



Product Catalogue

Flame Monitoring Systems and Accessories

Sensors and systems for combustion engineering



www.lamtec.de

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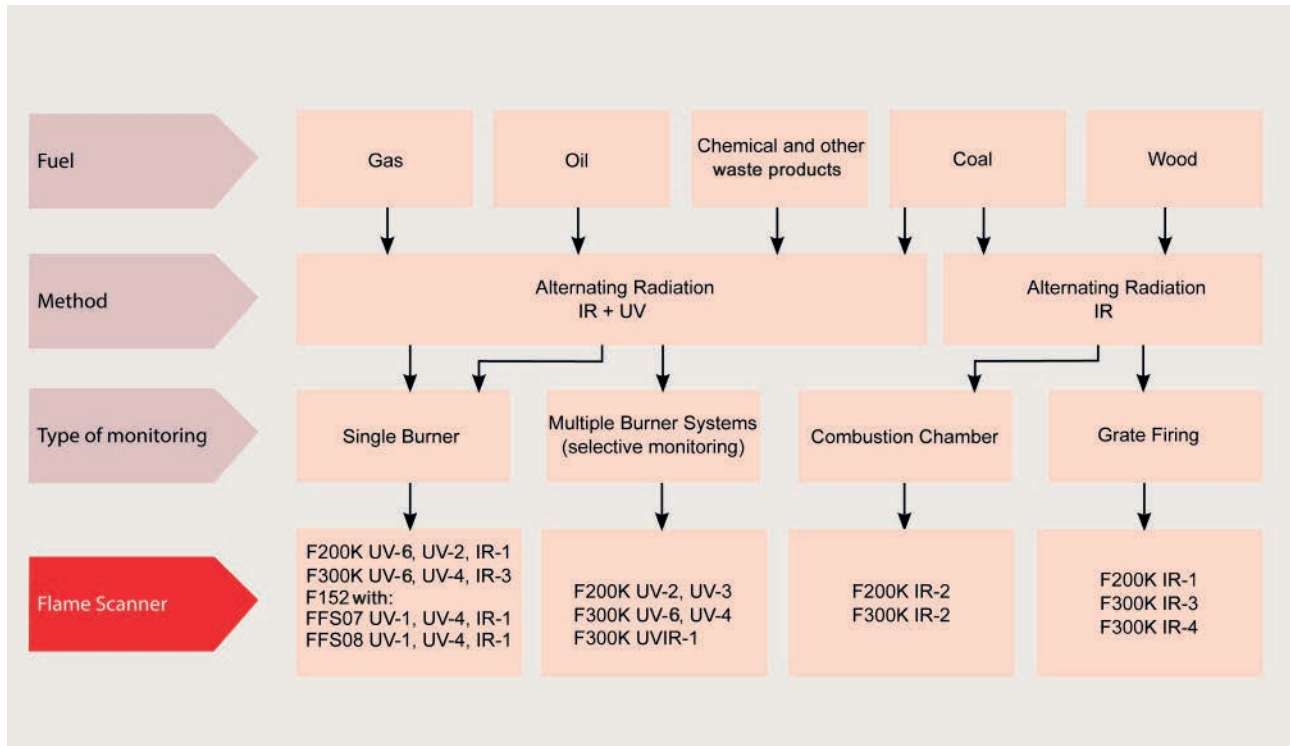
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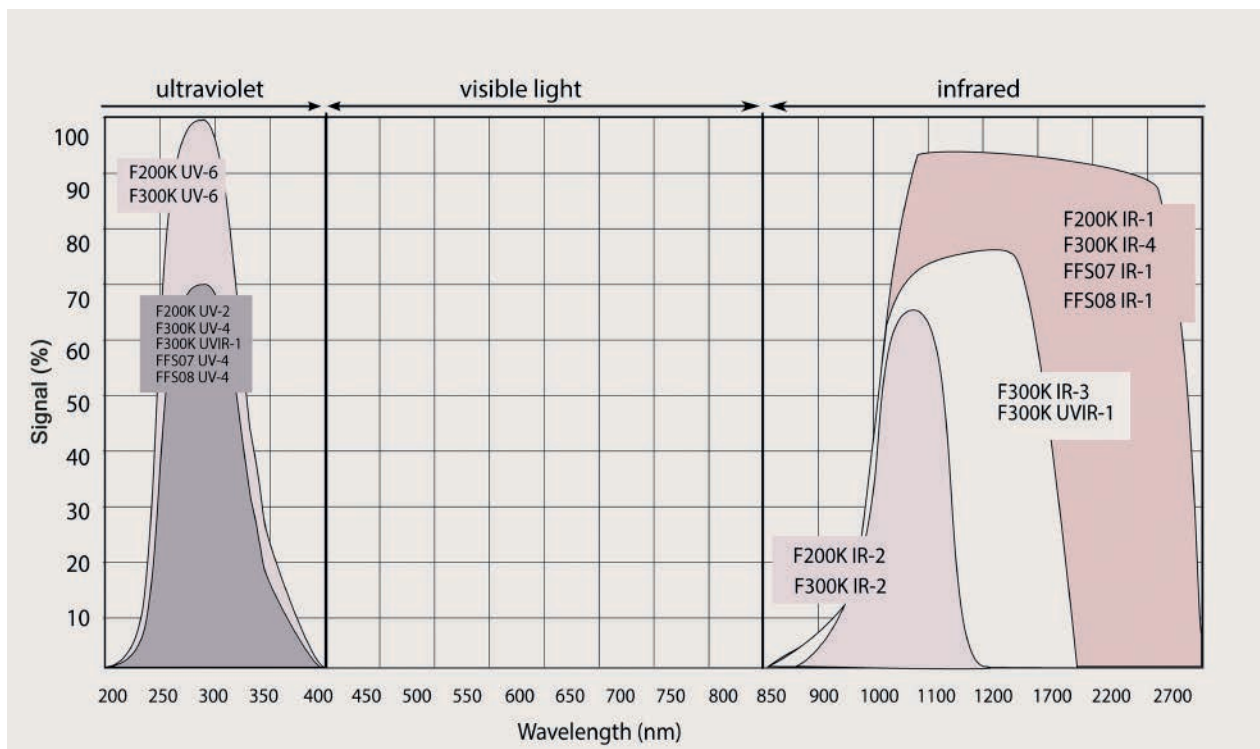
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Selection Criteria - Flame Scanner.

Selection Criteria - Flame Scanner/ Flame Sensor



Selection Criteria according to Wavelength



Compact Flame Monitor F300K (Ex-Zone 2) and F300K-FO.

Technical Data



F300K-with user interface



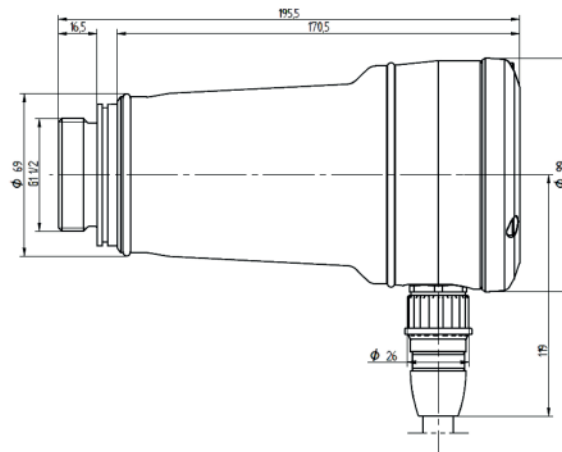
F300K-FO with user interface



F300K with LED display

Usage	Almost all monitoring tasks	Dimensions [mm]	L=195 Ø=99
Power supply voltage	24 VDC ± 20 % ≤ 3.7 W	Material	Anodised corrosion-resistant aluminium EN AW 6082 (seawater 2*; atmospheric condition 1*), or Stainless steel
Flame and fault contact (NO)	≤ 42 VAC/DC, ≥ 13 VAC/DC ≤ 0.5 A, ≥ 10 mA floating	Weight [kg]	1.05 3.6 (stainless steel)
Spectrum (IR/UV)	215 nm to 2,200 nm F 300K UV/IR -1 FO – UV (215 ... 360 nm)/ IR (1,000 ... 1,700 nm)	Class of protection	IP67
Mode of operation	Continuous operation	Operating temperature	- 40 ... + 85 °C
Analogue output	0/4 ... 20 mA, load max. 240 Ohm		

* Comparative evaluation from 1 (very good) to 6 (unsuitable)



Dimensional drawing flame scanner F300K

Ordering Information

659A50 -	A 10	A 20	A 30	A 40
	SPECTRUM	HOUSING	NOT ASSIGNED	CUSTOMER PARAMETER

A 10 - SPECTRUM	Selection
Type UV-6 UV spectral range 221 ... 358 nm	01
Type UV-4 UV spectral range 215 ... 360 nm	04
Type IR-2 IR spectral range 850 ... 1,200 nm	10
Type IR-3 IR spectral range 1,000 ... 1,700 nm	11
Type IR-4 IR spectral range 1,000 ... 2,200 nm	12
Type UVIR-1 UV spectral range 215 ... 360 nm, IR spectral range 1,000 ... 1,700 nm	17
A 20 - HOUSING	Selection
With integrated operating unit	UI
With LED display	0
Stainless steel 1.4404 with LED display	V4A
A 40 - CUSTOMER PARAMETER	Selection
Default setting	0*

Example: Standard F300K UV 4 UI (with integrated user interface) = 659A5001 - 04/UI/0/0

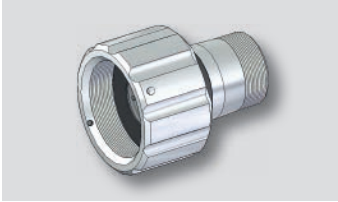
Accessories F300K	Selection
Power supply units	
Power supply unit FN20, 230 VAC, with relay output	659R6010
Power supply unit FN20, 115 VAC, with relay output	659R6010/115
Power supply unit FN20-10, 230 VAC, with relay output, IP66 housing	659M0101
Power supply unit FN20-10, 115 VAC, with relay output, IP66 housing	659M0102
Power supply unit FN30-00, 100 ... 240 VAC, 50/60 Hz / 24 VDC, IP20, for mounting on a DIN rail	659M0400
Power supply unit FN30-10, 100 ... 240 VAC, 50/60 Hz / 24 VDC, in IP65 housing	659M0401
Power supply unit FN30-20, 230 VAC, 50/60Hz / 24 VDC, with relay output 230 VAC, in polyester housing, IP66, black	659M0402
Power supply unit FN30-20, 115 VAC, 50/60Hz / 24 VDC, with relay output 230 VAC, in polyester housing, IP66, black	659M0403
Connecting/extension cable	Selection
Connecting/extension cable, 3 m long	659N0500
Connecting/extension cable, silicone, 3 m long	659N0510
Connecting/extension cable, 5 m long	659N0501
Connecting/extension cable, silicone, 5 m long	659N0511
Connecting/extension cable, 10 m long	659N0502
Connecting/extension cable, silicone, 10 m long	659N0512
Connecting/extension cable, 15 m long	659N0503
Connecting/extension cable, 20 m long	659N0504
Media-resistant silicone connecting cable 3 m, UL / CSA, with connector 1.4571 and protective sleeve 1.4401	659N0550
Media-resistant silicone connecting cable 5 m, UL / CSA, with connector 1.4571 and protective sleeve 1.4401	659N0551
Media-resistant silicone connecting cable 10 m, UL / CSA, with connector 1.4571 and protective sleeve 1.4401	659N0552

Ordering Information

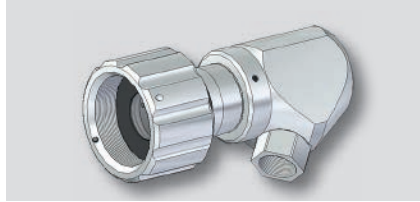
Connecting/extension cable	Selection
Media-resistant silicone connecting cable 3 m, UL / CSA, with connector 1.4571 without protective sleeve	659N0560
Media-resistant silicone connecting cable 5 m, UL / CSA, with connector 1.4571 without protective sleeve	659N0561
Media-resistant silicone connecting cable 10 m, UL / CSA, with connector 1.4571 without protective sleeve	659N0562
Quick-connection coupling	Selection
Quick-connection coupling 1/2" with shutter, for purging-air coupling, Material Brass, hose connection 6/8 mm	659ES126
Quick-connection coupling 1/2" with shutter, for purging-air coupling, Material 1.4571, hose connection 6/8 mm	659ES125
Protective Cable Conduit	Selection
Protective Cable Conduit AKS-18 I- Ø 18 mm x 1,5 mm, long 3 m	659N9900
Protective Cable Conduit AKS-18 I- Ø 18 mm x 1,5 mm, long 5 m	659N9901
Protective Cable Conduit AKS-18 I- Ø 18 mm x 1,5 mm, long 10 m	659N9902
Brackets	Selection
Adjustable bracket FV30-00 for screw fixing	659S1201
Adjustable bracket FV30-10 for screw fixing, with purging-air coupling	659S1200
Adjustable bracket FV40-10 for screw fixing, with purging-air coupling and ball joint	659S1300
Adjustable bracket FK46, with cooling-air housing and purging-air coupling, detachable, adjustable	659S1400
Adjustable bracket FK41, with cooling-air housing and purging-air coupling, and ball joint	659S1401
Cooling-air housing FK30	659S1100
Bracket FV30-FO , screw connection with purging air coupling G 1/2"	659S5013
Optional components	Selection
Connection housing FG30-00 including connector for FSB interface, ABS-plastic, IP65	659N5500
Ex-Connection housing FG30-20 for Ex II zone including connector for FSB interface, Polyester, IP65	659N5502
Connection housing FG30-21, including connector for FSB interface, stainless steel 1.4404 / 316L, IP66	659N5504
Alternatively: Y-FSB adapter CA05-01, for the direct connection of a PC with remote software to F300K	659N0801
Alternatively: retrofit for cabinet installation „Socket for FSB connection“ , connection strand length 50 cm, incl. locknut and coverage	659E0020
Thermo jacket, for series F200K2 ... Ex1/F300K, without heating, for ambient temperatures > -10 °C	659R6505
Thermo jacket, for series F200K2 ... Ex1/F300K, with heating, for ambient temperatures < -10 °C	659R6506
Universal testing device FFP30 for IR and UV	659M5000
External user interface FB30-00, mobile, including connecting cable, 3 m long	659M2100
External user interface FB30-10, for control cabinet, including connecting cable, 3 m long	659M2101
Remote PC-Software, from WINDOWS XP, incl. USB/CAN-module and connecting cable, 3 m long	659R9000
Remote PC software, from WINDOWS XP, incl. connection cable, length 3 m, without USB / CAN module	659R9001
Gateway FSB/Modbus TCP Slave, configurable with associated PC software via Ethernet interface	659M3001
Patch cable S/FTP, Cat 6, yellow, length 3 m	663R0106
Gateway FSB / Modbus RTU Slave, configurable with associated PC software via RS232 interface	659M3002
Serial connection cable, 9-pin Sub-D, female-female connector, length 10 m	663R0100
USB to serial adapter for WINDOWS 2000 / XP / VISTA / 7 / LINUX	663R9003
FSB-modul for 4 Analogue inputs, for use with Remote PC-Software	659M3003
FSB-modul for 4 Digital inputs, for use with Remote PC-Software	659M3004
Repeater FSB / FSB	659M3005

Brackets and accessories for F300K and F300K-FO

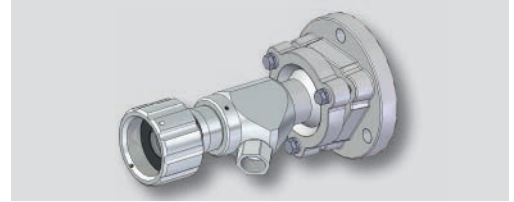
- FV30-00 Screw Joint and FV30-01 (stainless steel)
- FV30-10 Screw Joint with Purge Air Connection and FV30-11 (stainless steel)
- FV40-10 Screw Joint with Purge Air Connection and Ball-and-Socket Joint and FV41-11 (stainless steel)
- FV30-FO Bracket Screw connection with purging air coupling
- FK30 Cooling Air Housing
- FK41 Cooling Air Housing with Purge Air Connection and Ball-and-Socket Joint
- FK46 Cooling Air Housing with Purge Air Connection and FS35 (detachable holding device)



Screw Joint FV30-00 and FV30-01 (stainless steel)



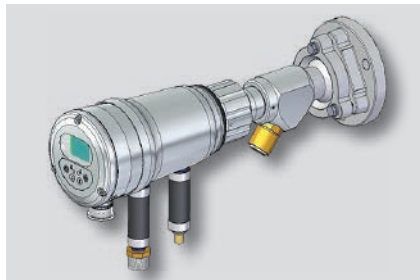
Screw Joint with Purge Air Connection FV30-10 and FV30-11 (Stainless steel)



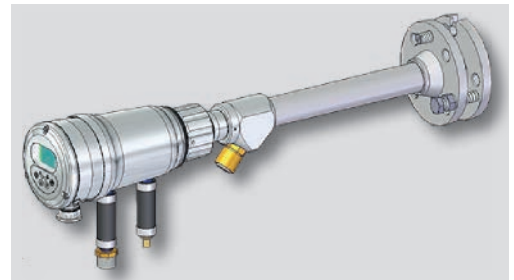
Screw Joint, Purge Air Connection, Ball-Socket Joint FV40-10/11 (Stainless steel)



Cooling Air Housing FK30



Cooling Air Housing with Purge Air Connection and Ball-and-Socket Joint FK41



Cooling Air Housing with Purge Air Connection and FS35-FK46



FV30-FO bracket with purge air coupling

External User Interface FB30-00/10 for F300K.

Technical Data



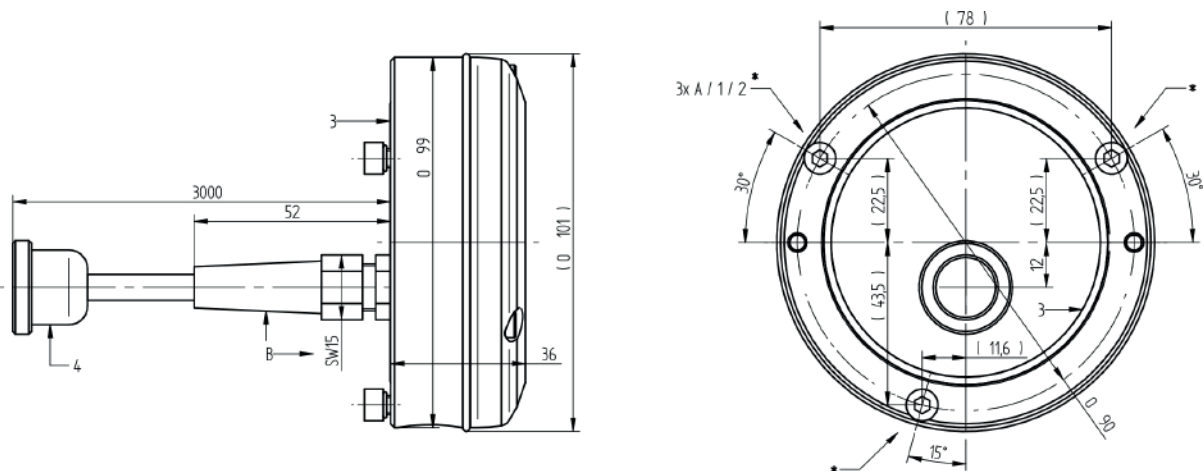
External User Interface FB30-00, portable



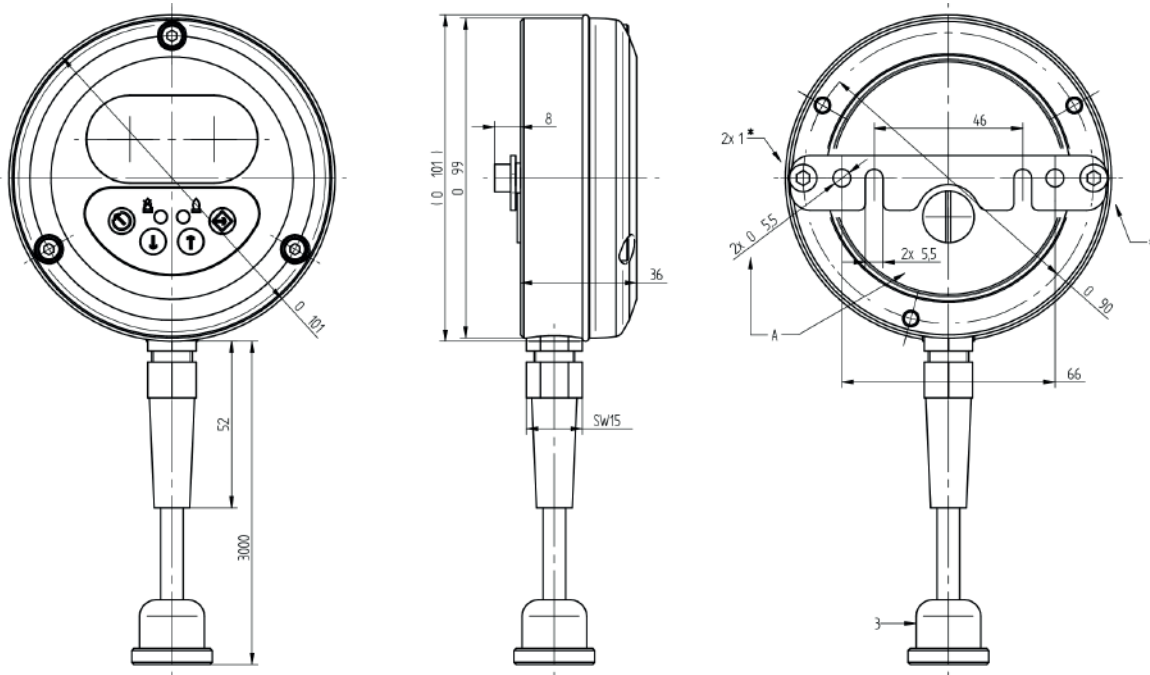
External User Interface FB30-10, control cabinet installation

Usage	Same features as integrated User Interface	Dimensions [mm]	See dimensional drawings
Power supply voltage	24 VDC \pm 20 %	Material	Corrosion-resistant aluminium EN AW 6082 (seawater 2*; atmospheric condition 1*),
Power consumption:	< 1 W (< 30 mA)	Weight [kg]	0.3
Communication	FSB-Bus	Class of protection	IP67
Connection type	2x2-wire shielded TP, as LiYCY TP 0.34	Ambient temperature	- 40 to + 80 °C (display disappears at temperatures higher than +70 °C)

* Comparative evaluation from 1 (very good) to 6 (unsuitable)



Dimensional drawing External User Interface FB 30-10 - mounting on the control cabinet door



Dimensional drawing external user interface FB30-00 - on-site assembly

- | | |
|----------------------------------|--|
| <p>A Attachment/holes for M5</p> | <p>1 Cylinder head screw with an internal hexagon M5x8</p> <p>2 Suspension strap</p> <p>3 Circular connector 5-pole M5</p> |
|----------------------------------|--|

Ordering Information

External User Interface FB30	Selection
External User Interface FB30-00, portable, incl. connecting cable, length 3 m	659M2100
External User Interface FB30-10, control cabinet installation, incl. connecting cable, length 3 m	659M2101

Commissioning Case in Conjunction with F300K

Technical Data



Commissioning case opened



Commissioning case front



Commissioning case back side

Usage	Service and Commissioning support, test installations, flame analysis, troubleshooting	Dimensions [mm]	HxBxT trolley version: 450x420x330 mm Height with handle pulled 980 mm
Power supply voltage	230 VAC	Material	Aluminium
Order-Nr.	659W0202	Weight [kg]	without F300K: 11.2

Case content and Ordering Information

Content	Selection
Threaded connection FV30-00 Alu	659S1201
Power pack	7002061-40100ST
Testing device FFP30	659M5000
Connecting cable for power pack	7002060-703ST
FSB Y-adapter	659N0801
Adapter cable F200K/F300K	659N1000
Connecting cable F300K/power pack 5 m	7002061-702ST
USB-Cable for Remote-Software 5 m	7002061-70200
Connecting cable USB/CAN module 2 m	659N0710
F300K Remote Software, from WIN XP onwards, cable, isolated from voltage, without USB/CAN module	659R9001
USB/CAN-modul	659N9900
Globe joint FS10-2 with flange, Gi 2"	659E0105
Purge air connection, anodised	6512300-80001
Threaded connection adapter Gi 1 1/4" on Ga 1"	659E0000
Additional parts	Selection
Compact Flame Scanner F300K* (recommended UV/IR)	659A50
Ext. User Interface FB30-00	659M2100
Adapter cable COEN Flame sensor on F200K	659N1100
FSB module for 4 analogue inputs	659M3003
FSB module for 4 digital inputs	659M3004
Connecting cable for FSB module 20 cm	7002061-703 ST

Compact Flame Monitor F200K/F200K Ex-II/Ex (Ex-Zone 2 and 1) and F200K-FO.

