.
- **Multi-stage torque setting** for precise screw driving.
- **Electronic speed control** for precise spot drilling and screw-driving.
- Large additional handle for secure hold of the machine.



Supplied with:

Size GSR18V150C – Without battery, without charger. Incl. L-BOXX and additional handle.

Note: Suitable ProCore replacement batteries, starter sets and chargers can be found under No. 073856 – No. 073858 and No. 073863 – No. 073867.



070246_GSR18V150C

Type	GSR18V150C	
03B 07 0246 Cordless drill / driver without battery or charger		289.80
Manufacturer's designation	GSR18V-150C	
Motor design	Brushless motor	
Number of rechargeable batteries contained	0	
Type of rechargeable battery	Lithium-ion	
Battery voltage	V	18
maximum torque soft	N·m	84
maximum torque hard	N·m	150
Speed range 1st speed	min ⁻¹	0 – 550
Speed range 2nd speed	min ⁻¹	0 – 2200
Quick-clamping chuck range	mm	1.5 – 13
maximum twist drill size Ø in steel	mm	16
maximum twist drill size Ø in wood	mm	150
Weight	kg	2.1
maximum vibration to EN	m/s ²	2.5
typical application	Heavy Duty	



BOSCH 18 V cordless heat gun

Cordless heat gun with 2 temperature settings (300° / 500°)

- **Quick heating**, only 6 seconds to 300°.
- LED light to illuminate the working area.
- Compatible with all nozzles for cable-connected heat guns from Bosch.

Supplied with: Without battery, without charger. Incl. L-BOXX, reflector nozzle and reducer nozzle.

Note: Suitable replacement batteries, starter sets and chargers can be found under No. 073851 – No. 073858 and No. 073863 – No. 073867.



078334_GHG18V50

Type	GHG18V50	
03B 07 8334 Cordless heat gun		182.70
Manufacturer's designation	GHG18V-50	
Air temperature	°C	300 – 500
Air flow volume	l/min	175
Number of temperature levels	2	
Type of rechargeable battery	Lithium-ion	
Battery voltage	V	18
Number of rechargeable batteries contained	0	
Weight	g	590





BOSCH Cordless impact wrench / driver

Cordless impact wrench / impact driver

■ Reversible.

■ Battery charge display.

07 4051 – Powerful impact wrench with 2 operating modes for metal and wood. With **Bluetooth connectivity**

■ Special bit holder combining **1/2 inch square and 1/4 inch hexagon**

■ **3-stage PowerControl** – for different torques to suit different applications

■ Further parameters and operating modes can be set individually using the **Toolbox app**

07 4052 Size GDS1050HC – 3/4 inch impact screwdriver with **BITURBO** brushless technology and **Bluetooth connectivity**

■ 3 speed/torque settings

■ 2 operating modes for metal and wood

■ Further parameters can be set individually using the Toolbox app

Size GDS18V1000 – Powerful 18V impact wrench with **BITURBO** brushless technology, for the **most demanding** screw tightening in metal.

■ 3 speed/torque settings for excellent control of speed and torque

Size GDV18V210C – Powerful impact wrench with 2 operating modes for metal and wood and **Bluetooth connectivity**

■ Special bit holder combining **1/2 inch square and 1/4 inch hexagon**

■ **3-stage PowerControl** – for different torques to suit different applications

■ Further parameters and operating modes can be set individually using the **Toolbox app**

Size GDR18V200 – Compact 18V impact screwdriver with 1/4 inch bit holder

■ High torque and high impact rate (4,000 impacts/minute) for rapid progression of work when tightening screws in metal (up to M16) and wood

■ Very short body for perfect handling even in confined spaces and overhead

Supplied with:

07 4051 – Version without battery and without charger, including L-BOXX.

07 4052 – Supplied with 2× Li-ion batteries, charger, L-BOXX

Note: Suitable replacement batteries and chargers can be found under No. 073851 – 073867.



Type		GDS1050HC	GDS18V1000	GDX18V210C	GDR18V200
03B 07 4051	Cordless impact wrench / impact driver without battery	–	–	241.20	–
03B 07 4052	Cordless impact wrench / impact driver	622.80	594.90	425.70	345.60
Manufacturer's designation		GDS18V-1050HC	GDS18V-1000	GDX18V210C	GDR18V200
Number of rechargeable batteries contained (07 4052)		2			
Type of rechargeable battery		Lithium-ion			
Battery capacity	A·h	8	8	4	4
Battery voltage	V	18			
maximum screw \varnothing (8.8 - 12.9)		M24	M24	M16	M16
maximum torque hard	N·m	1050	1000	210	200
Number of impacts	min ⁻¹	0 – 2600	0 – 2600	0 – 4100	0
Tool arbor drive profile		External square drive	External square drive	Internal hexagon drive, external square drive	Internal hexagon drive
Tool arbor size	in	3/4	1/2	1/2; 1/4	1/4
Torque settings		3	3	3	1
maximum break-away torque	N·m	1700	1600	370	350
Weight	kg	2.9	2.9	1.2	1.1
maximum vibration to EN	m/s ²	13.5	13.5	9.8	14
typical application		Heavy Duty	Heavy Duty	Strong	Strong



07



AEG Cordless impact wrench

Powerful **brushless** cordless impact wrench with 1/2 inch square toolholder with snap ring and 785 Nm maximum tightening torque. Torque adjustment in 4 stages including auto-stop for optimum tightening and releasing of wheel nuts.

- LED illumination of the working area.
- Handle with soft-grip coating
- Belt hook

Supplied with: Without battery and without charger, in a cardboard box.

Note: For a suitable replacement battery see No. 073846 - 073848. See No. 073844 for battery starter sets.



07 4016_BSS18MTF12

Type	BSS18MTF12	
07 4016 Impact wrench	166.31	
Manufacturer's designation	BSS18MTF12	
Battery voltage	V	18
maximum torque	N-m	785
maximum screw \varnothing (8.8 - 12.9)	M16	
Number of impacts	min ⁻¹	0
Tool arbor drive profile	External square drive	
Tool arbor size	in	1/2
Weight	kg	1.65
typical application	Heavy Duty	



AEG Percussion drills, (cordless) hammer drills

- Brushless 18 V cordless rotary hammer with sturdy metal gearbox casing and SDS-plus tool holder
- **VARILOCK** – angle of the chisel is adjustable
- Safety coupling
- **Hammer action stop** for drilling in wood and metal
- **Zero rotation** for easy chisel work
- Handle with **anti-vibration system**

Supplied with: Includes 2 x 18 V / 5.0 Ah Li-ion batteries, charger, and transport case



07 5535_BBH18BL

Type	BBH18BL	
07 5535 Cordless rotary hammer	359.10	
Manufacturer's designation	BBH18BL	
Number of rechargeable batteries contained	2	
Type of rechargeable battery	Lithium-ion	
Battery capacity	A-h	5
Battery voltage	V	18
maximum twist drill size \varnothing in steel	mm	13
maximum twist drill size \varnothing in wood	mm	30
maximum twist drill size \varnothing in concrete	mm	26
maximum hammer rate	min ⁻¹	4800
Impact energy	J	2.5
Tool arbor shape	SDS-Plus	
Weight	kg	2.6



AEG Cordless angle grinder \varnothing 125 mm

Brushless high-performance 18 V angle grinder in a compact design.

- Quick guard adjustment
- LED warning lamp for protection against overloading
- Flat and sturdy metal gearbox casing for working in hard-to-reach spots

Supplied with: Without battery and without charger, in a cardboard box.

Note: For suitable replacement batteries see No. 073846-073848. See No. 073844 for battery starter sets.



07 7125_BEWS18BLPX

Type	BEWS18BLPX	
07 7125 Angle grinder Cordless	134.10	
Manufacturer's designation	BEWS18-125BLPX	
Battery voltage	V	18
maximum speed	min ⁻¹	11000
maximum cutting depth	mm	22
Weight	kg	2.3
Overload protection	yes	
Dead man's circuit	yes	
Soft start	no	
Restart block	yes	
Kick-back stop	no	

Cleco® Cordless torque shut-off nutrunner

The cordless Cleco® CellClutch™ assembly tools are smart yet simple to use, and bring programming functionality to the assembly line along with a classic counting function. Precision and repetition accuracy with a CMK value > 1.67 (at a tolerance of ±10% in conjunction with ISO 5393).

- **Easy to program:** Program speeds and multi-stage screw tightening procedures to avoid errors and improve productivity.
- **Tried-and-tested Cleco clutch:** For reliability and a long service life in the production line.
- **Operator status light:** Colour display for screw tightening and batch counting status.
- **Multi-colour LED:** Work light for additional "OK/NOK" user feedback whilst also illuminating your workpiece.
- **Programmable screwdriving strategies:** Eliminate damage to the thread and errors when screwdriving thanks to programmable speeds and strategies.
- **Uniform battery platform.**

Supplied with: Without batteries and without charger.

Note: You can find suitable batteries and chargers under No. 073827 size MB18; 073816 size MB18 and under No. 073840. A pre-setting device is necessary for setting the torque; these can be found from No. 654381.

CellClutch cordless nutrunner, right angle, with shut-off clutch



07 1142

Type		CLBA083	CLBA123	CLBA203	CLBA303	CLBA403
07 1142	Cordless nutrunner, right angle	(1071.00)	(1071.00)	1071.00	1386.00	1386.00
Battery voltage	V	18				
Torque range	N-m	2.2 – 8	3.3 – 12	8.3 – 21	8.3 – 30	15.1 – 41
Speed range	min ⁻¹	92 – 915	65 – 650	36 – 360	26 – 255	19 – 190
Tool arbor size	in	3/8				
Tool arbor drive profile		Square				
Weight without battery	kg	1.46	1.46	1.73	1.73	1.83

CellClutch cordless nutrunner, pistol, with shut-off clutch



07 1143

Type		CLBP04Q	CLBP08Q	CLBP12Q
07 1143	Cordless nutrunner, pistol	549.00	549.00	549.00
Battery voltage	V	18		
Torque range	N-m	1.1 – 4	2.1 – 8	3.2 – 12
maximum speed	min ⁻¹	1770	985	700
Toolholder		Quick-change chuck		
Tool arbor size	in	1/4		
Weight without battery	kg	1.04		

CellClutch™ AT A GLANCE



Tried-and-tested Cleco clutch

Unsurpassed reliability and durability for assembly tasks.

Operator status light

Clear and simple display of the screw tightening status and the counting function on the colour display.

Standardised battery platform

For all new tools, ensuring a simple and cost-effective stock of batteries. 100% compatible with the Milwaukee M18 system.



07 1142

Multi-colour LED display

Additional „OK/NOK“ operator feedback with improved illumination of the workpiece.

Programmable screw tightening profiles

Avoid thread damage and screw tightening mistakes.



07

Compact angle grinder Ø 125 mm

FEIN – Compact angle grinder Ø 125 mm.

- Robust, powerful motor for everyday use.
- High level of protection for the user thanks to recoil monitoring, restart inhibit and anti-vibration handle.
- High overload capability thanks to direct motor cooling; grinding head can be rotated in 90° steps (optimum switch position for the application).
- Grinding media can be changed quickly without the need for tools thanks to the quick-release clamping nut.

Supplied with: Handle, safety guard, clamping nut, wrench.



077111_7222796

077111_7222806

077111_7222816

077111_7222826

Type		7222796	7222806	7222816	7222826
03F 07 7111	Compact angle grinder	89.10	161.10	179.10	197.10
Manufacturer's designation		CG10-125	CG13-125V	CG17-125	CG17-125INOX
Power consumption	W	1000	1300	1700	1700
maximum speed	min ⁻¹	11000	11500	11500	7500
maximum disc Ø	mm	125			
maximum cutting depth	mm	35			
Weight	kg	2.1	2.3	2.4	2.4
maximum vibration to EN	m/s ²	8.5	6	6	5
Restart block		yes			
Special features		short body	Electronic speed control	short body	Electronic speed control

JEPSON POLIER Metal dry-cutting circular saw and accessories

Powerful metal-cutting circular saws for low-burr and safe sawing of profiles and pipes made from steel, non-ferrous metals, sheet metal, metal plates and sandwich panels **without generating sparks.**

- No need to use cooling lubricants.
 - No reworking necessary.
 - Cuts in seconds.
- Hand DRY Cutter 8203E cordless metal cutting hand-held circular saw.

- Ideal for sawing steel, sheet steel, sandwich panels, metal plates, pipes and profiles made from steel, non-ferrous metals, composite materials, **up to a thickness of 6 mm.**
- Chip catcher for clean working.
- Equipped with a dia. 203/48Z carbide-tipped saw blade "LBS shock-resistant" for maximum tool life and quality.

Supplied with: Includes 2 high-performance 18 V LiHD 5.5 A batteries, saw blade, charger and case.



07 8235_8203E



07 8235_8203E_Detail

Type		8203E
07E 07 8235	Cordless metal cutting hand-held circular saw	898.20
Manufacturer's designation		8203E
Type of rechargeable battery		Lithium-ion
Battery capacity	A·h	5.5
Battery voltage	V	18
maximum speed	min ⁻¹	3500
Saw blade Ø	mm	203
maximum cutting depth 90°	mm	67
maximum cutting depth 45°	mm	

Chicago Pneumatic Pneumatic die grinder

Mini die grinder with high no-load speed for quiet and efficient grinding. Precise power and control due to integrated speed controller.

Supplied with: Supplied with 1 each of 1/4 inch and 6 mm collet.



07 9456



07 9457

Pneumatic die grinders		7405	7410
03R 07 9456	Pneumatic die grinder collet Ø 6 mm short	121.05	-
03R 07 9457	Pneumatic die grinder collet Ø 6 mm long	-	130.05
Output power	W	250	
maximum speed	min ⁻¹	28000	27000
maximum air consumption	l/min	78	
Connection thread		NPT	
Compressed air connection	in	1/4	
recommended hose size (internal Ø)	mm	10	
Collet Ø	mm	6	
Weight	kg	0.5	0.65
Operating noise	dB(A)	76.2	76
maximum vibration to EN	m/s ²	3.6	4.9
Length	mm	200	275

Chicago Pneumatic Pneumatic impact wrench

Robust impact wrench with **convenient one-hand changeover using Side-2-Side technology**, composite casing with thermal insulation properties and robust double hammer impact drive. Balanced weight distribution for more comfortable working. Exhaust air is directed downwards through the handle. **Tightening power can be regulated in steps.**



07 9202

Type		7748
03R 07 9202	Pneumatic impact wrench 3/8 inch – 1/2 inch	252.00
Torque range	N-m	95
maximum speed	min ⁻¹	7000
Tool arbor size	in	1/2
maximum air consumption	l/min	180
Compressed air connection	in	1/4
recommended hose size (internal Ø)	mm	10
Weight	kg	2
Operating noise	dB(A)	94.3
maximum vibration to EN	m/s ²	12
Length	mm	175

HOLEX Pneumatic accessories

Compressed air distributor

Distribution blocks made from aluminium (red anodised) for pneumatic hoses. They can be mounted directly on the machine. The clear arrangement of pneumatic hoses increases the safety of work and production, and saves on energy and hose cables thanks to the central supply.

Supplied with:

- 08 0208 – Distribution block with industrial coupling No. 080230 size 1/4. However without blanking plugs.
- 08 0209 – Distribution block without nipples, without couplings and without blanking plugs.

Note: See No. 080207 V for suitable blanking plugs.



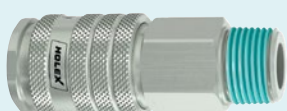
08 0208



08 0209

Type	02A 08 0208	02A 08 0209	Inlet thread	Number of distributor sockets
	Distribution block for compressed air coupling 1/4 inch			
4	65.88	39.96	in 3/4	4

HOLEX Industrial couplings



- Extremely high flow rates, 2000 l/min (air).
- Low pressure drop.
- Operating pressure: PN 35 bar.
- Excellent operational reliability and absolute leak-tightness.



Magnetic holder

Magnetic holder made from plastic with 6 neodymium magnets in the pot magnet (Ø 65mm) has a high holding force.

- Rubberised contact surface is oil-resistant and prevents scratching of the adhesion surface.
- Special shape allows two separately usable zones (e.g. for compressed air gun and hose), prevents the fixed/suspended items from accidentally slipping or falling off.
- This ensures a safe workplace without tripping hazards.



080263

Type		H1
02A 08 0263	Magnetic holder black	25.11



HOLEX Cable reel

Cable reel with **guided automatic draw-in and roll-up, with multiple stop points per revolution.** Impact-resistant enclosed **plastic housing.** Thermal **overload cut-out**, sturdy H07RN-F neoprene cable with connection point.

Easy to mount on the wall or ceiling, with **180° pivoting range.**

Application: Improved ergonomics by relieving cable tension, and for ensuring tidiness and avoiding the risk of accidents and injuries due to cables lying on the ground.

Note: For spring-loaded hose reels see No. 080066, 080078, 080079 and 080076.



08 1193

Spring-loaded cable reel

Type		15
02A 08 1193	Automatic cable reel	215.10
Rated power unrolled	W	2000
Nominal voltage	V	230
Length	mm	429
Width	mm	175
Height	mm	390
Cable class		H07RN-F
Cable structure		3G1.5
Material cable		Neoprene
Cable length	m	15



HEDI Cable drums

Hedi® cable drums stand for "Made in Germany" quality and a long service life. The drum body is specially designed to optimally guide the cable. The integrated rotation stop switch prevents accidental rotation of the drum. All cable drums are equipped with thermal cut-out switches.

Cable drum **Generation 7.** Enormously sturdy, stable and secure. With wall mounting, cable storage and guide, and rotary handle. Additionally satisfies DGUV I 203- 006 (formerly BGI 608).

- Standing surface on the back for additional stabilisation
- Integrated plug sealing lip

All-plastic cable drums 250 V

Type		25N	40N	50N
08B 08 1103	All-plastic cable drum G7 COMPANION	110.88	134.64	147.02
08B 08 1104	All-plastic cable drum for F, B, PL, CZ G7 COMPANION	113.85	137.61	149.99
Rated power unrolled	W	3500 (16A)		
Cable class		H07RN-F		
Cable structure		3G1.5		
Material cable		Neoprene rubber		
Cable length	m	25	40	50
Number of sockets		3		
Diagnostic system present		yes		



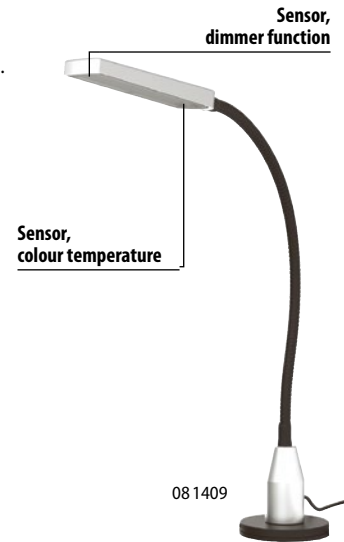
08 1104_40N

Bauer Böcker Work lamp

Innovative "Silhouette" workstation lamp with gesture control at the lamp head for switching on and off and dimming function. In addition, the colour temperature can be changed as required using a second sensor, also by gesture control. The two sensors react as soon as the user holds their hand below the respective sensor. The lamp's elegant, robust aluminium casing makes it suitable for use in various application areas.

- Strong magnetic base.
- Uniform, homogeneous and low-reflection 120° illumination.
- Non-dazzling and flicker-free.
- The light colour can be changed from cold white to warm white using the sensor on the lamp head.
- Steplessly dimmable, also by gesture control at the lamp head.

Type		10
08C 08 1409	LED workstation lamp	246.60
Light output	W	10
Illumination	lm	960
Colour temperature	K	2700 – 5500
Overall height	mm	750
Lamp head width	mm	30
Lamp head depth	mm	210
Lamp head height	mm	10



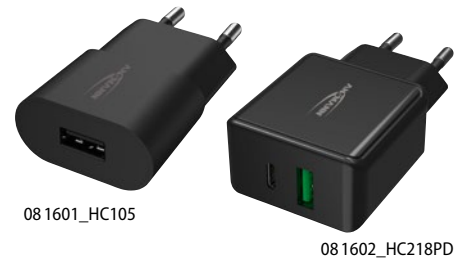
ANSMANN USB charging accessories

USB charger

Suitable for devices which are charged or operated via USB. The intelligent charging control ensures optimised charging, where Multisafe technology protects the connected end devices and charger.

08 1602 – Integrated Power Delivery and Quick Charge charging protocol. Quick Charge 3.0 compatible.

Shank size		HC105	HC218PD
08C 08 1601	USB charger	4.34	–
08C 08 1602	USB quick charger	–	17.42
maximum charging current	A	1	3
Maximum power	W	5	18
Charging voltage	V	5	5
Number of USB-C sockets		–	1
Number of USB sockets		1	–



USB cable

USB cable for charging and data transmission.

Plug type		MICRO-USB	USB-C
08C 08 1603	USB data and charging cable	5.22	7.83
maximum charging current	A	3	3
maximum data transmission	Mbit/s	480	480
Cable length	m	1	1



ANSMANN Chargers for rechargeable NiMH, NiCd and Li-ion cells

Microprocessor-controlled charging and servicing stations for battery cells with **individual channel monitoring** and battery fault detection. Status display for each charging slot, automatic charging switch-off, overload protection and **trickle charging**. Input voltage 100–240 V.

Size C-MULTI – With intelligent "PERFECT 7" charging technology (rapid capacity test, gentle pre-charging, battery analysis, rapid charge, IQ shutdown, top-off charging, trickle charging) and 3-colour LED display for reading the cell status.

Size LITHIUM4 – With LC display for detailed monitoring of the charging process and additional acoustic feedback.

Application:

Size 4SMART – **NiMH battery charging points:** 1 – 4 × Micro AAA / Mignon AA.

Size C-MULTI – **NiMH battery charging points:** 1 – 4 × Micro AAA / Mignon AA / Baby C / Mono D and 1 × 9V block.

Size LITHIUM4 – **NiMH battery charging points:** 1 – 4 × Micro AAA / Mignon AA or 1 – 2 × Baby C.

Li-ion / LiFePO4 battery charging points: 1 – 4 × 18650; 17670; 14500 etc.

Type		4SMART	C-MULTI	LITHIUM4
08C 08 1590	Battery charger	20.61	29.25	49.50
Nominal voltage	V	100	100	100
maximum charging current	A	0.5	0.8	2
Maximum number of charging points		4	5	4
Length	mm	119	151.8	129.5
Width	mm	67	47	96
Height	mm	77.4	149.6	33



08

LEDLENSER LED torches

LED lenses are amongst the technology leaders for LED torches. Within the **splash-proof aluminium housing**, all the contacts are gold-plated, **high-quality lenses** gather the light uniformly and without losses. All lamps are equipped with focussable lamp head.

Core series Ledlenser, the new generation of the well-known P series.

- Optionally as a disposable battery or rechargeable battery version.
 - 08 1468 – ■ Dimmable.
 - Extremely high protection against dust and water.
 - Easy battery charging using the Magnetic Charge System.

Supplied with:

- 08 1370 – Including batteries.
- 08 1468 – Supplied with USB charging cable.



08 1370_P5-CORE



08 1370_P6-CORE



08 1370_P7-CORE



08 1468_P7R-CORE



08 1468_P4R-CORE



08 1468_P2R-CORE

		P5-CORE	P6-CORE	P7-CORE	P2R-CORE	P4R-CORE	P7R-CORE
04B	08 1370 Core LED torch with batteries	41.31	41.31	58.50	–	–	–
04B	08 1468 Core LED torch with rechargeable battery	–	–	–	22.23	33.84	92.25
	Illumination	150	300	450	120	200	1000
	Illumination step 2	60	25	250	50	90	440
	Illumination step 3	15	–	40	15	15	15
	Working life	2.5	3.5	1	0.5	1.5	2
	Lighting life stage 2	5	25	2	1	3	4
	Lighting life stage 3	12	–	25	5	25	90
	Number of batteries contained	1	3	4	–	–	–
	Battery type	Mignon, AA	Micro, AAA	Micro, AAA	–	–	–
	Number of rechargeable batteries contained	–	–	–	1	1	1
	Type of rechargeable battery	–	–	–	Lithium-ion	Lithium-ion	Lithium-ion
	Overall length	120	117	130	103	150	158
	Head Ø	26	26	37	15	15	35
	Weight	83	130	175	36	55	202



LEDLENSER LED headlamp

Powerful **industrial** LED headband lamp with intuitive operation and stepless brightness control, extremely high protection against dust and water thanks to Flex Sealing Technology. Ledlenser Connecting System as a uniform interface permits easy connection with a comprehensive range of accessories.

- **Pivoting head** and stepless focussing function.
- Exchangeable and washable head band.



08 1390_H5-CORE



08 1479_H5R-CORE

Type		H5-CORE	H5R-CORE
04B	08 1390 LED headlamp with battery	42.39	–
04B	08 1479 LED headlamp with rechargeable battery	–	68.85
	Manufacturer's designation	H5 Core	H5R Core
	Illumination	200	300
	Illumination step 2	–	15
	Light current boost	350	500
	Working life	–	2
	Lighting life stage 2	20	50
	Number of batteries contained	2	–
	Battery type	Mignon, AA	–
	Number of rechargeable batteries contained	–	1
	Type of rechargeable battery	–	Lithium-ion
	Head Ø	–	32
	Weight	178	167

CLEANING AND BONDING WITH PEACE OF MIND.

Garant GREENPLUS

Your path to products without hazard labels in technical chemistry.

The advantages of GARANT GreenPlus, the real alternative to hazardous substances. For the protection of people and nature.

- Simple application, as there are no hazardous substance regulations to follow.
- Health protection and limited hazard potential.
- Strong product performance.

You can find further information on GARANT GreenPlus on our homepage at: <http://ho7.eu/ggp>



Garant GREENPLUS Cleaning agents without hazard labels

- 08 8001 – The **flexible degreaser** for quick cleaning of oils, emulsions and greases. Reliably removes all common materials. Can be mixed with water up to a ratio of 1:10.
- 08 8002 – The **acidic all-rounder** without hazard labels. Removes rust, lime scale and mineral contamination safely and gently. Can be mixed with water up to a ratio of 1:10.
- Size 500 – 500 ml spray bottle made from 100% recycled PET. Can be refilled many times.
- Size 20 – 20-litre can. If necessary, please order the appropriate discharge valve (No. 088010 size 20-30).
- 08 8004 – The **degreaser and finisher** for fast, daily removal of cutting and corrosion protection oils, light waxes, emulsions, sticky residues and other contamination. Meets the highest cleanliness requirements, especially before lacquering, coating and bonding. Drastic VOC-reduction compared to conventional solvents.
- 08 8005 – **Cleans, protects and preserves stainless steel**, aluminium, non-ferrous metals and plastics. Removes dust, fingerprints and oils reliably and easily. Leaves behind a brilliant shine.
- 08 8006 – **Extreme degreasing power** through hybrid technology. Burnt-in contamination, special greases, oils, soot, rubber residue, bitumen, waxes and pastes are loosened using plant extracts and quickly removed from the surface using surfactant technology.
- 08 8001–8006 – NSF certification. Suitable for use in the food industry.

Contents (ml or l)	500	20
01L 08 8001 GARANT GreenPlus Flex Cleaner	7.25	148.50
01L 08 8002 GARANT GreenPlus Acid Cleaner	7.65	157.95
01L 08 8004 GARANT GreenPlus Finisher	8.24	171.90
01L 08 8005 GARANT GreenPlus Inox Care	10.04	213.30
01L 08 8006 GARANT GreenPlus Power Force	7.83	162.45
Version	Spray bottle	Can
Contents	0.5	20
pH value (08 8001)		9
pH value (08 8002)		2.2
pH value (08 8004, 08 8005)		11.4
pH value (08 8006)		10.5 – 11
suitable for can size		20-30
01L 08 8010 GARANT GreenPlus Can discharge valve		5.00

100% recycled PET.
Can be refilled many times.