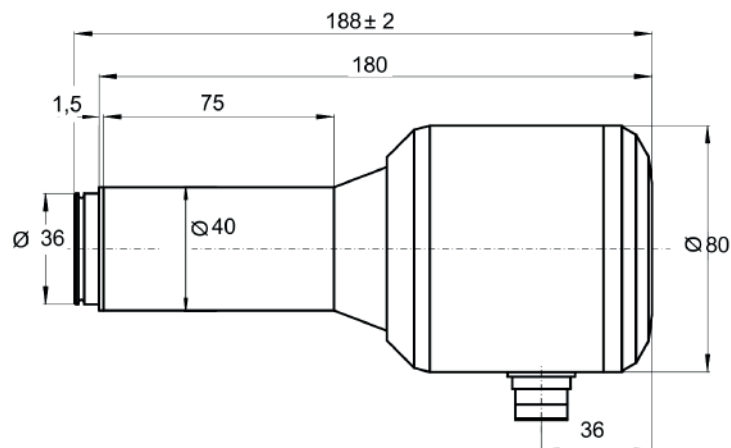
Technical Data



Compact Flame Monitor F200K and F200K EX-Zone 2

Usage	Monitoring of single and multi-burner combustion plants	Dimensions [mm]	L=180 Ø=40/80
Power supply voltage	24 VDC \pm 20 % \leq 4.0 W	Material	Corrosion-resistant aluminium EN AW 6082 (seawater 2*; atmospheric condition 1*)
Flame and fault contact	\leq 42 VDC, \geq 6 VAC/DC \leq 0.5 A, \geq 1.0 mA floating	Weight [kg]	0.6
Spectrum (IR/UV)	215 nm to 2800 nm F200K-FO - UV 2/UV 6 (220 ... 360nm)	Class of protection	IP67
Mode of operation	Continuous operation	Operating temperature	IR1 ... -20 ... +60 °C all others - 40 ... + 75 °C , except EX1
Analogue output	0/4 ... 20 mA, load 200 Ohm		

* Comparative evaluation from 1 (very good) to 6 (unsuitable)



Dimensional drawing flame monitor F200K

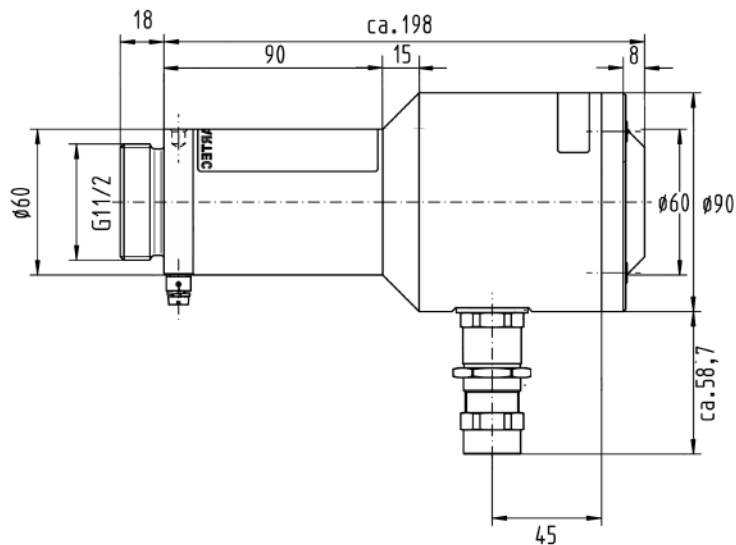
Compact Flame Monitor F200K and F200K Ex-II/Ex (Ex-Zone 2 and 1) and F200K-FO



Compact Flame Monitor F200K Ex-Zone 1

Usage	Monitoring of single and multi-burner combustion plants	Dimensions [mm]	L=198 Ø=60/90
Power supply voltage	24 VDC ± 20 % ≤ 4.0 W	Material	Corrosion-resistant aluminium EN AW 6082 (seawater 2*; atmospheric condition 1*), nickel plated, varnished RAL 9006 matt
Flame and fault contact	≤ 42 VDC, ≥ 6 VAC/DC ≤ 0.5 A, ≥ 1.0 mA potentialfrei	Weight [kg]	1.8
Spectrum (IR/UV)	215 nm to 2,800 nm F200K-FO - UV 2/UV 6 (220 ... 360 nm)	Class of protection	IP67
Mode of operation	Continuous operation	Operating temperature	- 20 ... + 60 °C
Analogue output	0/4 ... 20 mA, load 200 Ohm		

* Comparative evaluation from 1 (very good) to 6 (unsuitable)



Dimensional drawing F200K EX

Ordering Information

659R60 -	A 10	A 20	A 30	A 40	A 50	A 60
	SPECTRUM	HOUSING	POWER FREQUENCY*	CURRENT OUTPUT	DISPLAY RANGE	CABLE LENGTH

A 10 - „SPECTRUM“	Selection
Type 1 UV-1 UV-spectral range 260 ... 400 nm	03 Standard
Type 2 UV-1 UV-spectral range 260 ... 400 nm	04
Type 1 UV-2 UV-spectral range 210 ... 380 nm	05
Type 2 UV-2 UV-spectral range 210 ... 380 nm	06
Type 1 UV-3 UV-spectral range 210 ... 380 nm	13
Type 2 UV-3 UV-spectral range 210 ... 380 nm	14
Type 1 IR-1 IR-spectral range 1,200 ... 2,800 nm	01
Type 2 IR-1 IR-spectral range 1,200 ... 2,800 nm	02
Type 1 IR-1 H 3s IR-spectral range 1,200 ... 2,800 nm	11
Type 2 IR-1 H 3s IR-spectral range 1,200 ... 2,800 nm	12
Type 2 IR-2 F IR-spectral range 850 ... 1,200 nm	00
Type 2 IR-2 F 4s IR-spectral range 850 ... 1,200 nm	08
A 20 - „HOUSING“	Selection
Housing Standard Suitable bracket FH30-00, FH30-10, FH40-10	0 Standard
Housing for FO	FO
Housing with screwing Suitable bracket FV30-00, FV30-10, FV40-10	V
Housing IR for EX zone 1 (II 2G EEx d IIC T6) / SIL 3 according to EN 61508-2 Suitable bracket FV30-00, FV30-10, FV40-10	Z1 IR
Housing UV for Ex zone 1 (II 2G EEx d IIC T6) / SIL 3 according to EN 61508-2 Suitable bracket FV30-00, FV30-10, FV40-10	Z1 UV
Housing for Ex zone 2 (II 3G EEx nAC IIC T6 X) / SIL 3 gemäß EN 61508-2 Suitable bracket FH30-00, FH30-10, FH40-10	Z2
Housing for Ex zone 2 (II 3G EEx nAC IIC T6 X) / SIL 3 according to EN 61508-2, with screwing Suitable bracket FV30-00, FV30-10, FV40-10	Z2/V
Housing for Ex zone 2 and Fiber Optic	Z2/FO
A 30 - „POWER FREQUENCY“	Selection
Power frequency 50 Hz	0 Standard
Power frequency 60 Hz	60 Hz
A 40 - „CURRENT OUTPUT“	Selection
Power frequency 4 ... 20 mA	0 Standard
Power frequency 0 ... 20 mA	0 mA
A 50 - „DISPLAY RANGE“	Selection
Standard	0 Standard
Extended display range	A
A 60 - „CABLE LENGTH FOR TYPE EX-ZONE 1“	Selection
Without connecting cable	0 Standard
Connecting cable, length 3 m, only Ex1	3 m
Connecting cable, length 5 m, only Ex1	5 m
Connecting cable, length 10 m, only Ex1	10 m

* For special applications, LAMTEC provides a version without mains frequency suppression.

When mounting additional measures are mandatory to be observed. Observe the instructions in the operating instructions!

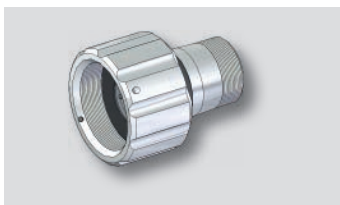
Ordering Information

Accessories F200K

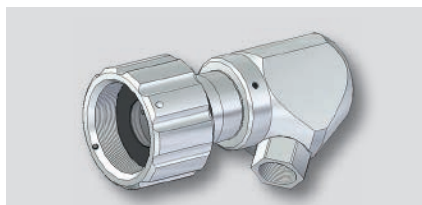
Power supply unit	Selection
Power supply unit FN20, 230 VAC with relay output, din rail mounting	659R6010
Power supply unit FN20, 115 VAC with relay output, din rail mounting	659R6010/115VAC
Power supply unit FN20, 230 VAC with relay output, IP65 aluminum housing	659R6010/G
Power supply unit FN20, 115 VAC with relay output, IP65 aluminum housing	659R6010/G/115VAC
Connection/Extension cable/Protective Cable Conduit	Selection
Connection/extension cable, (not for EX1) length 3 m	659R6112
Connection/extension cable, (not for Ex zone 1), silicone, length 3 m	659R6112/SI
Connection/extension cable, (not for Ex zone 1), length 5 m	659R6113
Connection/extension cable, (not for Ex zone1), silicone, length 5 m	659R6113/SI
Connection/extension cable, (not for Ex zone1), length 10 m	659R6114
Connection/extension cable, (not for Ex zone1), silicone, length 10 m	659R6114/SI
Protective Cable Conduit AKS-18 I- Ø 18 mm x 1.5 mm, length 3 m	659N9900
Protective Cable Conduit AKS-18 I- Ø 18 mm x 1.5 mm, length 5 m	659N9901
Protective Cable Conduit AKS-18 I- Ø 18 mm x 1.5 mm, length 10 m	659N9902
Brackets	Selection
Adjustable bracket FH30-00 fixing bracket	659S1501
Adjustable bracket FH30-10 fixing bracket, with purging-air coupling, Standard	659S1500
Adjustable bracket FH40-10 fixing bracket, with purging-air coupling and globe joint	659S1600
Adjustable bracket FV30-00 for screw fixing without purging-air coupling	659S1201
Adjustable bracket FV30-10 for screw fixing, with purging-air coupling	659S1200
Adjustable bracket FV40-10 for screw fixing, with purging-air coupling and globe joint	659S1300
Adjustable bracket FS51, with globe joint and cooling air housing	659R6107
Adjustable bracket FS56, adjustable, with cooling air housing	659R6099
Cooling air housing FS50	659R6109
Bracket FH20-10 with tilted mirror 90°	659V3100
Bracket FV30-FO , for screw fixing, with purging-air coupling G 1/2"	659S5013
Connection housing	Selection
Connection housing FG21 aluminium IP65, for FFS07 / 08 / F200K without plug	659R0110ABG
Connection housing FG24 Ex, Polyester (IP65), type of protection EEx e II T 6, for serial FFS07 .. und F200K	659R0111
Weather protection	Selection
Weather protection FW01	659R6030
Weather protection FW02, for serial F200K2 Ex1	659R6030/EX
Thermo-jackets	Selection
Thermo jacket heated, 230 VAC, for series F200K / V, F200K Ex-II / V, for ambient temperatures down to - 55 °C, consisting of thermo jacket, heating tape carrier with connection housing, Ex T5, no temperature monitoring required	659S4000
Thermo jacket heated, for 120 VAC, for series F200K/V, F200K Ex-II / V,	659S4001
Thermo jacket heated, 230 VAC, for series F200K Ex for ambient temperatures down to - 55 °C, consisting of thermo jacket, heating tape carrier with connection housing, Ex T5, temperature monitoring separately	659S4002
Thermo jacket heated, for 120 VAC, for series F200K Ex	659S4003
Suitable hose clamp V2A for mounting the temperature sensor on F200K housing	659S4012

Brackets and accessories for F200K and F200K-FO

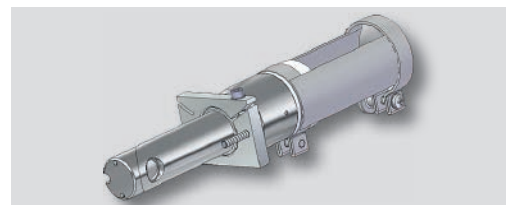
- FV30-00 Screw Joint
- FV30-10 Screw Joint with Purge Air Connection
- FH30-10 Holding Bracket, with purging-air connection
- FH20-10 Holding Bracket with Benching Mirror 90°
- FH30-00 Holding Bracket
- FV30-FO Screw Joint with Purge Air Connection G 1/2"
- FV40-10 Screw Joint with Purge Air Connection and Ball-and-Socket Joint
- FH40-10 Holding Bracket with Purge Air Connection and Ball-and-Socket Joint
- FS50 Cooling Air Housing
- FS51 Cooling Air Housing and Ball-and-Socket Joint
- FS56 Holding Bracket (detachable and adjustable)



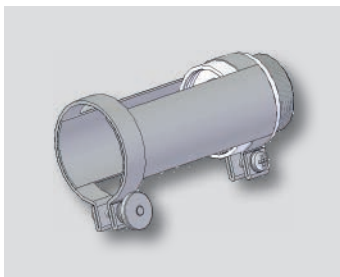
Screw Joint FV30-00 and FV30-01 (stainless steel)



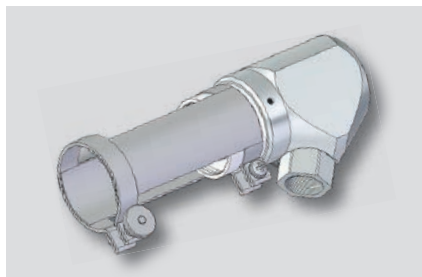
FV30-11 (stainless steel)



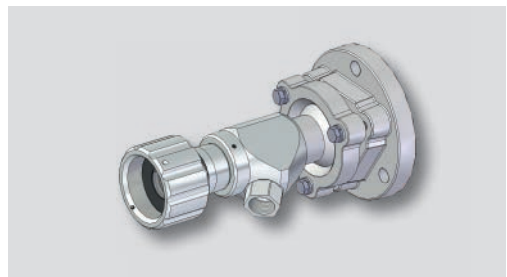
Holding Bracket with tilted Mirror 90° FH20-10



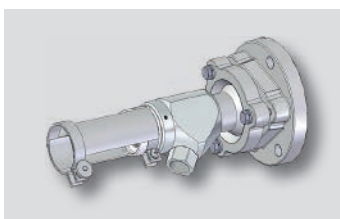
Holding Bracket FH30-00



Holding Bracket and Purge Air Connection FH30-10



Screw Joint with Purge Air Connection and Ball-and-Socket Joint FV40-10 and FV41-11 (stainless steel)



Holding Bracket with Purge Air Connection and Ball-and-Socket Joint FH40-10



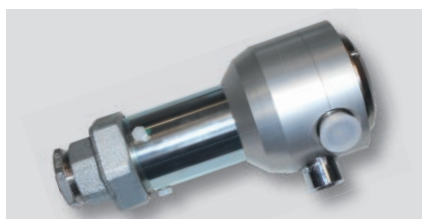
FV30-FO Bracket with purge air coupling



Cooling Air Housing and Ball-and-Socket Joint FS51



Holding Bracket (detachable and adjustable) FS56



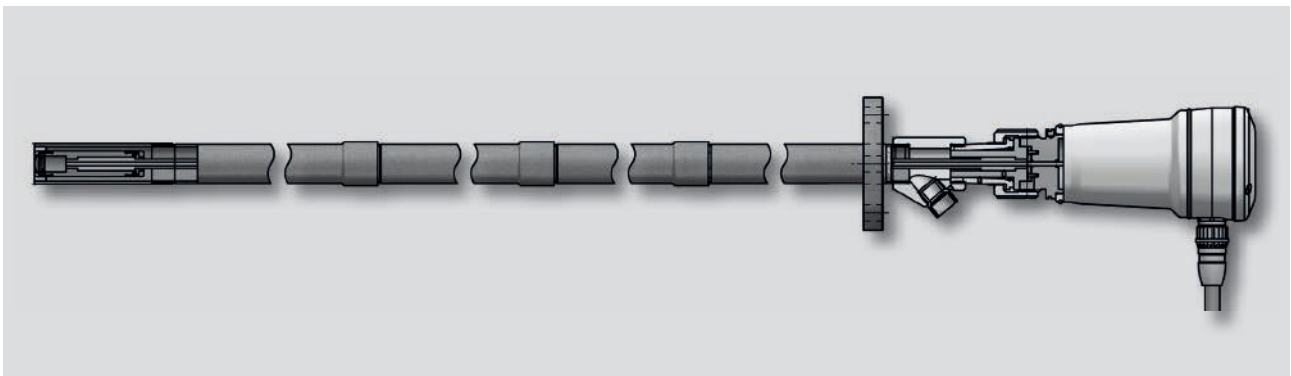
Cooling Air Housing FS50



Thermo jacket heated

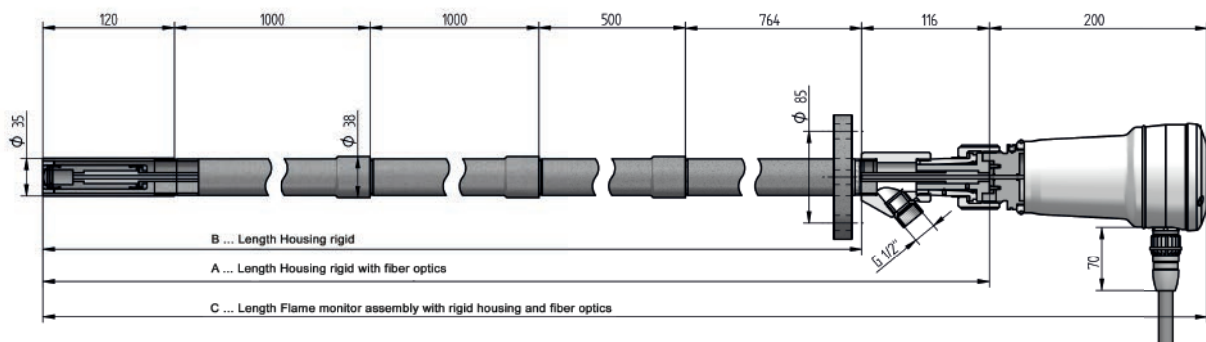
Fibre Optics with Rigid and Flexible Housing for Compact Flame Monitor F200K and F300K.

Technical Data



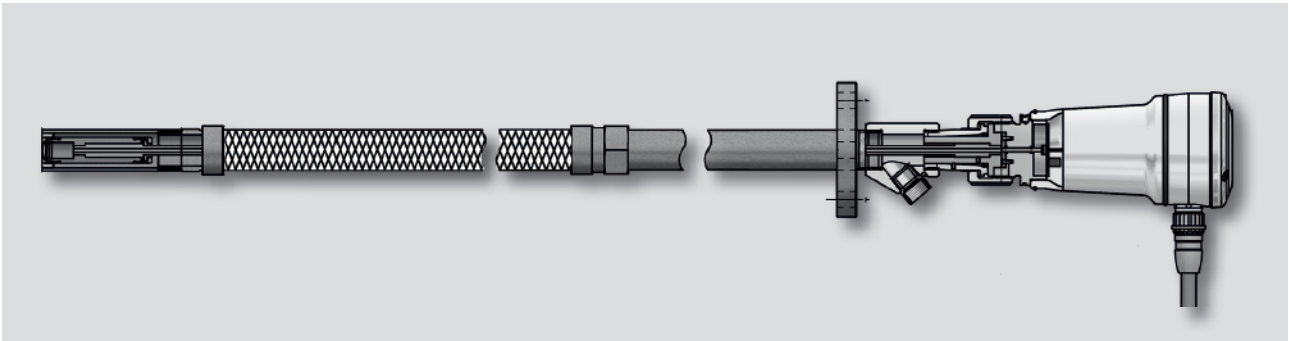
Fiber optic with rigid housing for F200K and F300K

Usage	Burner installations where direct flame viewing is poor or not possible and/or where high process temperatures prevent local mounting of the flame scanner.	Dimensions [mm]	min. 1.5 m to 10 m (in increments of 0.5 m), see dimensional drawing)
Spectrum	UV, VIS; NIR (220 - 1200 nm)	Material	1.4301, EN AW-6082, POM
Viewing angle	6°	Weight [kg]	ca. 2 kg + 1 kg/m
Air connection	G 1/2"	Operating temperature	- 40 °C bis + 350 °C



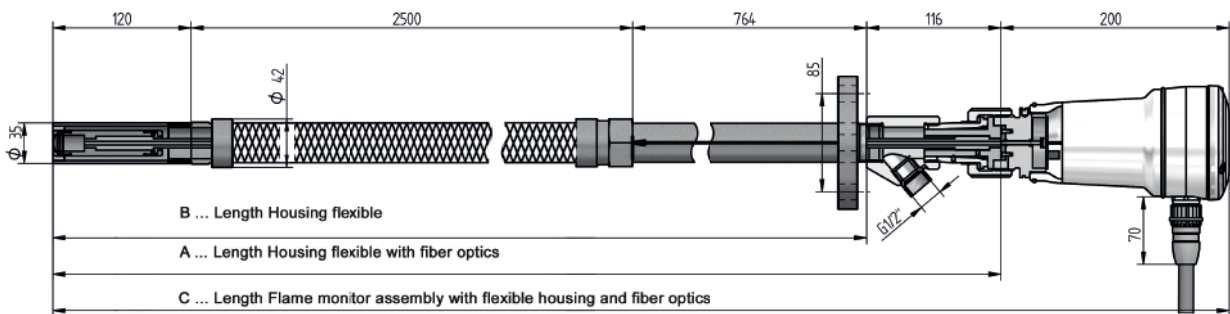
Dimensional drawing fiber optics with rigid housing

Technical Data



Fiber optic with flexible housing for F200K and F300K

Usage	Burner installations where direct flame viewing is poor or not possible and/or where high process temperatures prevent local mounting of the flame scanner.	Dimensions [mm]	min. 1.5 m to 10 m (in increments of 0.5 m), see dimensional drawing)
Spectrum	UV, VIS; NIR (220 - 1,200 nm)	Material	1.4301, 1.4404, 1.4541, EN AW-6082, POM
Viewing angle	6°	Weight [kg]	ca. 2 kg + 1 kg/m
Air connection	G 1/2"	Operating temperature	- 40 °C bis + 350 °C



Dimensional drawing fiber optics with flexible housing

Ordering Information

659S50 -	A 10	A 20	A 30
	FIBRE TYPE/ INSTALLATION DEPTH	FLEXIBLE PART	PROCESS OPTIC

A 10 - „FASERART/EINBAUTIEFE“	Selection
UV/max. installation depth 834 mm (complete length * = 1.0 m)	UV 10
UV/max. installation depth 1,384 mm (complete length * = 1.5 m)	UV 15
UV/max. installation depth 1,884 mm (complete length * = 2.0 m)	UV 20
UV/max. installation depth 2,384 mm (complete length * = 2.5 m)	UV 25
UV/max. installation depth 2,884 mm (complete length* = 3.0 m)	UV 30
IR	IR
A 20 - „FLEXIBLE PART“	Selection
Without	00
0.5 m	05
1.0 m	10
1.5 m	15
2.0 m	20
2.5 m	25
3.0 m	30
A 30 - „PROCESS OPTIC“	Selection
UV Process optic, lense D = 15 mm (Standard)	10
UV Process optic, protection glass D = 15 mm	20
IR Process optic, filter disc D = 15 mm	30

* total length: lens process optics - holder (without flame sensor)

Brackets	Selection
Welding flange DIN2642 PN10 DN32/35 x 16, stainless steel 1.4301	659S5017
Threaded conection flange DN32/ 42,4 Rp 1/1/4“,stainless steel 1.43014301	659S5019
Cutting ring fitting, d=15 mm, G1“, steel galvanized	659S5018
Adjusting stand process optic for pipe DN100	659S5012/10
Adjusting stand process optic for pipe DN80	659S5012/20
Spare Parts	Selection
Bracket FV30-FO, threaded connection with purge air G1/2“	659S5013
UV-Process optic, Lens d = 15 mm	659S5015
Mounting tube process optic, length 120 mm	659S5011

* = Complete length: Lense process optic - bracket (without flame scanner)

Ordering Information

Designation	Auswahl
Compact flame monitor F200K2 UV-2, housing for fibre optics	659R60/06/FO/..
Compact flame monitor F200K2 UV-6, housing for fibre optics	659R60/07/FO/..
Compact flame monitor F200K2 UV-2, housing for EX-Zone II and fibre optics	659R60/06/Z2/FO/
Compact flame monitor F200K2 UV-6, housing for EX-Zone II and fibre optics	659R60/07/Z2/FO/
Compact flame monitor F300K UV-4 for fibre optics	659A50/24/..I
Compact flame monitor F300K UV-4.6 for fibre optics	659A50/26/..I
Compact flame monitor F300K UVIR-1 for fibre optics	659A50/37/..I
Designation	Auswahl
Rigid stainless steel tube G1 inch x 1,000 mm OH - IH	6550A00-80013
Rigid stainless steel tube G1 inch x 500 mm OH - IH	6550A00-80014
Rigid stainless steel tube G1 inch x 754 mm OH - OH (burner plate fastening)	6550A00-80015
Flexible housing (stainless steel ring shaft hose) internal thread 1", external thread 1", stainless steel	659S5042/XX
Designation	Auswahl
Stainless steel welded flange DIN2642 PN10 DN32/35 x16 stainless steel 1.4301 or 1.4307	659S5017
Stainless steel threaded flange DIN2566 DN32/42.4 x 16, Rp 1 1/4" stainless steel	659S5019
Stainless steel compression fitting d = 35 mm, G1/1/4" stainless steel 1.4307	659S5018
Designation	Auswahl
Process optics tube 120 mm	659S5011
Process optics	659S5015/10
Fibre bundle, length XX.X m, with stainless steel - protective hose	659S5021/XX
Designation	Auswahl
FV30-FO bracket	659S5013
Designation	Auswahl
Adjustable internal support fixing DN100 stainless steel	659S5012/10
Adjustable internal support fixing DN80 stainless steel	659S5012/20

Ordering example:

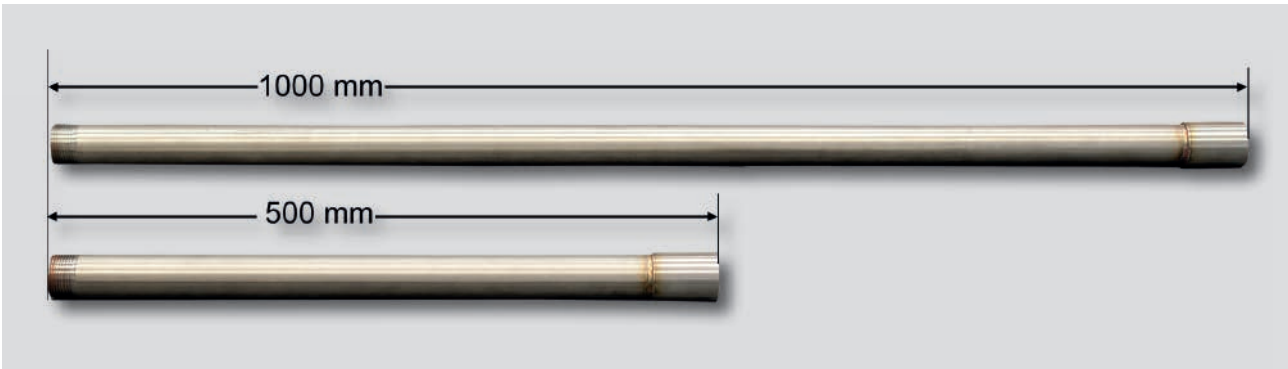
Ordernumber: 659S50 - XXXX - XX - XX
 (each fiber optic contains: Tube process optic, rigid VA tube G1 inch x 754 mm, bracket FV30-FO)

Ordering example: Fiber optic rigid housing, length 7.5 m
 659S50 Fiber optic system
 UV75 UV fibre, length 7.5 m
 00 without flexible housing part
 10 Process optics with lens

Ordering example: fiber optic flexible housing, length 7.5 m
 659S50 Fiber Optic System
 UV75 UV-Faser, Length 7.5 m
 65 flexible housing part, length 6.5 m
 10 Process optics with lens

Ordering example: Accessories Mounting flange/ fitting:
 659S5019: Stainless steel flange with 1/1/4" thread
 659S5018: Compression fitting with G1/1/4" thread

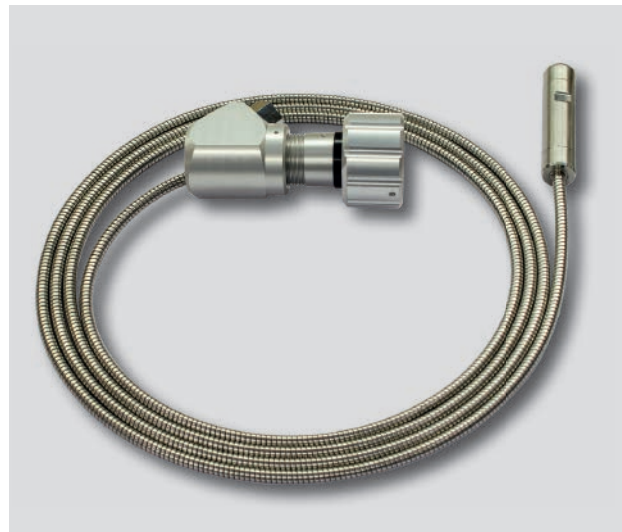
Fiber Optic Components



Fiber Optic rigid housing



Fiber optic flexible housing



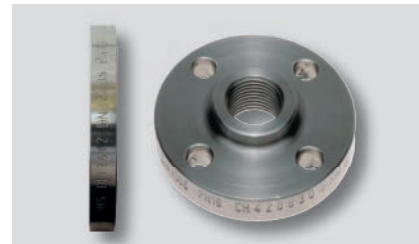
Fiber optics with process optics and holder FV30-FO



Process optics tube



Stainless steel compression fitting



Welding and screw flange



FV30-FO Bracket with purge air coupling

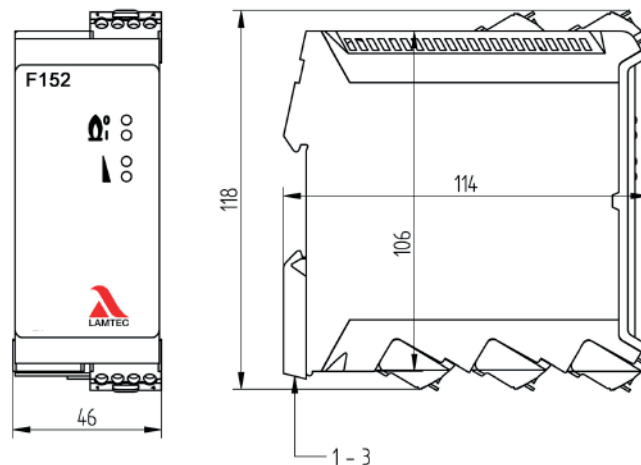
Flame Monitoring Device F152.

Technical Data



Flame monitoring device F152

Usage	Monitoring of single-burner plants	Dimensions [mm]	See dimensional drawing
Power supply voltage	230 VAC +10 % -15 % 115 VAC +10 % -15 %,werkseitig	Material	Plastic
Power consumption	≤ 5 VA	Weight [kg]	0.5
Output contact, indicator signal	NC (changer floating)	Class of protection	IP20
Output contact, flame signal	NO (changer floating)	Operating temperature	- 10 ... + 60 °C



Dimensional Drawing F152

Ordering Information

Flame monitoring device F152	Selection
Flame monitoring device F152 power supply voltage 230 VAC	659G0501
Flame monitoring device F152 power supply voltage 115 VAC (UL recognized 120 VAC)	659G0502

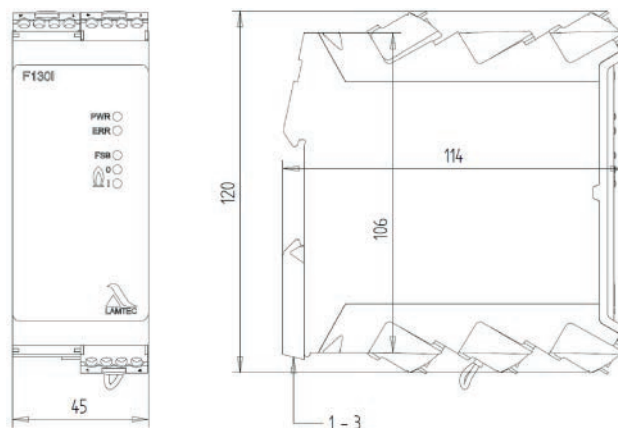
Flame Monitoring Device F130I.

Technical Data



Flame Monitoring Device F130I

Usage	Monitoring of flames (ignition or main flame) using the ionisation method	Dimensions [mm]	See dimensional drawing
Power supply voltage	230 VAC +10 % -15 % oder 120 VAC +10 % -20 %	Material	Plastic
Power consumption	≤ 10 VA	Weight [kg]	0.5
Output contact, indicator signal	Not safety-oriented, potential-free contact	Class of protection	IP20
Output contact, flame signal	Safety-oriented, potential-free contact	Operating temperature	- 20 ... + 60 °C



Dimension drawing F130I

Ordering Information

Flame monitoring device F130I	Selection
Flame monitoring device F130I power supply voltage 230 VAC	659G1001
Flame monitoring device F130I power supply voltage 120 VAC	659G1002

Flame Sensor FFS07 and FFS07 Ex (Ex-Zone 2 and 1).

Technical Data



FFS07



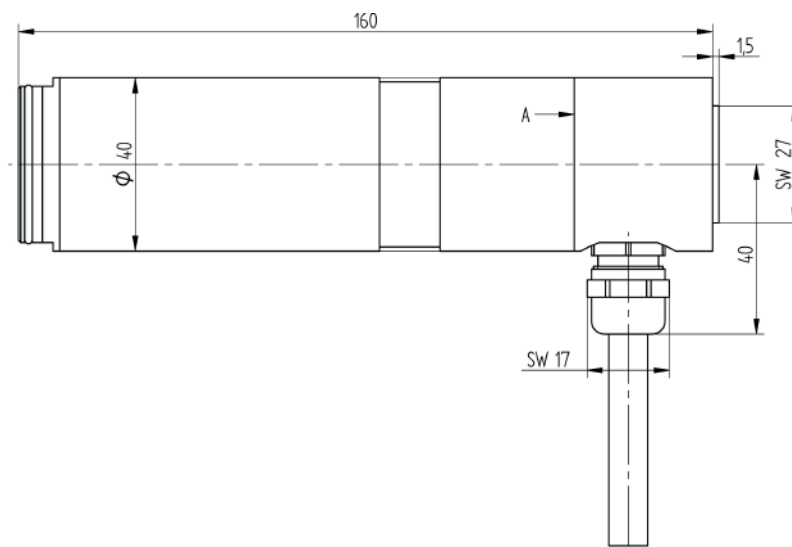
FFS07 V



FFS07 EX

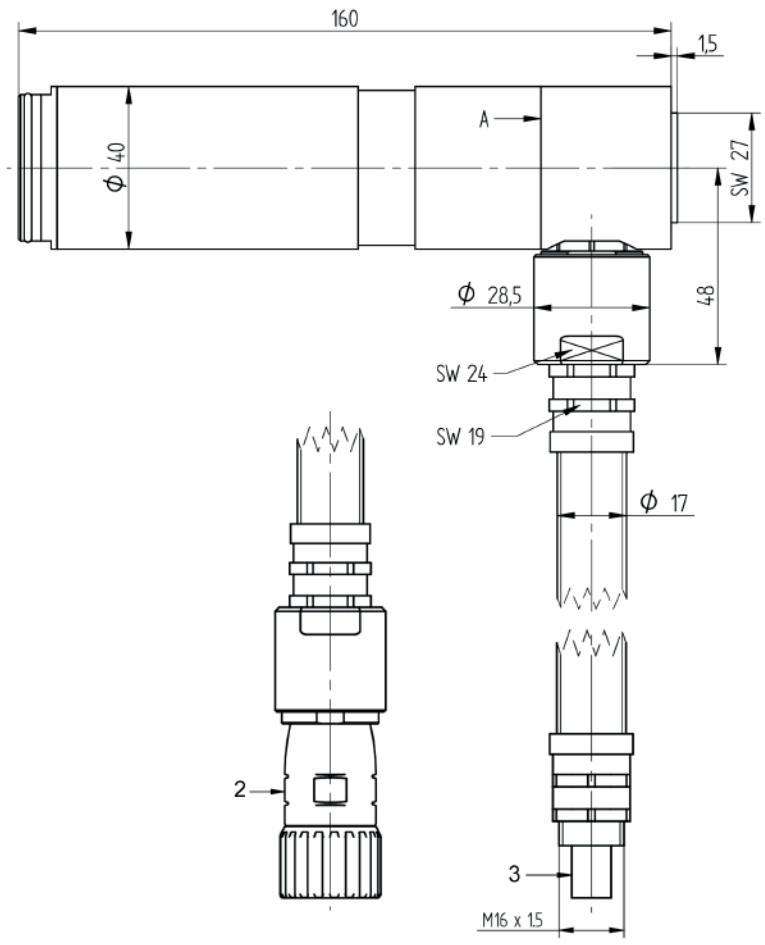
Usage	Monitoring of single-burner plants	Dimensions [mm]	See dimensional drawing
Power supply voltage	24 ... 42 VDC from data interpretation device	Material	Corrosion-resistant aluminium EN AW 6082 (seawater 2*; atmospheric condition 1*) FFS07 EX: EN CW614N brass nickel-plated
Operation	In combination with F152/FA1/ETAMATIC/ETAMATIC OEM	Weight [kg]	0.45 FFS07/FFS07 V 0.5 FFS07 EX
Spectrum (IR/UV)	215 nm to 2,800 nm	Class of protection	IP67
		Operating temperature	- 20 ... + 60 °C

* Comparative evaluation from 1 (very good) to 6 (unsuitable)

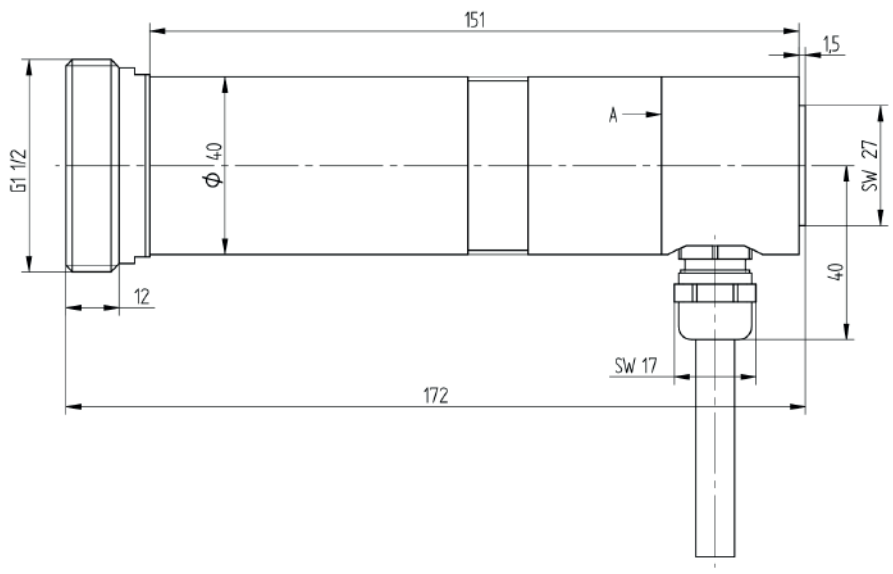


Dimensional Drawing FFS07 screwing in version

Flame Sensor FFS07 and FFS07 Ex (Ex-Zone 2 and 1)

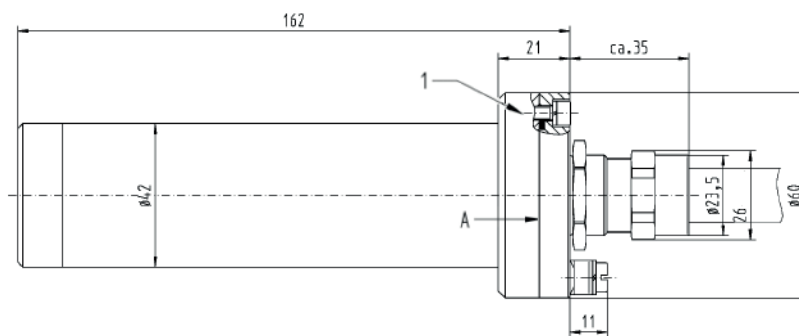


Dimensional Drawing FFS07 with metal protection hose, also available for FFS07 for screw fitting, not available for FFS07... Ex