If necessary, order the appropriate discharge valve.

08



Garant GREENPLUS Weld spatter separation spray without hazard labels

Premium 2-in-1 welding anti-spatter fluid Clean & Weld with cleaning function. Effectively prevents spatter from sticking when carrying out MIG/MAG welding and laser cutting. Thanks to its excellent wetting properties, can also be used as a cleaner before welding.

Contents (ml or l)	500	20
01L 08 8003 GARANT GreenPlus Clean & Weld	7.38	153.00
Version	Spray bottle	Can
Contents	0.5	20
pH value		8,5





Garant GREENPLUS Anaerobic adhesives without hazard labels

Note: Clean the material to be machined in advance with cleaner without hazard labels No. 088004.

Thread locking

The use of thread-lockers prevents the screw fastenings from accidentally releasing and coming undone. The single-component anaerobic thread-lockers are suitable for all thread types and forms. Screw fastenings are sealed. Seizing is reliably prevented.

- 08 8060 – Type **2GP22** low-strength. Medium viscosity. Ideal for easy-to-remove screw fastenings. For securing screws with fine threads.
- 08 8061 – Type **2GP43** medium-strength. Seals and locks many types of screw fastenings. High resistance to vibrations. Quick curing on a high number of ferrous metals. Increased oil tolerance.
- 08 8062 – Type **2GP70** high-strength. For fixing studs, ball bearings and roller bearings which normally can no longer be released. For highly stressed screw fastenings.
- 08 8063 – Type **2GP90** medium-strength. Reliable sealing of cast housings and weld seams. Also for subsequently securing and fixing small screws and cylindrical parts.

Application: **Low strength** – Can be undone with normal tools. **Medium strength** – Can still be undone with normal tools. **High strength** – Can be undone only with special tools or by heating (>150°C).



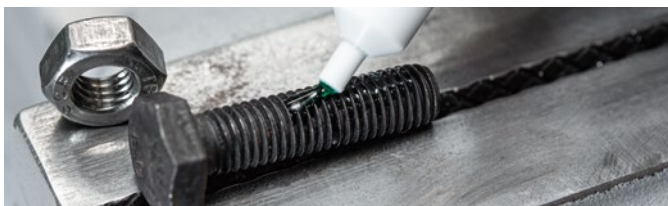
08 8060_50 08 8060_250

Contents	ml	50	250
01K 08 8060 Thread locking 2GP22		29.79	124.65
Operating temperature range	°C	-55 – 180	
Functional strength to for thread size M to	h	3 – 6	
		M36	
Strength class		low strength	
minimum break-away torque	N-m	5.5 – 11.5	
Colour		violet	

Contents	ml	50	250
01K 08 8061 Thread locking 2GP43		29.79	124.65
Operating temperature range	°C	-55 – 180	
Functional strength to for thread size M to	h	3 – 6	
		M36	
Strength class		medium strength	
minimum break-away torque	N-m	15 – 25	
Colour		blue	

Contents	ml	50	250
01K 08 8062 Thread locking 2GP70		29.79	124.65
Operating temperature range	°C	-55 – 180	
Functional strength to for thread size M to	h	3 – 6	
		M20	
Strength class		high-strength	
minimum break-away torque	N-m	35 – 45	
Colour		green	

Contents	ml	50	250
01K 08 8063 Thread locking 2GP90		29.79	124.65
Operating temperature range	°C	-55 – 180	
Functional strength to for thread size M to	h	5 – 8	
		M6	
Strength class		medium strength	
minimum break-away torque	N-m	10 – 15	
Colour		green	



Anaerobic* adhesives harden as soon as the metal surfaces that are to be joined are sealed off from the air.

* Anaerobic = without air

Thread sealant

Thread sealants prevent leakage of gaseous and liquid media. Thread sealants are typically used for sealing conical metal threads and connecting pieces, amongst other things.

- 08 8064 – Type **5GP42**. Sealant for workpieces with threads in hydraulic or pneumatic systems and connecting parts. Effective protection against oil, water, hydrocarbons and chemical products.
- 08 8065 – Type **5GP11**. Seals against water, compressed air, gas, petrol, LPG, and chemical products. Thixotropic. PTFE additive allows easy disassembly. Specially for sealing conical/cylindrical pipe screw connections. When it has cured it creates an elastic coating.
- 08 8066 – Type **5GP77**. Seals conical/cylindrical pipe thread fastenings up to R3 inch, e.g. gas piping systems. Heat-resistant.



08 8065_50 08 8065_250

Contents	ml	50	250
01K 08 8064 Thread sealant 5GP42		24.93	104.85
Functional strength to for thread size M to	h	3 – 6	
		M26	
minimum break-away torque	N-m	15 – 25	

Contents	ml	50	250
01K 08 8066 Thread sealant 5GP77		24.93	104.85
Functional strength to for thread size M to	h	3 – 6	
		M80	
minimum break-away torque	N-m	20 – 30	

Contents	ml	50	250
01K 08 8065 Thread sealant 5GP11		24.93	104.85
Functional strength to for thread size M to	h	1 – 3	
		M80	
minimum break-away torque	N-m	5 – 15	

Flat gasket sealant

Sealant that cures when applied as a hermetic seal between close-fitting metal surfaces.

- 08 8067 – Type **5GP74**. For sealing flanges and surfaces. Quick-curing, slightly flexible sealant film.
- 08 8068 – Type **5GP73**. Medium-strength thixotropic surface seal for sealing metallic threaded parts. Sealing of covers, flanges and surfaces. Quick-curing, slightly flexible sealant film.

Contents		ml	50	250
08 8067	Flat gasket sealant 5GP74		24.93	104.85
Operating temperature range	°C		-55 – 180	
Functional strength to	h		3 – 6	
Maximum gap size	mm		0.25	
Strength class			medium strength	
minimum break-away torque	N-m		10 – 20	

Contents		ml	50	250
08 8068	Flat gasket sealant 5GP73		24.93	104.85
Operating temperature range	°C		-55 – 180	
Functional strength to	h		3 – 6	
Maximum gap size	mm		0.2	
Strength class			medium strength	
minimum break-away torque	N-m		10 – 20	



08 8068_50



08 8068_250

Joint connections

When using joining as a production technique, two or more components are connected through positive contact.

When using the adhesive, the full jointing face is used to establish a solid connection.

It allows for high force transfer and dynamic loads (high shear strength).

- 08 8069 – Type **6GP38**. Quick-curing universal product with very high strength for static shear stresses and dynamic loads. For fixing gears, pulleys, rotor/shaft connections on electric motors.
- 08 8070 – Type **6GP48**. Quick-curing heat-resistant product for fixing cylindrical joint connections. For fixing cylinder liners in engine blocks. Also suitable for fixing bearings in heating furnaces.
- 08 8071 – Type **6GP60**. For repair of worn areas and restoring correct fits. Large gap size suitable. Cured product can be machined by drilling, milling or grinding.

Contents		ml	50	250
08 8069	Joint connection 6GP38		29.79	124.65
Operating temperature range	°C		-55 – 180	
Touch dry after	min		5 – 15	
Functional strength to	h		1 – 3	
Maximum gap size	mm		0.25	
Strength class			high-strength	

Contents		ml	50	250
08 8070	Joint connection 6GP48		29.79	124.65
Operating temperature range	°C		-55 – 180	
Touch dry after	min		5 – 15	
Functional strength to	h		3 – 6	
Maximum gap size	mm		0.2	
Strength class			high-strength	

Contents		ml	50	250
08 8071	Joint connection 6GP60		29.79	124.65
Operating temperature range	°C		-55 – 180	
Touch dry after	min		5 – 15	
Functional strength to	h		3 – 6	
Maximum gap size	mm		0.3	
Strength class			high-strength	



08 8069_50



08 8069_250



Garant GREENPLUS Thread-locking fluid without hazard labels

Securing and identification lacquer without hazard labels.

Protects components against third-party intervention. Protects against corrosion.

Contents		ml	50
08 8072	Thread-locking fluid		12.47
Operating temperature range	°C		-40 – 80
Functional strength to	h		0.5
Colour			red



08 8072



08

2-component adhesive and accessories

2-component adhesive

Tough resilient 2-component adhesive for quick and easy jointing, makes a permanent joint. Cures at room temperature.

Application:

Size DP410; DP490; DP110; DP190; DP100PLUS – Use manual application gun No. 083373 size PISTOLE together with delivery piston No. 083375 size KOLBEN3 and mixing tubes No. 083383 size MIXER.

Size DP8405; DP8610NS; DP8710NS – Use manual application gun No. 083373 size PISTOLE together with delivery piston No. 083375 size KOLBEN10 and mixing tubes No. 083375 size MIXER.



The two NEW products in the range: DP8610NS and DP8710NS



_DP8610NS

_DP8710NS

Manufacturer ID	DP410	DP490	DP8405	DP110	DP190	DP100PLUS	DP8610NS	DP8710NS
083374 3M 2-component adhesive	31.14	–	–	–	–	16.47	22.95	22.95
Chemical basis	Epoxy resin	Epoxy resin	Acrylate	Epoxy resin	Epoxy resin	Epoxy resin	Acrylate	Acrylate
Operating temperature range	-55 – 80 °C	-55	-40	-55	-55 – 80	-55 – 80	-55 – 120	-40 – 120
Touch dry after	30 min	240 – 360	14 – 16	8 – 10	480	20	18	13
Lap shear strength	38 N/mm ²	31	30	17	17.6	24	17.9	6.9
Colour	beige	black	green	translucent	grey	transparent	black	black
Capacity	50 g	50	45	50	50	50	45	45

3M Scotch-Weld™ structural adhesives product selection guide



Type	Feature/suitable for	Static and dynamic loads (vibration and impacts)	Bonding of materials with different thermal expansion characteristics	Bonding of composite	Working time in min	Surface energy		
						high	medium	low
DP410	Good stability under static and dynamic loads. Short processing time.				12	++	+	–
DP490	Good stability under static and dynamic loads. Longer processing time.			✓	90	++	+	–
DP8405	Good stability under static and dynamic loads. Very quick adhesive strength. Very short processing time. High-impact bonding strength on the majority of plastics.				4 – 6	++	++	–
DP100 Plus	Very flexible, quick bonding. Hardens transparent.				4	++	+	–
DP110	Short processing time. Ensures a strong and durable connection, even when subjected to impacts and vibration.			✓	8	++	+	–
DP190	High flexibility and elasticity. High shear strength and peel strength ensures secure and strong connection. Longer processing time.				90	++	+	–
DP8610NS	Quick hardening, minimal surface preparation, high flexibility and elasticity. Low odour.				10	++	+	–
DP8710NS	Quick hardening, minimal surface preparation, improved impact resistance. Resistance to cold temperatures.				10	++	+	–

2-component instant adhesive with high tensile and shear strength, does not shrink and is resistant to many chemicals. Connects **metal, glass, ceramic, wood and concrete** with and to each other. Simple application. The adhesive bond hardens reliably even at low temperatures.

Note: Not available in all countries. Express delivery not available.

Capacity	ml	24	50
083387 WEKEM 5-minute epoxy		10.79	17.72
Operating temperature range	°C	-40 – 80	
Tensile shear strength	N/mm ²	12 – 14	
Colour		transparent	



083387_50

MATO Electro-hydraulic lubrication device

In the mobile MATO eHybrid-Greaser 230 V, a specially developed high-pressure piston pump, with a delivery pressure of up to 400 bar, is driven by an electric gear pump hydraulically with oil. When the 230 V hydraulic gear pump is switched on, hydraulic oil is conveyed to the high-pressure piston pump, so that when the trigger lever is opened, the high-pressure grease gun starts to supply grease. The release of the trigger lever ends the supply of grease/the lubrication process.

- Feature:**
- Hydraulic high-pressure piston pump
 - Electric gear pump with pressure relief, hydraulic oil container incl. oil level sight gauge and filling lid (incl. bleeding)
 - Powder-coated dust cover
 - Special grease sequence piston for optimum emptying of bucket
 - 3.5 m high-pressure rubberised armoured hose DN6 with steel braiding, bursting pressure 1,650 bar (with 6.5 m and 10 m high-pressure rubberised armoured hose available on request)
 - 5 m connection cable with plug safety
 - High-pressure lubrication gun with Z-joint and nozzle tube
 - Sturdy, powder-coated mobile trolley with height-adjustable pump holder, roller-bearing-mounted solid rubber wheels and castor with parking brake.

Supplied with: When delivered, the hydraulic unit is already pre-assembled and filled with hydraulic oil.

High-pressure grease gun with Z-rotary joint

Hydraulic high-pressure piston pump for NLGI-class 000–2 grease

Pump holder, height adjustable

Dust cover

Grease follower plate F010-F0200

Electric gear pump 230 V, 50 Hz, 0.75 kw with:

- Pressure relief
- Hydraulic oil reservoir
- Oil level sight gauge
- Filling lid with bleeding and dipstick

Hydraulic lines for feed and return flow

Sturdy castor with parking brake

Sturdy roller bearing solid rubber wheels with steel rims

Trolley with powder-coated base plate

Type		10	15	18/20-1	25	50	18/20-2
08H 08 4005	Electro-hydraulic lubrication device	(2494.80)	(2494.80)	(2499.75)	(2519.55)	(2564.10)	(2504.70)
suitable for container unit	kg	10	15	18 – 20	25	50	18 – 20
Internal Ø of container	mm	215 – 230	255 – 282	265 – 285	300 – 335	355 – 387	285 – 305
maximum delivery quantity	g/min	320					
maximum lubrication pressure	bar	400					
Motor power	kW	750					
Voltage	V	230					

Barrel and container pumps

Professional crank pump made of cast iron for use under high stress, heavy-duty quality. Robust, powerful, self-priming and completely leak-proof. With barrels for 60 l and 200 l. Conveys heating oil, hydraulic and engine oil as well as diesel.

Suitable for: No. 084241 size 200,
No. 084260 size 200,
No. 084265 size 200,
No. 084270 size 200

Supplied with: Crank pump, 3-piece metal suction tube with base sieve, adjustable G2 inch drum adaptor, with 1-m transparent plastic hose, nominal width 25, incl. 1 roll Teflon sealing tape.



08 4354_60–200



Application example

08H 08 4354	Crank pump	60/200	Manufacturer's designation	Delivery per stroke
		70.69	MZR-003/200	0.3



08

CEJN Hydraulic range 700 bar

Ready-for-use hydraulic sets in a working range of 700 bar with all the necessary components for connection to common single-acting and double-acting hydraulic cylinders.

- 2-stage 1.0 litre hand pump for rapid work progression.
- **100% pressure-tested hoses** for a maximum pressure of 720 bar, manufactured to ISO 22384.
- As standard with the CEJN **CIS hose identification system** for maximum safety.
- 3/8 inch NPT connection thread, coupling system to **ISO 14540**.

Compatibility with more than 80% of the hydraulic systems available on the market.

■ All components can be reordered individually.

08 6052 Size ECO – Entry-level set with all the necessary basic components.

08 6053 Size PRO – Professional set with additional components for efficient and rapid work progress.

- Hose set with coupling and coupling adaptor for quick attachment and separation of the components.
- Pressure gauge for monitoring pressure.
- Sturdy ABS case with foam inlay for secure storage and easy transport to the place of use.



08 6052_ECO

Supplied with:

08 6052 Size ECO – Hydraulic pump, hose set, connection adaptor, **without oil filling**.

08 6053 Size PRO – Hydraulic pump, hose set with coupling adaptor and coupling, pressure gauge, connection block, coupling for the cylinder side, sturdy transport case, **without oil filling**.

Note: Hydraulic pumps must be filled with hydraulic oil before use. We recommend using oils to ISO VG 15 or ISO VG 22.



08 6053_PRO

Hydraulic sets 700 bar

Type		ECO	PRO
08Y 08 6052	Hydraulic sets	529.20	–
08Y 08 6053		–	784.35
Working pressure	bar		700
Number of pressure stages			2
usable tank volume	ml		1000
Hose length	m		2

DYMO Desk label printer LabelWriter



Easy to use desk unit for **quick** (62 labels per minute) and **uncomplicated creation** of address, dispatch, file, name, CD/DVD, and many other labels.

Pin-sharp **direct thermal printing**. Resolution 300×300 dpi.

- For labels up to maximum of 61 mm in width.
- Compatible with **PC and Mac, USB port**, can print address labels directly from Office programs.
- Printing and generating all popular **barcodes and QR codes**, special characters and graphics files with **300 dpi resolution**.

Supplied with: With mains adapter, USB cable, software CD, starter roll of labels 28×89 mm.



08 5505_LW550

Type		LW550
08U 08 5505	Label printer LabelWriter	193.50
Type		LW550
Length	mm	270
Width	mm	140
Height	mm	160

Labels

Label width×label height	mm	25×54	28×89	36×89	54×101
08Q 08 5565	Address label set, white	14.36	15.84	30.69	–
08Q 08 5567	Dispatch label set, white	–	–	–	27.54
Number of labels per roll		500	130	260	220
Number of rolls		1	2	2	1



08 5565_28×89








































































08 5567_54×101

WIPES

Wiping cloth solutions from Wypall® and Kimtech™.

Each individual product is designed for a wide variety of cleaning tasks, from the Wypall® range of professional paper wipes and industrial wipes through to the Kimtech™ range for special cleaning.

From simple wiping up of spilt liquids through to complex cleaning tasks in industry, from hospitals to extremely demanding production environments – Wypall® offers very high performance and consistent quality. The following overview helps you to choose the right product to make your workplaces healthier, safer and more productive.

The right wipe for every task	Absorbency	Tear resistance	Rough surface	Oil & grease	Solvents	Spilt liquid	Dust & dirt	Sensitive surface	
		1–10							
Can be used once – for various applications for cleaning and maintenance, and for removing coarse dirt and liquids.									
Wypall® L10 wipes. For light cleaning of the surface.			3						
08 9280									
Wypall® L20 wipes. For light cleaning of the surface.			3						
08 9281									
Wypall® L30 wipes. For maintenance work.			4						
08 9282									
Wypall® L40 wipes. For coarse dirt and liquids.			4						
08 9283									
Reusable – removal of oil and dirt – for light to demanding cleaning tasks.									
Wypall® X60 wipes. For light removal of oil and dirt.	 		6						
08 9284 08 9285									
Wypall® X70 wipes. For general removal of oil and dirt.	 		7						
08 9286 08 9287									
Wypall® X80 wipes. For demanding removal of oil, grease and dirt.	 		8						
08 9288 08 9289									
Wypall® X90 wipes. For demanding removal of oil, grease and dirt.			8						
08 9290									
Special application – oily hands and tools.									
Wypall® cleaning cloths. For oily hands and tools.			4						
08 9291									

* Check before use on sensitive surfaces.

Kimberly-Clark® wipes and cleaning cloths

08 9292/9240/9241 – Safe, simple and reliable: the **Wettask™** bucket enables more efficient removal of wipes and can be filled with the cleaner and solvent of your choice. The Wettask™ wiping system gives you wipes that are soaked with the desired amount of liquid. As a closed system, the Wettask™ bucket ensures fewer VOC emissions are emitted and enables a reduction in solvent consumption by at least 20%. It can also be stacked to save space.

08 9240 – Wettask™ dispenser system with first-class protection for processes in ESD-sensitive areas and potentially explosive areas.

08 9241 – Wettask™ dispenser system for cleaning cloths, perfect for industrial and medical environments.

08 9242 – Kimtech™ Pure™ cleaning cloths are powerful wipes, which are suitable for use in cleanrooms of ISO class 4 and higher. They are perfect for dry wiping critical devices and surfaces in a wide variety of industries. Low-lint and high absorbency for sensitive applications and surfaces.

08 9243 – Kimtech™ process wipes are perfect for use as reusable wipes for lint-free cleaning with chemicals and solvents.

08 9244 – Kimtech™ lab wipe for cleaning delicate glass equipment, instruments and surfaces.

08 9245 – Kimtech™ precision wipe for cleaning electronic components, contacts and optical lenses.

08 9292 – Wettask™ wipe for solvents for low-lint, powerful cleaning.



Type		W	K	Width	Length mm	suitable for holder / dispenser	
08T	08 9280	WypAll® L10 EXTRA+ wipes Large roll	37.26	–	330	380	089265, 089266, 089267
08T	08 9281	WypAll® L20 Essential™ wipes Large roll	33.48	–	350	380	089265, 089266, 089267
08T	08 9282	WypAll® L30 Ultra™ wipes Large roll	45.72	–	350	380	089265, 089266, 089267
08T	08 9283	WypAll® L40 wipes Large roll	189.00	–	320	340	089265, 089266, 089267
08T	08 9284	WypAll® X60 wipes Brag Box	81.36	–	317	426	–
08T	08 9285	WypAll® X60 multi-task cleaning cloths Large roll	207.90	–	420	380	089265, 089266, 089267
08T	08 9286	WYPALL WypAll® X70 cleaning cloths Brag Box	84.06	–	282	426	–
08T	08 9287	WypAll® X70 cleaning cloths	234.00	–	315	340	089265, 089266, 089267
08T	08 9288	WypAll® X80 wipes Brag Box	77.04	–	282	427	–
08T	08 9289	WypAll® X80 wipes Large roll	160.20	–	315	340	089265, 089266, 089267
08T	08 9290	WypAll® X90 wipes Large roll	160.65	–	300	320	089265, 089266, 089267
08T	08 9291	WypAll® cleaning cloths Dispenser bucket	54.90	–	270	270	–
08T	08 9292	WypAll® Wettask™ low-lint cleaning cloths for solvents	31.14	–	150	305	089240, 089241
08T	08 9240	Kimtech™ Wettask™ ESD wipes dispenser Dispenser bucket	–	127.80	220	235	–
08T	08 9241	Kimtech™ Wettask™ wipes dispenser Dispenser bucket	–	53.46	220	235	–
08T	08 9244	KIMTECH Kimtech™ Science™ lab wipes	–	7.02	200	205	–
08T	08 9245	Kimtech™ Science™ precision wipes	–	10.71	114	213	–
08T	08 9242	Kimtech™ Pure™ wipes Large roll	–	174.15	340	380	089265, 089266, 089267
08T	08 9243	Kimtech™ process wipes Large roll	–	263.70	340	380	089265, 089266, 089267

Wiping cloth dispenser for large rolls

Suitable for: No. 089290 size W, No. 089289 size W, No. 089287 size W, No. 089283 size W, No. 089282 size W, No. 089281 size W, No. 089280 size W, No. 089285 size W, No. 089242 size K, No. 089243 size K

Type		KC	Width mm	Depth mm	Height mm	
08T	08 9265	Kimberly-Clark® Professional™ wall mounted dispenser	110.70	515	328	300
08T	08 9266	Kimberly-Clark® Professional™ floor standing dispenser	93.15	515	960	550
08T	08 9267	Kimberly-Clark® Professional™ floor standing dispenser, mobile	136.80	500	1090	740



NEW PRODUCTS

Workstations and storage

GARANT roller cabinets and accessories



Page 258
ToolTruck for L-BOXX®



Page 261
Support leg with power and compressed air



from page 276
ESD roller cabinets, workbenches and accessories



Page 263
Standing table

GARANT Easyfix and GARANT UNI Line



Page 272
GARANT Easyfix hooks and holders



from page 267
GARANT UNI Line



Means of transport and storage

Page 284
AkkuSafe box



Page 275
Drum unwinder



Page 288
Storage rack for attachment gear



Page 289
Honeycomb racks and sheet material racks





Garant GRIDLINE ToolTruck mobile workbench for L-BOXX®, 500 mm deep

The ToolTruck mobile workbench has a worktop of X-ABS for highly demanding technical applications. Open compartment with 4 pull-out shelves, suitable for 4 pcs. L-BOXX® modular plastic cases, which can be quickly and easily engaged and released.

2 pcs. each L-BOXX® modular plastic case No. 693330 size 102 and size 136 will fit.

Or alternatively: 2 pcs. No. 693330 size 102; 1 pc. size 238 (if 3rd pull-out shelf removed).

Cabinet stiles are clad with LDPE bumpers. Central locking locks door, drawers and pull-out shelves.

91 4574 – Cupboard section with door and 2 storage shelves.

91 4575 – With 6 drawers.

Colour: Two-tone **powder-coated**, silver combined with RAL 7016 anthracite.

Supplied with:

91 4575 – With dividers:

each 75 mm drawer 1 slotted partition No. 951510 size 75;

each 125 mm drawer 1 slotted partition No. 951510 size 125.

Note: Optional storage shelf / side compartment No. 914791 not integrated into the ToolTruck central locking system, locked instead by a separate cylinder lock. See group 95 for further accessories and dividing material.



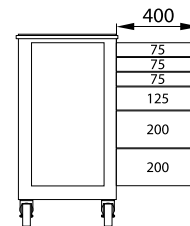
Application example: Cover of the L-BOXX® can be opened fully.

Suitable L-BOXX® size

102
102
136
136



Application example



Type	4	
9GT 91 4574	ToolTruck mobile workbench for L-BOXX®	973.94
Height	mm	1000
Width	mm	1195
Depth	mm	500
Pull-out shelf usable width	mm	370
Weight	kg	89

Type	10	
19G 91 4575	ToolTruck mobile workbench with full extension drawers for L-BOXX®	1218.20
Height	mm	1000
Width	mm	1195
Depth	mm	500
Drawer usable width	mm	400
Drawer usable depth	mm	400
Drawer usable width in G		16
Drawer usable depth in G		16
Pull-out shelf usable width	mm	370
Weight	kg	104

Transport made easy

Further transport options for L-BOXX® can be found in Volume 3 Workstations and Storage Group 91 and in Volume 2 Hand tools Group 69.



250 kg



Work trestle/support frame

Work trestle made from aluminium. Steplessly height adjustable from 700 – 1000 mm. Exchangeable wear cover made from spruce wood. (1000 × 60 × 25 mm). Secure locking using the taper handle on each adjustment tube. Cross bracing on both parts. Feet with adjustable screws for level adjustment. Stile ends with cover caps. Delivered fully assembled.



91 9960



Application example

Type	1	
91 9960	Work trestle/support frame	(314.64)
Height adjustment range	mm	700 – 1000
Footprint width	mm	500
Footprint depth	mm	780
Safe working load	kg	250
Weight	kg	7

Level adjustment



Wear cover



Height adjustment



Large boxes

Sturdy stackable transport boxes made from sheet metal with W-post design and angled support. With sturdy folded wall section similar to pipes at the top, sturdy round beading in the wall and floor area as well as dimpled label field for freight stickers (freight stickers can be easily removed from the raised dimpled area). With longitudinal skids, welded to be oil and waterproof. Sturdy stacking and attachment brackets with lifting eyes. Large containers can be lifted by crane using certified crane crossbar in vertical pull chains with hooks. Access height 100 mm.

96 3560 – Solid sides.

96 3561 – With drop-down side.

Colour: Mouse grey RAL 7005.

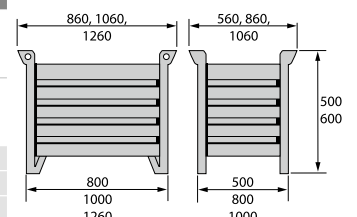
Note: Also available in the colours fire red RAL 3000, reseda green RAL 6011 and gentian blue RAL 5010. Please contact us.



96 3561

96 3560

Usable depth × usable width	mm	800×500	1000×800	1200×800	1200×1000
96 3560	Stackable transport boxes with fixed sides	(303.26)	(416.07)	(523.71)	(571.32)
96 3561	Stackable transport boxes with drop-down side	(362.25)	(475.07)	(582.71)	(630.32)
Height	mm	570	670	670	670
Width	mm	560	860	860	1060
Depth	mm	860	1060	1260	1260
Capacity	mm	400	500	500	500
Stacking height maximum	mm	500	600	600	600
Drive-in width	mm	360	660	660	860
Drive-in depth	mm	660	860	1060	1060
Safe working load	kg	1000	1000	2000	2000
Stackable load	kg	5000	5000	10000	10000
Weight	kg	27	42	53	60





Garant Workstations with electric height adjustment, for light loads

Base frame with lift unit with cross braces for stabilisation at the side and rear.
50 mm thick worktop made of dark Eluplan.
Size 1250; 1500; 2000 – Work bench without side plates, not suitable for installing in a row.
Size 1250/S; 1500/S; 2000/S – Work bench with side plates, suitable for installing in a row.

Colour: Height-adjustable feet in black, cross braces in RAL 7016 anthracite **powder-coated**.

Recommendation: Light assembly work, sitting and standing.

Note: Because of the maximum load capacity, only mobile casings should be used. Avoid attaching casings under the worktop. Further attachments would reduce the load capacity correspondingly. Delivered fully assembled.



3D view
3D visualisation in the eShop.



Type		1250	1250/S	1500	1500/S	2000	2000/S
9GG 92 0301	Workstation with electric height adjustment Load capacity max. 250 / 200 kg dark Eluplan worktop	(2168.33)	(2332.89)	(2462.27)	(2607.17)	(2586.47)	(2725.16)
Height adjustment range (worktop surface) from – to	mm	610 – 1200	720 – 1200	610 – 1200	720 – 1200	610 – 1200	720 – 1200
Worktop length	mm	1250	1250	1500	1500	2000	2000
Worktop depth	mm	750					
Worktop thickness	mm	50					
Lifting speed	mm/s	38					
maximum load capacity	kg	250	250	250	250	200	200
Weight	kg	94	98	101	105	115	119



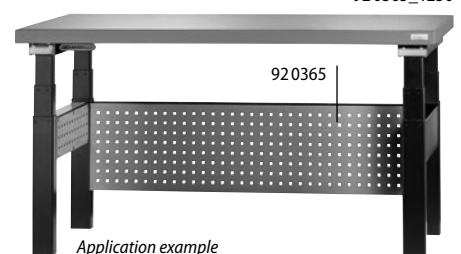
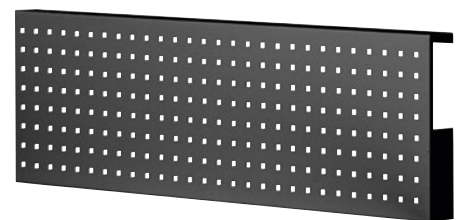
Garant Perforated panels for workstations with electric height adjustment, for light loads

Made of folded sheet metal with □ 9x9 mm holes at 37 mm pitch.
For attachment to the back of workstations with electric height adjustment, for light loads.
Perforated panels are bolted to the rear cross braces from within.

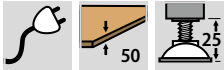
Suitable for: Workstations with electric height adjustment, for light loads No. 920301 – 920338.

Colour: Anthracite RAL 7016 **powder-coated**.

Supplied with: Fastening material.



suitable for worktop length	mm	1250	1500	2000
9JS 92 0365	Perforated back panels	(60.86)	(77.83)	(112.82)
Height	mm	334		
Width	mm	1005	1245	1745
Weight	kg	6	7.4	9.5



Garant Workstations with electric height adjustment, for medium loads

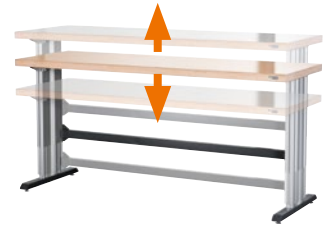
Base frame with anodised aluminium lift unit. With cross bracing for stabilisation. 50 mm thick worktop made of beech marine ply. Stepless height adjustment from 740 - 1140 mm, quickly and easily selected using the control panel. Control panel with memory function for 3 different working heights.

Colour: Base frame with aluminium lift unit and steel hollow section RAL 7016 anthracite **powder-coated**.

Supplied with: 4 floor levelling screws.

Recommendation: Ergonomic working for seated and standing tasks!

Note: Only cabinet bodies up to maximum 500 mm height can be installed under the worktop.



Type		1500	2000
91S 92 0311	Electrically height-adjustable workstation (2 lift columns) Load capacity max. 500 kg	(2524.37)	(2379.47)
Height adjustment range (worktop surface) from – to	mm	740 – 1140	
Width	mm	1500	2000
Depth	mm	700	
Worktop thickness	mm	50	
maximum load capacity	kg	500	
Weight	kg	75	88

Type		1500	2000
91S 92 0316	Electrically height-adjustable workstation (4 lift columns) Load capacity max. 1000 kg	(4114.13)	(3878.15)
Height adjustment range (worktop surface) from – to	mm	740 – 1140	
Width	mm	1500	2000
Depth	mm	700	
Worktop thickness	mm	50	
maximum load capacity	kg	1000	
Weight	kg	86	101



Garant GRIDLINE Individual components

Of steel hollow section, 50 mm wide with cross bracing and mounting for height adjustment at 25 mm intervals.

Feet with plastic pads, do not damage the floor.

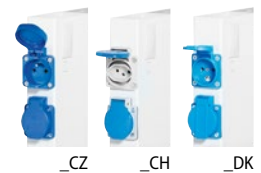
With cable slots - for simple and professional routing of media cables / power cables.

Colour: RAL 7035 light grey **powder-coated**.

Supplied with: Support leg with two Schuko sockets with fastening materials, not wired.

92 7067/7068 – Incl. compressed air coupling and 3/8 inch compressed air connection up to 10 bar.

Note: Support legs without rear panel or cupboards require stabilising plates No. 927122 for stiffening. The height is to the underside of the worktop.



		DE	CH	FR	DK	CZ
9GG 92 7062	Support leg with power	Height 800 mm	(132.48)	(132.48)	(132.48)	(132.48)
9GG 92 7063		Height 900 mm	(137.66)	(137.66)	(137.66)	(137.66)
9GG 92 7067	Support leg with power and compressed air	Height 800 mm	(163.53)	(163.53)	(163.53)	(163.53)
9GG 92 7068		Height 900 mm	(168.71)	(168.71)	(168.71)	(168.71)
Width	mm	50				
Depth	mm	700				
Socket type		F	J	E	K	E
Nominal voltage	V	250				
Rated current	A	16	10	16	16	16
suitable for worktop depth	mm	750				



24x24 G 600x600 mm	30x24 G 750x600 mm	40x24 G 1000x600 mm	24x28 G 600x700 mm	30x28 G 750x700 mm	40x28 G 1000x700 mm	50x28 G 1250x700 mm	60x28 G 1500x700 mm
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75 kg 100% 20G 24G

Garant GRIDLINE Tool cabinets 24x28 G, with drawers 20x24 G

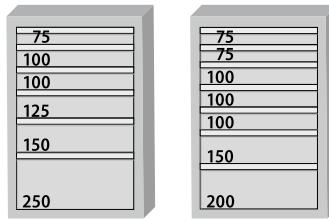
Completely equipped tool cabinet in 24x28G, with drawers 20x24G. Can be locked centrally with a cylinder lock. **100% full extension drawers** with differential runners. Drawers with slots at 25 mm intervals (from drawer front height 75 mm). An anti-tilt device prevents more than one drawer being opened at one time.

Colour: Cabinet body and drawer body RAL 7035 light grey, drawer fronts RAL 7016 anthracite, **powder-coated. Drawer body not configurable, always RAL 7035 light grey.**

Note: When lifting and transporting the cabinet, make sure the drawers are well secured within the casing.



Overall height 900 mm



Height mm / number of drawers		900/6	900/7
9GK 93 1005	Tool cabinet complete with drawers 75 kg	20x24G 956.34	1045.35
Height	mm	900	
Width	mm	600	
Depth	mm	700	
Usable height	mm	800	
Drawer usable width	mm	500	
Drawer usable depth	mm	600	
Drawer usable width in G		20	
Drawer usable depth in G		24	
Weight	kg	109	118

PERFECT PROTECTION AND SYSTEMATIC ORGANISATION.

Irrespective of whether you have to store delicate measurement tools or workpieces – we offer you the optimum means of protection for storage in drawers or on pull-out shelves. **Three levels of practical, clean and safe storage:**

BASIC STORAGE

Clear storage

- 1. GARANT GridLine slotted partitions and divider inserts.
- 2. GARANT GridLine easyPick small parts storage bins.
- 3. GARANT GridLine 1-component troughs and divider plates.

PREMIUM STORAGE

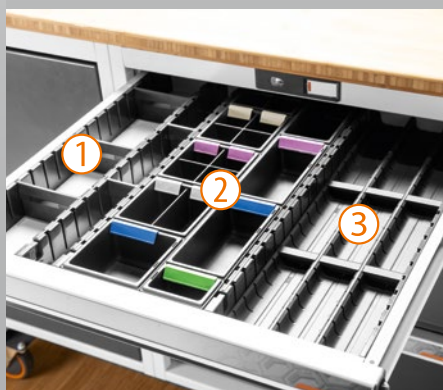
Protective storage

- 1. GARANT GridLine 2-component troughs.
- 2. GARANT GridLine Comfort Close damping system.

PREMIUM PLUS STORAGE

Very secure storage

- 1. GARANT GridLine rigid foam inlays. Your tools are not just securely stored, any missing tool can be spotted at a glance.



Garant GRIDLINE Ribbed rubber cover tops / covers

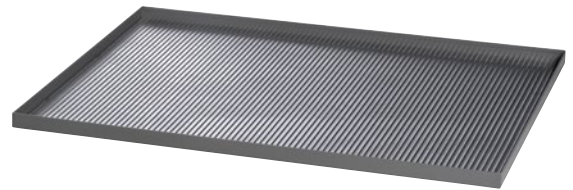


Cover tops with ribbed rubber mat / ribbed rubber covers, suitable for tool cabinets and cabinets.
Sheet metal cover top with anti-roll lip on 4 sides, black, including ribbed rubber mat. Anti-roll lip height 25 mm.

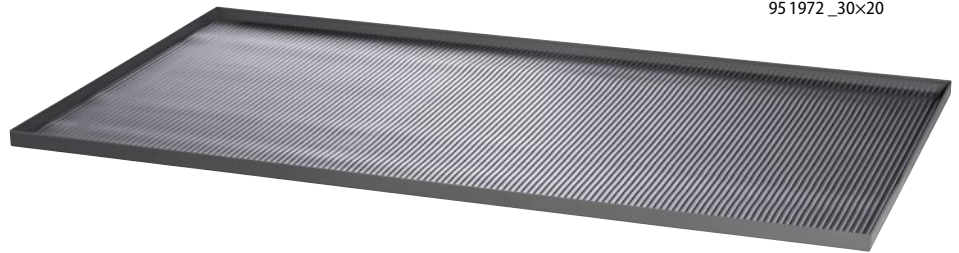
Standard: REACH regulations are satisfied.



Application example

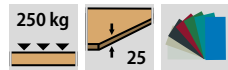


95 1972 _30x20



95 1972 _50x28

Dimension in G		20x20	30x20	40x20	50x20	24x24	30x24	40x24	24x28	30x28	40x28	50x28
95 1972	Sheet metal cover top with anti-roll lip on 4 sides	92.32	106.61	122.65	140.25	93.77	124.72	145.42	113.34	136.11	163.02	187.34
Width	mm	500	750	1000	1250	600	750	1000	600	750	1000	1250
Depth	mm	500	500	500	500	600	600	600	700	700	700	700
Width in G		20	30	40	50	24	30	40	24	30	40	50
Depth in G		20	20	20	20	24	24	24	28	28	28	28
Ribbed rubber thickness	mm	3										



Garant Standing table

Standing table of folded sheet metal sections with integral cable ducts underneath the desk top. With 2 cable slots in the table legs (suitable for Schuko plugs). Worktop and intermediate shelf of 25 mm thick bamboo board, oiled, with no residue. Lower shelf is height-adjustable.

Colour: Feet and base frame anthracite RAL 7016 powder-coated.



97 4204



Detail

Type		750
95 1972	Standing table	(568.22)
Height	mm	1080
Width	mm	750
Depth	mm	750
Worktop thickness	mm	25
Height adjustment range of lower shelf	mm	306 – 906



EFORM – THE ONLINE CONFIGURATOR



Further information about our **eForm Online configurator** and our rigid foam inlays can be found in our brochure:



The **eForm online configurator** with its many technical refinements offers you the ideal basis for designing your tailor-made rigid foam inlays. As it has done for many years.

Individual on-line planning:

Our on-line configurator allows you to design your own individual rigid foam inlays. You determine where each tool is placed.

Easy handling:

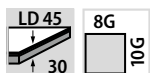
No complicated downloading of software. Use drag-and-drop to select your items from more than 53,400 tools or tool contours in the familiar Hoffmann Group item classes, insert them and position them as you wish.

Cost transparency:

Online calculation, quotation, consistent scanning costs and a project archive. Ready configured rigid foam inlays can be re-ordered without problems, at a top price-performance ratio.

Ready-configured foam inlays:

For EXPLORER cases, GARANT modular boxes, L-BOXX modular cases, Raaco small parts cases CarryLite and Euroboxes can be found in the eForm online configurator at www.hoffmann-group.com



PB SWISS TOOLS Rigid foam inlay for L-wrenches for Torx® screws

Number of tools	17
91A 95 3145	L-wrenches for Torx® and hexagon key L-wrenches 104.94
Width	mm 200
Depth	mm 250
Width in G	8
Depth in G	10
Supplied with:	1 pc.
Rigid foam inlay, empty No. 952001 size 953145	
PB SWISS TOOLS L-wrench No. 627140 size 1.5; 2; 2.5; 3; 4; 5; 6; 8; 10	1 pc. each
PB SWISS TOOLS Torx® key L-wrench No. 624850 size TX6; TX7; TX8; TX9; TX10; TX15; TX20; TX25	1 pc. each






Rigid foam inlay for tool sets



Number of tools		5
91A	95 4853 Workshop accessories set	58.41
Width	mm	200
Depth	mm	250
Width in G		8
Depth in G		10
Supplied with:		
Rigid foam inlay, empty No. 952001 size 954853		1 pc.
GARANT LED torch No. 081505 size 125		1 pc.
EDDING permanent marker No. 085130 size R		1 pc.
GARANT comfort safety glasses No. 096200 size CLEAR		1 pc.
GARANT universal knife No. 845020		1 pc.
Snap-off blades, pack of 10, No. 845010 size 10		1 pc.



Number of tools		12
91A	95 4863  Hexagon key L-wrench and workshop accessories set	92.07
Width	mm	250
Depth	mm	250
Width in G		10
Depth in G		10
Supplied with:		
Rigid foam inlay, empty No. 952001 size 954863		1 pc.
GARANT LED torch No. 081505 size 125		1 pc.
GARANT comfort safety glasses No. 096200 size CLEAR		1 pc.
GARANT hexagon key – L-wrench set, 9 pieces, No. 627132 size 9		1 pc.
GARANT universal knife No. 845020		1 pc.



Number of tools		7
91A	95 4875 Personal protective equipment set	48.51
Width	mm	200
Depth	mm	500
Width in G		8
Depth in G		20
Supplied with:		
Rigid foam inlay, empty No. 952001 size 954875		1 pc.
Skin disinfectants Myxal® Sept Gel No. 095820 size 100		1 pc.
LINDESA® PROFESSIONAL skin conditioning cream No. 095720 size 50		1 pc.
GARANT safety glasses No. 096200 size CLEAR		1 pc.
GARANT banded earplugs trio No. 097699 size TRIO		1 pc.
GARANT spare earplugs set No. 097698 size SPARE		1 pc.
GARANT easyPick small parts storage bin No. 951210 size 3×3/1		1 pc.
GARANT easyPick small parts storage bin No. 951210 size 3×6/2		1 pc.



Number of tools		9
91A	95 4988 Workshop accessories set	167.31
Width	mm	250
Depth	mm	600
Width in G		10
Depth in G		24
Supplied with:		
Rigid foam inlay, empty No. 952001 size 954988		1 pc.
GARANT LED torch No. 081505 size 125		1 pc.
Claw retriever No. 081610 size 500		1 pc.
HOLEX telescopic inspection mirror No. 081630 size 30		1 pc.
EDDING permanent marker No. 085130 size R		1 pc.
GARANT safety glasses No. 096200 size CLEAR		1 pc.
HOLEX tweezers, rounded tips, No. 727550 size AM		1 pc.
Snap-off blades set, No. 845010 size 10		1 pc.
GARANT universal knife No. 845020		1 pc.
Telescopic inspection lamp No. 081665		1 pc.



95

Garant GRIDLINE Dividers for drawers

Size 3×6/3 – With 2 fixed dividers, for 3 compartments in the box.

Size 4×4/4 – With 2 fixed dividers, for 4 compartments in the box.

Size 3×6/2; 4×4/2 – With a fixed divider for 2 compartments in the box.

Suitable for:

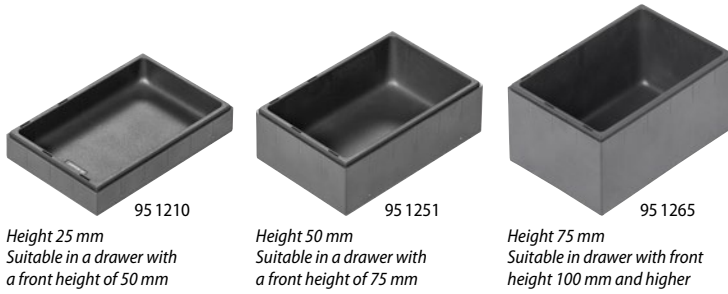
95 1210 – In all drawers with a 50 mm front height.

95 1251 – In all drawers with a 75 mm front height.

95 1265 – In all drawers with a 100 mm or greater front height.



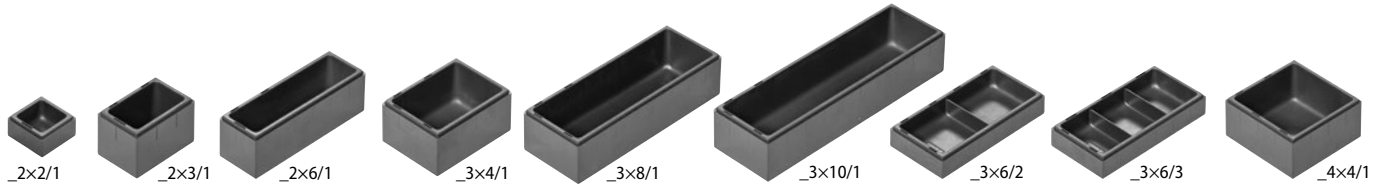
Application example with label holder No. 951314



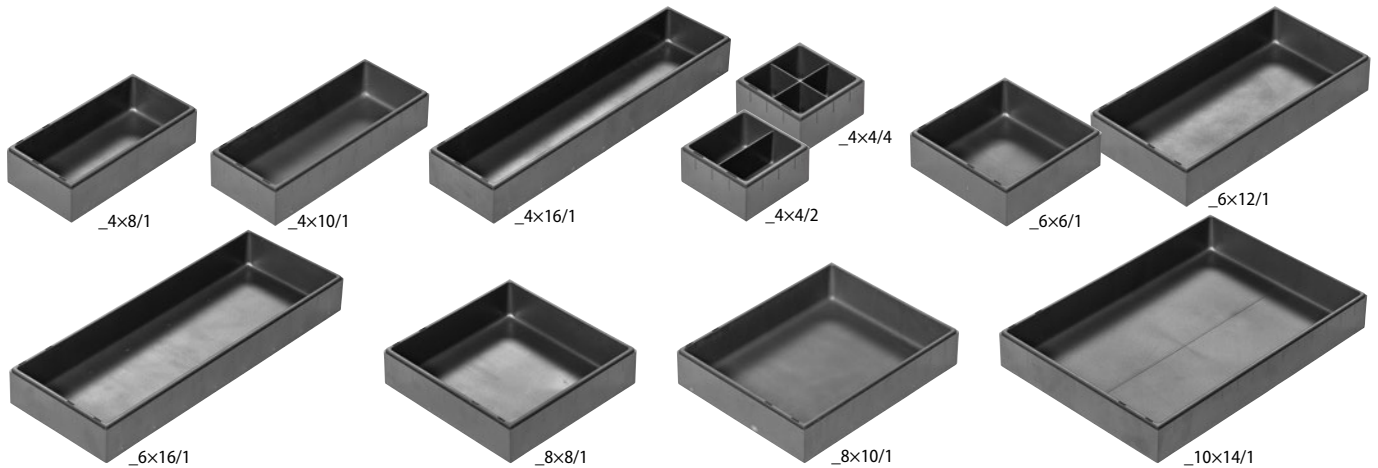
95 1210
Height 25 mm
Suitable in a drawer with a front height of 50 mm

95 1251
Height 50 mm
Suitable in a drawer with a front height of 75 mm

95 1265
Height 75 mm
Suitable in drawer with front height 100 mm and higher



Width×depth in G / type		_2x2/1	_2x3/1	_2x4/1	_2x6/1	_2x8/1	_3x3/1	_3x4/1	_3x6/1	_3x8/1	_3x10/1	_3x6/2	_3x6/3	_4x4/1	_4x6/1
9GB	95 1210 easyPick small parts storage bins Height 25 mm	0.80	0.95	1.07	1.31	1.71	1.15	1.35	1.74	2.18	2.58	1.91	2.08	1.78	2.60
9GB	95 1251 easyPick small parts storage bins Height 50 mm	–	1.19	1.62	1.99	2.67	1.40	1.82	2.30	3.20	4.14	–	–	2.08	2.73
9GB	95 1265 easyPick small parts storage bins Height 75 mm	–	–	–	–	–	–	–	–	–	–	–	–	2.57	3.48
Width	mm	50	50	50	50	50	75	75	75	75	75	75	75	100	100
Depth	mm	50	75	100	150	200	75	100	150	200	250	150	150	100	150
Width in G		2	2	2	2	2	3	3	3	3	3	3	3	4	4
Depth in G		2	3	4	6	8	3	4	6	8	10	6	6	4	6
Number of compartments in box		1	1	1	1	1	1	1	1	1	1	2	3	1	1
Colour		anthracite													



Width×depth in G / type		_4x8/1	_4x10/1	_4x12/1	_4x16/1	_4x4/2	_4x4/4	_6x6/1	_6x8/1	_6x10/1	_6x12/1	_6x16/1	_8x8/1	_8x10/1	_10x14/1
9GB	95 1210 easyPick small parts storage bins Height 25 mm	2.75	3.29	–	–	2.10	2.44	2.50	3.03	4.04	–	–	4.68	5.60	–
9GB	95 1251 easyPick small parts storage bins Height 50 mm	3.47	4.02	4.68	5.99	2.18	2.31	3.30	5.15	5.90	6.39	7.28	4.73	5.25	8.67
9GB	95 1265 easyPick small parts storage bins Height 75 mm	–	–	–	–	–	–	4.38	6.34	–	–	–	–	–	–
Width	mm	100	100	100	100	100	100	150	150	150	150	150	200	200	250
Depth	mm	200	250	300	400	100	100	150	200	250	300	400	200	250	350
Width in G		4	4	4	4	4	4	6	6	6	6	6	8	8	10
Depth in G		8	10	12	16	4	4	6	8	10	12	16	8	10	14
Number of compartments in box		1	1	1	1	2	4	1	1	1	1	1	1	1	1
Colour		anthracite													



THE GARANT UNI LINE SERIES IS GROWING.

Garant UNI LINE

The new **UNI Z-Tower** is available in the U-base form, a semi-high tower with and without side panel. The UNI Z-Tower can be used in both a mobile and stationary capacity, and offers many possible applications thanks to its many accessories, such as a door, drawer module, marking board etc.

UNI panel

Slim column with perforated panel and marking boards on both sides.

UNI wall

Very sturdy double-walled column perfect for installing in a row or as a room divider.

UNI tower

Many different variants for individual applications. Perforated panels on all sides – perfect compatibility with the Easyfix system.

UNI Z-Tower

A semi-high tower with bamboo cover top, with and without side panel. With many optional accessories.

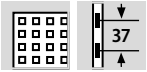


UNI Z-Tower

As versatile as your applications.



Application examples



Garant UNI LINE Z-Tower

Semi-high UNI Z-Tower with 25 mm thick bamboo worktop. All sides inside and outside with perforated panels \square 9x9 mm on a 37 mm grid for attaching perforated panel accessories and Easyfix hooks and holders. Brush strip at the rear for routing cables and additional cable pass-through. Presentable modular provision system for direct access to work materials and quick visualisation of information. Versatile and general-purpose use for various different applications and fittings. Fitting of drawers only possible in size M.

95 5455 – With 4 castors, \varnothing 125 mm, 2 with parking brake.

Size M; L – Z-Tower with side panel. Can be used with marking board No. 955444.

Colour: Two-tone **powder-coated**, silver combined with anthracite RAL 7016. **Not configurable.**

Note: Accessories such as marking boards, attachments, pictograms, storage shelves, drawers, doors and push handles can be found under No. 955474 – 955499.

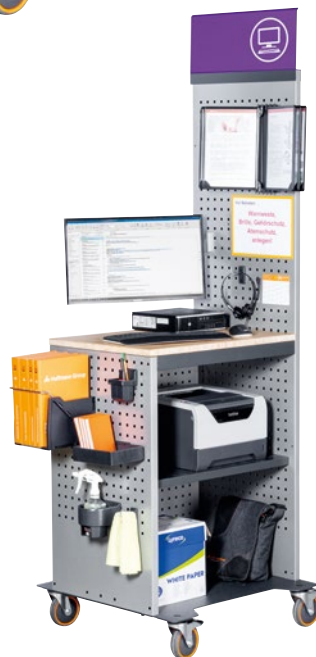


3D view

3D visualisation in the eShop.



Type		SM	M	L
9GC 95 5454	UNI Z-Tower stationary U-shape	489.56	536.13	581.67
9GC 95 5455	UNI Z-Tower mobile U-shape	547.52	593.06	639.63
Height (95 5454)	mm	945	1920	1920
Height (95 5455)	mm	1095	2070	2070
Width	mm		750	
Depth	mm		750	
Usable width	mm	540	540	690
Usable depth	mm		510	
Worktop thickness	mm		25	
Usable height of tower compartment	mm		850	
Weight	kg	69	79	86



Application example No. 95 5455 size L



Application example No. 95 5455 size L

Garant UNI LINE Panel

UNI Panel marking board

Marking board of sheet metal for attaching to UNI Panel No. 955440 and UNI Z-Tower No. 955454 and 955455, in each case size M and L.

Colour: Powder-coated in the respective colour.

Note: Suitable pictograms (various application purposes) for marking boards can be found under No. 955474.

		YELLOW	ORANGE	GREEN	BLUE	PURPLE	GREY
Type							
95 5444	Marking board for UNI Panel L and Z-Tower	20.03	20.03	20.03	20.03	20.03	20.03
Height	mm	220					
Width	mm	540					
Depth	mm	30					
Colour		yellow RAL 1021	orange RAL 2008	green RAL 6037	blue RAL 5015	violet RAL 4008	anthracite RAL 7016



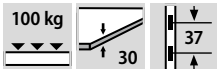
95 5444

Application example on UNI Z-Tower

Garant UNI LINE Accessories

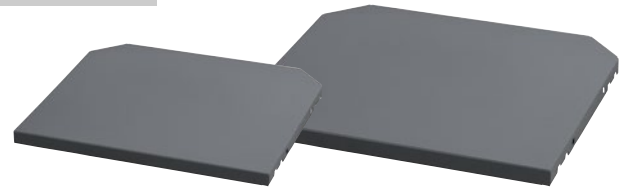
Colour: RAL 7016 anthracite, powder coated. Not configurable.