Dimensional drawing FFS07 V

Flame Sensor FFS07 and FFS07 Ex (Ex-Zone 2 and 1)



Dimensional Drawing FFS07 EX

Ordering Information

659D21 -	A 10	A 20	A 30	A 40
	SPECTRUM	HOUSING	CABLE LENGTH	PLUG

A 10 - „SPEKTRUM“	Selection
Type UV-1 UV-spectral range 260 ... 400 nm	01 Standard
Type UV-4 UV-spectral range 215 ... 360 nm	04
Type IR-1 IR-spectral range 1,200 ... 2,800 nm	10
Type IR-1 IR-spectral range 1,200 ... 2,800 nm	20
A 20 - „HOUSING“	Selection
Housing standard Ex-Zone 2 Adjustable holder FH30-00, FH30-10, FH40-10	0 Standard
Housing with screwing Ex-Zone 2 Adjustable bracket FV30-00, FV30-10, FV40-10	V
IR Housing Ex-Zone 1 Adjustable bracket FH30-15, FH30-25, FH40-25	Z1 IR not for Flame Sensor EX-Zone 1
UV Housing Ex-Zone 1 Adjustable bracket FH30-15, FH30-25, FH40-25	Z1 UV not for Flame Sensor EX-Zone 1
A 30 - „CABLE LENGTH“	Selection
Length 0.3 m, only available with plug	0E
Silicone, length 0.3 m, only available with plug	0E/SI
Length 3 m	3 Standard
Silicone, Length 3 m	3/SI
Length 5 m	5
Silicone, length 5 m	5/SI
Length 10 m	10
Silicone, length 10 m	10/SI
Type FFS07, FFS08 with metal protection hose, item number with supplement „/UL“	e.g. 659D21-01/0/03/UL/0
A 40 - „PLUG“	Selection
Without plug	0 Standard
With plug	STE

Ordering Information

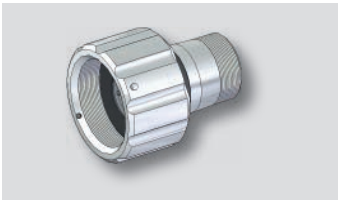
Accessories FFS07

Connection/extension	Selection
Connection/extension cable, length 3 m ¹⁾	659R3112
Connection/extension cable, length 5 m ¹⁾	659R3115
Connection/extension cable, length 10 m ¹⁾	659R3114
Connection/extension cable, silicone, length 3 m ¹⁾	659N0210
Connection/extension cable, silicone, length 5 m ¹⁾	659N0211
Connection/extension cable, silicone, length 10 m ¹⁾	659N0212
Quick-connection coupling	Selection
Quick-connection coupling G" with shutter, for purging-air coupling, Material Brass, hose connection 6/8 mm	659ES126
Connection housing	Selection
Connection housing FG21 aluminium IP65, for FFS07 with plug	659R0110
Connection housing FG21 aluminium IP65, for FFS07 without plug	659R0110 ABG
Connection housing FG24Ex, Polyester (IP65), Ex e IIC T6, for series FFS07	659R0111

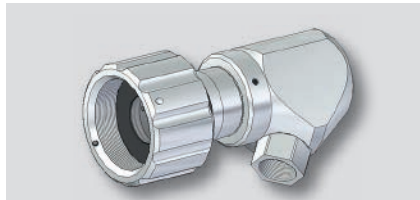
¹⁾ Only for sensor version with plug

Brackets and accessories for FFS07 and FFS07 Ex-II/Ex (Ex-Zone 2 and 1)

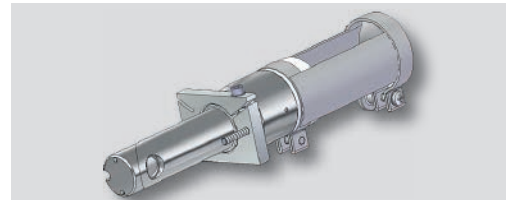
- FV30-00 Screw Joint
- FV30-10 Screw Joint with Purge Air Connection
- FH20-10 Holding Bracket with tilted Mirror 90°
- FH30-00 Holding Bracket
- FH30-10 Holding Bracket and Purge Air Connection
- FH30-15 Holding Bracket for Ex version sensor
- FH30-25 Holding Bracket and Purge Air Connection for Ex version sensor
- FV40-10 Screw Joint with Purge Air Connection and Ball-and-Socket Joint
- FH40-10 Holding Bracket with Purge Air Connection and Ball-and-Socket Joint
- FH40-25 Holding Bracket with Purge Air Connection and Ball-and-Socket Joint for Ex version sensor
- FS41 Cooling Air Housing and Ball-and-Socket Joint
- FS30 Cooling Air Housing
- FS36 Cooling Air Housing with Holding Device (detachable and adjustable)



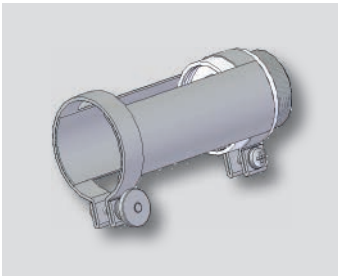
Screw Joint FV30-00 und FV30-01 (stainless steel)



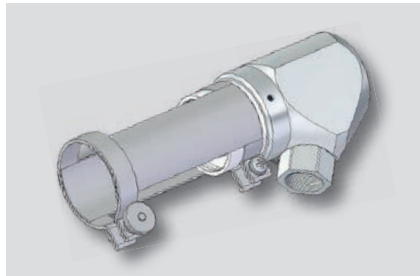
Screw Joint with Purge Air Connection FV30-10 and FV30-11 (stainless steel)



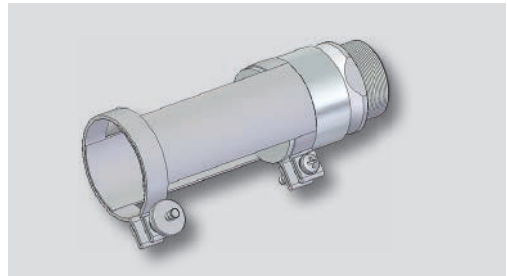
Holding Bracket with tilted Mirror 90° FH20-10



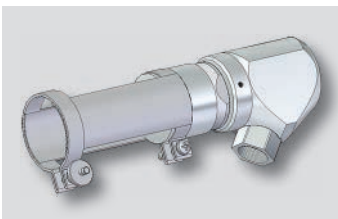
Holding Bracket FH30-00



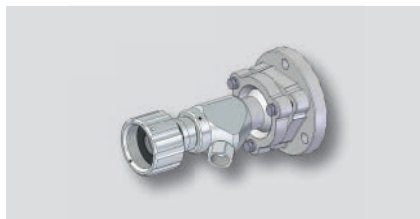
Holding Bracket and Purge Air Connection FH30-10



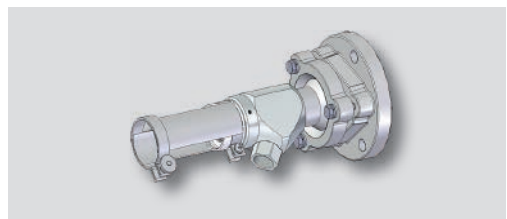
Holding Bracket for Ex version sensor FH30-15



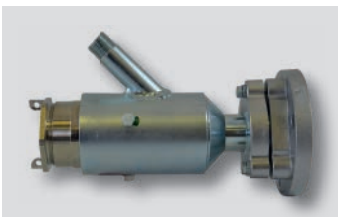
Holding Bracket and Purge Air Connection for Ex version sensor FH30-25



Screw Joint with Purge Air Connection and Ball-and-Socket Joint FV40-10 und FV41-11 (stainless steel)



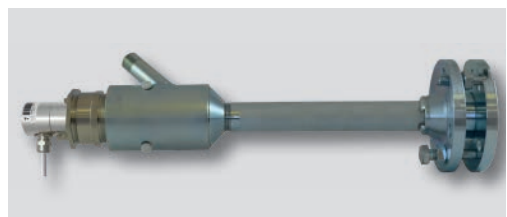
Holding Bracket with Purge Air Connection and Ball-and-Socket Joint FH40-10



Cooling Air Housing and Ball-and-Socket Joint FS41



Cooling Air Housing FS30



Cooling Air Housing with Holding Device (detachable and adjustable) FS36

Flame Sensor FFS08.

Technical Data

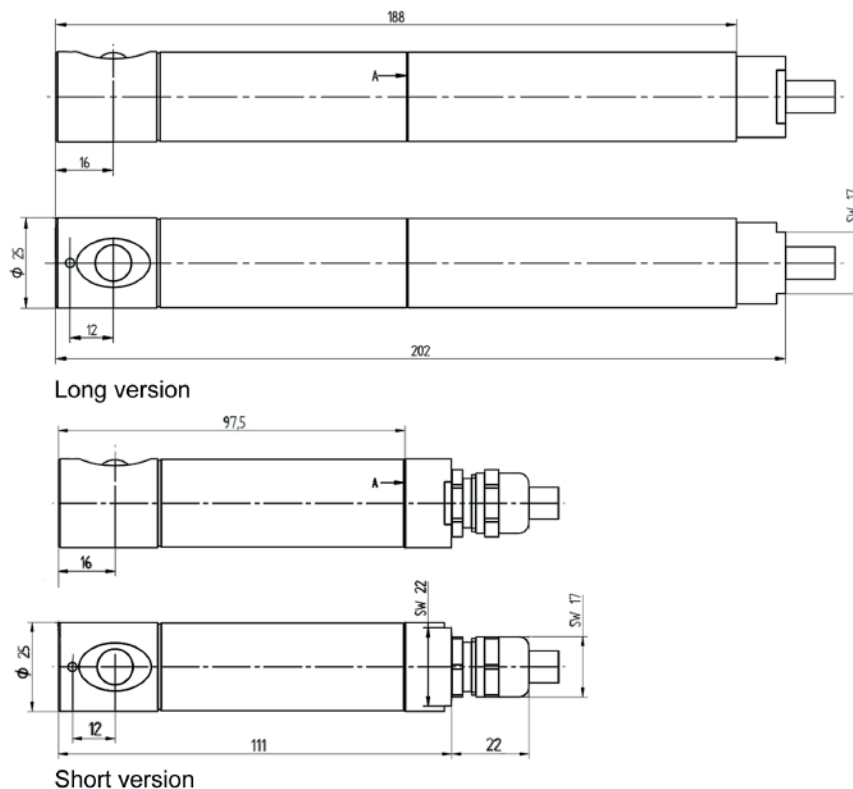


FFS08 long version



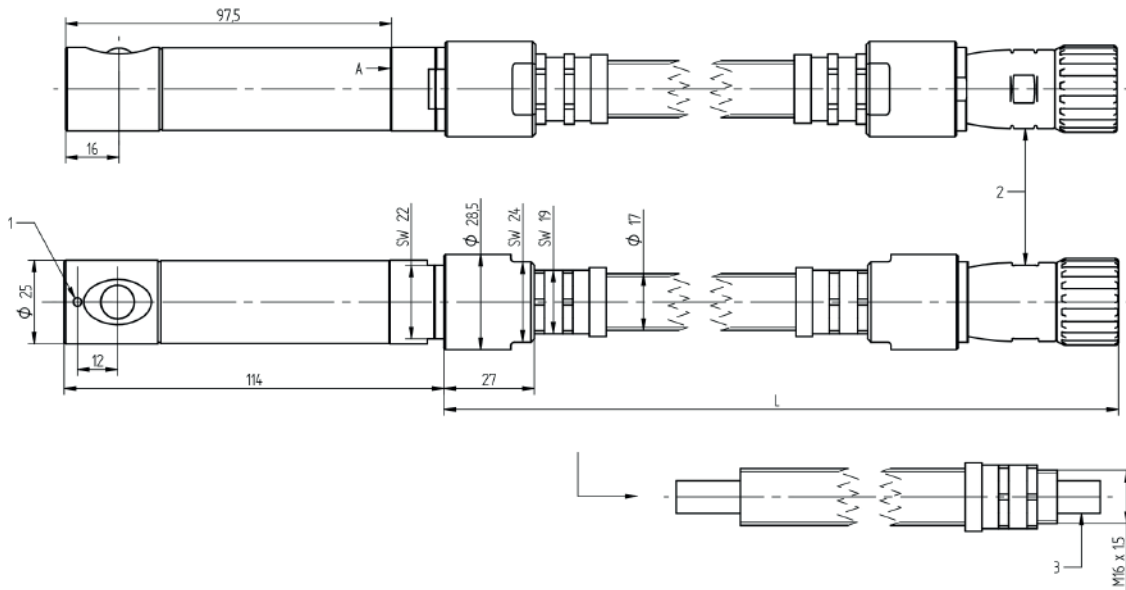
FFS08 short version

Usage	Monitoring of single-burner plants	Dimensions [mm]	See dimensional drawing
Power supply voltage	24 ... 42 VDC from data interpretation device	Material	EN CW614N Nickel-plated brass partially black powder coated
Operation	In combination with F152/FA1/ETAMATIC/ETAMATIC OEM	Weight [kg]	0.40 short version 0.55 long version
Spectrum (IR/UV)	215 nm to 2,800 nm	Class of protection	IP67
		Operating temperature	- 20 ... + 60 °C



Dimensional Drawing FFS08

Flame Sensor FFS08



Dimensional Drawing FFS08 with metal protection hose, FFS08 also available for FFS08 with extended housing

Ordering Information

659D31 -	A 10	A 20	A 30	A 40
	SPECTRUM	CABLE LENGTH	PLUG	EXTENSION/ HOUSING

A 10 - „SPECTRUM“	Selection
Type UV-1 UV-spectral range 260 ... 400 nm	01 Standard
Type UV-4 UV-spectral range 215 ... 360 nm	04
Type IR-1 IR-spectral range 1,200 ... 2,800 nm	10
Type IR-1 IR-spectral range 1,200 ... 2,800 nm	20
A 20 - „CABLE LENGTH“	Selection
Length 0.3 m, only available with connector	OE
Silicone, length 0.3 m, only available with connector	OE/SI
Length 3 m	3 Standard
Silicone, length 3 m	3/SI
Length 5 m	5
Silicone, length 5 m	5/SI
Length 10 m	10
Silicone, length 10 m	10/SI
Type FFS07, FFS08 with metal protection hose, item number with supplement „/UL“	e.g. 659D21-01/0/03/UL/0
A 30 - „PLUG“	Selection
Without plug	0 Standard
With plug	STE
A 40 - „EXTENSION/HOUSING“	Selection
Standard, immersion depth 65 mm max. Bracket FS60 and cooling air housing FS65	0 Standard
Long type, immersion depth 150 mm max. Bracket FS60 and cooling air housing FS65	L

Ordering Information

Accessories FFS06 / FFS08

Connection/extension	Selection
Connection/extension cable, length 3 m ¹⁾	659R3112
Connection/extension cable, length 5 m ¹⁾	659R3115
Connection/extension cable, length 10 m ¹⁾	659R3114
Connection/extension cable, silicone, length 3 m ¹⁾	659N0210
Connection/extension cable, silicone, length 5 m ¹⁾	659N0211
Connection/extension cable, silicone, length 10 m ¹⁾	659N0212
Connection housing/Adapter	Selection
Connection housing FG21 aluminium IP65, with plug	659R0110
Connection housing FG21 aluminium IP65, without plug	659R0110 ABG
Universal adapter FFP03 for old Flame Scanner Testing Device Typ 659R3010	659M5100

¹⁾ Only for sensor version with plug

Brackets and accessories for FFS08

- FS60-00 Holding Device
- FS60-10 Holding Device
- FS65 Cooling Air Housing
- FH80-00 Holding Device
- FH80-10 Holding Device



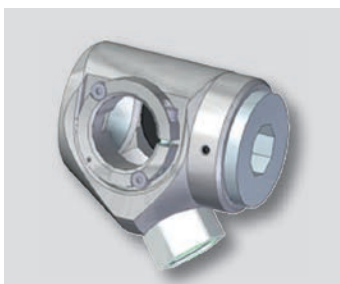
FS60-00 Holding Device



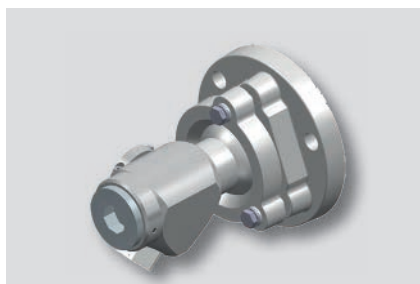
FS60-10 Holding Device



FS65 Cooling Air Housing



FH80-00 Holding Device



FH80-10 Holding Device

General information about the brackets.

Valid for all holding devices in this document

- Purging air must be free of oil and dirt.
- Recommended operating pressure: > 50 mbar above the boiler back pressure.
- Recommended cooling air temperature: min. 20 K under the allowed device temperature.
- Recommended air consumption: 5 m³/h
- All indication of weight corresponds with holding devices without flame scanner mass.
- Length tolerance (total length) in technical data: ± 5
- Connecting threads differing from the above described are available on request.

Especially for FV30-00, FV30-10, FV40-10, FK41, FK46 and for the corresponding stainless steel variants:

Purge air / boiler pressure at dismantled flame scanner: p max. = 0.5 bar

Classification of holding Devices to the Flame Monitors.

Holding Devices for F300K

- FV30-00 Screw Joint and FV30-01 (stainless steel)
- FV30-FO Bracket with Purge Air Connection
- FV30-10 Screw Joint with Purge Air Connection and FV30-11 (stainless steel)
- FV40-10 Screw Joint with Purge Air Connection and Ball-and-Socket Joint and FV41-11 (stainless steel)
- FK30 Cooling Air Housing
- FK41 Cooling Air Housing with Purge Air Connection and Ball-and-Socket Joint
- FK46 Cooling Air Housing with Purge Air Connection and FS35 (detachable holding device)

Holding Devices for F200K

- FV30-00 Screw Joint
- FV30-FO Bracket with Purge Air Connection
- FV30-10 Screw Joint with Purge Air Connection
- FH20-10 Holding Bracket with Benching Mirror 90°
- FH30-00 Holding Bracket
- FH30-10 Holding Bracket and Purge Air Connection
- FV40-10 Screw Joint with Purge Air Connection and Ball-and-Socket Joint
- FH40-10 Holding Bracket with Purge Air Connection and Ball-and-Socket Joint
- FS50 Cooling Air Housing
- FS51 Cooling Air Housing and Ball-and-Socket Joint
- FFS56 Cooling Air Housing with Holding Device (detachable and adjustable)

Holding Devices for FFS05 and FFS07

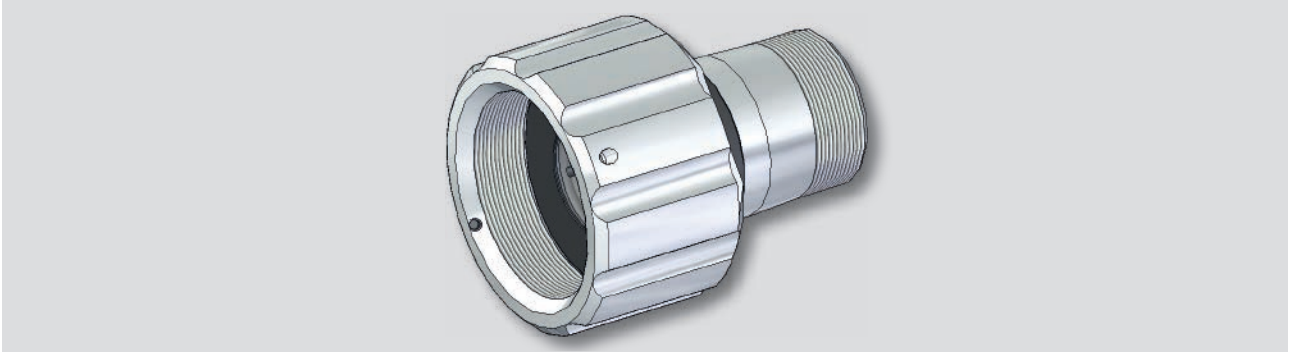
- FV30-00 Screw Joint
- FV30-10 Screw Joint with Purge Air Connection
- FH20-10 Holding Bracket with Benching Mirror 90°
- FH30-00 Holding Bracket
- FH30-10 Holding Bracket and Purge Air Connection
- FH30-15 Holding Bracket with the Ex version
- FH30-25 Holding Bracket and Purge Air Connection for sensors with the Ex version
- FV40-10 Screw Joint with Purge Air Connection and Ball-and-Socket Joint
- FH40-10 Holding Bracket with Purge Air Connection and Ball-and-Socket Joint
- FH40-25 Holding Bracket with Purge Air Connection and Ball-and-Socket Joint for sensors with the Ex version
- FS30 Cooling Air Housing
- FS36 Cooling Air Housing with Holding Device (detachable and adjustable)
- FS41 Cooling Air Housing and Ball-and-Socket Joint

Holding Devices for FFS06 and FFS08

- FS60-00 Holding Device
- FS60-10 Holding Device
- FS65 Cooling Air Housing
- FH80-00 Holding Device
- FH80-10 Holding Device

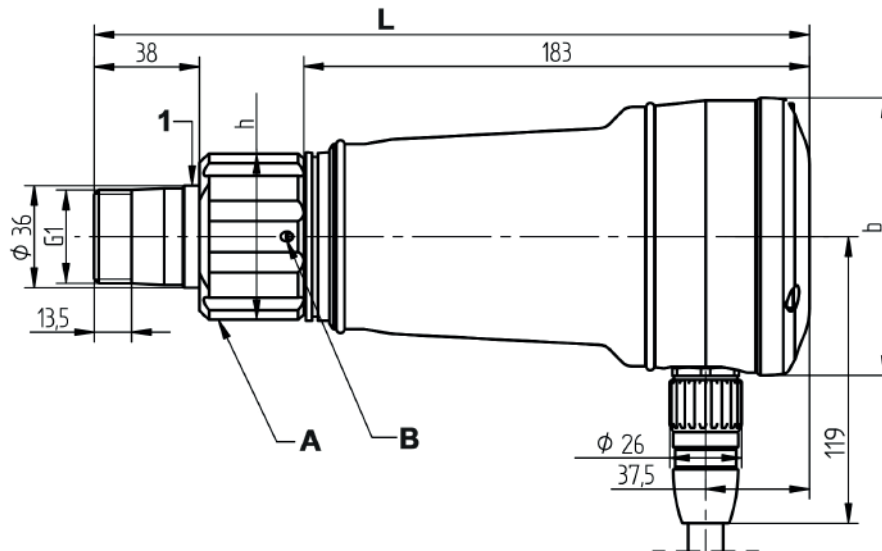
Screw Joint FV30-00 and FV30-01 (Stainless steel).