UNI Tower storage shelves



Storage shelf made from sheet metal for the UNI Tower. Storage shelves are secured against tipping with Easyfix plastic plugs. Rear two corners are tapered at 45° to allow cables to pass through. Schuko plug can be passed through the corner of the storage shelf.

Suitable for: UNI Tower; UNI Z-Tower.



95 5483_M

95 5483_L

		M	L
Type			
95 5483	Storage shelf with cable slot for U-shape	25.36	29.92
Height	mm	30	
Width	mm	540	690
Depth	mm	478	



Application example

UNI Line doors



Doors for UNI Z-Tower made from sheet metal, reinforced on the inside and can be locked by 2-component Haptoprene® slide handle with a cylinder lock.

Suitable for:

Size M – UNI Z-Tower No. 955454 and No. 955455, each in size M.

Size L – UNI Z-Tower No. 955454 and No. 955455, each in size L.

Supplied with: Door hinged on the right with crossbars and door stop.



95 5492_M

95 5492_L

		M	L
Type			
95 5492	Door for Z-Tower	78.25	87.35
Height	mm	794	
Width	mm	534	684



Application example

Garant EASYFIX + Garant UNI LINE

The two systems can be perfectly combined and open up endless possibilities for you.



Experience the GARANT UNI Tower in a video:
<http://ho7.eu/tower>



Garant Accessories for perforated panels

Whiteboard

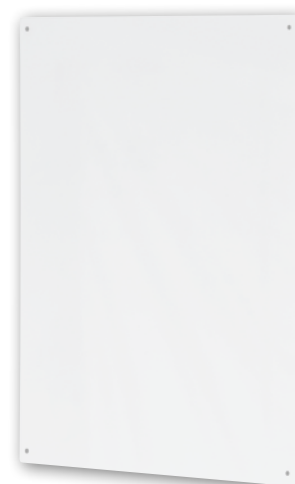
Whiteboard without frame, with white enamelled surface. The board is washable, can be written on and is magnetic. With 4 Easyfix plastic plugs and screws for attachment to perforated panels. Suitable for portrait and landscape format.

Suitable for: Perforated panels □ 9×9 mm in a 37 mm grid.

Note: Suitable whiteboard marker set can be found under No. 974565 size 4 and whiteboard board eraser under No. 974567 size 1.



Application example



95 6812

Type		1
95 6812	Whiteboard	41.40
Height	mm	630
Width	mm	475
Thickness	mm	3

UNI Line sets

Office set for UNI Line

Supplied with: Whiteboard No. 956812 size 1;
 Combination marker set for whiteboard No. 974565 size 4;
 Board eraser No. 974567 size 1;
 4 × magnet stick No. 956810 size 125;
 Waste bin No. 914940 size 24;
 Easyfix hooks and holders:
 1 × plastic box No. 955785 size 73;
 1 × plastic box No. 955790 size 296;
 2 × tool clip No. 955655 size 15;
 1 × economy roll holder No. 955798 size 3.

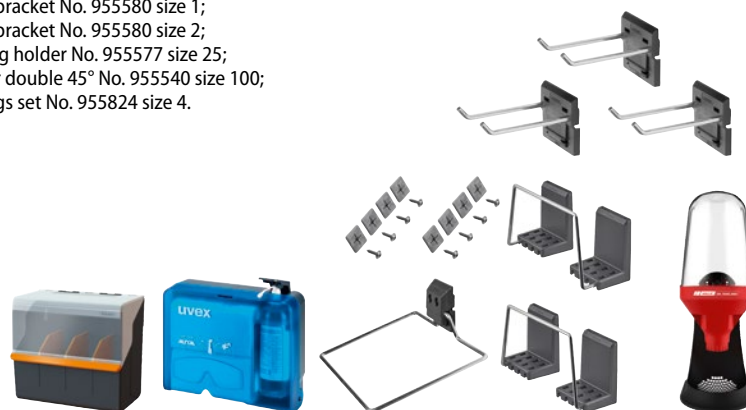


97 0853

Type		16
97 0853	Office set for UNI Line	205.97

Safety set for UNI Line

Supplied with: UVEX glasses cleaning station No. 096695 size STATION;
 HOLEX earplug dispenser No. 097530 size 500;
 GARANT storage box No. 096900 size M;
 GARANT dividers for storage box No. 096905 size S/M;
 Easyfix hooks and holders:
 1 × dispenser bracket No. 955580 size 1;
 1 × dispenser bracket No. 955580 size 2;
 1 × rubbish bag holder No. 955577 size 25;
 3 × tool holder double 45° No. 955540 size 100;
 2 × plastic plugs set No. 955824 size 4.



97 0855

Type		12
97 0855	Safety set for UNI Line	216.32



Application example on UNI Tower No. 955462 size M, with attachment No. 955475 size ORANGE, drawer module No. 955486 size 1, storage shelf No. 955481 size M



Application example on UNI Wall No. 955451 size M with attachment No. 955453 size YELLOW

Garant EASYFIX Plastic and sheet metal holders for storage / provision

Supplied with: All the associated base plates.

Sturdy angle grinder holder made of sheet metal, powder-coated and mounted on base plate.

Suitable for: Wide variety of commercially available industrial angle grinders up to maximum Ø 230 mm.



95 5747



Application example

Type		1
91F 95 5747	Easyfix angle grinder holder	17.52
Height	mm	125
Width	mm	110
Depth	mm	56
Safe working load	kg	6.5

Plug connector holder made of sheet metal, powder-coated and mounted on base plate. With 3 mounting slots for plug connectors per holder.

If 2 holders are mounted alongside each other, mounting is also possible between the two holders.

Width of mounting slot: 6 mm

Width of retaining clip: 12.5 mm

Suitable for: Wide variety of commercially available plug connectors.



95 5799



Application example

Type		3
91F 95 5799	Easyfix plug connector holder	15.30
Height	mm	72
Width	mm	72
Depth	mm	100
Safe working load	kg	5

Application examples for Easyfix hooks and holders



Order made easy:

It's easy to store the GARANT cordless work lamp No. 081442 size 1 on the perforated panel, and charge it at the same time, using the Easyfix base plate.

Exceptionally robust and stable paper roll holder with 2 brackets made from sheet metal.
 With aluminium axle \varnothing 32 mm with plastic end caps.
 Fold-away cover with tear-off edge and retention in open position for convenient replacement of the roll.
 Paper roll can be inserted into 2 positions.
 Front mounting – paper roll \varnothing maximum: 350 mm.
 Rear mounting – paper roll \varnothing maximum: 250 mm.
 Roll core \varnothing minimum: 42 mm

Suitable for: Rolls with maximum roll width 370 mm.

Note: Suitable wipes can be found in Catalogue Volume 2 under No. 089103 size W, No. 089105 size W, No. 089132 size W.



95 5805

Type	1	
91F 95 5805	Easyfix paper roll holder	90.09
Height	mm	310
Width	mm	238
Axial dia.	mm	32
Usable width	mm	370
Safe working load	kg	8



Application example



Garant EASYFIX

+

Garant UNILINE

With a selection of **150 EasyFix hooks and holders**, you can attach any tool or device to our GARANT UNILINE perforated panels. Choose from the universal **steel wire hooks** in two different thicknesses or from the comprehensive **plastic and sheet metal holders** for tools or for storage / provision.

Do you need more than these two systems can provide?

Then simply integrate our GARANT open storage bins and shadowboards. This is very straightforward in combination with GARANT EasyFix. As such, you benefit from even greater order and clarity for the GARANT UNILINE.



95

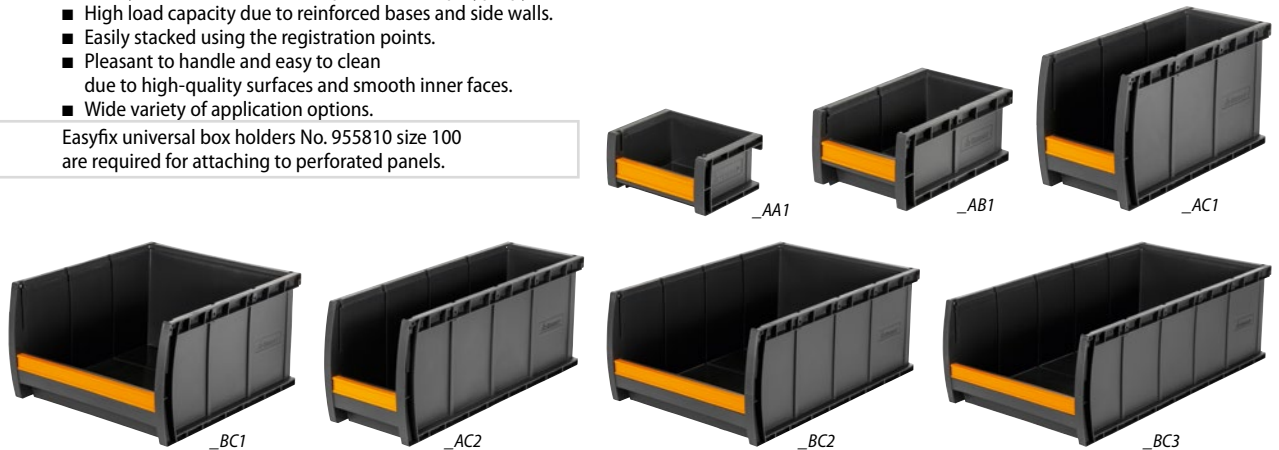
Garant Open storage bins

Open storage bin with ergonomic handle (comfortable to carry). Can be converted to a storage box by fitting a transparent cover. Inner faces polished smooth, allowing easy removal of parts and easy cleaning. Facility to apply labels on labelling strips at the front, and also by inserting cards (credit card size 85.6 × 54 mm) at the back. Open storage bins are stackable.

Advantage: GARANT open storage bins and their advantages:

- Sturdy and stable thanks to impact resistant polypropylene.
- High load capacity due to reinforced bases and side walls.
- Easily stacked using the registration points.
- Pleasant to handle and easy to clean due to high-quality surfaces and smooth inner faces.
- Wide variety of application options.

Note: Easyfix universal box holders No. 955810 size 100 are required for attaching to perforated panels.



Type			AA1	AB1	AC1	BC1	AC2	BC2	BC3
96 3301	Open storage bin	anthracite	3.15	4.37	9.86	13.17	11.74	15.70	18.86
Height		mm	65	90	165	165	165	165	165
Width		mm	130	130	130	264	130	264	264
Depth		mm	103	198	298	298	398	398	498
Colour			anthracite						

Garant Accessories for GARANT open storage bins

Transparent hinged cover protects the contents against dirt and offers security in mobile use.

Suitable for: GARANT open storage bins No. 963301 and No. 963308.



suitable for open storage bin		AB1	AC1	BC1	BC2	BC3
96 3303	Cover	3.27	3.96	7.58	9.50	12.38

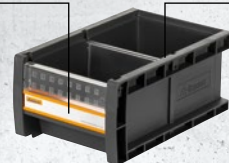
Garant OPEN STORAGE BINS

Perfect system integration and comprehensive accessories for a wide range of options.

- Viewing window
- Cover
- Dividers
- Labelling strips



Plastic-coated labelling strips (No. 963305), for use with marker pens.



Reliable division by clicking in the divider No. 963304.

Viewing window No. 963302 can also be used as a loose goods divider.



Attachment to the perforated panel by Easyfix box holder No. 955810.



Drum unwinder

Compact drum unwinder with loading ramp for cable drums made of wood, steel or plastic. Easy, twist-free unwinding of the cable drum. High-quality, adjustable carrying rollers with ball bearing. Suitable for indoor use only.

Size 500/M – With 4 braked castors.

Size 800 – With side guide rollers with ball bearings.

Colour:

Size 800 – Galvanised

Size 500/S; 500/M – Mouse grey RAL 7005

Note: The drum weights apply only to non-continuous unwinding with undamaged drums.



99 2900_500/S



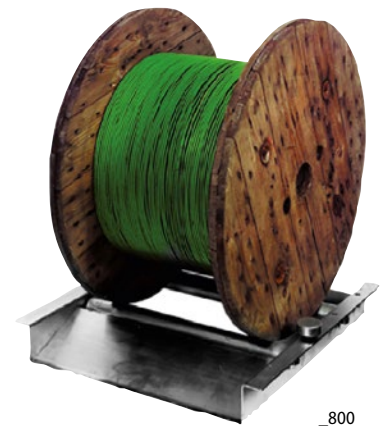
99 2900_500/M



_500/S



Application examples



_800

Type		500/S	500/M	800
99 2900	Drum unwinder	(243.23)	(334.31)	(506.12)
Height	mm	80	80	140
Width	mm	550	550	700
Depth	mm	530	530	700
Drum Ø	mm	150 – 700	150 – 700	400 – 1000
Maximum drum width	mm	520	520	580
Maximum drum weight	kg	140	140	500
Weight	kg	8	10	21

CABLE STORAGE

Further options for cable storage and unwinding for small cable reels with our Easyfix system:



Materials trolley with open storage bins, Multifix rail and shadowboards.

Garant GRIDLINE ESD

EPA = Electrostatic Protected Area



ESD Protective Symbol (for items that possess at least one ESD control property)

ESD-safe zones, so-called EPAs, provide **effective protection** against damage due to electrostatic discharge. **All precautionary measures** are taken here to be able to work with electrostatically sensitive assemblies without damaging them.

A comprehensive EPA zone covers the following (minimum requirement according to DIN EN 61340-5-1):

Workspace / Workstation

An ESD protected workspace should be ergonomically adaptable. Electrostatic charge is dissipated via the working area and a grounding cable, so the workspace remains charge-neutral.

Grounding of personnel

People are the main source of electrostatic charges. Shoes and wristbands with grounding cables are mandatory for employees working in electronics production. Wristband and shoe testers make the daily checking of EPA effectiveness easier. Chairs and standing stools should also have ESD protection.

Tools

To ensure safe handling of your components you should use ESD-compliant tools.

Floor

The floor should be conductive and meet the required limits of DIN EN 61340-5-1. When cleaning ESD floors, use only cleaning products that do not create layers, so that the conductivity values remain within the desired range. If only individual workstations are set up as EPA, ESD floor mats or tiles can be fitted with grounding, but these must be clearly marked.

Measuring equipment

It is essential to test protection devices regularly using measuring equipment. Measurements must always be taken when entering an EPA and regular personnel checks must be performed. Work tables, floor mats and grounding connections must be checked monthly and ESD monitoring instruments must be checked annually.

The discharge resistance should have the following values:

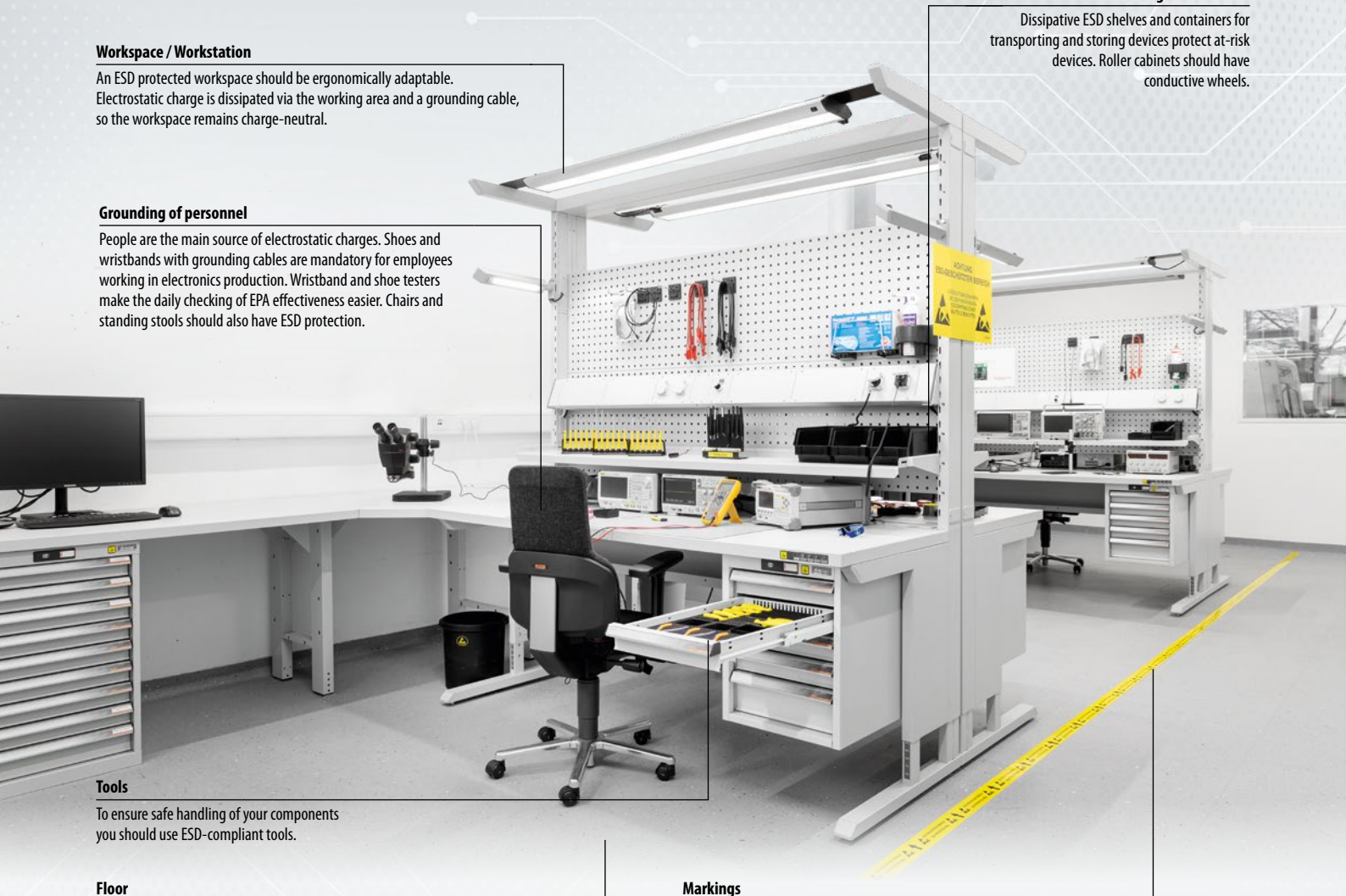
- Work surfaces: less than $1 \times 10^9 \Omega$.
- Floors: less than $1 \times 10^9 \Omega$.
- Chairs/standing stools: less than $1 \times 10^9 \Omega$.
- Tools: less than $1 \times 10^{12} \Omega$.

Storage / Containers

Dissipative ESD shelves and containers for transporting and storing devices protect at-risk devices. Roller cabinets should have conductive wheels.

Markings

Floor markings identify ESD protected areas. Signs and labels are equally important in signalling potentially at-risk devices and assemblies. You can find a video on how to plan an electrostatic protected area on our homepage under the quick link: <http://ho7.eu/esd2>





Garant GRIDLINE ESD cabinet with full extension drawers, 500 mm deep

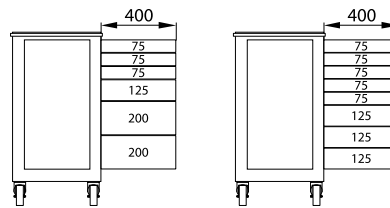
Roller cabinet, **ESD conductive**, to DIN EN 61340-5-1. Shelf of powder-coated, conductive sheet metal, and additional conductive shelf with compartments for small parts and can holder of polyamide, scratch-resistant and does not damage surfaces. **Electrically conductive wheels** each with 2 ball-bearing fixed wheels and 2 castors, with treadless tyres, minimum rolling resistance, low noise and fibre shields. Castors with brakes for the wheels and the castor heads. An anti-tilt device prevents more than one drawer being opened at the same time.

Centrally lockable with a cylinder lock.

Standard: DIN EN 61340-5-1.

Colour: Light grey similar to RAL 7035 **ESD powder-coated**.

Application: Suitable for use in EPAs with a conductive floor covering. The grounding is provided via the wheels; a separate grounding connection is not necessary. All plastic parts are conductive to prevent surface charging.



_6

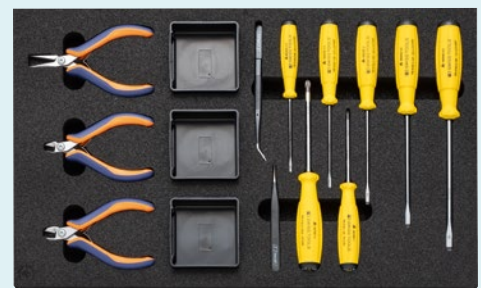
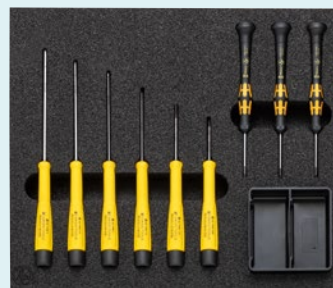
Number of drawers			6	8
9GC 97 1750	ESD roller cabinet	20x16G	1033.97	1172.66
Height	mm		1000	
Width	mm		800	
Depth	mm		500	
Drawer usable width	mm		500	
Drawer usable depth	mm		400	
Drawer usable width in G			20	
Drawer usable depth in G			16	
Weight	kg		71	78

ESD rigid foam inlays



ESD rigid foam inlays can be found in our catalogue Vol. 3 – Workstations and Storage.

Or configure your individual ESD foam inlay using our eForm online configurator at www.hoffmann-group.com



97



Garant ESD workstations with electric height adjustment, for light loads

ESD workstation with electric height adjustment. Non-conductive base frame with lift unit with cross braces for stabilisation at the side and rear. 50 mm thick volume conductive ESD worktop. Control panel is not ESD conductive.

Size 1250; 1500 – Work bench without side plates, not suitable for installing in a row.
 Size 1250/S; 1500/S – Work bench with side plates, conductive, light grey similar to RAL 7035, can be installed in a row.

Colour: Height-adjustable feet in black, cross braces in RAL 7016 anthracite powder-coated.

Recommendation: Light assembly work, sitting and standing.

Note: Because of the maximum load capacity, only mobile casings should be used. Avoid attaching casings under the worktop. Further attachments would reduce the load capacity correspondingly. Delivered fully assembled.



3D view
3D visualisation in the eShop.



Worktop height displayed in the control panel.



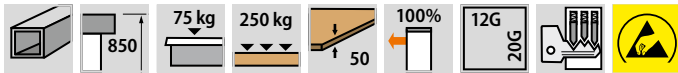
With conductive side plates. Can be installed in a row.

Type		1250	1250/S	1500	1500/S
9GG 97 2017	ESD workstation with electric height adjustment Max. load capacity 250 kg, ESD worktop	(2261.48)	(2387.75)	(2348.42)	(2474.69)
Height adjustment range (worktop surface) from – to	mm	610 – 1200	720 – 1200	610 – 1200	720 – 1200
Worktop length	mm	1250	1250	1500	1500
Worktop depth	mm		750		
Worktop thickness	mm		50		
Lifting speed	mm/s		38		
maximum load capacity	kg		250		
Weight	kg	94	98	101	105

ESD storage and transport

Conductive ESD products for storage and transport are available on request, e.g. pallets, open storage bins, Euroboxes and much more. **Please contact us!**





Garant GRIDLINE ESD Vario workbench

Workbench in sturdy steel construction. Support legs 50 mm wide with cross bracing and mounting for height adjustment at 25 mm intervals. Feet with plastic pads, do not damage the floor.

With 1 pair of stabilising plates for stiffening. Drawer casing 16G can be locked centrally with cylinder lock.

100% full extension drawers with differential runners and 75 kg load capacity.

Worktop made of 50 mm volume-conductive chipboard. Surface coating made of conductive HPL plastic ESDS 0.8 mm.

Underside with counter-balance made of white laminated plastic. All-round 3 mm antistatic ABS edge band.

With internal steel tube as reinforcement profile.

Colour: Casing and supports light grey similar to RAL 7035, **ESD powder-coated.**

Supplied with: 2 × support legs, 1 × pair of stabilising plates, drawer cabinet with drawers, worktop.

Note: Central hole for grounding plug No. 972827 size INT2W on the underside of the ESD worktop. Grounding plug must be ordered separately. Supplied for self-assembly, saving freight costs. Delivered unassembled.

3D view

3D visualisation in the eShop.



Worktop length	mm	1500/3	1500/4	1500/5
9GG 97 2150	ESD Vario workbench with drawer casing 16G, height 850 mm,	12×20G	(1140.57)	—
9GG 97 2151	ESD Vario workbench with drawer casing 16G, height 850 mm,	12×20G	—	(1270.98)
9GG 97 2152	ESD Vario workbench with drawer casing 16G, height 850 mm,	12×20G	—	(1394.15)
Height	mm	850		
Worktop length	mm	1500		
Worktop depth	mm	750		
Worktop thickness	mm	50		
Drawer body height	mm	300	400	500
Drawer body width	mm	400		
Drawer body depth	mm	650		
Drawer body usable height	mm	225	325	425
Drawer usable width	mm	300		
Drawer usable depth	mm	500		
Drawer usable width in G		12		
Drawer usable depth in G		20		
Fitted with:				
Drawer front height, mm		50, 75, 100	75, 75, 75, 100	75, 75, 75, 125





Garant GRIDLINE ESD casing 16G for individual configuration

ESD casing 16G, for individual configuration with drawers



Drawer cabinet with sturdy steel construction.

For 100% full extension drawers with differential runners and 75 kg load capacity.

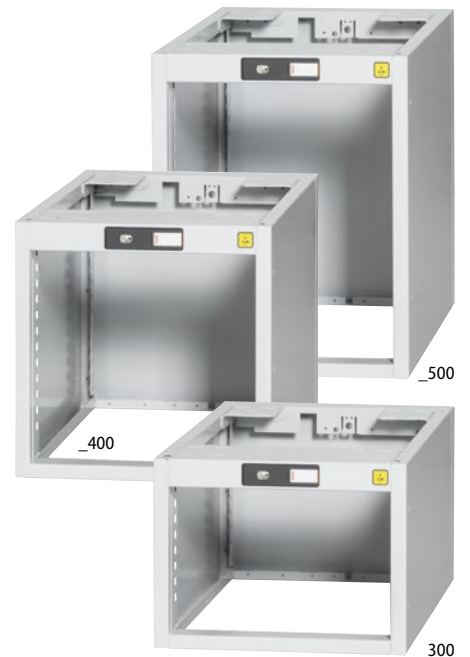
Can be locked centrally with a cylinder lock.

97 2032 – With 2 ball-bearing fixed wheels and two castors (castors with brakes for the wheels and the castor heads) Ø 125 mm with abrasion-resistant, **conductive wheels**.

Colour: Body light grey similar to RAL 7035 **ESD powder-coated**.

Application: Drawer casing for individual fitting to the workstation No. 972010 – 972015 or to ESD workbenches No. 972150 – 972185.

Note: All plastic components (e.g. covering caps) and handles are not ESD conductive. When equipping the casing with drawers, check that the sum of the individual drawer front heights adds up to the usable casing height.



Height of the housing		mm	300	400	500	
9GG	97 2030	ESD casing 16G for individual configuration with drawers	12×20G	(146.46)	(157.32)	(166.12)
9GG	97 2032	ESD casing 16G for individual configuration with drawers wheeled	12×20G	–	–	(442.98)
	Height (97 2030)	mm	300	400	500	
	Height (97 2032)	mm	–	–	675	
	Width	mm		400		
	Depth	mm		650		
	Usable height	mm	225	325	425	
	maximum load capacity (97 2032)	kg	–	–	250	
	Weight (97 2030)	kg	9.5	11.5	13	

ESD drawers 12×20 G



100% full extension drawers in sturdy steel construction, with differential runners and 75 kg load capacity.