Technical Data



Screw Joint FV30-00 and FV30-01

Possible application	FFS05, FFS07, F200K/V, F200K Ex, F300K	Dimensions [mm]	l	w	h	
Item no.	659S1201 alu		76	--	60	
	659S1202 stainless steel		234	40	60	
Material	Aluminium anodized, plastic Stainless steel (V4A)/plastic		with F200K/V	253	80	60
			with F200K Ex	276	90	60
Air connection	--	with F300K	258	99	60	
Weight [kg]	0.30 alu 0.55 stainless steel	Spare parts for alu	659ES120 Locking disc application			
		Spare parts for stainless steel and alu	659ES121 Rubber rings (5 pcs)			
		Spare parts for stainless steel	659ES123 Locking disc application			

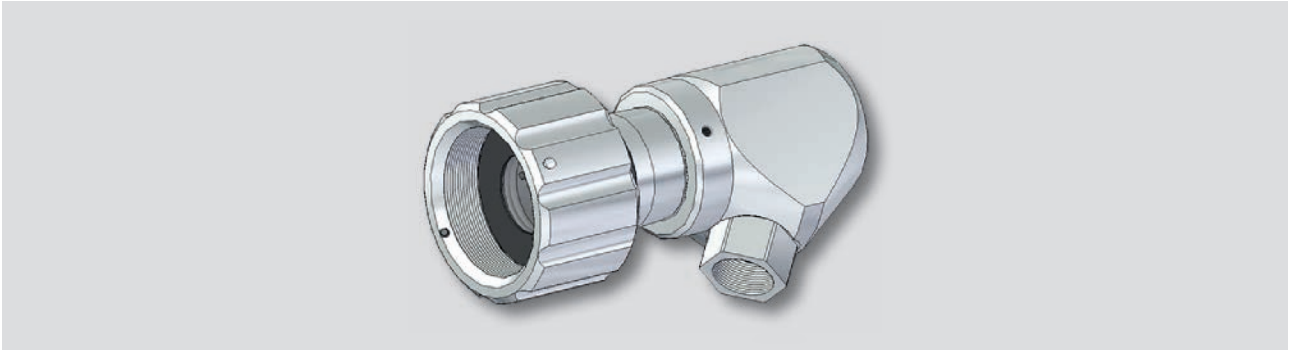


Dimensional drawing FV30-00 with flame scanner F300K

- 1 Insulating part
- A Coupling nut tightened either by hand or by using SW46
- B Securing device tightened by allen key for M3

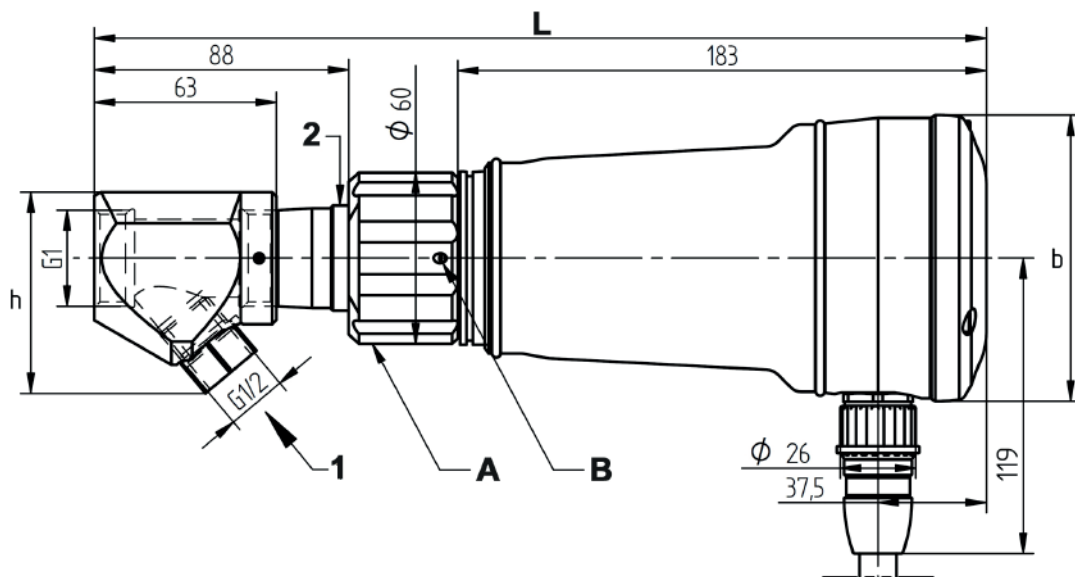
Screw Joint with Purge Air Connection FV30-10 and FV30-11 (Stainless steel).

Technical Data



Screw Joint with Purge Air Connection FV30-10 and FV30-11 (Stainless steel)

Possible application	FFS05, FFS07, F200K/V, F200K Ex, F300K	Dimensions [mm]	l	w	h
Item no.	659S1200 alu	Holding device with FFS05/FFS07	126	--	70
	659S1211 stainless steel		284	40	70
Material	Aluminium anodized, plastic, Stainless steel (V4A)/plastic	with F200K/V	303	80	70
		with F200K Ex	326	90	70
Air connection	Hexagonal fitting G 1/2"i	with F300K	308	99	70
Weight [kg]	0.50 alu	Spare parts for alu Spare parts for stainless steel and alu Spare parts for stainless steel	659ES120 Locking disc application		
	1.23 stainless steel		659ES121 Rubber rings (5 pcs) 659ES123 Locking disc application		



Dimensional drawing FV30-10 with flame scanner F300K

- 1 Purge air
- 2 Insulating part
- A Coupling nut tightened either by hand or by using SW46
- B Securing device tightened by allen key for M3

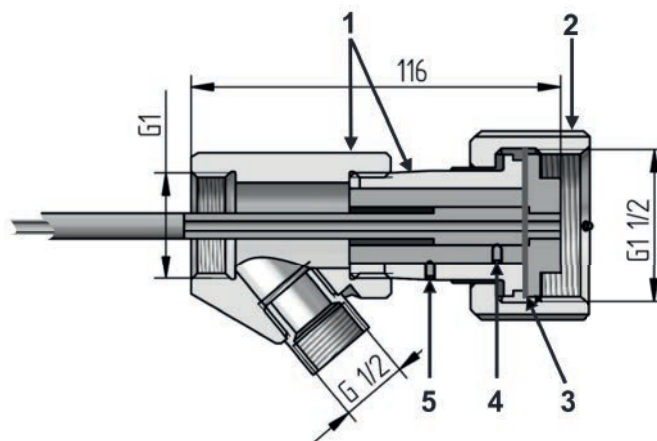
Bracket FV30-FO for Fiber Optic.

Technical Data



FV30-FO Bracket with purge air coupling

Possible application	F200K, F300K Housing for fiber optics	Dimensions [mm]	see dimensional drawing
Item no.	659S5013		
Material	Aluminium anodized/plastic		
Luftanschluss	G 1/2"		
Weight [kg]	0.50 Alu 1.23 stainless steel		

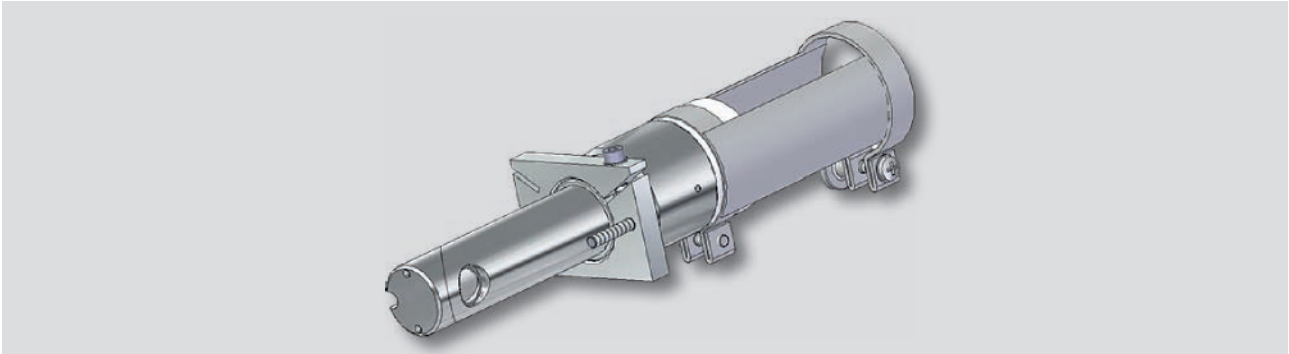


Dimensional drawing FV30-FO bracket

- | | | | |
|---|---|---|--------------------------------|
| 1 | Basic body, bracket (purge air connector), screwed body | 4 | Fibre bundle fixing set screws |
| 2 | Crown nut with ISO sleeve | 5 | Adapter fixing set screw |
| 3 | Contact surface between fibre bundle adapter and FV30-FO screwed body | | |

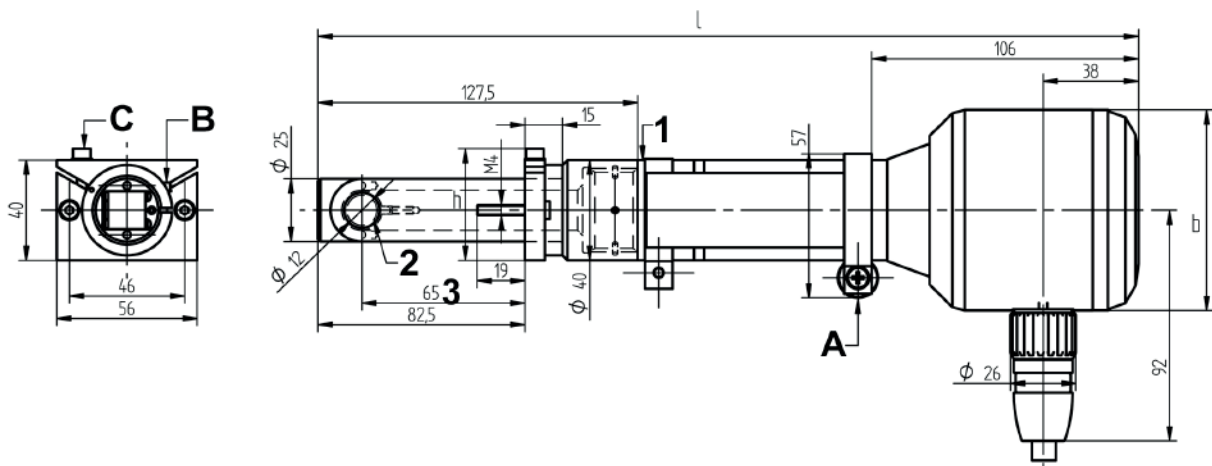
Holding Bracket with tilted Mirror 90° FH20-10.

Technical Data



Holding Bracket with Benching Mirror 90° FH20-10

Possible application	FFS05, FFS07, F200K	Dimensions [mm]	l	w	h
Item no.	659V3100		Holding device with FFS05/ FFS07	221	--
Material	Brass nickelplated, plastic Aluminium anodized	with F200K	308	40	44
			327	80	44
Weight [kg]	0.58	Spare parts	659ES151 Bracket, welded		



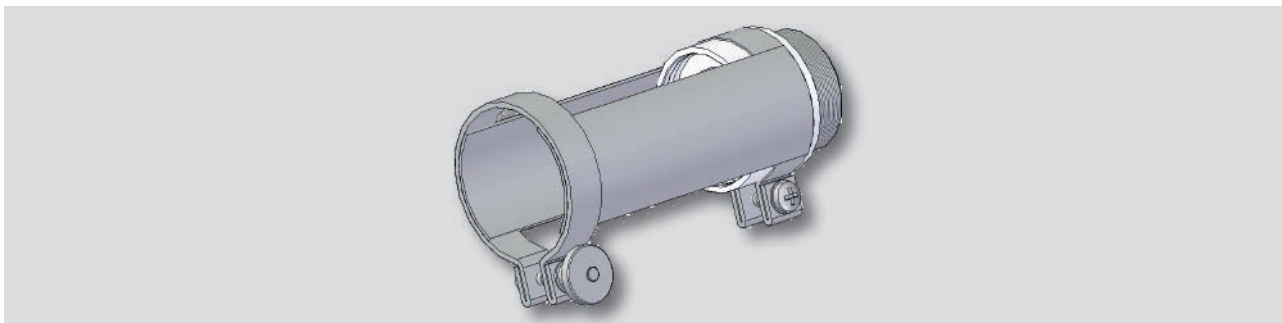
Dimensional drawing FH20-10 with Compact Flame Monitor F200K

Tilted Mirror applicable exclusively for IR - flame scanner!

- 1 Insulating part
- 2 Radial light entry
- 3 Max. immersion depth with dimensional drawing
- A Clamping screw tightened by hand
- B Clamping screw 2 tightened with allen for M3
- C Clamping screw 3 tightened with allen for M4

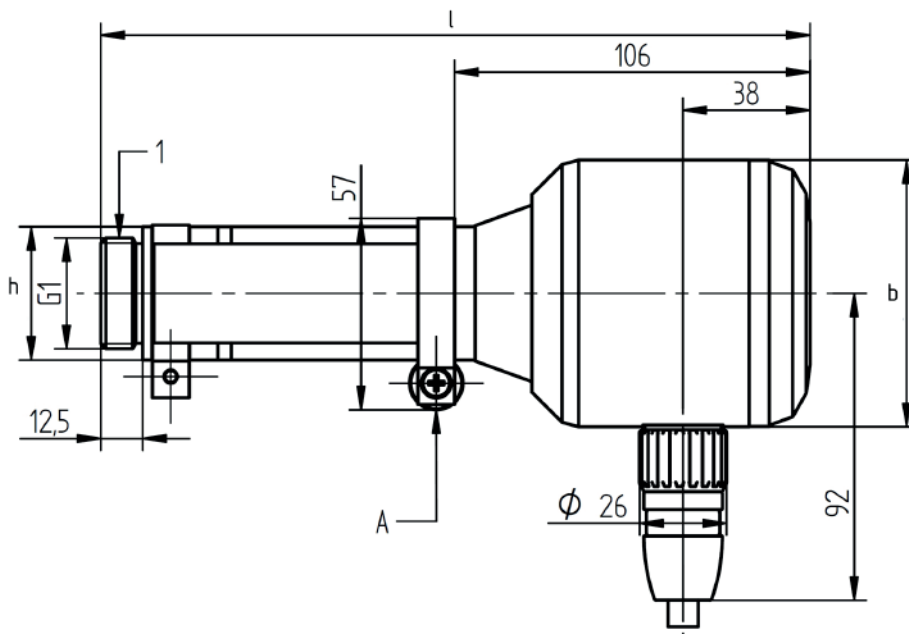
Holding Bracket FH30-00.

Technical Data



Holding Bracket FH30-00

Possible application	FFS05, FFS07, F200K	Dimensions [mm]	l	w	h
Item no.	659S1501		106	--	40
Material	Zinc coated steel, plastic		194	40	40
Weight [kg]	0.15	Spare parts	659ES150 Locking disc application 659ES151 Bracket, welded		

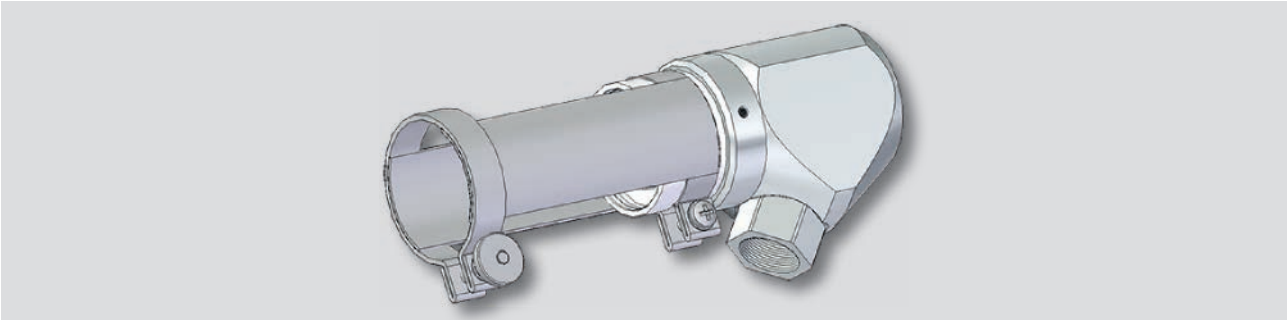


Dimensional drawing FH30-00 with flame scanner F200K

- 1 Insulating part
- A Clamping screw tightened by hand

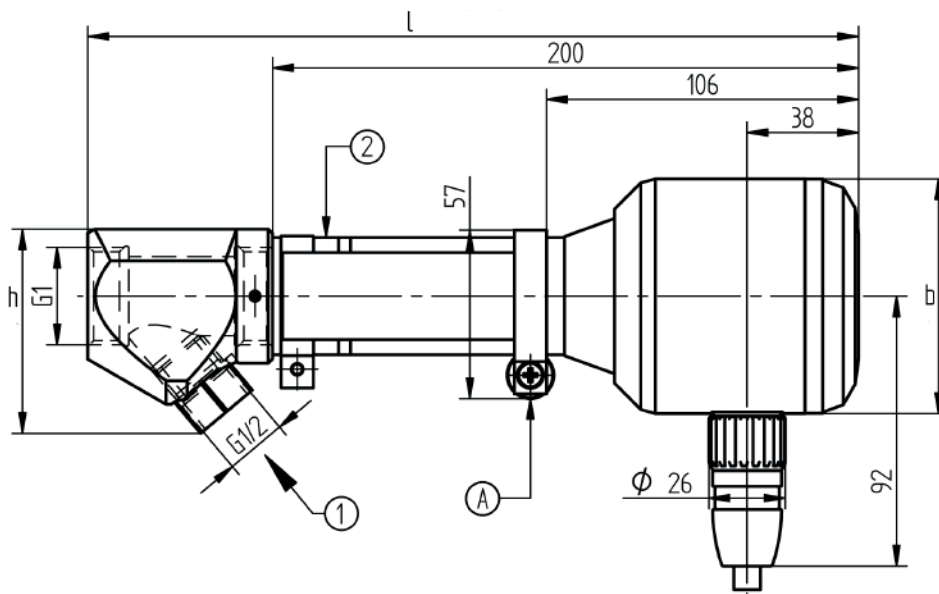
Holding Bracket and Purge Air Connection FH30-10.

Technical Data



Holding Bracket and Purge Air Connection FH30-10

Possible application	FFS05, FFS07, F200K	Dimensions [mm]	l	w	h
Item no.	659S1500		156	--	70
Material	Aluminium anodized, plastic, Zinc coated steel		244	40	70
		263	80	70	
Air connection	Hexagonal fitting, G 1/2"i	Spare parts	659ES150 Locking disc application 659ES151 Bracket, welded		
Weight [kg]	0.35				

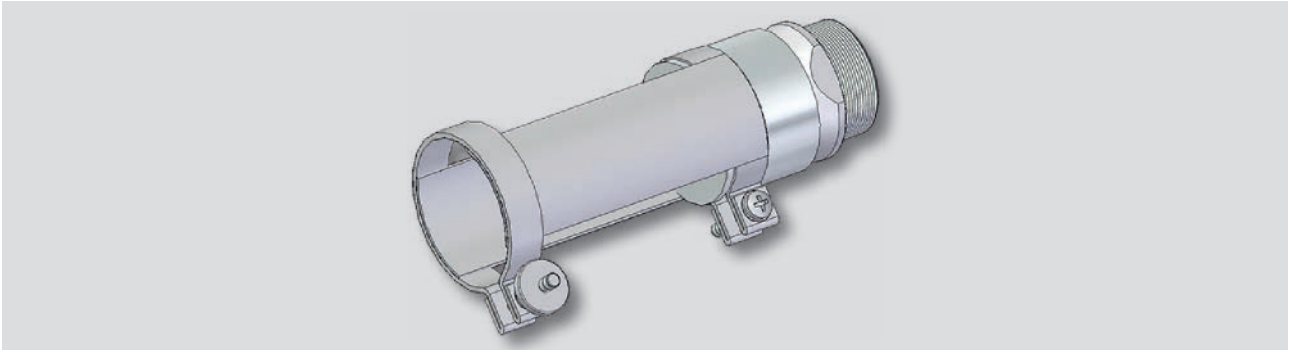


Dimensional drawing FH30-10 with flame scanner F200K

- 1 Purge air
- 2 Insulating part
- A Clamping screw tightened by hand

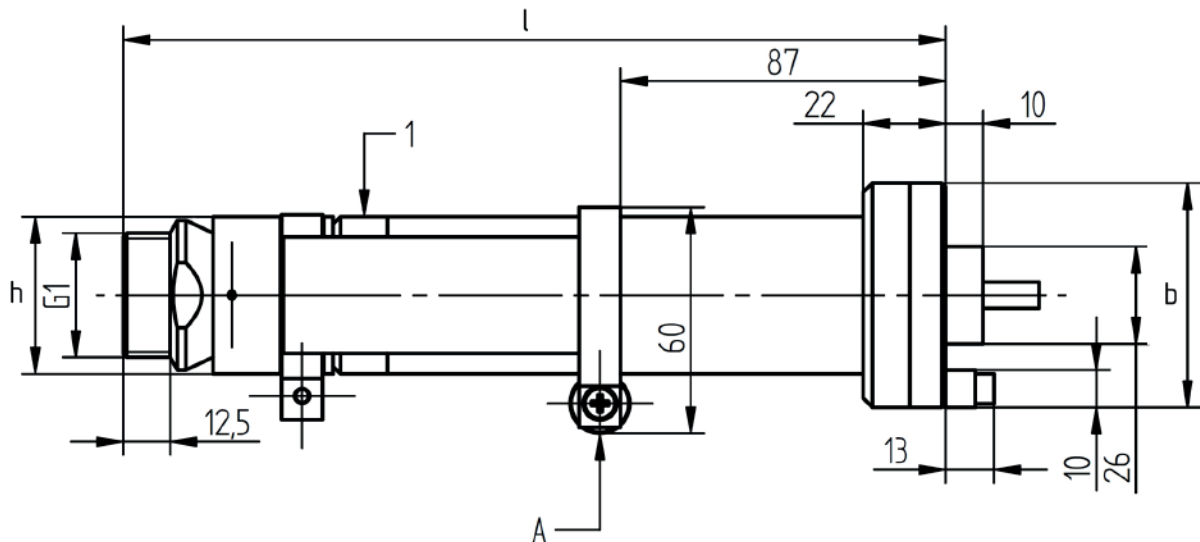
Holding Bracket (Ex) FH30-15.

Technical Data



Holding Bracket (Ex) FH30-15

Possible application	FFS05 EX, FFS07 EX	Dimensions [mm]	l	w	h
Item no.	659S1510	Holding device with FFS05 Ex, FFS07 Ex	133	--	42
			220	60	42
Material	Aluminium anodized, Zinc coated steel, plastic	Spare parts	659ES152 Bracket, welded		
Weight [kg]	0.20				

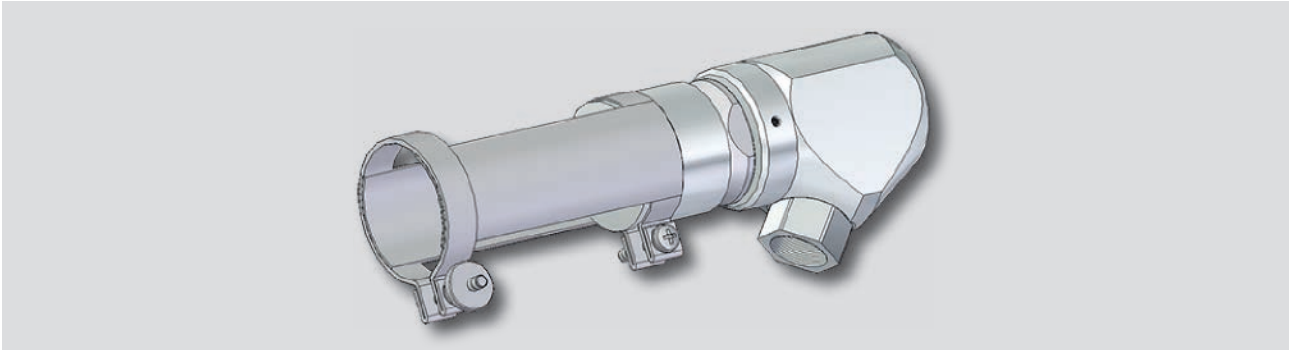


Dimensional drawing FH30-15 with flame sensor FFS05 Ex, FFS07 Ex

- 1 Insulating part
- A Clamping screw tightened by hand

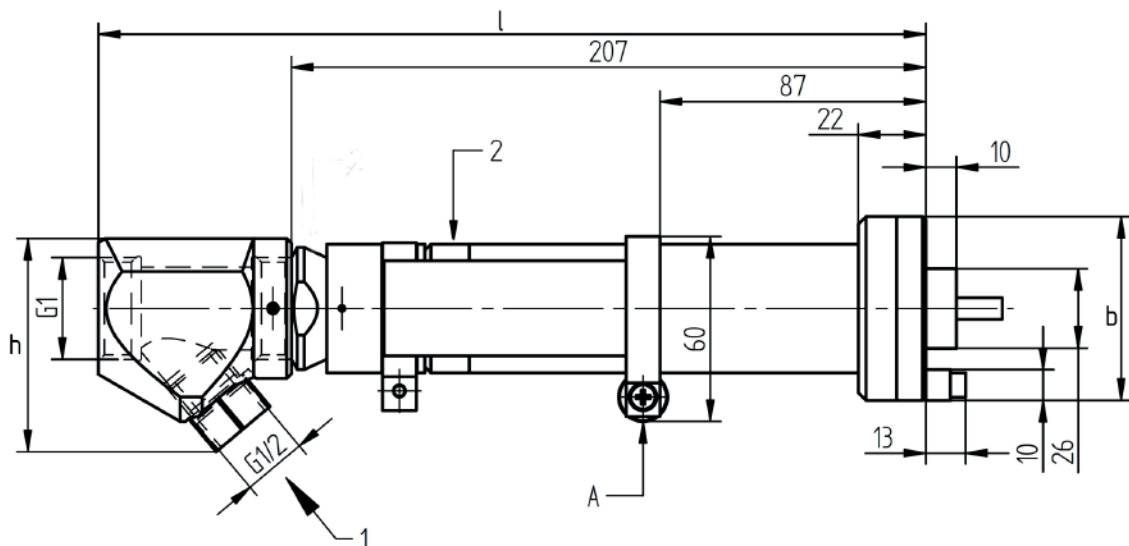
Holding Bracket and Purge Air Connection (Ex) FH30-25.

Technical Data



Holding Bracket and Purge Air Connection (Ex) FH30-25

Possible application	FFS05 EX, FFS07 EX	Dimensions [mm]	l	w	h
Item no.	659S1511	Holding device	183	–	70
		with FFS05 Ex, FFS07 Ex	270	60	70
Material	Aluminium anodized, Zinc coated steel, plastic	Weight [kg]	0.40		
Air connection	Hexagonal fitting, G 1/2"i	Spare parts	659ES152 Bracket, welded		

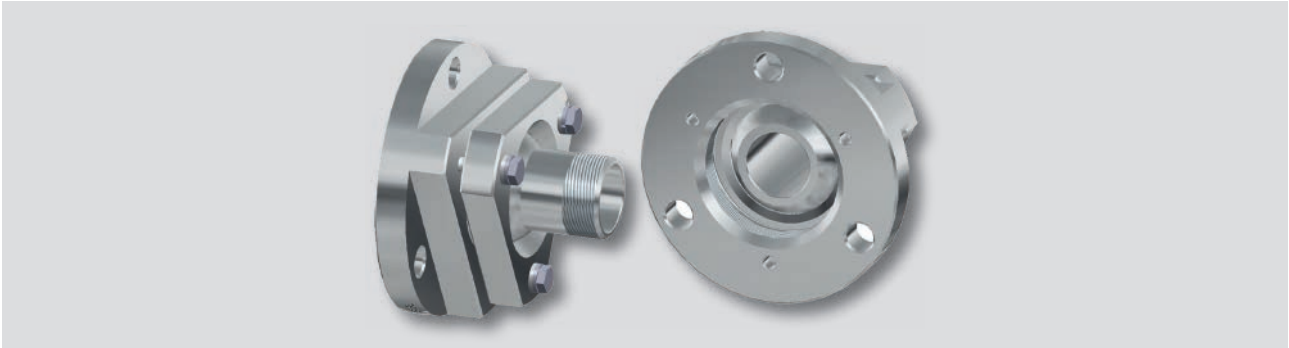


Dimensional drawing FH30-25 with flame sensor FFS05 Ex

- 1 Purge air
- 2 Insulating part
- A Clamping screw tightened by hand

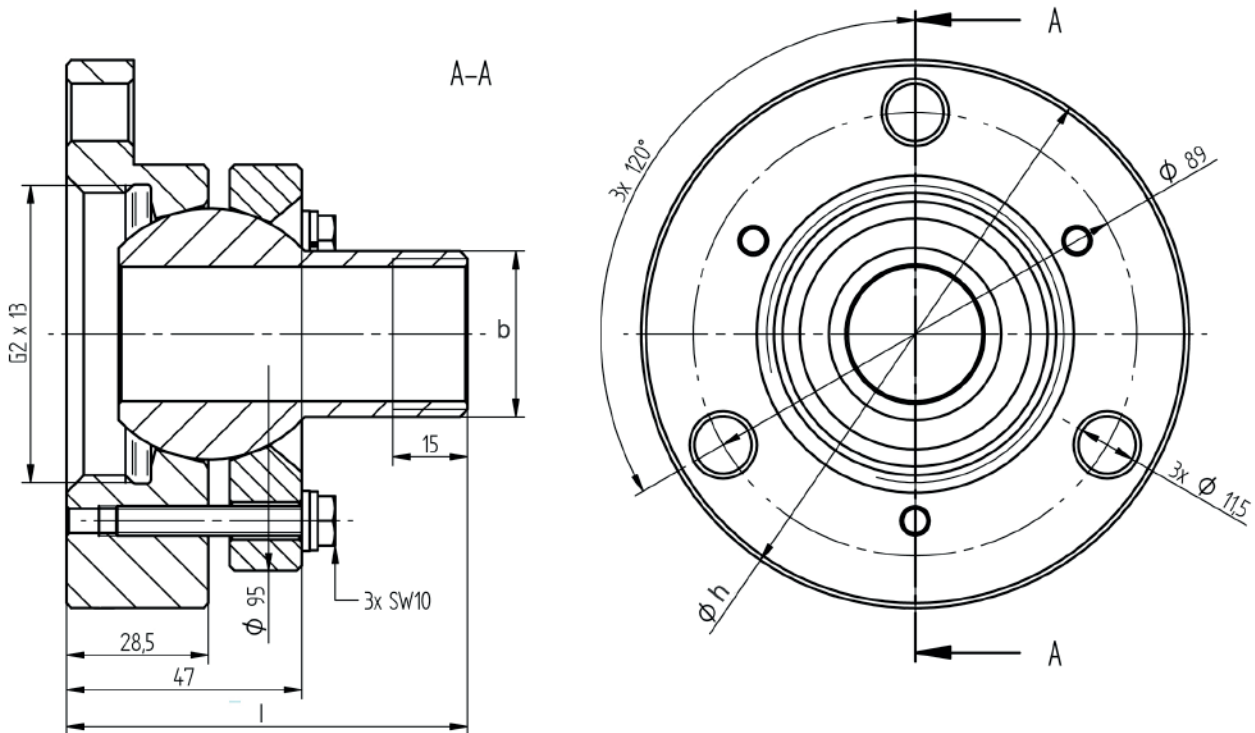
Globe joint FS10 and FS11 (Stainless steel).

Technical Data



Globe joint FS10 and FS11 (Stainless steel)

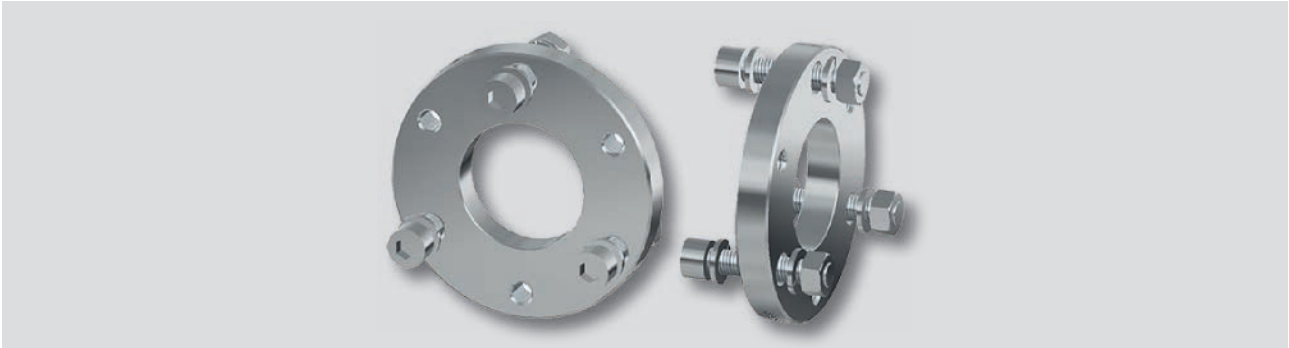
Possible application	FV30 and FH30	Dimensions [mm]	l	w	h
Item no.	659E0105 Alu 659S0411 Stainless steel		80.5	=G1	110
Material	Aluminium anodized, Stainless steel V4A	Weight [kg]	0.85 Alu	1.93 Stainless steel	



Dimensional drawing globe joint FS10/FS11

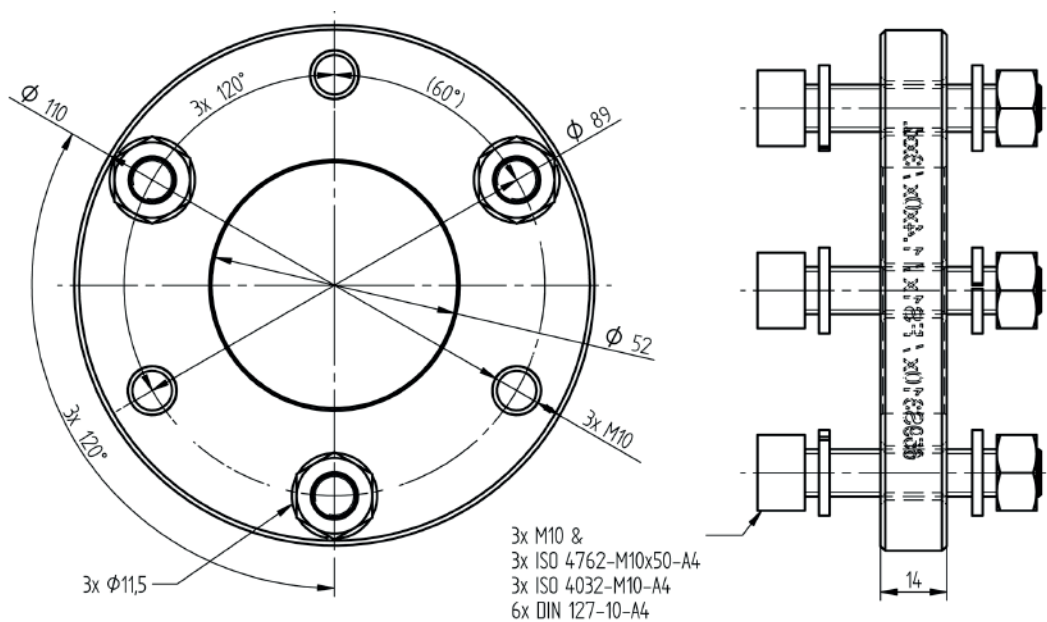
Welding neck flange FS1x in V4A and V2A.

Technical Data



Welding neck flange FS1x in V4A and V2A

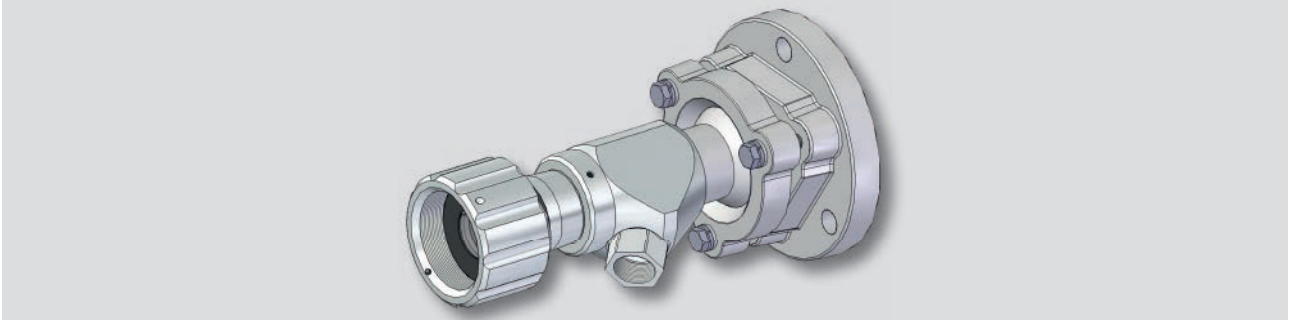
Possible application	V2A bei FS10 V4A bei FS11	Dimensions [mm]	See dimensional drawing
Item no.	659S3101 V4A 659S3102 V2A		
Material	Stainless steel V4A/V2A	Weight [kg]	0.96



Welding neck flange FS1x in V4A and V2A

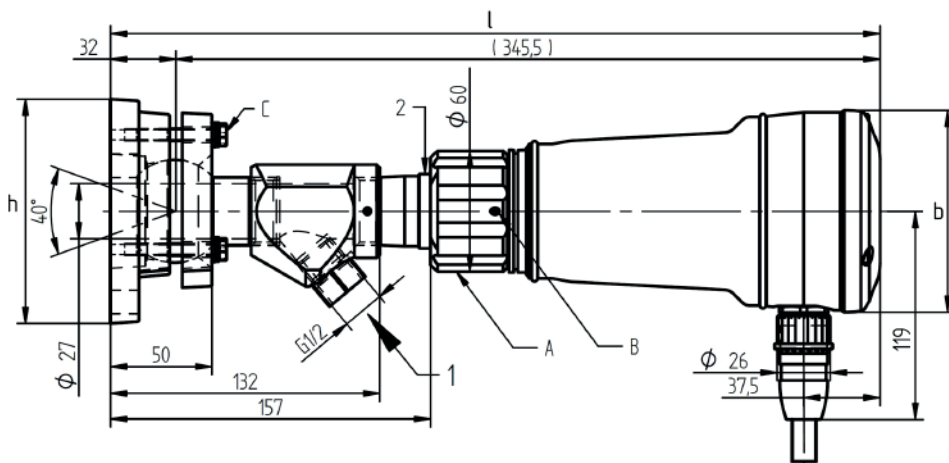
Screw Joint, Purge Air Connection, Ball-Socket Joint FV40-10 a. FV41-11.

Technical Data



Screw Joint, Purge Air Connection, Ball-Socket Joint FV40-10/11 (Stainless steel)

Possible application	FFS05, FFS07, F200KV, F200K Ex, F300K	Dimensions [mm]	l	w	h
Item no.	659S1300 Alu	Holding device with FFS05, FFS07 with F200K	195	--	110
	659S1311 Stainless steel		353	40	110
Material	Aluminium anodized, plastic, Stainless steel (V4A)/plastic	with F200K Ex	372	80	110
			395	90	110
Air connection	Hexagonal fitting, G 1/2" i	with F300K	378	99	110
Weight [kg]	1.35 Alu	Spare parts for Alu Spare parts for Stainless steel and Alu Spare parts for Stainless steel	659ES120 Locking disc application		
	3.16 Stainless steel		659ES121 Rubber rings (5 pcs.) 659ES123 Locking disc application		

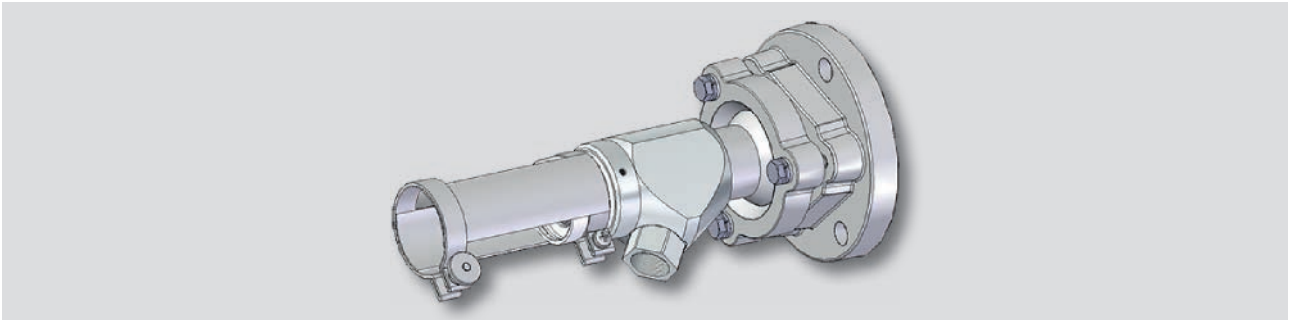


Dimensional drawing FV40-10 with flame scanner F300K

- 1 Purge air
- 2 Insulating part
- A Coupling nut tightened either by hand or by using SW 46
- B Securing device tightened by allen key for M3
- C Clamping of the ball-and-socket joint by using SW 10

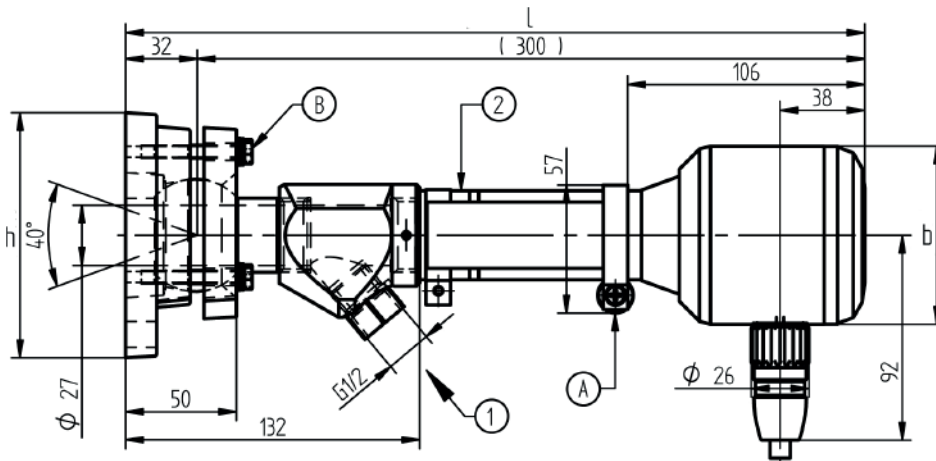
Holding Bracket with Purge Air Connection and Ball-and-Socket Joint FH40-10.