Aluminium handles. Drawers with slots at 25 mm intervals to take slotted dividers (from drawer front height 75 mm).

97 2036 – With **individual drawer release system** prevents the opening of drawers during transport. Essential for all roller cabinets and mobile workbenches and cabinet casings.

Suitable for: All ESD casings 16G.

Colour: Drawer body and front light grey similar to RAL 7035 **ESD powder-coated**.



Application example
No. 972032 and No. 972036



Drawer front height		mm	50	75	100	125	150	200	
9GG	97 2035	ESD drawer	12×20G	(102.47)	(104.54)	(107.64)	(109.71)	(111.78)	(117.48)
9GG	97 2036	ESD drawer with one-hand individual drawer release system	12×20G	(115.92)	(117.99)	(121.10)	(122.65)	(125.24)	(130.41)
	Usable height	mm	25	50	75	100	125	175	
	Usable width	mm				300			
	Usable depth	mm				500			
	Usable width in G					12			
	Usable depth in G					20			





ESD maintenance and cleaning

ESD hand brush and dustpan

ESD hand brush and dustpan set made from volume conductive plastic (approx. $10^4 \Omega$) with ESD symbol.



97 2920

Type	2
98E 97 2920 ESD hand brush and dustpan	(74.84)

ESD sweeping broom

ESD-conductive sweeping broom (approx. $10^5 \Omega$) with aluminium handle, conductive bristles, and ESD symbol.

Type	1
98E 97 2922 ESD sweeping broom	(96.43)
Brush width	mm 300
Handle length	mm 1480



97 2922

ESD cleaning set

The ESD cleaner Clean-STAT thoroughly cleans all surfaces. In the process, it maintains their conductivity and leaves no insulating residues behind. Contents of 5 litres corresponds to 125 litres of surface cleaner. The ESD-proof spray bottle has an average surface resistance of 109 to 1010 Ω / m^2 . It dissipates a static charge of + 5000 V at 40% relative humidity in less than 2 seconds. Due to its special composition, it does not react with solutions such as trichloro ethane or alcohol. The pH value of the tested water solution before and after a seven-day test period was unchanged in each case. Changes in colour or material could not be determined.

Supplied with: Set consisting of:
 1 x jerrycan concentrate 5 l
 1 x hand pump (20-30 ml per stroke)
 1 x ESD spray bottle 500 ml.



97 2930

Type	1
98E 97 2930 ESD Cleaning set	(127.22)

ESD cleaning wipes

WIPEX®MICRO ESD cleaning wipes are washable at 90°C, sterilisable and lint free. Discharge resistance approx. $10^{10} \Omega$. Size 400 x 380 mm, Z-fold. Material: 50% polyamide, 50% polyester. Colour: white

Supplied with: 50 wipes



97 2940

Type	50
98E 97 2940 ESD cleaning wipes 50 pieces	(108.90)
Length	mm 400
Width	mm 380

ESD clothing

Always on the safe side: Personal ESD protective equipment can be found in the catalogue Vol. 4.





Garant Ergonomic stool

Standard: DIN 68877



Ergonomic stool Synthetic leather

Stool for dynamic sitting. The seat can be tilted to a 15° angle, allowing 30° variation in seating angle. Comfortable swivel stool of **synthetic leather** with orange offset seam. Seat height adjustable gas pressure safety spring with **ring release**.

Type	1	Height adjustment range mm
ZIT 96 5064 Ergonomic work stool, synthetic leather, with castors	238.05	470 – 630
ZIT 96 5065 Ergonomic work stool, synthetic leather, with glides	230.81	440 – 610
Seat Ø mm	350	
Colour of seat material	black	



Orange offset double seam

Application example

Ergonomic stool Fabric cushion

Stool for dynamic sitting. The seat can be tilted to a 15° angle, allowing 30° variation in seating angle. Comfortable swivel stool of soft mesh **fabric cushion**, comfortable, and breathable. Seat height adjustable gas pressure safety spring with **ring release**.

Note: The breathable mesh fabric is damaged by hook and loop fastenings. Please cover hook and loop fastenings.

Type	1	Height adjustment range mm
ZIT 96 5066 Ergonomic work stool, fabric cushion, with castors	238.05	470 – 630
ZIT 96 5067 Ergonomic work stool, fabric cushion, with glides	230.81	440 – 610
Seat Ø mm	350	
Colour of seat material	black	



Ergonomic stool

Ergonomic stool UP Fabric cushion

Stool for dynamic sitting. Can be moved to the side due to rounded non-slip base plate (360°), allowing the seat to be tilted by up to 10°. Plastic base with gas pressure safety spring, height adjustment by pulling on the red hand loop. Including additional seat cushion, soft, robust and durable, with non-slip underside, made of 100% polyester, washable up to 30°C. Seat and base in RAL 7012 basalt grey, stool body in black, seat cushions in quartz grey.

Standard: DIN 68877



Height adjustment via red hand loop.

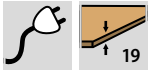
96 5416

Seat colour	GREY	Height adjustment range mm
96B 96 5416 Ergonomic work stool UP	163.53	450 – 630
Seat Ø mm	280	
Stand base Ø mm	330	
Colour of seat material	quartz grey	
Weight kg	4.3	



Integrated carrying channel underneath the seat.

Application example



Office furniture

Electrically height-adjustable office desks

Office desk with electric height adjustment using controls.
 Base construction made up of solid T-leg frame on adjustable feet.
 Electric height adjustment of **740– 1230 mm**.
 Motor with smooth start-up and smooth stop.
 Desk top melamine resin-coated with shock-resistant ABS edges.
 Speed of travel for height adjustment 25 mm/sec (unloaded).
Colour: Frame and top: white.



97 4030

Width	mm	1200
97 4030	Electrically height-adjustable office desk white	(616.86)
Height adjustment range	mm	740 – 1230
Width	mm	1200
Depth	mm	800
Worktop thickness	mm	19
maximum load capacity	kg	70
Weight	kg	40

FRANKEN Multi-functional planner

Universal planner for project and personnel planning. Specially coated steel sheet board with silver anodised aluminium frame with 2 rotatable and labelled frame profiles. You can also label the frame profiles yourself.
 The frame profiles can be turned for least 5 planning options: current annual overview plus preliminary planning for January and February of the following year, monthly overview with space for notes, weekly overview for staff planning, 2-week planners, task and operational planners for up to 14 employees.
 The board is washable, can be written on and is magnetic.
 Clear and space-saving wall mounting possible.
 Dimensions of the daily field: 57 × 13 mm.

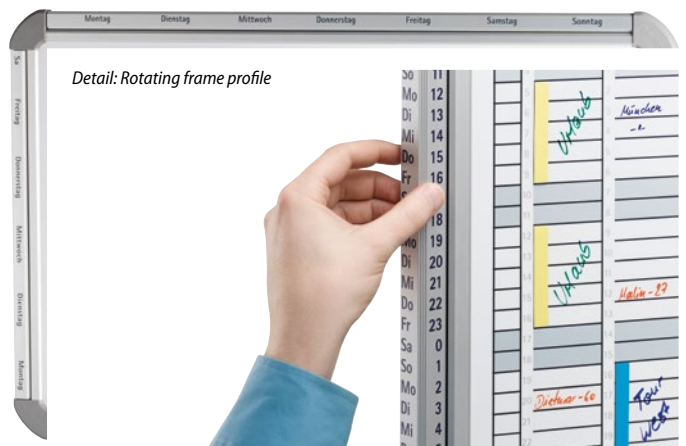
- Supplied with:**
- Planner,
 - 1 × board writer that can be wiped off dry,
 - 1 × water-soluble fine marker,
 - 3 × coloured magnets.



97 4562



Application example



Detail: Rotating frame profile

Width×height	mm	945×615
97 4562	Multi-functional planner	(245.70)
Height	mm	615
Width	mm	945
Weight	kg	7.5



97

AkkuSafe box

High-quality special aluminium container for **secure storage and transportation of lithium-ion batteries**. Suitable for transporting prototypes, new / intact (UN 38.3 tested) as well as damaged or defective / critically defective batteries (observe specification / approval. Request if necessary) in accordance with **ADR SV 376** and packaging regulations **P911**, as well as batteries for disposal and recycling. Successfully passed the fire test as per P911: maximum outside temperature below 100°C, no flames or splinters escaping in the event of an accident.

Non-flammable padding and absorbent material, non-conductive and dust-free. Foamed lid seal. Stackable, with convenient locks. Maximum gross weight, hazardous substance approval: 65 kg.

Size 2 – **Approval for critical defective Li-ion batteries up to 814 Wh.**
Inside use: 3 compartments. No spread of flames to the adjacent rechargeable batteries.

Size 3 – **Approval for critical defective Li-ion batteries up to 1348 Wh.**
Flexible interior use. Highly resistant to puncture, also suitable for power tool batteries.

Standard: UN 3480, UN 3481, UN 3090, UN 3091, SV 376, P903, P908, P909, P910, P911 ADR, GGV.



Application example



_2



Application example



_3

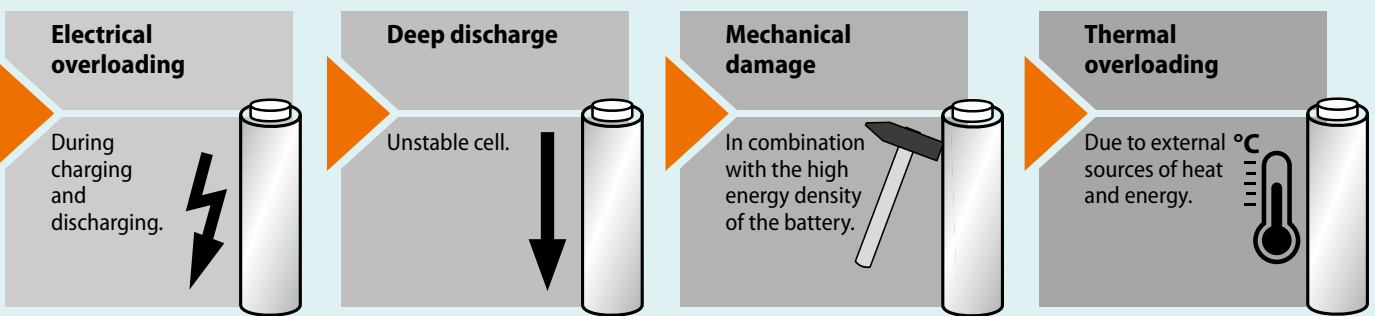
Type		2	3
96L 98 1119	AkkuSafe box	(579.60)	(952.20)
Volume	l	67	42
Height	mm		250
Width	mm		600
Depth	mm	600	400
Usable height	mm	120	100
Usable depth	mm	430	190
Usable width of the compartment	mm	120	390
Number of handles		2	3
max. gross mass, hazardous substance approval	kg		65
Weight	kg		11.5

Storage and transportation of lithium-ion batteries



Lithium-ion batteries are very high-power energy storage devices. Due to their compact design they are increasingly being used. However, lithium-ion batteries entail an increased risk of fire and bursting: Due to their very high energy density, they can spontaneously ignite or become unstable under specific conditions and explode if heated.

Lithium-ion batteries can cause fires. The reasons for this are:



98

Cabinets for active and passive storage of lithium-ion batteries can be found in our catalogue volume 3 Workstations and Storage, Group 98 Environmental technology.

Eye-wash

- Size 1 – **Wall-mounted** eye and face shower with **ABS cover** for indoor use. Can also be set up outdoors, provided there is no possibility of freezing or overheating. Integral cover incorporated with the intake valve. Swinging away the cover causes the shower to be actuated automatically. The cover also ensures that the basin remains clean and free of dirt. Quantity control valve for an optimum amount of water. Ventilated jet regulators offer improved washing performance. To ANSI standard.
- Size 2 – **Wall-mounted** eye and face shower with **open stainless steel basin** for indoor use. Can also be used outdoors, provided there is no possibility of freezing or overheating. Two spray nozzles protected by dust caps which lift off when the eye shower is activated. Quantity control valve for an optimum amount of water. Tightly-woven filter sieves and separate jet regulators ensure a gently flowing jet of water. To ANSI standard.
- Size 3 – **Portable** eye, face and body shower for places that are not suitable as permanent installation locations. 15-litre pressure cylinder made from stainless steel with hose and hand shower permits effective treatment for up to 3 minutes. Pressure gauge and double-acting safety valve prevent overpressure and help with pressure dissipation during cleaning and servicing. Supplied with test label for recording performed tests / maintenance work.



_size 1



Application example size 1



_size 2



_size 3

Shank size		1	2	3
975	98 4150 Eye-wash	(726.66)	(472.23)	(1452.33)
Flow pressure (bar)	bar		2 – 6	
Flow pressure (bar)	lbf/in	29.01 – 87.02	29.01 – 87.02	100
Flow rate	l/min	12	12	6
Installation situation		wall-mounted	wall-mounted	portable
Application range		Internal and external		

Emergency shower

Emergency shower combination for floor mounting with eye and face shower. Suitable for indoor use. With open stainless steel tray for improved corrosion resistance and long working life. Operation of the emergency shower using the hand lever. Use of eye/face shower using the pressure pad or foot pedal. To ANSI standard.

Size 2 – With stainless steel pipework.



Stainless steel pipework.

Shank size		2
975	98 4160 Emergency shower	(1336.50)
Height	mm	2288
Width	mm	350
Depth	mm	741
Flow pressure (bar)	bar	2 – 6
Flow pressure (bar)	lbf/in	29
Emergency shower flow rate	l/min	76
Eye/face washing station flow rate	l/min	12
BSP connection thread	in	1,1/4
Installation situation		floor-mounted
Application range		Internal

984160_2



98



Gas cylinder cabinet

Propane gas cylinder cabinet made from galvanised sheet metal. Natural ventilation through perforated doors and side walls, with lock. For storage of 11-kg gas cylinders indoors and outdoors, to TRGS 510.

Supplied with: Rear panel, side walls, base, shelf, roof, door.

Note: Supplied for self-assembly. Delivered unassembled.



98 1172_10

98 1172_20

Number of gas cylinders		10	20
90F 98 1172	Gas cylinder cabinet	(727.92)	(1393.20)
Height	mm		1475
Width	mm	840	1680
Depth	mm		690
Number of doors		1	2
Weight	kg	75	150

fetra[®] Steel bottle trolley

Welded tubular frame, wheels with solid rubber tyres, hubs with roller bearings. **Safety handles** made from plastic.

Secure retention of the steel bottles by attachable retaining chains.

Size 51101 – For 1 steel bottle 20, 40 or 50 litre contents, Ø 204 – 229 mm. Edged on three sides of the base.

Size 51011 – For 2 steel bottles each 40 – 50 litre contents, Ø 204 – 229 mm. Welding wire holder on both poles.

Size 51111 – For 1 propane petrol bottle 11 kg contents, Ø 300 mm. Edged on three sides of the base.

Colour: Brilliant blue RAL 5007, **powder-coated.**



91 9901_51101

91 9901_51011

91 9901_51111

Shank size		51101	51011	51111
90F 91 9901	Steel bottle trolley	(175.95)	(349.83)	(199.76)
Height	mm	1240	1300	1240
Width	mm	500	830	530
Wheel Ø	mm	250	400	250
Safe working load	kg	100	150	100
Weight	kg	12.5	30	14.5

Flexible containment tray Rigid-Lock Quick Berm®

Drive-in foldable tray made from PVC-coated material. Single-piece construction; quick and easy to set up; no assembly required. The PVC-coated material is resistant to a wide variety of substances, including crude oil, oils, lubricants and most acids. Long-term UV-resistant, ideal for outdoor use.

Rigid-Lock technology: The patented support design maximises the interior of the containment tray and reduces the risk hazard at the outside. They lock the side walls in a 30 cm high, 90° vertical position for a high degree of structural stability. The side walls can be lowered quickly to make it easy to retract and extend. The bracket is in a protective nylon hub, and when engaged in the lower position, it withstands a weight of up to 5000 kg per tyre from vehicle traffic. The hub contains integrated holes to take anchors (anchors not included in delivery).

CriticalCorner™: Reinforced CriticalCorner™ design with wraparound diagonal high-frequency welds and use of electromagnetic energy and pressure generates a continuous, impenetrable connection for a 100 % tight seal. Prevents corners from billowing, unwrapping or sagging, fully sealed for fluid-tight reliability. The walls include a 25-mm fray-resistant finished hem along the top rim for added wall strength and integrity. Seam sealants prevent air, gases, vapours or liquids from penetrating the berm or from seeping out.



Rigid-Lock technology



CriticalCorner™

- Note:**
- For the external dimension, add 203 mm to the width and depth to take into account the supports and hubs.
 - When selecting a containment tray size, a distance of 305 mm should be complied with at the entry or exit point for lowering and lifting the wall.

Rigid-Lock Quick Berm®

Durable drive-in folding tray for drums, IBC containers, and tanks. EnGuard™ V modified PVC-coated material is suitable for positioning heavy materials in the working area, occasional vehicle entry and exit situations and pedestrian traffic.



984100_2820



Application example

Drip catch volume		662	890	1344	2820	5432
975 98 4100	Containment tray, foldable, drive-in Rigid-Lock Quick Berm®	(846.45)	(988.02)	(1093.95)	(1448.37)	(2229.48)
Width	mm	1800	2400	2400	3000	4900
Depth	mm	1200	1200	1800	3000	3700
Tray height	mm			300		

Rigid-Lock Quick Berm® Plus

Durable, heavy-duty, folding tray capable of bearing vehicles, heavy equipment and tankers. EnGuard™ VI modified PVC-coated material is thicker and more robust for frequent vehicle traffic and heavy-duty applications.



984110_9501



Application example

Drip catch volume		4240	9501	16978
975 98 4110	Containment tray, foldable, drive-in Rigid-Lock Quick Berm® Plus	(2690.82)	(4275.81)	(6937.92)
Width	mm	4600	8500	15200
Depth	mm	3000	3700	3700
Tray height	mm		300	

Storage rack for attachment gear

Steel tube stand for storage of lifting tackle such as chains, ropes, lifting slings etc. With 2 height adjustable cross beams and 12 galvanised and adjustable double suspension hooks. Easy disassembly and reassembly for mobile use on building sites. Supplied disassembled, easy assembly with instructions.

Size M – With 4 castors, 2 with parking brake.

Colour: RAL 7035 light grey **powder-coated.**



Application example size S



Application example size M mobile

Type		S	M
97B 91 8620	Storage rack for attachment gear	(1344.47)	(1499.72)
Height	mm	1830	1934
Width	mm		1890
Depth	mm		900
Number of hooks			12
Load capacity per hook	kg		75
maximum load capacity	kg		1000
Weight	kg	91	100

Theft prevention for lifting tackle storage. Consisting of 4 retaining bars including welded-on chain. Retaining bars are pushed through the suspension hooks. Padlock can be used with max. frame dia. 7 mm.

Colour: RAL 7035 light grey **powder-coated.**

Note: Suitable padlock can be found in Volume 2 Hand tools under No. 085812 and No. 085814.



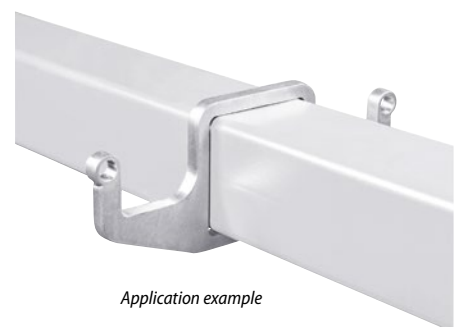
91 8622

Application example

Type		4
97B 91 8622	Theft prevention	(267.03)
Length	mm	1700
Weight	kg	5.6



Adjustable double hook galvanised, 6 pieces.



Application example

Type		6
97B 91 8623	Double hook 6 pieces	(133.52)
Usable height	mm	43
Usable depth	mm	59

91 8623



Honeycomb racks

Long-goods storage racking for clearly arranged and space-saving storage of all kinds of rod-type and flat material.

Powder-coated frame with full compartments of galvanised sheet metal.

Can be stacked once in terms of height, can be extended as required in terms of width.

Includes labelling strips.

Colour: Frame in RAL 7016 anthracite, **powder-coated.**

Note: Supplied for self-assembly, saving freight costs.
Delivered unassembled.



No. 991521 size 5x6 depth 3000 mm



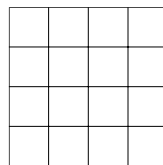
2 x No. 991520 size 5x6
fitted on top of each other



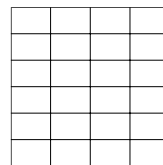
2 x No. 991520 size 5x6 fitted alongside each other



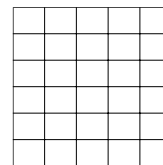
2 x No. 991521 size 5x6
fitted on top of each other



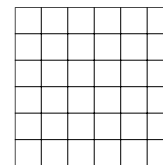
4 x 4 compartments



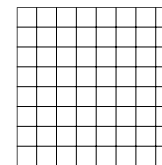
4 x 6 compartments



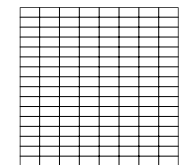
5 x 6 compartments



6 x 6 compartments



8 x 8 compartments



8 x 16 compartments

Type		4x4	4x6	5x6	6x6	8x8	8x16
991520	Honeycomb rack Depth 1000 mm	(2307.02)	(2783.12)	(3018.06)	(3135.02)	(3949.56)	(5851.89)
991521	Honeycomb rack Depth 3000 mm	(3169.17)	(3647.34)	(3963.02)	(4283.87)	(5493.78)	(8742.65)
Height	mm	1000					
Width	mm	1000					
Compartment height	mm	207	130	130	130	90	40
Compartment width	mm	225	225	180	150	110	112
Number of compartments		16	24	30	36	64	128
Load per compartment (991520)	kg	107	107	87	70	54	20
Load per compartment (991521)	kg	300	300	250	200	75	75
Weight (991520)	kg	165	210	225	235	310	475
Weight (991521)	kg	450	540	590	620	820	1235

Sheet racks

Vertical racking in welded steel design for vertical storage of sheet material and panel material made of wood, plastic, etc.

Permits space-saving and clearly arranged storage and quick access to the stored goods.

Sheets are easy to handle via a steel roller / roll-off roller on the removal side. Lower tray of sheet metal.

Colour: RAL 7016 anthracite, **powder coated.**

Note: Supplied for self-assembly, saving freight costs.
Delivered unassembled.



992104



992104

Type		20	25
992104	Sheet rack	(1632.20)	(2388.78)
Height	mm	850	1100
Width	mm	1000	1000
Depth	mm	2065	2565
Number of compartments suitable for sheet metal size		6	6
Load capacity per compartment	kg	2000x1000	2500x1250
Weight	kg	230	295



99

THE IDEAL SYSTEM. FOR YOU.

No matter what you need. We've got what you're looking for.



	HOLEX 24SEVEN		GARANT SMARTLINE			
	flex	space	S11 M	S13	S54	S90
Consideration of item size						
Small to medium-sized items (drills, milling cutters, calipers, screwdrivers, etc.)	•	•	•	•	•	•
Tool arbors						
Larger items		•	•	•		
Particular suitability for selected items						
Personal protective equipment	•	•				
Machining	•		•	•	•	•
Measuring tools			•	•		
Power tools						
Withdrawal, filling and documentation security						
Individual issuing	•	•				
100% secure individual filling	•	•				
Simplified filling	•	•	•	•	•	•
Multiple item withdrawal/shopping basket	• / -	• / -	• / •	•	•	•
Scalability						
Stand-alone operation only	•	•				
Master system for extension			•			
Extension systems				•	•	•
Customisations						
Standard system	•	•				
Configurability			•	•	•	•

SOFTWARE INTERFACES

	HOLEX	GARANT
Interfaces/data exchange (only master and stand-alone)		
Standard issuing formats	•	•
Individual programming		•
Multi-supplier capable	•	•
Connected Manufacturing		•
eShop	•	•
SimpleSystem	•	•

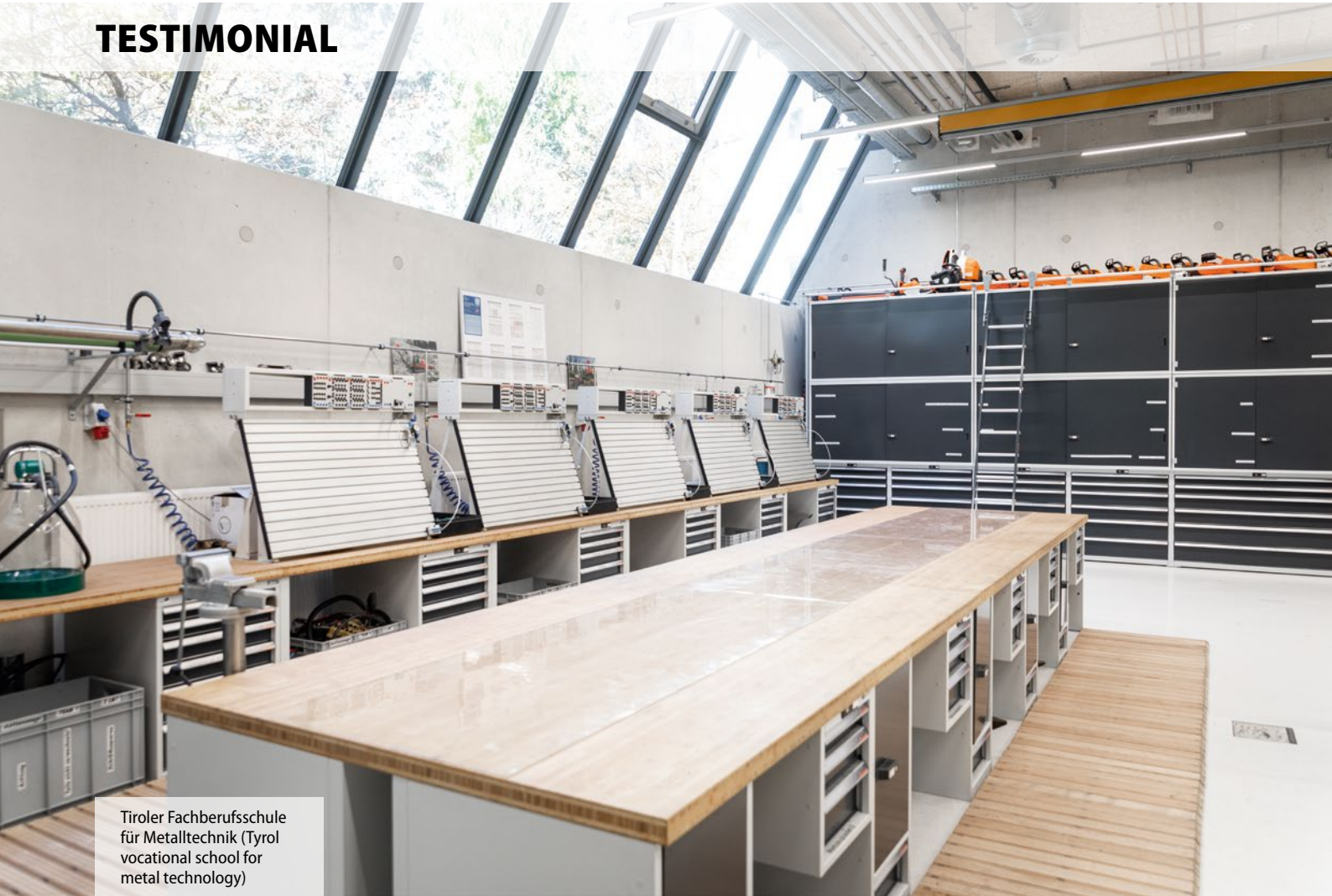


	PICKONE SERIES				LOCKER SERIES		
Upright cabinet	640	448	320	160	450/10	300/14	180/40
	•	•	•	•			
•					•	•	•
	•	•	•	•	•	•	•
•	•	•	•	•			•
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•	•	•	•	•	•	•	•

SOFTWARE EXTENSIONS

	HOLEX	GARANT
Extensions of basic software functions		
Management of measuring instruments		•
Loan tool management		•
New tools, blunt tools, regrinding service		•
Central item and user administration		•
Parts list management		•
Item withdrawal limitation	•	•
Buffer store management and external storage places		•

TESTIMONIAL



Tiroler Fachberufsschule für Metalltechnik (Tyrol vocational school for metal technology)



Hyundai Motor Europe Technical Center GmbH



NEW PRODUCTS

Personal protective equipment



Page 296
uvex i-lite planet comfort safety glasses



Page 296
uvex i-guard planet comfort safety glasses



Page 297
uvex i-guard+ planet safety goggles



Page 300
uvex pheos faceguard face protection



Page 301
HOLEX bump cap



Page 301
HOLEX automatic welding mask



Page 302
Optrel SwissAir powered air respirator



Page 303
JSP PowerCap® Infinity powered air respirator



Page 304
GARANT hydrophobic leather gloves



Page 309
HOLEX heat and cut resistant gloves



Page 314
Blakläder work trousers X1500 Manual crafts



Page 315
Blakläder pile jacket



Page 318
HB chemical protective trousers



Page 318
HB chemical protective jacket



Page 320
uvex 1 G2 planet safety shoe



Page 323
HOLEX Move One safety shoe



IS ALL RESPIRATORY PROTECTION EQUIPMENT THE SAME? PANDEMIC ←

Due to the global COVID-19 pandemic, face masks, particularly so-called FFP masks (filtering face piece), are essential parts of our everyday lives.
But be careful: Because of the identical marking as CE and FFP2, there is a risk that the pandemic masks currently used are also used in industrial environments. Pandemic masks, such as the mask shown here on the left, are not suitable for industrial use (e.g. protection against dust and particles at the workplace).

In the private sphere there was a need for FFP2 masks for brief use during the pandemic, e.g. for a supermarket visit or when on the underground.

Models with ear loops allow them to be put on and taken off quickly. If worn for a longer period of time, these can be uncomfortable or even painful, though. In addition, this type of strap does not ensure a tight fit.

Pandemic masks are smaller, generate higher breathing resistance (lower-quality filter materials) and do not have an exhalation valve. These masks can therefore be produced inexpensively, but are **not suitable for wearing for an entire working day.**



Set 25

SKYLOTEC
Industry-born. Sports-driven.

Pandemic masks

The FFP2 fold-away masks are suitable for environments where the breathable air contains harmful and mutagenic substances, for example. They protect the wearer against solid and liquid aerosols such as mist, dust and smoke in the breathable air.

- Filter materials made in Germany.
 - Hygienic individual packaging.
 - Very good breathability and odourless.
 - Comfortable to wear thanks to carefully selected materials.
 - 4-layer material layer with 94% filter performance.
- 09 7136 – With ear straps.
 09 7137 – With head straps.

Made in Germany



09 7136



09 7137

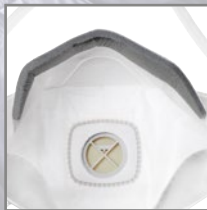
Filter		P2
02R 09 7136	Respirators, set foldable	9.92
02R 09 7137		9.92
Protection level		FFP2 NR
Contents		25

INDUSTRY

Requirements for a particle filter mask for day-to-day working life:



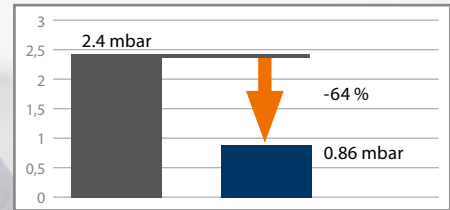
Head strap:
Ensures a tight fit and prevents leaks.
Shape & design:
Larger coverage of the face and the ergonomic shape result in an improved tight fit.



Sealing media:
Additional foam materials increase the wearing comfort on the bridge of the nose and prevent leaks.



Exhalation valve:
Increases wearing comfort and extends the working life of the mask.



High-quality filter media:
Significantly reduce breathing resistance and repel moisture and sweat.
Breathing resistance for FFP2:
Limit value specifications from EN 149: 2.4 mbar.
GARANT particle filter mask: 0.86 mbar.
=> **64% lower resistance to breathing than required**



Garant Particle filter masks

Made in Europe

The **high-performance respirators** impress with numerous high-quality components. Due to their **three-piece design** and **flexible material**, the foldable and space-saving masks offer good visibility and outstanding adjustment to every face shape. This optimum fit is also aided by selecting the right mask size (**size S and size M/L**).

The inner non-woven material is characterised by very **good skin compatibility** amongst other things. In addition, the material reliably repels moisture and sweat. These features ensure particular comfort when wearing the mask, and a comfortable fit.

With the same high filter performance, breathing is noticeably easier because of the high-quality **filter medium**.

The **flexible nose clip** and the soft nose insert inside the mask ensure a secure and pressure-free fit and also ensure a good seal.

As a result, the mask offers reliable protection against solid and liquid aerosols. The **flexible and all-round textile headband system** ensures a comfortable and secure fit and means putting the dust mask on and taking it off is particularly comfortable.

Due to the **folding technology** and **hygienic individual packaging**, it is also easy to carry the mask with you or store it away.

Size P2V; P3V – With **exhalation valve**. The **comfort exhalation valve** allows the heat and moisture of the breathing to escape quickly and easily. This increases the comfort and working life of the mask equally and also reduces the occurrence of condensation on glasses.



Filter		P1	P2	P2V	P3V
OTR 09 7001	Respirators, set foldable	Size S	–	35.55	44.10
OTR 09 7002		Size M/L	19.80	35.55	44.10
Protection level		FFP1 NR D	FFP2 NR D	FFP2 NR D	FFP3 NR D
Contents		20	20	10	10

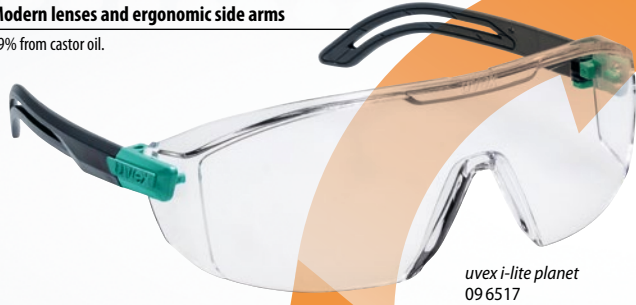
uvex SUSTAINABLE SAFETY GLASSES SERIES

UVEX I-RANGE PLANET

Completely sustainable 3-in-1 safety glasses range uvex i-range offers full protection and covers virtually any risk. Recycled and bio-based materials, environmentally-friendly and resource-conserving.

Modern lenses and ergonomic side arms
39% from castor oil.

Adjustable textile headband
made from recycled yarn.



uvex i-lite planet
09 6517



uvex i-guard+ planet
096521



uvex i-guard planet
096518

Soft, flexible face seating
around 35% recycled granulate from production waste.

Headband hook and couplings
made from recycled PET bottles.

UV 400 | PC

uvex Frame safety glasses

Standard: EN 166; EN 170

uvex i-range planet



Innovative and **sustainable safety glasses** from the uvex i-range planet series. Manufactured in an environmentally friendly manner which conserves resources, through the use of recycled and organic-based materials. The glasses have a **flat lens design** and thus offer an unrestricted field of view. The **x-tended sideshield** provides additional side protection. The **ergonomically shaped arms** ensure a perfect, secure fit without pressure points. Due to the uvex supravision excellence coating the glasses are **permanently free of condensation** and the outside is **scratch resistant and resistant to chemicals**.

09 6518 – With **soft, flexible gasket** for a universal fit and additional protection against liquids, particles and dirt.



096517_CLEAR



096518_CLEAR



Multi-stage arm inclination adjustment.

Lens tinting		CLEAR
04U 09 6517	Comfort safety glasses uvex i-lite planet	9.86
04U 09 6518	Comfort safety glasses uvex i-guard planet	12.96
Lens identification		2C-1.2 W1 FKN



uvex pure-fit

Sustainable safety glasses made of one material and without additional assembly. The glasses are **100% recyclable** and are extremely light-weight. They have an **additional side protection** and **hingeless flexible arms**, which adapt optimally to the shape of the head and ensure a secure fit. Unrestricted view thanks to **frameless lens design**.



09 6519_CLEAR



Hingeless flexible arms.

Lens tinting		CLEAR
04U 09 6519	Safety glasses uvex pure-fit	3.75
Lens identification		2C-1,2 W1 FT



uvex Safety goggles

Innovative and **sustainable safety goggles** from the uvex i range planet series. Manufactured in an environmentally friendly manner which conserves resources, through the use of recycled and organic-based materials. The glasses have a **flat lens design** and thus offer an unrestricted field of view. With **soft, flexible gasket** for a universal fit and additional protection against liquids, particles and dirt. A secure fit that is tailored to the user is ensured thanks to the adjustable textile headband. Sturdy polycarbonate lens with uvex supravision excellence coating, ensures **continuous freedom from condensation** and is **scratch-resistant and resistant to chemicals** on the outside.

Standard: EN 166; EN 170



09 6521_CLEAR



Flexible gasket.



Adjustable textile headband.

uvex i-guard+ planet

Lens tinting		CLEAR
04U 09 6521	Safety goggles uvex i-guard+ planet	15.93
Lens identification		2C-1.2 W1 BKN

UNIVET[®] Accessories

Microfibre anti-condensation cloth that can be used up to 200 times. The cloth leaves behind surfactants on the lenses of the glasses, which **prevent condensation for up to 6-8 hours**. Size: 15x18 cm (LxW).

Suitable for: All popular safety glasses and safety goggles. The anti-condensation effect is independent of the coating on the lens.

Note: It is recommended to clean the lenses before use and store the cloth in the supplied bag.



09 6954

Type		CLOTH	Colour
04H 09 6954	Anti-Fog Cloth	8.91	grey

Garant EARPLUGS



The surface has tight pores to reduce the build-up of dirt. Light contamination can be washed away using warm water and a mild soapy solution. This allows the earplugs to be reused several times.

Garant Reusable earplugs

The reusable **GARANT earplugs** have an innovative shape which resembles the **anatomical opening of the auditory canal**. As a result, they are comfortable to wear, do not exert pressure and offer maximum protection. The stem with recessed grip and the high-strength design enable the earplugs to be **easily inserted with one hand in just a few seconds** by slightly turning them. There is no need to roll them up beforehand.

The polyurethane surface has tight pores to reduce the build-up of dirt. Light contamination can be washed away, which allows the GARANT earplugs to be **reused several times**. The set of 100 pairs (hygienically packed in a polythene bag per pair) is available in a **handy dispenser box**. This is ideal for combination with the Easyfix system from our workstations and storage solutions. SNR = 27 dB (H = 30 dB, M = 23 dB, L = 22 dB).

Size CORD – With handy cord to allow the hearing protection to be worn around the neck on leaving the noisy area.



09 7575_CORD



09 7575_PUSH

Type		PUSH	CORD	SNR value (noise attenuation) dB(A)	Material of earplugs
09 7575	Earplugs set, 100 pairs GARANT	40.41	55.80	27	Polyurethane

3M Reusable earplugs

The **E-A-R™ Flexible Fit HA** earplugs are made of patented foam, which allows the earplugs to be **washable and re-usable** for up to two weeks. **No pre-forming required:** Since the foam tip does not have to be pre-formed, the earplug remains clean, even when used with dirty hands or gloves. The material and the design also permit **quick insertion into the ear canal, even with one hand**. Especially good for activities where hands become dirty and for situations where only one hand is free to insert the earplugs.

Supplied with:

09 7618 Size 125 – E-A-R™ Flexible Fit HA earplugs with cord, 125 pairs, individually packed.

09 7619 Size 100 – E-A-R™ Flexible Fit HA earplugs without cord, 100 pairs, individually packed.

Note: The SNR value (noise attenuation) results from the following:
 Insertion with one hand test results: 30 dB
 Insertion with both hands test results: 35 dB



09 7618_125



09 7619_100

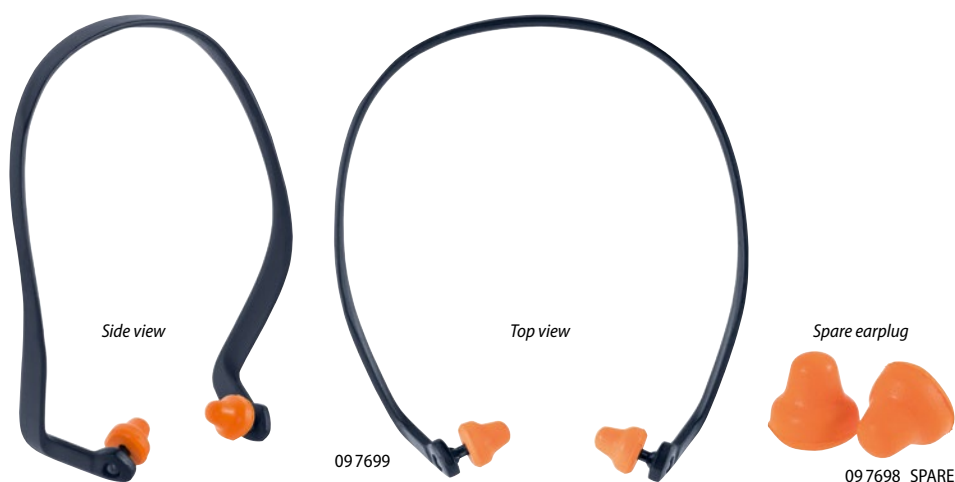


Contents pairs		125	100	SNR value (noise attenuation) dB(A)	Material of earplugs
09 7618	Earplugs set, 125 pairs E-A-R™ Flexible Fit HA with cord	136.78	–	30	TPE
09 7619	Earplugs set, 100 pairs E-A-R™ Flexible Fit HA without cord	–	74.32	30	TPE

Garant Banded earplugs

Thanks to their innovative shape, the banded earplugs GARANT trio can be used in **all three common wearing positions**. This allows the band to be worn around the neck, over the head or under the chin depending on the requirement and/or personal preference. The new type of earplug is based on **anatomy of the auditory canal** and, together with the flexible band joint, ensures full and complete coverage of the auditory canal. In combination with low weight and anatomical band shape – in all three wearing positions – this results in excellent wearing comfort. The surface of the earplugs is made from narrow-pored PU, which reduces the adhesion of dirt. **Replacing the earplugs for hygienic reasons** (replacement earplugs 09 7698 SPARE) can be performed in a very short time in just a few movements.

SNR = 28 dB (H = 30 dB, M = 24 dB, L = 22 dB).



Type		TRIO	SPARE	SNR value (noise attenuation) dB(A)	Material of earplugs
01E 09 7699	Banded earplugs GARANT trio	4.41	–	28	Polyurethane
01E 09 7698	Pack of spare earplugs, 5 pairs GARANT trio	–	1.08	28	Polyurethane

Garant Storage boxes

The GARANT storage boxes made from sturdy ABS plastic permit safe and clean storage of personal protective equipment directly at your workstation – meaning your PPE is available quickly at all times.

With Easyfix adaptor

Attaching to our perforated panels made easy



Two sizes available

Every piece of PPE has its place



Dividers

For splitting into several areas, as required

Foam inlay

For scratch-free storage of four safety glasses

Individual marking
With the enclosed self-adhesive mandatory signs





UVEX Climbing helmets

The multi-function helmet offers a solution to meet many requirements in day-to-day working life. It offers protection in the classic industrial sector, as well as for activities involving the mountaineer's helmet and cycle helmet standard. The short peak allows an extended field of view upwards. Lightweight and hard-wearing safety helmet of ABS. Ventilation openings which can be closed are integrated into the helmet design at the front and rear.

- 6-point strap attachment, height adjustable.
- 30 mm Euro slot mounting.
- Breathable multi-layer sweatband.
- Mesh inner net for greater wearing comfort.
- With rotary catch.
- Supplied with detachable shield.
- Size M.

Standard: EN 397, EN 12492, EN 1078.

Application: Industry, construction, rescue, energy sector, e-mobility.



Colour		WHITE	BLACK	Material of helmet shell
04U 09 7868	Safety helmet uvex perfexxion	99.00	99.00	ABS
Size	cm	52 – 58		
Weight	g	550		

UVEX Face protection

09 7876 – The face protection is based on the uvex pheos visor. The modern and slim design combines technical and ergonomic aspects. It can easily be worn for longer periods of time. The visor has the supravision excellence coating. The Nano-Clean effect ensures easy cleaning. The spring mechanism can automatically pull the visor upwards.

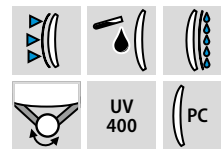
- Stepless locking mechanism.
- Semi-automatic visor kinematics.
- Height-adjustable in 4 steps.
- Rotary wheel ratchet.
- Double neck support.

09 7877 – The ABS bump cap offers additional head protection against impacts. It can easily be fitted to the face protection. It is durable and robust. There are ventilation openings at the front and rear to allow a pleasant climate.

Standard:

09 7876 – EN166, EN170.

09 7877 – EN812.



Face protection and bump cap



		PC	BUMP
04U 09 7876	Face Protection uvex pheos faceguard	40.14	–
04U 09 7877	Bump cap for uvex pheos faceguard	–	14.85
Size	cm	52 – 64	
Weight	g	391	90

HOLEX Bump caps

The industrial bump cap has been produced from a lightweight material (nylon), which is pleasant to wear. It has an adjustable, deep-lying neckband and is thus suitable for a head circumference from 53 cm to 63 cm. The side reflective strips ensure good visibility, even at night. In addition, breathability is ensured by the ventilation mesh. It is available with different peak lengths.

Standard: EN 812



_MICRO



_SHORT



_LONG

Type			MICRO	SHORT	LONG
02K 09 7845	Bump cap	black/red	11.25	11.25	11.25
	Shade length	mm	30	50	70
	Size	cm		53 – 63	

HOLEX Welder's automatic mask

Thanks to its robust design, the automatic welding mask in a classic design offers **reliable protection**. It is suitable for many **different types of welding work**.

The headband can easily be adjusted individually to suit any head shape.

With **exchangeable visors**.

Sensitivity can be adjusted steplessly.

Can be combined as required with other PPE, such as safety glasses or a particle filter mask.

- Shade levels: 9-13.
- Shade level in the light state: 2. With 3 V CR2450 lithium battery (working life 1500 hours).
- Field of view of the welding filter: 53 × 96 mm.

Standard: EN175:B; EN 379; EN 166:BT

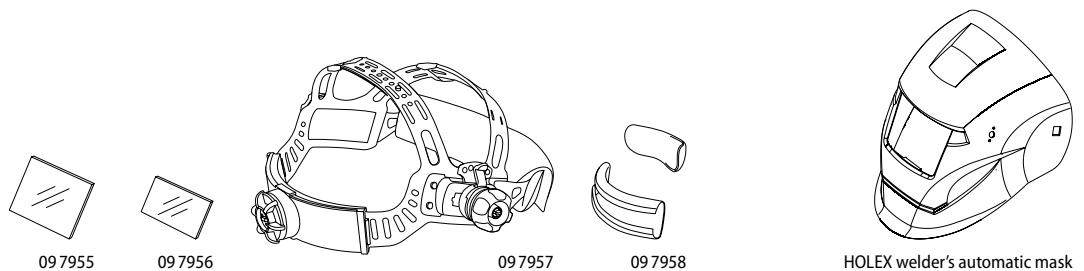
Supplied with: Automatic welding mask incl. an outer visor.



09 7959

			BLACK
02K 09 7959	Welder's automatic mask		116.10
	Switching time from bright to dark	ms	0.1
	Switching time from dark to bright	ms	100 – 1000
	Classification to EN 379		1/1/1/2

HOLEX Welders' protective accessories



09 7955

09 7956

09 7957

09 7958

HOLEX welder's automatic mask

Type		OUTER	INNER	HEAD	BAND	Contents
02K 09 7955	Outer cover lens set, 5 pieces	6.39	–	–	–	5
02K 09 7956	Inner cover lens set, 5 pieces	–	5.76	–	–	5
02K 09 7957	Headgear with sweatband	–	–	10.53	–	1
02K 09 7958	Sweatband set, 2 pieces front and rear	–	–	–	3.39	2

3M Particle filter masks

The Aura™ 9300 + series is characterised by new filter technology with **hardly any perceptible breathing resistance**. The **three-part design** ensures a pleasant wearing sensation and good visibility. The sealing points on the upper side of the mask reduce the occurrence of condensation on glasses. Because of the **flexible nose clip** and the **movable chin strap** the mask can be easily positioned and does not slip even when the user is talking. Due to the fold-away technology and hygienic individual packaging the mask can also be carried very easily.



Size P2V_BULK; P3V_BULK – With **exhalation valve**.



Type		P2_BULK	P2V_BULK	P3_BULK	P3V_BULK
09M 09 7107	Respirators, set Aura series 9300+	–	917.40	2283.60	2273.70
Manufacturer's designation		9320D+	9322+	9330+	9332+
Protection level		FFP2 NR D	FFP2 NR D	FFP3 NR D	FFP3 NR D
Contents		440	330	440	330

optrel® Powered air respirators

SwissAir powered air respirator system

The lightweight TH3 powered air respirator system combines efficiency, comfort and performance. It can also be used flexibly for a wide variety of tasks. The air flow can be regulated (100-130 l/min) and is adjustable in steps. The altitude and temperature can be compensated by means of automatic measurements. The device is individually adjustable in terms of its length and width. The half-face mask is made of POM (thermoplastic material) and tear-resistant textile and has an exhalation valve with a silicone membrane. This ensures an independent air supply. The battery and filter messages are provided both acoustically and visually. Power supply: Rechargeable lithium-ion battery, 3.6 V / 6.5 Ah, USB-C port.

- Standard:** EN 12941 TH3
- Supplied with:** SwissAir powered air respirator system consisting of comfortable half-face mask, blower unit, hose connections, head and neckband, shoulder harness, control panel and charger incl. optrel® backpack.

Note: The SwissAir powered air respirator system is supplied without a filter. Further accessories and spare parts: Half-face mask No. 098224, housing cover No. 098225, spark protection No. 098226, battery No. 098227, harness extension No. 098228, fabric protector No. 098229.



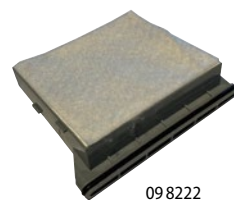
09 7997

Manufacturer's designation		SWISS
09U 09 7997	Powered air purifying respirator SwissAir	1166.40

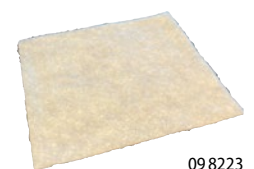
SwissAir replacement filters

- 09 8222 – Particle filter to protect against dust, aerosols, smoke and viruses. Incl. pre-filter.
- 09 8223 – Pre-filter. These filters increase the operational life of particle filters.

Suitable for: SwissAir powered air respirator system No. 097997.



09 8222



09 8223

Type		FILTER	PREFILTER
09U 09 8222	Particle filter SwissAir	42.39	–
09U 09 8223	Pre-filter SwissAir	–	47.25
Contents		1	50
Protection level		P3R	–



JSP Powered air respirator with integral head and face protection

PowerCap® Infinity®

The **PowerCap® Infinity®** combines 3 types of protection in a single product. The powered air respirator system provides respiratory protection against particles, the EVO®5 industrial safety helmet provides head protection, and the visor protects the eyes and face. **The protection can be extended by attaching JSP ear defenders.**

Powered air respirator: With a blower performance of 160 l/min without resistance to breathing and without the visor misting up, the PowerCap® Infinity® guarantees protection against particles to EN 12941 TH3P. Incl. quick-change bayonet system.

Head protection: The PowerCap® Infinity® is based on the EVO®5 industrial safety helmet, which satisfies EN 397. Thanks to the ABS shell, the helmet offers all-day protection and is very comfortable due to the Evolution® 3D-Adjustment™ strap system.

Eye and face protection: The PowerCap® Infinity offers eye protection to EN 166. The visor protects the entire face against flying particles.

Standard: EN 397, EN 12941 protection class TH3P, EN 166.

Supplied with: 1× PowerCap® Infinity®,
1× rechargeable battery, 1× charging station,
1× pair of TH3 particle filters, 1× pair of pre-filters,
1× airflow indicator, 1× bag.

Note: Please observe the document in the packaging for the training videos on the PowerCap® Infinity®!



Rear view

09 7150



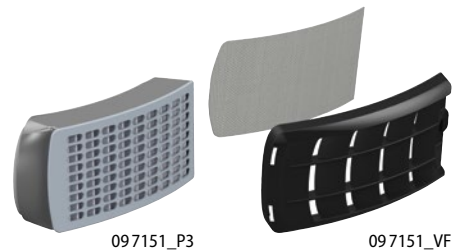
Detail view

Type		SET
M60 09 7150	Powered air respirator with integral head and face protection PowerCap® Infinity®	1078.55
Manufacturer's designation		CEA646-001-100

Size VF – Pre-filter set, 10 pieces for PowerCap® Infinity®.
Increases the working life of the particle filter.

Size P3 – Pair of particle filters for PowerCap® Infinity®.
Filters: TH3P R SL.

Type		VF	P3
M60 09 7151	Replacement filter set pair	15.41	30.81
Contents		5	1
Manufacturer's designation		CEU100-006-500	CAU660-000-400



09 7151_P3

09 7151_VF

09 7152 – Spare visor for PowerCap® Infinity®. Standard: EN166.

09 7153 – Peel off visor set, 10 pieces for PowerCap® Infinity®. Protects the visor against scratches and contamination.

09 7154 – Charging station and mains adapter for PowerCap® Infinity®.

Purchase as a replacement or additional charging station so that you can charge your device in several places.

Scope of supply:

1× 6 V, 2.5 A power supply,

4× regional plug adapter,

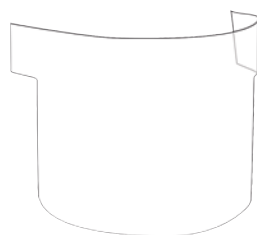
1× battery charging station.

09 7155 – Spare battery for PowerCap® Infinity®.

09 7156 – Helmet strap for PowerCap® Infinity®.



09 7152_VISOR



09 7153_FOIL



09 7154_CHARGE



09 7155_BATTERY



09 7156_STRAP

Type		VISOR	FOIL	BATTERY	CHARGE	STRAP
M60 09 7152	Spare visor	69.02	–	–	–	–
M60 09 7153	Peel off visor set, 10 pieces	–	28.05	–	–	–
M60 09 7154	Charging station and mains adapter	–	–	154.68	–	–
M60 09 7155	Spare battery	–	–	–	306.93	–
M60 09 7156	Helmet strap	–	–	–	–	10.72
Manufacturer's designation		CEU110-001-300	CAU180-000-000	CEU130-001-100	CEU170-000-000	CEU190-000-000
Contents		1	10	1	1	1



09

Hands – simply our most important tool



It's not easy to navigate between all the standards and designations. You will find everything you need to know about hand protection in our competence brochure at <http://ho7.eu/Infobroschuere>



Garant Leather gloves

High-quality work gloves made of hydrophobic cowhide leather with cuff and back of hand side made of cotton canvas, as well as a cotton inner lining for additional wearing comfort. The hydrophobic leather is **water-repellent and oil-repellent**.