Technical Data



Holding Bracket with Purge Air Connection and Ball-and-Socket Joint FH40-10

Possible application	FFS05, FFS07, F200K	Dimensions [mm]	l	w	h
Artikelnummer	659S1600		225	--	110
Material	Aluminium anodized Zinc coated steel, plastic		313	40	110
Air connection	Hexagonal fitting, G 1/2" i	Weight [kg]	1.20		
		Spare parts	659ES150 Locking disc application 659ES151 Bracket, welded		

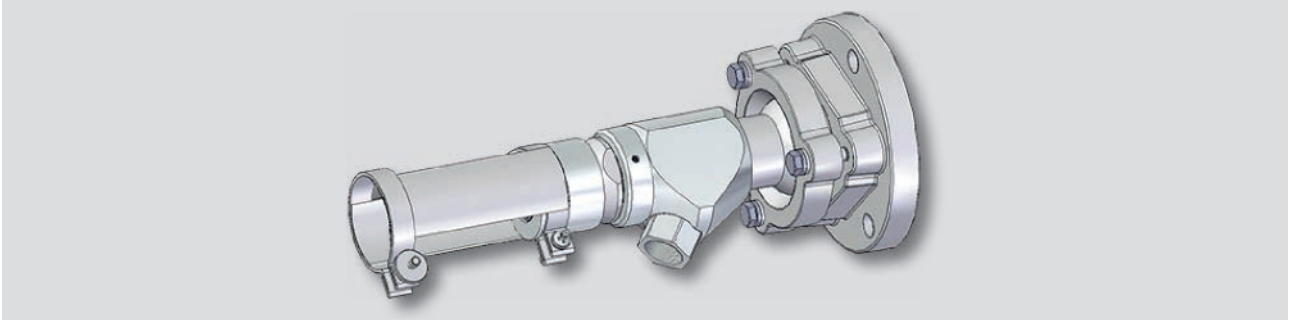


Dimensional drawing FH40-10 with flame scanner F200K

- 1 Purge air
- 2 Insulating part
- A Clamping screw tightened by hand
- B Clamping of the ball-and-socket joint by using SW 10

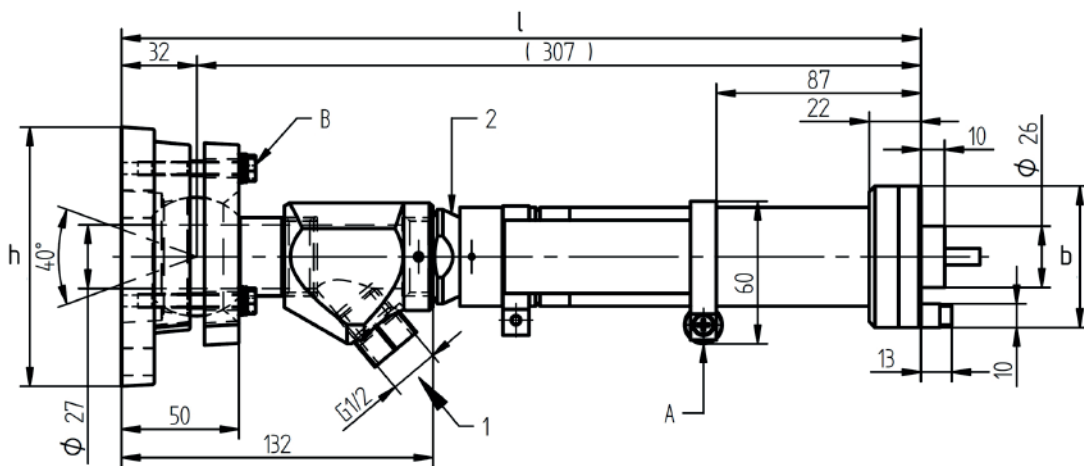
Holding Bracket with Purge Air Connection and Ball-and-Socket Joint (Ex) FH40-25.

Technical Data



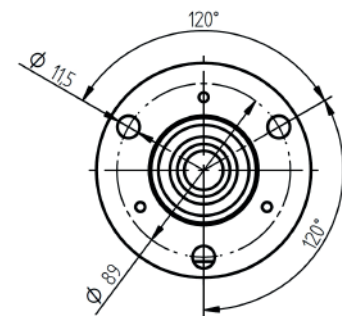
Holding Bracket with Purge Air Connection and Ball-and-Socket Joint (Ex) FH40-25

Possible application	FFS05 EX, FFS07 EX	Dimensions [mm] Holding device with FFS05 Ex, FFS07 Ex	l	w	h
Item no.	659S1601		250	--	110
Material	Aluminium anodized, Zinc coated steel, plastic	Weight [kg]	1.25		
Air connection	Hexagonal fitting, G 1/2" i	Spare parts	659ES152 Bracket, welded		



Dimensional drawing FH40-25 with flame sensor FFS05 Ex, FFS07 Ex

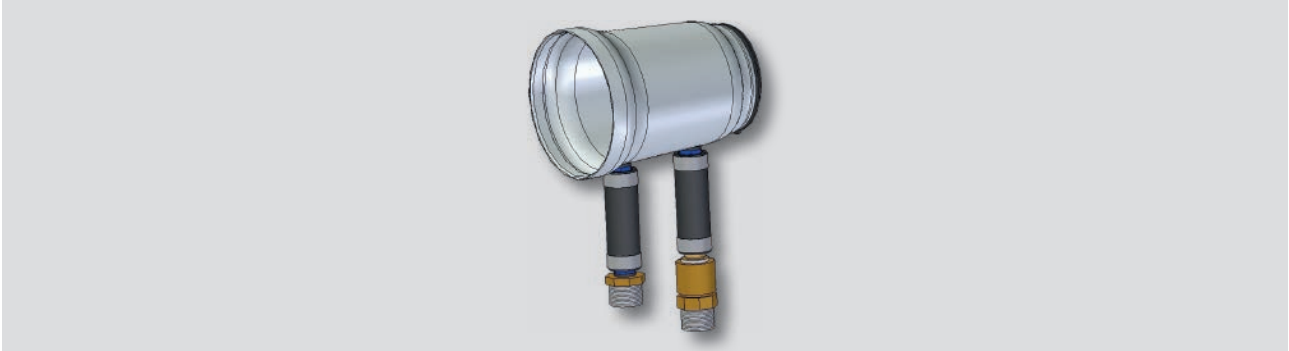
- 1 Purge air
- 2 Insulating part
- A Clamping screw tightened by hand
- B Clamping of the ball-and-socket joint by using SW 10



View from front

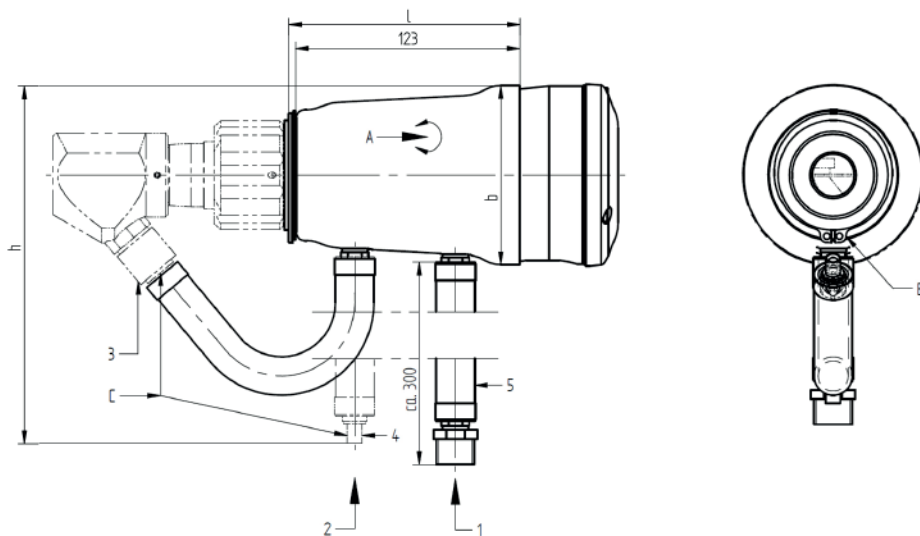
Cooling Air Housing FK30.

Technical Data



Cooling Air Housing FK30

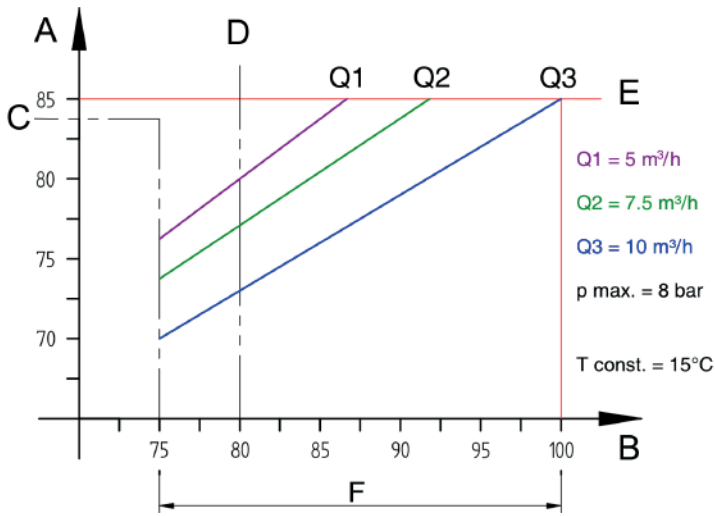
Possible application	F300K	Dimensions [mm]	l	w	h
Item no.	659S1100		126	99	250
		Holding device with F300K	180	99	250
Material	Aluminium anodized, plastic	Weight [kg]	0.30		
Connection Inlet air Exhaust air	Adaptor G 1/2" o Locking coupling AG Type 26 G1/2"	Spare parts	659ES110 Washers (5 pcs.) 659ES111 Retaining rings (5 pcs.)		



Dimensional drawing FK30 with flame scanner F300K

- 1 Inlet air with dismantled flame scanner p max. = 0.5 bar
 - 2 Exhaust / Serves as purge air for adjustment bracket FV30-10 / Holder with lock coupling type AG 26 - G 1/2 equip (will be supplied)!
 - 3 Locking coupling
 - 4 Socket
 - 5 Connecting hose/Temperature range - 40 °C ... + 150 °C
- A Slide the cooling air housing slightly rotating on the outer O-ring on F300K-housing
 - B Lock the cooling air housing with washer and locking ring DIN 471 - 60 x 2, use to the groove in the device optics holder using a Circlip pliers.
 - C Connect the locking coupling and socket
- Subject to technical changes!

Performance of Cooling Air Housing FK30



A = Operating temperature/Inner device temperature [°C]

B = Ambient temperature [°C]

C = Area without cooling duty

D = Limit of cooling duty

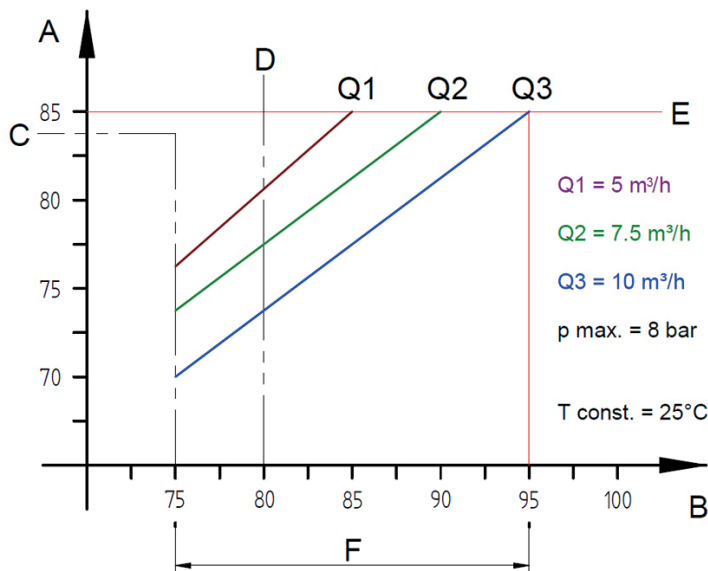
E = Highest permissible operating temperature

F = Operating temperature range FK30

Performance of cooling air housing FK30 with cooling air temperature of 15 °C

Reading examples:

- Ambient temperature up to 75 °C don't require a cooling air housing.
- We recommend to use cooling air for temperatures higher than 75 °C. For temperatures higher than 80 °C.
- With cooling air temperature of 15 °C and ambient temperature up to 85 °C a volume flow of 5 m³/h is sufficient because the operating temperature of 85 °C is not exceeded.
- Up to 90 °C of ambient air you need compressed air of 7,5 m³/h.
- Up to 100 °C of ambient air you need compressed air of 10 m³/h.



A = Operating temperature/Inner device temperature [°C]

B = Ambient temperature [°C]

C = Area without cooling duty

D = Limit of cooling duty

E = Highest permissible operating temperature

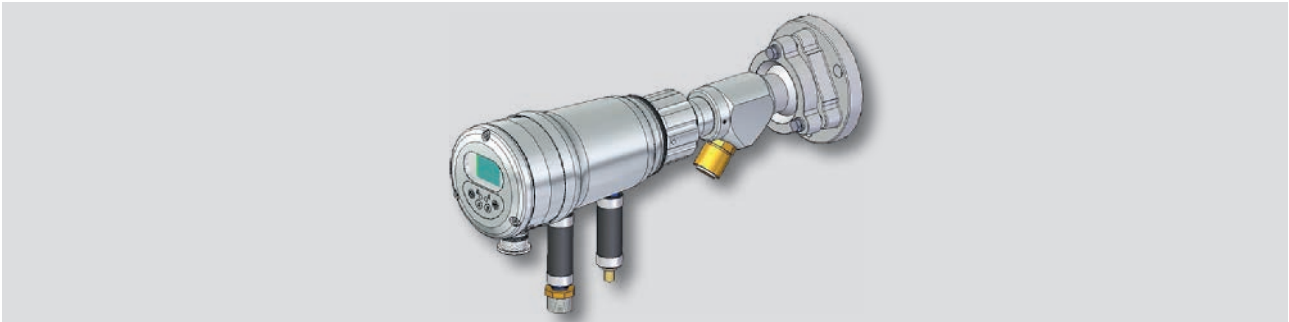
F = Operating temperature range FK30

Performance of cooling air housing FK30 with cooling air temperature of 25 °C

Reading examples: see above

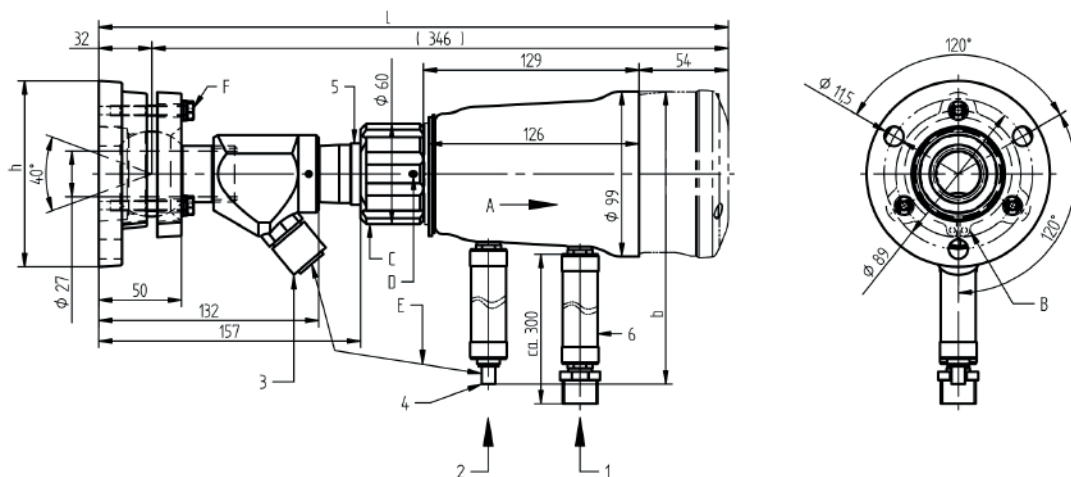
Cooling Air Housing with Purge Air Connection and Ball-and-Socket Joint FK41

Technical Data



Cooling Air Housing with Purge Air Connection and Ball-and-Socket Joint FK41

Possible application	F300K	Dimensions [mm]	l	w	h
Item no.	659S1401		324	250	110
Material	Aluminium anodized, plastic	Holding device with F300K	378	250	110
Connection Inlet air Exhaust air	Adaptor G 1/2" o Locking coupling AG Type 26 G1/2"	Weight [kg]	1.65		
		Spare parts	659ES120 Locking disc application 659ES110 Washers (5 pcs.) 659ES111 Retaining rings (5 pcs.) 659ES121 Rubber rings (5 pcs.)		

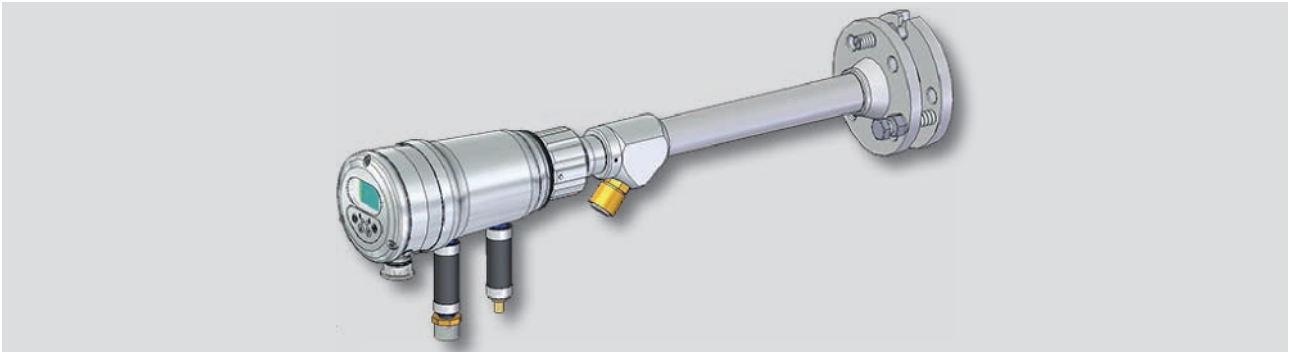


Dimensional drawing FK41 with flame scanner F300K

- | | |
|---|--|
| 1 Inlet air | A Slide the cooling air housing slightly rotating on the outer O-ring on F300K-housing |
| 2 Exhaust air | B Lock the cooling air housing with washer and locking ring DIN 471 - 60 x 2 |
| 3 Locking coupling | C Tighten coupling nut either by hand or by using SW 46 |
| 4 Socket | D Tighten securing device by allen key for M3 |
| 5 Insulating part | E Connect the locking coupling and socket |
| 6 Connecting hose/Temperature range
- 40 °C ... + 150 °C | F Lock the ball-and-socket joint by using SW 10 |

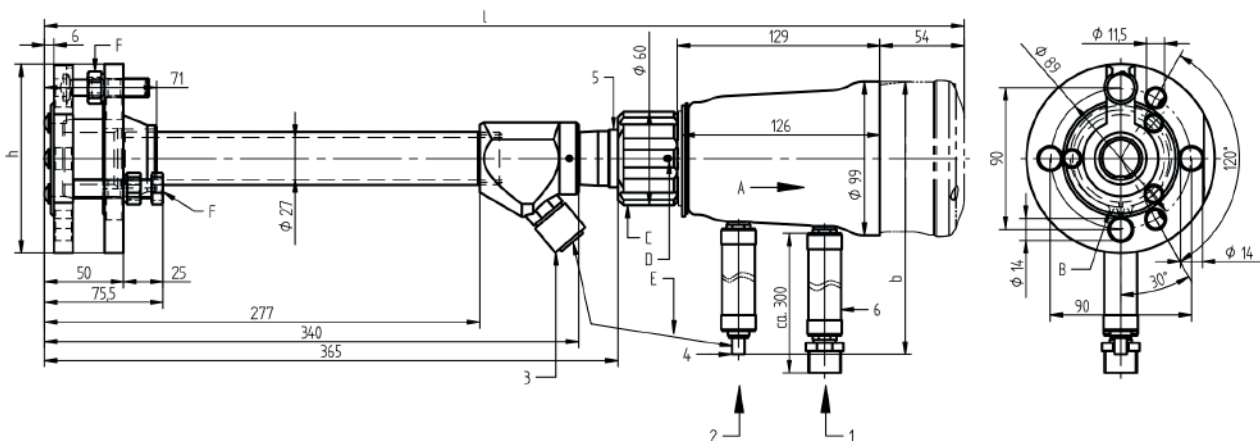
Cooling Air Housing with Purge Air Connection and FS35-FK46.

Technical Data



Cooling Air Housing with Purge Air Connection and FS35-FK46

Possible application	F300K	Dimensions [mm] Holding device with F300K	l	w	h
Item no.	659S1400		534	250	120
Material	Aluminium anodized, plastic Aluminium coated zinc,	Weight [kg]	2.80		
Connection Inlet air Exhaust air	Adaptor G 1/2" o Locking coupling AG Type 26 G1/2"	Spare parts	659ES120 Locking disc application 659ES110 Washers (5 pcs.) 659ES111 Retaining rings (5 pcs.) 659ES121 Rubber rings (5 pcs.)		