Standard: EN388; EN ISO 21420

Note: The minimum order quantity corresponds to one pack unit quantity (VPE) or a multiple thereof.



09 4051

Glove size	OTH	09 4051	
		Pair of gloves	
		Hydrophobic leather	
9		6.57	12
10		6.57	12
11		6.57	12
Material		Cowhide leather	
EN 388:2016		2122X	
Colour		blue / white	

This is how easy it is to use our new Product Finder



Are you already familiar with our new online glove finder? You can easily find a pre-selection of suitable gloves on our website. Using various questions that built upon one another, you will receive targeted suggestions for solutions that meet your requirements. The questions you are asked are determined so that all important criteria such as material, coating, protection classes, working environments, brands etc. are included in the selection. Our specialist advisers will continue to be available to assist you, so that you can use the glove finder and analyse the proposed items together.

You can find our glove finder here:

<https://www.hoffmann-group.com/DE/de/hom/service/produktfinder-handschuh>



Cotton gloves

Gloves made of jersey cotton with knitted cuffs and roughened inner surface. For low-hazard areas and assembly work. For protection against abrasions, blisters and dirt.

09 4215 – Gloves 5102. Natural colours.

09 4216 – Gloves 5104. Dark brown.

Application: Clean, dry areas.



Glove size		09 4215	09 4216
Cotton gloves set			
10		5102 11.25	5104 11.25
Length	mm	260	260
Contents	pairs	12	12
Colour		natural	dark brown





Knitted gloves

Black cotton/elastane fine knitted gloves 6102, white PVC dots, **touch screen-compatible** on three fingertips.

Standard: EN 388

Note: The minimum order quantity corresponds to one pack unit quantity (VPE) or a multiple thereof.



094218

Glove size	09H	09 4218	
		Pair of fine knitted gloves	
		6102	
6		2.63	12
7		2.63	12
8		2.63	12
9		2.63	12
10		2.63	12
11		2.63	12
EN 388:2016		1121X	
Colour		black / white	

Oeko-
Tex
100



Garant Multi-purpose gloves

MASTER FIT fitters' glove. With innovative water-based PU nitrile coating for the utmost demands regarding precision, flexibility and touch sensitivity in dry working environments. Finely structured surface on the palm of the hand due to complex finishing process.

Suitable for touch screens, allowing smartphone and other touch screens to be operated without removing the gloves.

Protects against electrostatic discharges.

Long life through very high abrasion resistance. DMF-free and Öko-Tex certified.

Standard: EN 388, EN ISO 21420, EN 16350

Note: Gloves which protect against electrostatic discharges do not insulate the hands against electrical voltages. Not suitable for working on live cables or for protection against electric shock - they protect only the product. The minimum order quantity corresponds to one pack unit quantity (VPE) or a multiple thereof.



094304

Glove size	09H	09 4304	
		Pair of gloves	
		MASTER FIT	
6		3.59	12
7		3.59	12
8		3.59	12
9		3.59	12
10		3.59	12
11		3.59	12
12		3.59	12
EN 388:2016		4131X	
Backing material		Lycra® / polyamide	
Coating		Nitrile / PU	
Application range		Precision / all-round	
Colour		blue / black	

Ansell CUT-RESISTANT GLOVES



Particularly light and thin

with 18-gauge knitting technology

Cut protection level F

for protection against extreme cut hazards

Suitable for touch screens

High freedom of movement for the fingers

09 4448



18G

Cut-resistant gloves

Note: The minimum order quantity corresponds to one pack unit quantity (VPE) or a multiple thereof.

Ansell cut-resistant gloves

Particularly light and thin cut-resistant gloves of the HyFlex® series. Available in three high cut protection classes. Integral INTERCEPT™ technology, touchscreen-capable, 18-gauge knitting technology. Skin compatibility dermatologically tested by Dermatest®.

09 4448 – HyFlex® 11-757. **Cut protection level F for protection against extreme cut hazards.**

09 4449 – HyFlex® 11-755. **Cut protection level E for protection against very high cut hazards.**

09 4450 – HyFlex® 11-754. **Cut protection level D for protection against high cut hazards.**

Standard: EN 388; EN 420



Glove size	04P 09 4450	04P 09 4449	04P 09 4448	
	Ansell			
	Pair of gloves			
	HyFlex® 11-754	HyFlex® 11-755	HyFlex® 11-757	
7	9.27	10.71	12.02	12
8	9.27	10.71	12.02	12
9	9.27	10.71	12.02	12
10	9.27	10.71	12.02	12
11	9.27	10.71	12.02	12
EN 388:2016	3X41D	3x41E	3X31F	
Backing material	INTERCEPT™	INTERCEPT™	INTERCEPT™	
Coating	PU	PU	PU	
Application range	Precision	Precision	Precision	
Colour	grey	grey	black	



uvex BAMBOO TWINFLEX®

- Suitable for touch screens**

- CO2-neutral production in Germany**

- Cut protection level D**

- Patented bamboo TwinFlex® yarn technology**

- Made from 45% sustainable materials**

- Adaptive fit**



uvex cut-resistant gloves



Oeko-Tex 100

Cut D

uvex 18-gauge cut-resistant gloves made of patented **Bamboo TwinFlex®** technology. Consists of 45% recycled polyamide and bamboo viscose. Particularly comfortable due to good breathability and **adaptive fit**. Longer service life thanks to **high abrasion resistance** and reinforced thumb joint.
Application: Suitable for dry and slightly damp working conditions.
Standard: EN 388; EN 407; EN ISO 21420



09 4294

Glove size	04W	09 4294 uvex	
		Pair of gloves	
		uvex 60090	
6		11.34	10
7		11.34	10
8		11.34	10
9		11.34	10
10		11.34	10
11		11.34	10
12		11.34	10
EN 388:2016		4X41D	
EN 407		X1XXXX	
Backing material		Bamboo viscose, HPPE, steel, PA, elastane	
Coating		Aqua polymer Xtra Grip foam	
Application range		All-round	
Colour		green	

Cut
C

HOLEX Heat protection

HOLEX cut-resistant, heat-protection gloves in 10-gauge knitted technology. Cut protection class C. Contact heat protection up to 250°C (maximum 15 seconds).

Standard: EN 388; EN 407; EN ISO 21420

Note: The minimum order quantity corresponds to one pack unit quantity (VPE) or a multiple thereof.



09 4619

Glove size	02H	09 4619
Pair of cut-resistant heat resistant gloves		
7		9.32
8		9.32
9		9.32
10		9.32
11		9.32
		12
EN 388:2016		4X31C
EN 407		X2XXXX
Contact heat up to	°C	250
Backing material		Polyester, aramid, glass fibre
Coating		Nitrile
Colour		orange

Silicone-free

HOLEX Disposable gloves

Disposable nitrile gloves with structured fingertips. Powder-free. AQL 1.5 (EN 374-2). Dispenser box 100 pieces.

Standard: EN 374; EN 420



09 4786



09 4786


Glove size	02H	09 4786
Disposable glove set		
100 pieces		
7		8.85
8		8.85
9		8.85
10		8.85
EN 374:2016		Type B (JKPT)
Material		Nitrile
Backing material		Nitrile
Thickness	mm	0.1
Length	mm	240
Contents		100
Weight	g	5
Colour		blue


SIMPLY PERFECT CUT PROTECTION – IT'S IN YOUR HANDS!


	Minimal risks	Moderate risks	
Cut protection level EN 388: 2016	X/A	B	
Strength (N)	0 – 5 N	5 – 10 N	
To ANSI/ISEA 105-2016	A1	A2	
<p>The resistance to cuts is measured in newtons (N) with the TDM-100 test (according to EN ISO 13997). The N value indicates what force is needed to sever the glove material. The higher the value, the higher the cut protection.</p> <p>Nitrile: Nitrile polymers are chemically very resistant and have rubber-like characteristics. Very good protection characteristics for contact with oil, grease and petrol.</p> <p>Polyurethane (PU): Elastic PU has a relatively high tear resistance. Many gloves benefit from the properties of a PU or PU-foam coating: High dexterity, high abrasion resistance and oil resistance.</p>	<p>MASTER FIT</p> <p>■ 09 4302 NBR </p> <p>MASTER FIT</p> <p>■ 09 4307 NBR </p> <p>MASTER FIT</p> <p>■ 09 4308 NBR </p> <p>LABS-free</p> <p>■ 09 4325 PU </p>	<p>MASTER CUT</p> <p>■ 09 4416 NBR </p> <p>MASTER CUT</p> <p>■ 09 4417 NBR </p> <p>MASTER CUT</p> <p>■ 09 4421 NBR </p> <p>MASTER CUT</p> <p>■ 09 4405 PU </p>	
	<p>Dytec Range</p>	<p>PRO Range</p> <p>■ 09 4300 NBR </p> <p>ECO Range</p> <p>■ 09 4242 PU </p>	<p>PRO Range</p> <p>■ 09 4495 NBR </p> <p>ECO Range</p> <p>■ 09 4635 PU </p>


 = **Garant**

 = **HOLEX**

 = Nitrile

 = Polyurethane

 = completely without glass or steel fibres

 = certified impact resistance

- General operation with light loadings in dry or slightly oily conditions.
- Final assembly and testing of components without sharp edges.
- Packaging and loading work (cardboard boxes).
- Quality control and inspection.
- Equipment of production lines.
- Precision work.
- Production and handling of metal parts and flat glass.
- Metal and installation work.
- Injection moulding work.
- Guidance of heavy machines.
- Concentrating, mixing and palletising.
- Handling plastic fibres.

With this cut protection card you have an overview of all the differences between the products and can easily select the perfect glove for your activities.

	High risks		Extreme risks			
	C	D	E	F		
	10 – 15 N	15 – 22 N	22 – 30 N	> 30 N	> 40 N	> 50 N
	A3	A4	A5	A6	A7	A8
<p>MASTER CUT</p> <p>■ 09 4445 NBR</p>  <p>1</p> <p>MASTER CUT OIL</p> <p>■ 09 4418 NBR</p>  <p>MASTER CUT OIL+</p> <p>■ 09 4422 NBR</p> 	<p>MASTER CUT</p> <p>■ 09 4446 NBR</p>  <p>1</p>					
<p>■ 09 4611 NBR</p>  <p>1</p> <p>■ 09 4580 NBR</p>  <p>■ 09 4636 PU</p>  <p>■ 09 4596</p> 	<p>■ 09 4612 NBR</p>  <p>1</p> <p>■ 09 4602 NBR</p>  <p>■ 09 4603 NBR</p>  <p>■ 09 4637 PU</p>  <p>■ 09 4585</p> 	<p>■ 09 4613 NBR</p>  <p>1</p> <p>■ 09 4605 NBR</p>  <p>■ 09 4606 NBR</p>  <p>2</p>	<p>■ 09 4614 NBR</p>  <p>1</p> <p>■ 09 4608 PU</p>  <p>1</p> <p>■ 09 4597</p> 	<p>■ 09 4615 NBR</p>  <p>1</p>		
<ul style="list-style-type: none"> ■ Assembly and handling of sharp-edged, abrasive and rough materials. ■ Handling of sheet metal, panels and glass. ■ Press work. ■ Forge work. ■ Foundry work. 	<ul style="list-style-type: none"> ■ Handling of heavy metal plates, tubes, panels and glass. ■ Canning and filling industry. ■ Welding and brazing work. ■ Press work and punching work. ■ Insertion of steel reinforcement. 	<ul style="list-style-type: none"> ■ Press work. ■ Rubber processing, vulcanisation and calendering. ■ Removal of products from autoclaves. ■ Recycling of residual metal. 	<ul style="list-style-type: none"> ■ Handling of heavy, sharp-edged metal plates and panels. ■ Cutting glass, sheet metal and panels to size. ■ Processing (cutting up) of foodstuffs (slaughtering and cutting up). ■ Heavy-duty, glass and filling industry. ■ Canning. ■ Working with pulp and paper. 			



CLEVER WORKWEAR FOR EVERYDAY USE.

The complete HOLEX workwear and high-visibility range will amaze you day after day with clever functionality.

Clever and robust:

Hard-wearing and durable.

Clever and versatile:

Many combination options.

Clever and comfortable:

Modern, functional designs and ergonomic cuts.

Clever and economical:

Attractive prices.



09 1656



09 1660



09 1658



09 1662



09 0604



09 0600



09 0617



09 0615





090626



090622



090606



090605



090603



090602



091654



091655

091650

091651



78% Polyester	22% Cotton	330 g/m ²	70	EN14404
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BLÄKLÄDER Work trousers

Manual worker's work trousers with many **handy details**. With ergonomically shaped trouser legs and adjustable leg cuffs with drawstring.

- Button flies.
- CORDURA® reinforcement at the pockets, knees and leg cuffs.
- Inside leg seam with 3 rows of stitching.
- Leg pocket with zip fastener and pocket for pens and mobile phone made from waterproof material.
- Nail pockets with tool loops.
- Reinforced ruler pocket with knife holder and pen pocket.
- Sturdy knee padding pockets.
- **Certified to EN 14404** together with knee pad No. 091495 and 091497.



09 1710



Nail pockets with tool loops.



Thigh pocket with zip fastener.

Clothing size DE	09 1710 Work trousers X1500 Manual crafts black
44	(105.93)
46	(105.93)
48	105.93
50	105.93
52	105.93
54	105.93
56	105.93
58	105.93
60	105.93
62	105.93
94	(105.93)
98	105.93

Clothing size DE	09 1710 Work trousers X1500 Manual crafts black
102	105.93
106	105.93
110	105.93
114	(105.93)
24	(105.93)
25	105.93
26	105.93
27	105.93
28	105.93
29	(105.93)
30	(105.93)

100% Polyester	120 g/m ²	40
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BLÄKLÄDER Rainproof clothing

The **extremely lightweight rainwear** with welded seams is wind-proof and water-repellent. With mesh lining to provide good breathability. Water column: 5000 mm.

- 09 0623 – **Rainproof jacket** with removable hood and fleece-lined collar.
 - Concealed plastic zip fastener and wind-stop strip with hook and loop fastener.
 - Extended back.
 - Two side pockets and one breast pocket with zip fastener.
 - Sleeve cuffs with hook and loop fasteners.
- 09 0625 – **Rainproof trousers** with elastic waist.
 - Zip fastener opening at the trouser leg.
 - Back pocket with flap and side pockets with hook and loop fastener.



09 0623



09 0625

Unisex size	S	M	L	XL	2XL	3XL
09 0623 Rainproof jacket black	70.47	70.47	70.47	70.47	70.47	70.47
09 0625 Rainproof trousers black	47.16	47.16	47.16	47.16	47.16	47.16



100% Polyester	350 g/m ²	40
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BLÄKLÄDER Fleece jackets

Pleasantly soft and warm sweat jacket made of pile fabric and with a fleece inner lining. With high collar, wind-stop strip and extra-long back for greater comfort.

- Side pockets with zip fasteners.
- Inside pocket.
- One-way zip fastener made of plastic.
- Elasticated cuffs with thumb opening.



Unisex size			S	M	L	XL	2XL	3XL	
04T	090618	Pile jacket	dark navy blue	(71.37)	71.37	71.37	71.37	71.37	(71.37)
04T	090619		black	(71.37)	71.37	71.37	71.37	71.37	(71.37)

100% Cotton	290 g/m ²	60
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PLANAM Work coats

Handy work coat with collar and lapel.

- Two side pockets and one breast pocket and inside pocket.
- Covered button placket.



Clothing size DE	061	061	061
	091341	091342	091343
	cornflower blue	Work coat grey	white
42	(23.40)	(23.40)	(23.40)
44	(23.40)	(23.40)	(23.40)
46	23.40	23.40	23.40
48	23.40	23.40	23.40
50	23.40	23.40	23.40
52	23.40	23.40	23.40
54	23.40	23.40	23.40
56	23.40	23.40	23.40
58	23.40	23.40	23.40
60	(23.40)	(23.40)	(23.40)
62	(23.40)	(23.40)	(23.40)
64	(23.40)	(23.40)	(23.40)

BLÄKLÄDER Caps

Modern cap with flat peak and adjustable snap-back fastener. CORDURA® Denim Stretch and imitation leather. Size: one size.

Colour	DENIM
04T 091982	Cap
	15.48



KNEETEK Work clothing accessories


High-quality all-round knee protection for sturdy work. With flexible PVC cap and resilient gel inlay for soft padding at the knee. Easy to pull on and off by single-strap retention with hook and loop fastening. With transparent PVC cap to prevent coloured markings on the floor. Size: one size.

Standard: EN 14404
Supplied with: Supplied in pairs.



Knee protectors			
Type		KNEE	
09R 092003	Knee protectors Basic Clear 1 pair	transparent	20.61

092003

65% Polyester	35% Cotton	240 g/m ²	 EN ISO 20471
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BLÄKLÄDER High visibility clothing

High visibility trousers of **very sturdy but light-weight material** with water-repellent properties.

- **Only 240 g/m² (light-weight).**
- Back pockets, leg pocket with pocket for pens and mobile phone.
- 09 1718/1720 – With internal knee padding pockets.
- 09 1727/1728 – High visibility shorts with **stretch inserts** for optimum wearing comfort and CORDURA® reinforced pockets.

Standard: EN ISO 20471, class 1

Note:

- 09 1718/1720 – Blakläder high visibility, category W for combination certification.
- 09 1727/1728 – Blakläder high visibility, category V for combination certification.



09 1718

09 1720



09 1727

09 1728



Clothing size DE	04T	04T	04T	04T
	09 1718	09 1720	09 1727	09 1728
	High visibility work trousers		High visibility shorts	
	yellow / navy blue	orange / navy blue	yellow / navy blue	orange / navy blue
46	(66.60)	(66.60)	(74.07)	(74.07)
48	66.60	66.60	74.07	74.07
50	66.60	66.60	74.07	74.07
52	66.60	66.60	74.07	74.07
54	66.60	66.60	74.07	74.07
56	66.60	66.60	74.07	74.07
58	66.60	66.60	74.07	74.07
60	66.60	66.60	74.07	74.07
62	(66.60)	(66.60)	(74.07)	(74.07)

Clothing size DE	04T	04T	04T	04T
	09 1718	09 1720	09 1727	09 1728
	High visibility work trousers		High visibility shorts	
	yellow / navy blue	orange / navy blue	yellow / navy blue	orange / navy blue
64	(66.60)	(66.60)	–	–
24	(66.60)	(66.60)	–	–
25	66.60	66.60	–	–
26	66.60	66.60	–	–
27	66.60	66.60	–	–
28	66.60	66.60	–	–
29	(66.60)	(66.60)	–	–
30	(66.60)	(66.60)	–	–

100% Polyester	180 g/m ²	 40	 EN ISO 20471	 EN 343
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ASATEX High visibility jackets

Functional 5-in-1 high visibility parka PREVENT® with stow-away hood in the collar.

Wind-proof and water-repellent outer jacket with welded seams.

Warm inner jacket with quilted lining and **detachable sleeves.**

The jackets can be worn in combination or on their own, giving the wearer **five different options** to meet a variety of requirements.

- Two front and internal breast pockets.
- Mobile phone pocket on the chest.
- Adjustable sleeve cuffs with hook and loop fasteners.

Standard: EN ISO 20471, class 2



09 1950

Inner jacket

Unisex size	S	M	L	XL	2XL	3XL
09 1950 High visibility parka PREVENT® yellow / black	99.45	99.45	99.45	99.45	99.45	99.45



HOLEX WELDER'S SAFETY

Suitable for welders' protective clothing, you can find our **HOLEX welder's automatic welding mask** No. 097959 on page 301 in the catalogue.

HOLEX AUTOMATIC WELDING MASK

- The classic design offers reliable protection for a variety of welding work.

ADJUSTABLE HEADBAND

- Can be adapted to suit individual head shapes.

SENSITIVITY

- Steplessly adjustable.



87% Cotton	12% Polyamide	1% carbon	280 g/m ²					
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HB ArcSelect multi-standard clothing

Shirt made from a **cotton-polyamide blend** with anti-static properties, offers protection against electric arcs, weld spatter and flames.

As such, it perfectly complements many **heat and flame protection collections**.

With ergonomically shaped sleeves and comfort fit.

- Fold-down collar with rib.
- Front fastener with concealed press studs.
- Breast pocket with flap.
- Adjustable sleeve cuffs with protective sleeve vent.

Area of application: Plant construction, pipework, switchgear construction, electrical installation, public utility companies, steelworks, communications networks.

- Standard:**
- EN 1149-5
 - EN ISO 11611, class 1, A1, A2
 - EN ISO 11612 A1, A2, B1, C1, E1, F1
 - IEC 61482-2, class 1

Note: Available in other colours on request. Size table showing equivalent international sizes can be found in our information section at the end of the catalogue or in the online shop.



09 1450



Clothing size DE		39/40	41/42	43/44	45/46	47/48	
09Y 09 1450	Multi-standard shirt	royal blue	59.10	59.10	59.10	64.99	67.92

99% Polyester	1% carbon	235 g/m ²	95	EN 1149	EN 13034
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Chemical protection clothing HB CHEMcomfort antistatic

The clothing combines **chemical protection** with permanent anti-static properties in a lightweight fabric. For specialist manufacturing processes.

Area of application: Automotive/steel/chemical industry, electroplating, battery manufacturers, laboratories.

- 09 1535 – **Jacket, two-tone** with fold-down collar and closure flap with press studs concealed on both sides.
 - Side pockets and breast pocket with flaps.
 - Inside breast pocket.
 - Sleeve seam width can be adjusted with snap fasteners.

09 1537 – **Work trousers.**

- 09 1539 – **Dungarees** with button opening at the side for easier access.
 - Stretch braces with snap clips.
 - Bib pocket with flap.

- 09 1537/1539 –
 - Concealed button fastening.
 - Two side pockets and one back pocket with flap.
 - Ruler pocket.

- Standard:**
- EN 13034 type 6
 - EN 1149-5

Note: Available in other colours on request. Size table showing equivalent international sizes can be found in our information section at the end of the catalogue and in the online shop.



09 1535



09 1537



09 1539

Clothing size DE	09 1535	09 1537	09 1539
	Chemical protection jacket	Chemical protection work trousers	Chemical protection dungarees
	anthracite/dark blue	CHEMcomfort Antistatic anthracite	anthracite
46	(51.13)	(46.15)	(55.61)
48	51.13	46.15	55.61
50	51.13	46.15	55.61
52	51.13	46.15	55.61
54	51.13	46.15	55.61
56	56.21	50.72	61.14
58	56.21	50.72	61.14
94	51.13	46.15	55.61
98	51.13	46.15	55.61
102	51.13	46.15	55.61
106	(56.21)	50.72	(61.14)
110	(56.21)	50.72	(61.14)





Disposable protective clothing

- 09 8375 – Protective gown (PPE category III) type 6. **Antistatic disposable protective gown** of PP spunbond with microporous film laminate. With collar, elasticated cuffs, two pockets and front closure with press studs.
- 09 8391 – Protective overalls (PPE category III) type 5/6. **Antistatic disposable protective overalls** made from polypropylene and polyethylene. 65 g/m². With SMS material (55 g/m²) on the back for improved ventilation. Elastic hood, trousers and cuffs. Front zip fastener. Bonded seams. Overall for protection against spray mists, splashing water, solid radioactive particles, liquid chemicals, and infectious agents.
- 09 8395 – Protective overalls (PPE category III), type 4/5/6. **Antistatic disposable protective overalls** made from polypropylene and polyethylene. 65 g/m². Elastic hood, trousers and cuffs. Front zip fastener. Sewn seams. Overall for protection against spray mists, splashing water, solid radioactive particles, liquid chemicals, and infectious agents. Particularly suitable for France.

Standard:

- EN 13034 type 6
- EN 1149-5
- 09 8395 – ■ EN 14605 type 4
- 09 8375/8395 – ■ EN 14126
- 09 8391/8395 – ■ EN 1073-2
- EN 13982-1 type 5



Unisex size			L	XL	2XL	3XL
09Z	09 8375	ASATEX [®] Protective gown type 6 CoverStar [®] CKI	white	3.53	3.53	3.53
02A	09 8391	HOLEX [®] Protective overalls type 5/6	white / blue	4.86	4.86	4.86
02A	09 8395	HOLEX [®] Protective overalls type 4/5/6	white	5.85	5.85	5.85

ASATEX[®] Leather aprons

Leather apron with adjustable cross-strap. **Dimensions:** 80×100 cm.

- 09 8381 – Split leather apron of strong soft leather.
Thickness: 1.10 mm.
- 09 8383 – Full leather apron of strong grained cowhide leather.
Thickness: 1.50 mm.



Colour		WHITE
09Z	09 8381	Split leather apron
09Z	09 8383	Full leather apron

uvex UVEX 1 G2 PLANET: 100% PERFORMANCE. 25% RECYCLED.*

100%
recycled laces.

18%
of the lining is bamboo,
and 52% recycled polyester.

100%
recycled PET
bottles in the
upper material.

100%
recycled fibres for
penetration resistance.

100%
recycled polyester and
PU foam in the insole.

40%
recycled material in
the TPR overcap.

10%
of the TPU outer sole is made of
recycled PU waste.

* Calculated to standard DIN EN ISO 14021:2016



uvex Safety shoes

Extraordinarily lightweight and flexible safety shoe made from recycled and sustainable materials.

- uvex x-dry knit planet textile upper material made from 100 % recycled PET bottles.
- Breathable inner lining made from 18 % bamboo and 52 % recycled polyamide.
- Ergonomically designed uvex x-tended grip planet TPU outer sole with up to 10 % recycled PU waste. Particularly durable and anti-slip.
- Non-metallic penetration-resistant inlay made from 100 % recycled material.
- Individually adjustable, elastic laces made from 100 % recycled material incl. quick fastening.
- TPR overcap made from 40 % recycled material. Protection against wear.
- Replaceable antistatic comfort insole with surface made from 100 % recycled PET bottles and foam made from recycled PU waste.
- 100 % metal-free uvex xenova® toecap.
- uvex i-PUREnrj sole technology with optimal damping characteristics.
- All sole materials are silicone-free, free of plasticisers and do not contain any other substances which would impair paint adhesion.
- Virtually seamless design to avoid pressure points.
- Protection against electrostatic discharge (ESD).
- Dust flap.
- Suitable for wearers allergic to chromium.
- Width 11.

Standard: EN ISO 20345:2011 S1 P SRC.



09 2128

EU shoe size

04V 09 2128

Safety shoe, blue/green/black
uvex 1 G2 planet, S1P

35-52

124.65

Ex stock in sizes 39 - 46.



09 2262



ELTEN Safety shoes

IMPULSE XXT comfortable safety shoe in a modern design.

- Upper material of microfibre.
- Breathable textile lining.
- Padded tongue.
- ESD PRO black full-size insole.
- TRAINERS PU/PU Wellmaxx sole, anti-slip.
- Sole core of Infinergy® from BASF for shock absorption over the entire sole.
- ESD security.
- Free of metal and leather.
- 09 2262 – Lightweight safety sandals with double hook and loop fastening.
- 09 2263 – Elastic lacing system with quick-fastener.

Standard: EN ISO 20435:2011 S1 SRC.



09 2262



09 2263

EU shoe size	36–48
09P 09 2262 Sandals, black/blue IMPULSE XXT blue Easy ESD, S1	83.24

Ex stock in sizes 39–46.

EU shoe size	36–48
09P 09 2263 Shoe, black/blue IMPULSE XXT blue Low ESD, S1	83.24

Ex stock in sizes 39–46.



09 2263



09

HOLEX MOVE ONE SAFETY SHOE

Available from Q4 2022!



SHOELACES

Flat and prevents the laces coming undone.



INSOLE

Excellent exchange of air and climatic comfort.



UPPERS

Abrasion-resistant and waterproof.



TOE PROTECTION CAP

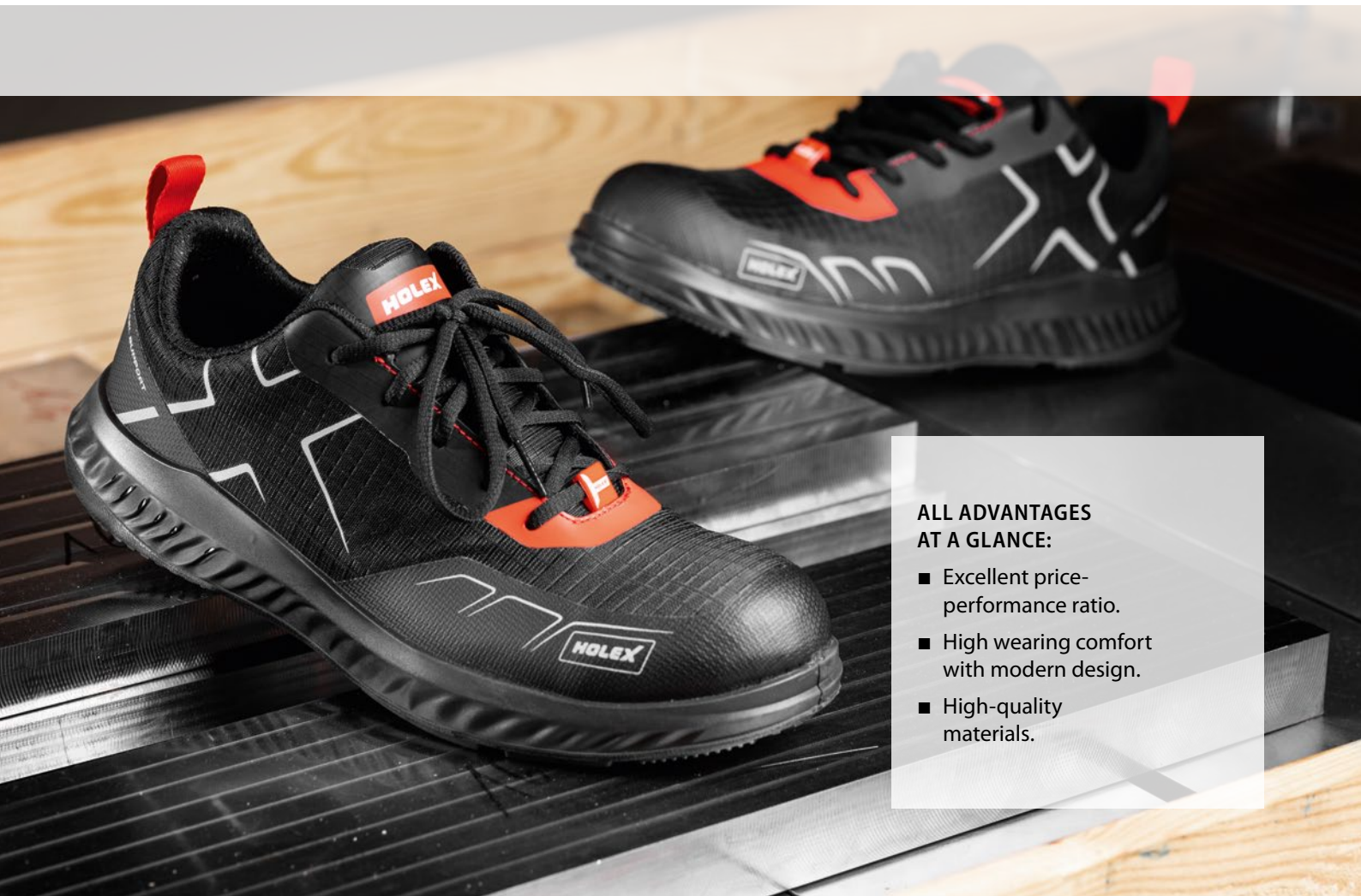
Metal-free and compact.



OUTER SOLE

Lightweight and non-slip.





ALL ADVANTAGES AT A GLANCE:

- Excellent price-performance ratio.
- High wearing comfort with modern design.
- High-quality materials.



HOLEX Safety shoes

The Holey Move One safety shoe combines comfort with a modern and sporty design. The material is lightweight and waterproof. It is also very robust against damage and dirt.

- Upper material made from abrasion-resistant Oxford and hardened TPU.
- Sandwich-mesh functional lining.
- Outer sole PU/TPU, black.
- Protection against electrostatic discharge (ESD).
- Insole made of mesh and PU foam.

Standard:

- 09 2081 – EN ISO 20345:2011 S1P SRC. ASTM F2413-18.
- 09 2083 – EN ISO 20345:2011 S3 SRC. ASTM F2413-18.

Note: See accessories for foot protection for suitable HOLEX shoelaces No. 092867 125 and HOLEX insoles No. 092844 36-48.

Available from Q4 2022!



S1P

09 2081



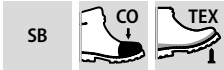
S3

09 2083



EU shoe size		36-48
025	09 2081	Shoe, black/red Safety shoe Move One, ESD, S1P 33.30
025	09 2083	Shoe, black/red Safety shoe Move One, ESD, S3 34.11

All sizes (36-48) in stock.



COFRA Safety shoes

COFRA ELECTRIC

ELECTRIC breathable safety shoes for electricians.

- Upper material made of breathable fabric.
- Inner lining made of 100% polyester, water-repellent, abrasion-resistant.
- Perforated thermo-formed and anatomically-compatible insole made of EVA and nitrile, breathable.
- Intermediate sole: Non-metallic with high electrical resistance.
- Outer sole PU/TPU with high electrical resistance.
- 100 % metal-free.
- Shock absorption.
- Width 10 (size 39), width 11 (size 40-48).

Standard: EN ISO 20345:2011 SB E P FO SRC.
EN ISO 20344:2011. ASTM F2412-18.

Note: ELECTRIC safety shoes can only be used as a secondary protection!



09 2423

EU shoe size	39-48
09 2423 Shoe, black ELECTRIC, SB	44.09

Ex stock in sizes 39 – 46.

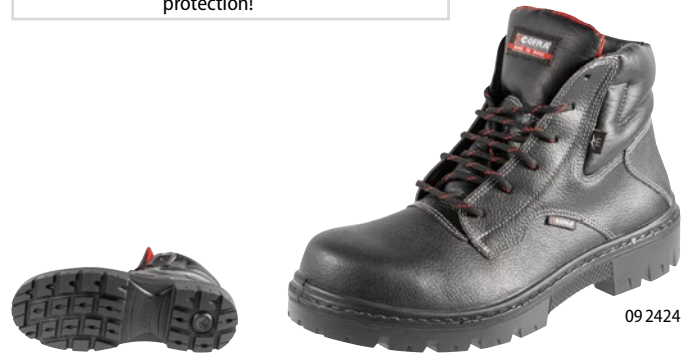
COFRA ELECTRICAL BIS

ELECTRICAL BIS safety boots for electricians.

- Artificial and breathable upper material.
- Inner lining made of 100% polyamide, breathable, water-repellent, abrasion-resistant.
- Perforated thermo-formed and anatomically-compatible insole made of EVA and nitrile, breathable.
- Outer sole PU/TPU with high electrical resistance.
- 100 % metal-free.
- Width 11.

Standard: EN ISO 20345:2011 SB E P FO WRU SRC.
EN ISO 20344:2011. ASTM F2412-18.

Note: ELECTRICAL BIS safety shoes can only be used as a secondary protection!



09 2424

EU shoe size	40-47
09 2424 Lace-up boot, black ELECTRICAL BIS, SB	47.35

Ex stock in sizes 40-46.



Ladies' safety shoes

Standard: EN ISO 20435:2011 S3 SRC.

STEITZ SECURA Xenia SF ESD



Ladies' safety boots Xenia SF with VARIO Multiflex® technology.

- Ultra-light smooth microfibre with striking high-frequency embossing.
- Seamless shoe design.
- Soft and breathable functional lining.
- ERGO-SOFT ESD comfort mid-sole inlay.
- Abrasion-resistant toe protection made of TPU.
- TPU heel pad for stabilisation.
- TPU Woman Sport ESD outer sole anti-slip.
- Dust flap.
- ESD security.

Note: Wide fitting XB, see No. 092741.



09 2740

EU shoe size	35-42
09 2740 Lace-up boot, black STEITZ SECURA Xenia SF ESD, S3 NB	96.12

Ex stock in sizes 36-41.

ELTEN HANNAH XXTL Low ESD



Ladies' safety shoes HANNAH XXTL Low.

- Hydrophobic upper material made of microfibre and textile.
- Breathable textile lining.
- Padded tongue.
- ESD PRO Lady X full-size insole.
- WELLMAXX TRAINERS LADY PU/PU outer sole, anti-slip.
- Sole core of Infinergy® from BASF for shock absorption over the entire sole.
- Leather-free.
- ESD security.



09 2747

EU shoe size	35-42
09 2747 Shoe, black/red ELTEN HANNAH XXTL low ESD, S3	85.22

Ex stock in sizes 36-41.

The expert inspection service for your personal protective equipment for fall protection (PSAgA)



Inspection and maintenance

Personal protective equipment for fall protection (PSAgA) must satisfy the highest requirements at all times, since it is intended to protect against fatal hazards. The **regular inspection and maintenance** of the material is mandatory here. This inspection must be performed at regular intervals, but **at least once a year**, by a qualified professional.

Irrespective of manufacturer's brand or supplier, we are happy to offer you the opportunity to inspect your personal protective equipment for fall protection and to release it for further use through documentation in inspection books. This material testing is based on the rules of the trade association (BGG 906) and the respective manufacturer's regulations. The inspection can also be carried out on site.

For more information about the procedure, please get in touch with your Hoffmann Group contact. On request, we will also be happy to provide training as a qualified expert according to DGUV-312-906 and other basic and advanced courses.

Training

The correct use of personal protective equipment to prevent falls is a matter of life and death. We will be glad to provide you **with training courses on the correct use** of personal protective equipment for fall protection. These include various training and instruction modules.

They can be fully adapted to your individual needs. Training can also be provided in one of our twelve training centres in Europe.





PGP Skin protection

DUALIN® unscented. Skin protection cream against water-insoluble agents as well as water-soluble agents. Dual principle of action. Slightly greasy. Composition: Cream (O/W emulsion), pH value neutral, without mineral oils, without parabens, unscented (HACCP-compliant), silicone-free.

Contents		100	1000B
06H 09 5542	Skin barrier cream DUALIN® unscented	5.94	45.54
		12	6
	suitable for dispenser	–	095818
	Type of packaging	Tube	Neptune bottle



09 5542_100



09 5542_1000B



PGP Skin cleansing

STEPHALEN® FRESH FOAM. Skin cleansing foam with skin nurturing glycerine for light to medium levels of dirt. Has been awarded the EU Ecolabel. Composition: pH-neutral to skin, slightly scented, free of soap and alkalis.

Contents		1000B
06H 09 5619	Skin cleansing foam STEPHALEN® FRESH FOAM	11.79
		6
	suitable for dispenser	095818
	Type of packaging	Neptune bottle



09 5619_1000B



PGP Skin care

Physioderm® CUREA SOFT unscented. Skin conditioning cream with active substance complex of urea, rice germ oil and Bisabolol. Slightly greasy and quickly absorbed. Application: Hydrating skin conditioning cream for ultra-stressed and dry skin. Composition: Cream (O/W emulsion), silicone-free, unscented (HACCP-compliant), pH-neutral, without mineral oils.

Contents		100	1000B
06H 09 5715	Hand conditioning cream Physioderm® CUREA SOFT unscented	5.27	39.15
		12	6
	suitable for dispenser	–	095818
	Type of packaging	Tube	Neptune bottle



09 5715_100



09 5715_1000B

PGP Dispenser

Neptune dispenser standard.

Size WHITE – White plastic.

Suitable for: All skin protection, skin cleansing and skin care products in 1000 ml Neptune bottles.

Colour		WHITE
06H 09 5818	Dispenser Neptune dispenser standard	26.82



09 5818_WHITE



09

Now contains more thanks to the new standard!



New specifications have resulted in changes for small and large company first aid boxes (DIN 13157/DIN 13169). In future, both fillings contain even more dressings for minor injuries at the workplace.

In order to implement the update (from 01/05/2022) quickly and easily, you can obtain all current information about the changes from us. Of course, all fillings in the boxes are up to date as well.

Take advantage of this change to check your first aid equipment.

All changes at a glance:

	OLD	NEW	CHANGE	
DIN 13157	Elastic fingertip dressing	4	6	+ 2
	Elastic finger dressing	4	6	+ 2
	Strips 1.9 × 7.2	4	6	+ 2
	Strips 2.5 × 7.2	8	12	+ 4
	Wound dressings 10 × 6	8	12	+ 4
	Moist wipes for cleaning undamaged skin	0	4	+ 4
	Face masks, at least type I	0	2	+ 2
New items in the company first aid kit				

	OLD	NEW	CHANGE	
DIN 13169	Elastic fingertip dressing	8	12	+ 4
	Elastic finger dressing	8	12	+ 4
	Strips 1.9 × 7.2	8	12	+ 4
	Strips 2.5 × 7.2	16	24	+ 8
	Wound dressings 10 × 6	16	24	+ 8
	Moist wipes for cleaning undamaged skin	0	8	+ 8
	Face masks, at least type I	0	4	+ 4
New items in the company first aid kit				

+ Soft foam bandage

The soft foam dispenser can be used for easier removal of the soft foam bandages. Quick to hand, with integrated cutter device. Ideal alongside first aid equipment. Dimensions: 121×281×170 mm (W×H×D).

Content: Soft foam bandage dispenser incl. soft foam bandage, blue No. 098589 51011010.



09 8602

Type	51011024
09X 09 8602 Soft foam bandage dispenser	26.91

Elastic bandage for bandaging small wounds or lacerations. Good mobility and perfect fit, even when wet. The material is self-adhesive but does not stick to skin and hair. Free of latex. Gentle to the skin.

Size 51011010; 51011020; 51011021 – 6 cm × 4.5 m

Size 51011011; 51011019 – 6 cm × 2 m

09 8589 – Suitable for foodstuffs industry.

Content: 1 roll.



NEW:
Now also available in
beige and black!

09 8589

09 8603

09 8604

Type	51011010	51011011	51011019	51011020	51011021
09X 09 8589	8.96	6.30	–	–	–
09X 09 8603	–	–	5.31	8.91	–
09X 09 8604	–	–	–	–	8.91

09



+ Instant cold pack

The instant cold pack relieves pain and swelling in the event of sprains, for example. The inner bag filled with water bursts when you apply pressure on the compress. This makes the cooling pack cold. Then press the compress on the injury for about 15 - 20 minutes. Place a towel or an elastic bandage between the skin and the compress. The cooling pack can only be used once. Dimensions: 146x216x25 mm (WxHxD). Weight: 200g.



09 8601

Type		219600	Contents
09X 09 8601	Single-use cooling pack Instant Cold Pack	3.96	1

First Aid accessories

First aid signs

- 09 9350 – Instructions for first aid – “Finding a person”. This safety notice contains initial first aid steps. The contact details of first aiders, etc. can also be entered.
- 09 9351 – Instructions for first aid “First aiders”. Safety notice for employees in order to identify first aiders. Here you can enter the contact details of first aiders and the nearest first aid boxes.



09 9350_02400

09 9351_02200

Type	09V	09 9350	09V	09 9351	Material	Contents	Length	Height
		Instructions for first aid						
		Finding a person		First aiders			mm	mm
02200		–		7.11	Unplasticised PVC plastic	1	200	300
02400		14.13		–	Unplasticised PVC plastic	1	400	560



Stefan,
e-business expert

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COMPLEX AND EXPENSIVE.
JUST KIDDING.**

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INFORMATION

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Environment and ethics in trade

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Notes on the statutory framework and commercial ethics



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We provide you with safety data sheets with information on the substances contained in the products, so as to comply with the requirements of the REACH regulations (Registration, Evaluation, Authorisation of CHemicals): Directive (EC) No. 2008/1272.

Our product range contains no Substances of Very High Concern (SVHC).

You can download the safety data sheets from the

Download area on our website:

www.hoffmann-group.com

Information on deliveries:

For some products we are prevented by law from offering express delivery (by air freight) outside Germany.

These products are indicated by a special note in the catalogue. Certain products can currently not be delivered to some countries in Europe.

Electrical equipment (ElectroG)

Electrical equipment can be returned to us when it is not used any more. We will dispose of the appliances properly or recycle them according to the statutory provisions.

We are registered on the Elektro-Altgeräte-Register (EAR) for handling end-of-life electrical devices.

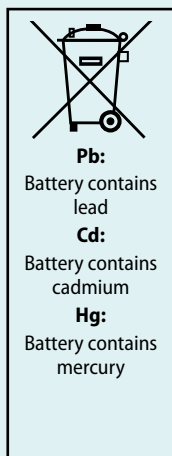
Our WEEE registration number is: DE 53879614

Batteries and rechargeable batteries (BattG)

You can return old batteries to us at any time. We will undertake the environmentally responsive recycling of the materials. We are registered as manufacturer number 21002002 in the register held by the Federal German Environment Agency. We are registered as user contract number 110002 1806 with the Common Acceptance of Returned Batteries System (GRS) foundation.

The directive 2006/66/EU creates a statutory duty to issue instructions: When old batteries cease to be used they must be delivered to an appropriate collection point. You can also return old batteries to the place from which they were purchased.

The crossed-out wheellie bin means: Batteries must not be disposed of in unsorted domestic waste.



Packaging Act (VerpackG)

Under the German Packaging Act (VerpackG) we participate in the dual waste separation system and we are registered on the packaging register LUCID under the number DE3394933750264.

We restrict the volume of packaging to what ever is really necessary and we promote re-usable materials.

Hazardous substances

Polycyclic aromatic hydrocarbons

Polycyclic aromatic hydrocarbons (PAH) are hazardous substances.

In collaboration with the TÜV-Süd, we test that our products are free from toxins. In doing so we commit ourselves voluntarily to the strict limits that are also used for the award of the TÜV-tested safety kitemark (TÜV-GS). Thus we ensure that our products can be used without any reservations.

RoHS (Restriction of the use of certain Hazardous Substances) directive 2015/863/EC and 2011/65.

Our products conform with the RoHS directive.

We comply with the current statutory regulations.

Moreover, we comply with the following regulations:

Directive 2012/19/EC (WEEE).

Directive 2003/11/EC (flame retardants).

Directive 2017/1000/EC (PFOS).

Directive 2012/607/EC (packaging wood).

Directive 2009/251/EC (dimethyl fumarate).

Directive 2009/1005/EC (ozone layer).

Ethical trade:

SA 8000, UN Global Compact, and ISO 26000

For decades, Hoffmann employees have been visiting suppliers at their works. This is part of our pattern of regular supplier evaluations.

As part of our compliance with the international standard SA 8000 in respect of conditions of employment and working conditions, we assess suppliers in this respect.

The SA 8000 standard is based on the conventions of the "International Labour Organisation (ILO)", the "Universal Declaration of Human Rights" and the "UN Convention on the Rights of Children".

We require that our suppliers comply with the following:

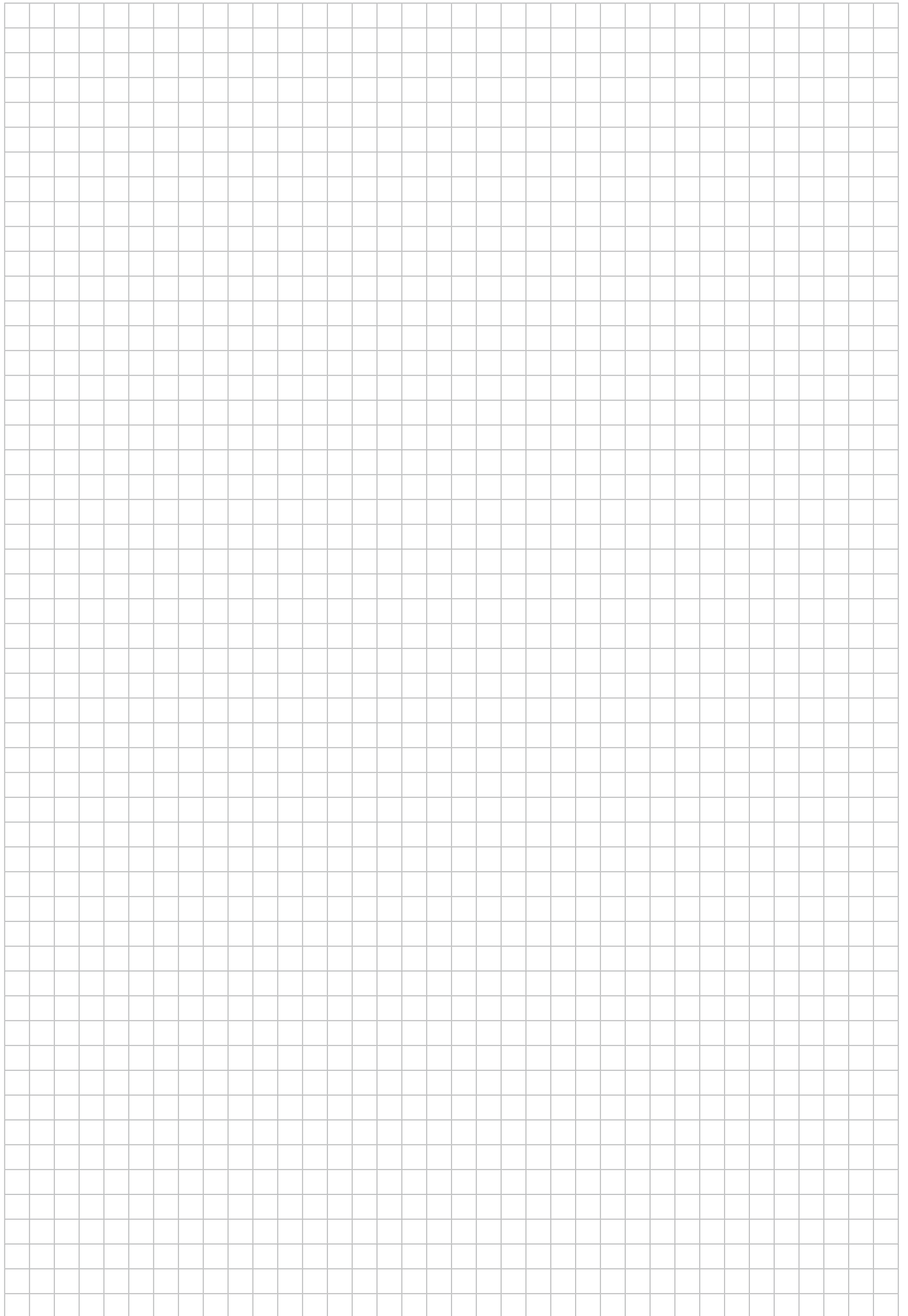
- Prohibition of child labour and forced labour.
- No discrimination.
- Equal opportunities for recruitment and employment.
- Health and Safety at the workplace must be guaranteed.
- The right of employees to organise and bargain collectively must be guaranteed.
- Compliance with the working hours regulations is ensured.
- Laws on minimum wages must be complied with.
- Compliance with applicable environmental laws and standards.
- Compliance with national and international competition laws.
- Prohibition of corruption and bribery.

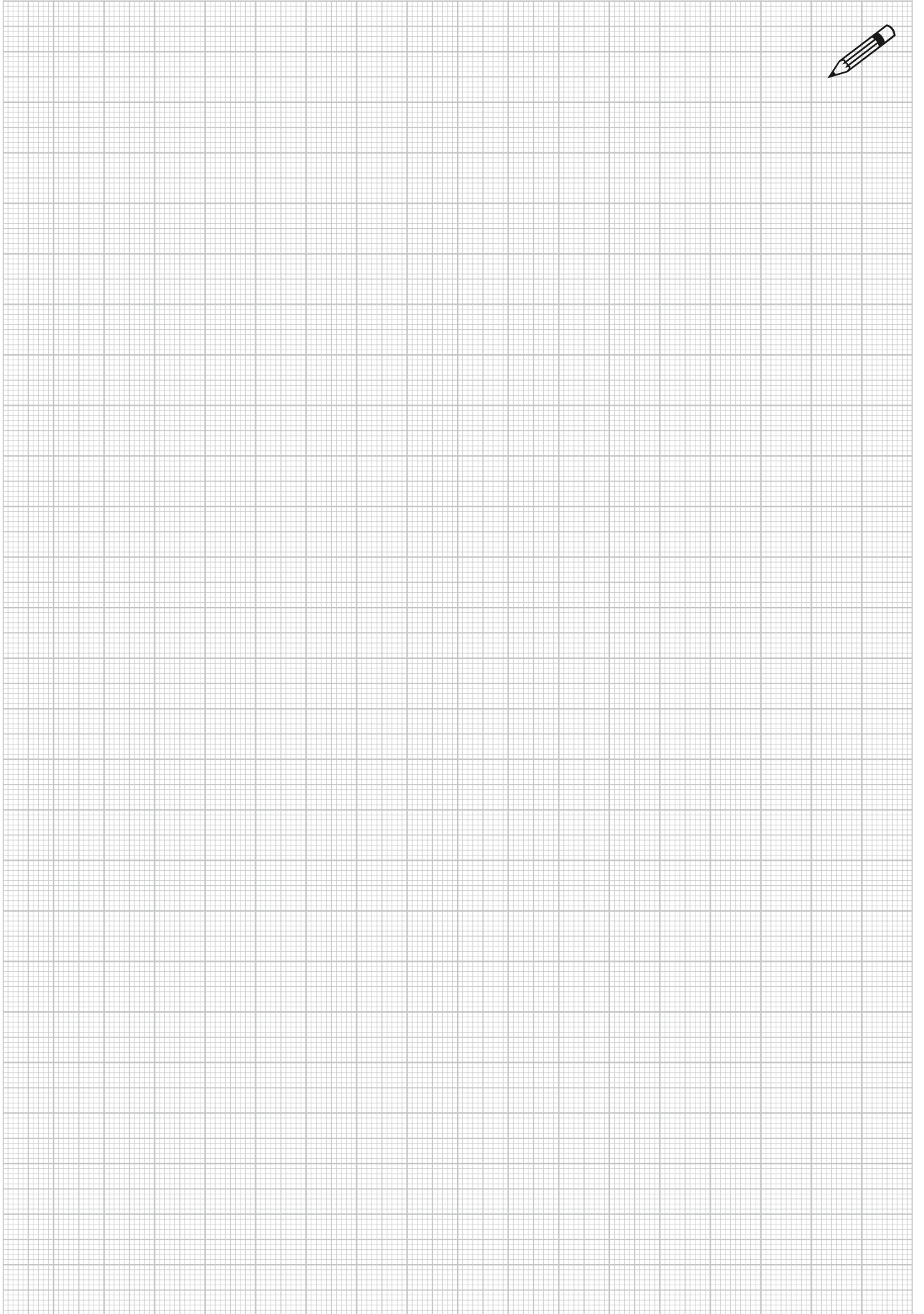
As a supporter of the UN Global Compact, we follow the 10 guiding principles. In addition, it is our concern to show social commitment. We also expect the same from our suppliers.



Furthermore we comply with ISO 26000 guidelines.

These guidelines give information on how socially responsible behaviour in respect of strategies, systems, procedures and processes can be incorporated in an organisation. We also comply with the Dodd-Frank Act (conflict materials) and we have agreed this with our suppliers. We ensure that all our German companies comply with the regulations regarding the minimum wage, and that our subcontractors also comply insofar as the regulations apply to them.





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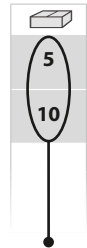
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