Dimensional drawing FK46 with flame scanner F300K

- | | |
|---|--|
| 1 Inlet air | A Slide the cooling air housing slightly rotating on the outer O-ring on F300K-housing |
| 2 Exhaust air | B Lock the cooling air housing with shim and locking ring DIN 471 - 60 x 2 |
| 3 Locking coupling | C Tighten coupling nut either by hand or by using SW 46 |
| 4 Socket | D Tighten securing device by allen key for M3 |
| 5 Insulating part | E Connect the locking coupling and socket |
| 6 Connecting hose/Temperature range
- 40 °C ... + 150 °C | F Lock the detachable bracket by using SW19 |

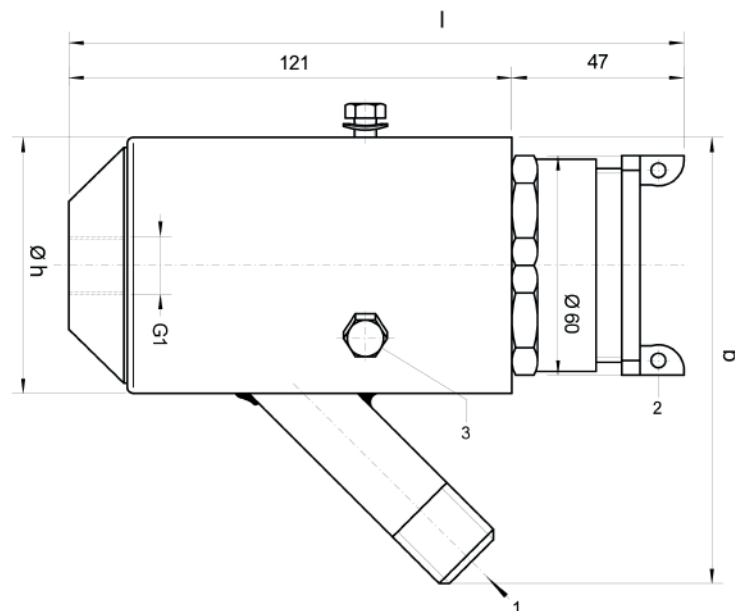
Cooling Air Housing FS30.

Technical Data



Cooling Air Housing FS30

Possible application	FFS05, FFS05 Ex FFS07, FFS07 Ex	Dimensions [mm] Holding device with FFS05, FFS07 with FFS05 Ex, FFS07 Ex	l	w	h
Item no.	659R0109		168	122	70
Material	Zink coated steel		205	122	70
Air connection	Tube stub G 1/2" a	Weight [kg]	1.24		
		Spare parts	659E0107 Sealing washer 659E0109 Screwing PG42 with sealing washer		

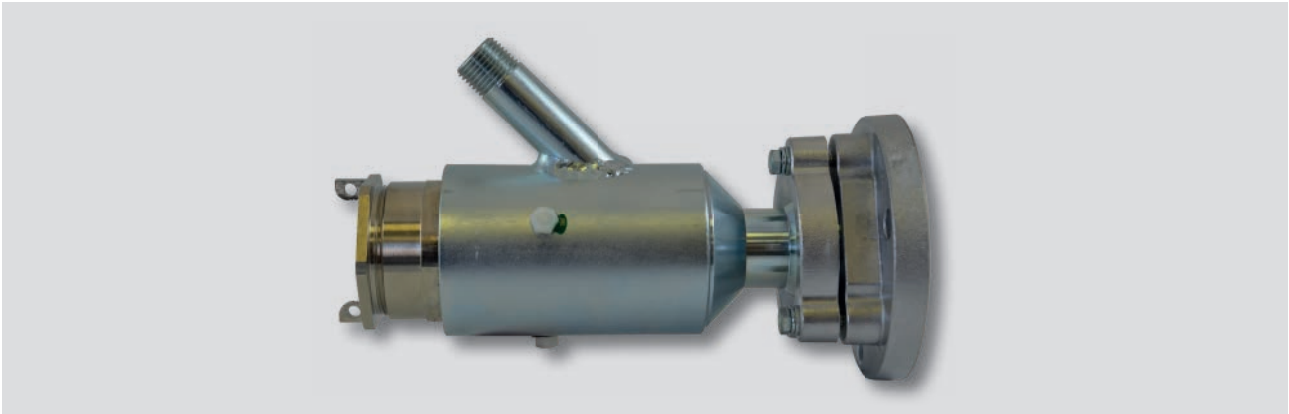


Dimensional drawing of Holding Device FS30

- 1 Inlet air
- 2 PG42 gland with sealing ring
- 3 Hexagon clamping screw polyamide M6 X 16

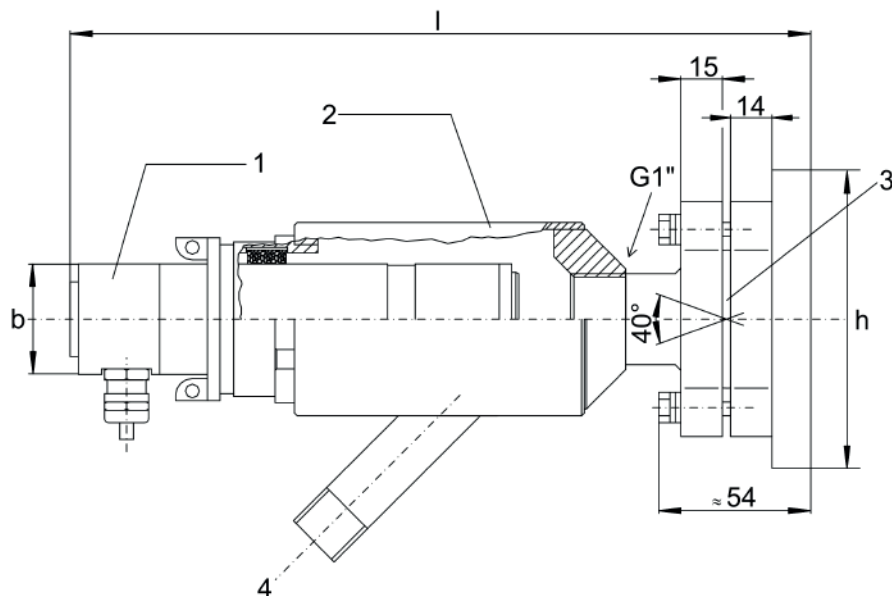
Adjustable Holding Device FS41.

Technical Data



Adjustable Holding Device FS41

Possible application	FFS05, FFS05 EX FFS07, FFS07 EX	Dimensions [mm]	l	w	h
Item no.	659R0107		220	--	110
Material	Aluminium anodized, Zink coated steel		265	40	110
Air connection	Tube stub G 1/2" a	Spare parts	659E0107 Sealing washer		
Weight [kg]	2.08		659E0109 Screwing PG42 with sealing washer		

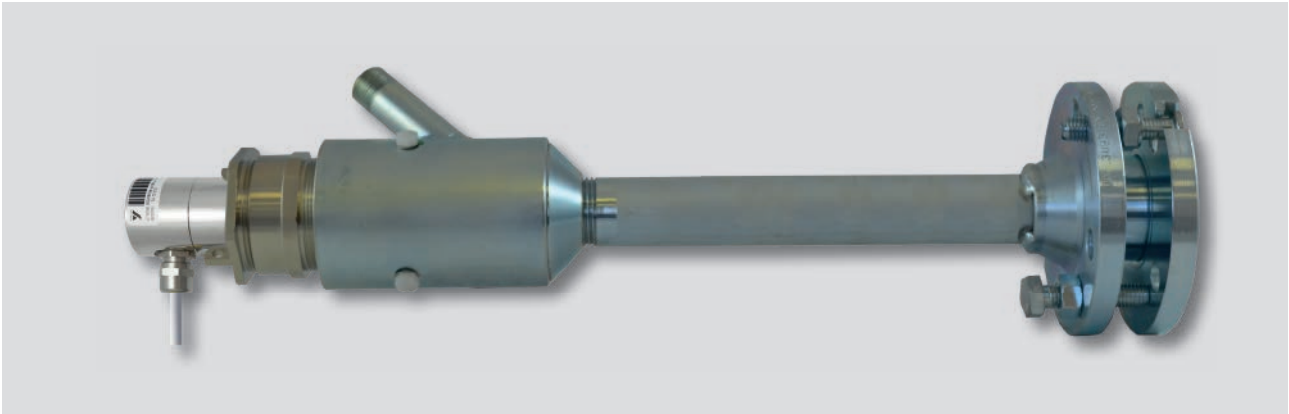


Dimensional drawing FS41 with flame sensor FFS05, FFS07

- 1 Flame sensor FFS06, FFS08
- 2 Cooling air housing with holding fixture
- 3 Ball-and-socket joint
- 4 Purge air connection

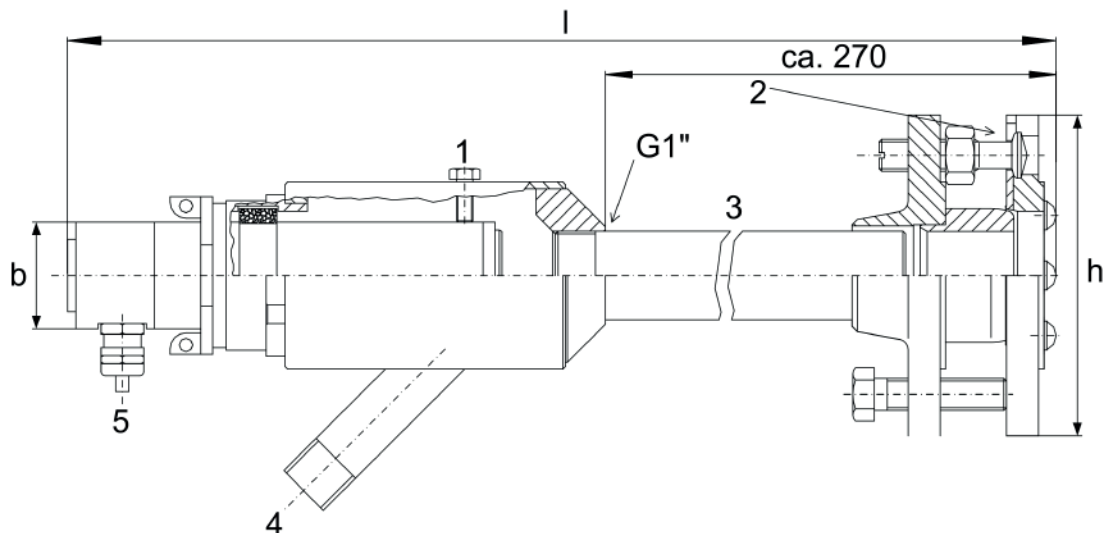
Cooling Air Housing with Holding Device, Adjustable and Detachable FS36.

Technical Data



Cooling Air Housing with Holding Device, Adjustable and Detachable FS36

Possible application	FFS05, FFS05 EX FFS07, FFS07 EX	Dimensions [mm]	l	w	h
Item no.	659E0098	Holding device with FFS05, FFS07	420	--	120
Material	Zink coated steel	with FFS05 Ex, FFS07 Ex	465	40	120
Air connection	Tube stub G 1/2" a	Spare parts	659E0107 Sealing washer	659E0109 Screwing PG42 with sealing washer	659R6098 Bracket, detachable
Weight [kg]	3.24				

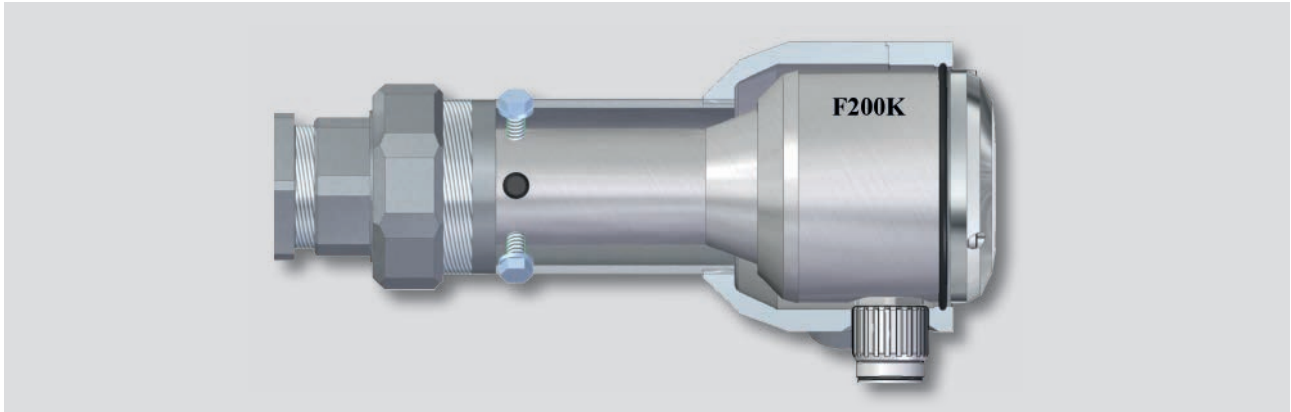


Dimensional drawing FS36 with flame sensor FFS05, FFS07

- 1 Retaining screw
- 2 Flange mounting device adjustable and detachable
- 3 Spacer tube
- 4 Purge air connection
- 5 Cable connection flame sensor

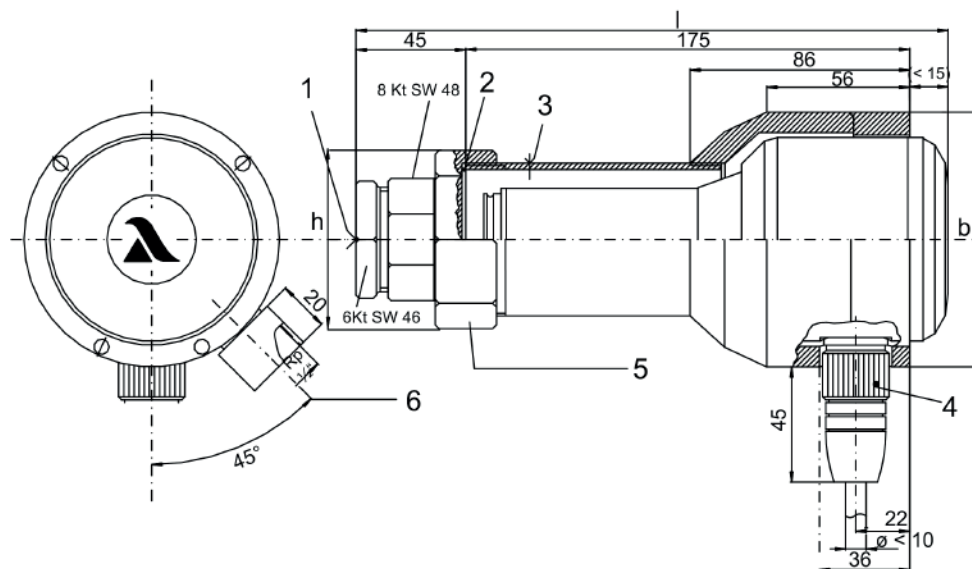
Cooling Air Housing FS50.

Technical Data



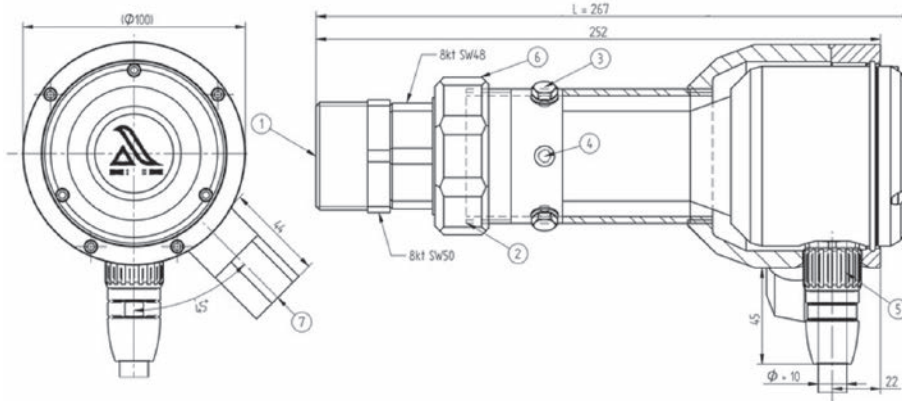
Cooling Air Housing FS50

Possible application	F200K	Dimensions [mm]	l	w	h
Item no.	659S6109		225	100	62
Material	Aluminium anodized, Zink coated steel	with F200K	247	100	62
Air connection	Adaptor G 1/2" i	Weight [kg]	2.08		



Dimensional drawing FS50 with flame scanner F200K

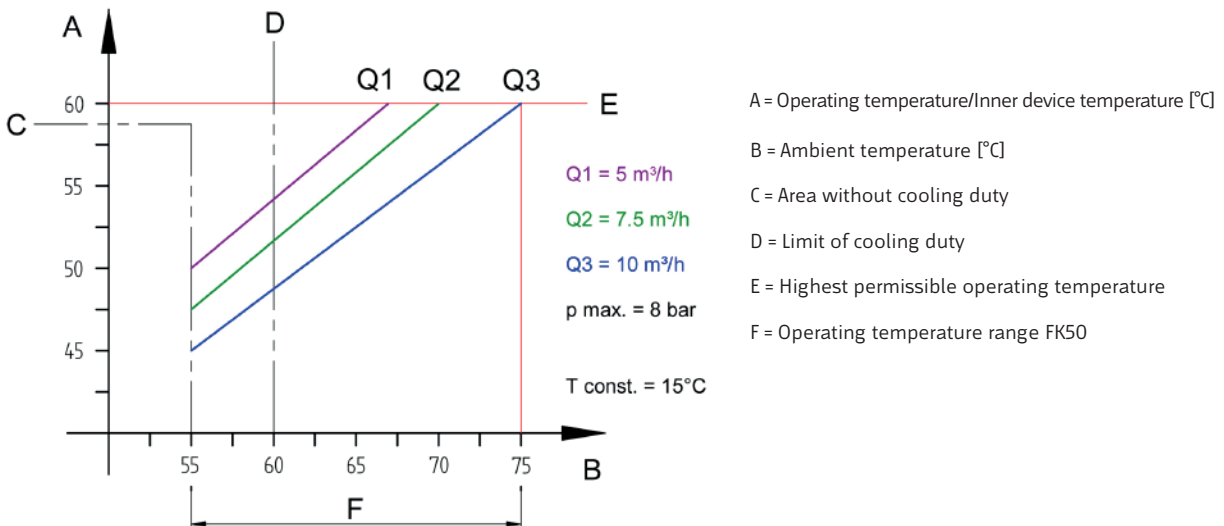
- 1 Tube connection (boiler) Rp1"
- 2 Sealing washer 56 x 42 x 2 mm
- 3 3x Back-up screw M6, plastic - insulated fitting
- 4 Cable connection with screw cap
- 5 Detachable connection 8 Kt SW 66 (lens cleaning)
- 6 Cooling air connection



Dimension drawing FS 50-2 cooling air housing with extended air outlet

- | | | | |
|---|---|---|--|
| 1 | Tube connection (boiler) G 1 1/2" | 5 | Cable connection with screw cap |
| 2 | Sealing washer 56 x 42 x 2 mm | 6 | Detachable connection 8 Kt SW 66 (lens cleaning) |
| 3 | 3x Back-up screw M6, plastic - insulated fitting | 7 | Cooling air connection G 1/2" NPT |
| 4 | 3x demountable rubber buffer (outlet cooling air) | | |

Performance of cooling air housing FS50



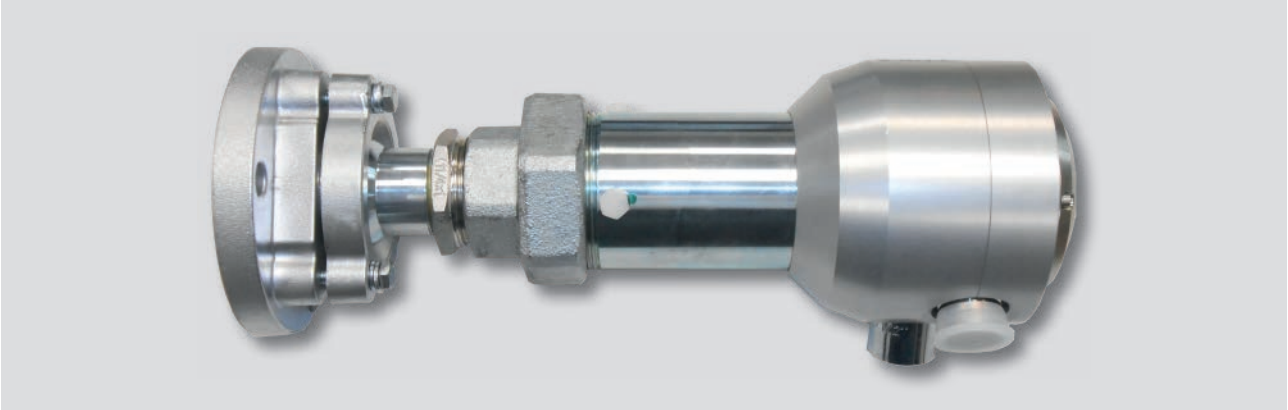
Performance of cooling air housing FK50

Reading examples:

- Ambient temperature up to 55 °C don't require a cooling air housing.
- We recommend to use cooling air for temperatures higher than 55 °C.
For temperatures higher than 60 °C.
- With cooling air temperature of 15 °C and ambient temperature up to 65 °C a volume flow of 5 m³/h is sufficient because the operating temperature of 85 °C is not exceeded.
- Up to 70 °C of ambient air you need compressed air of 7.5 m³/h.
Up to 75 °C of ambient air you need compressed air of 10 m³/h.

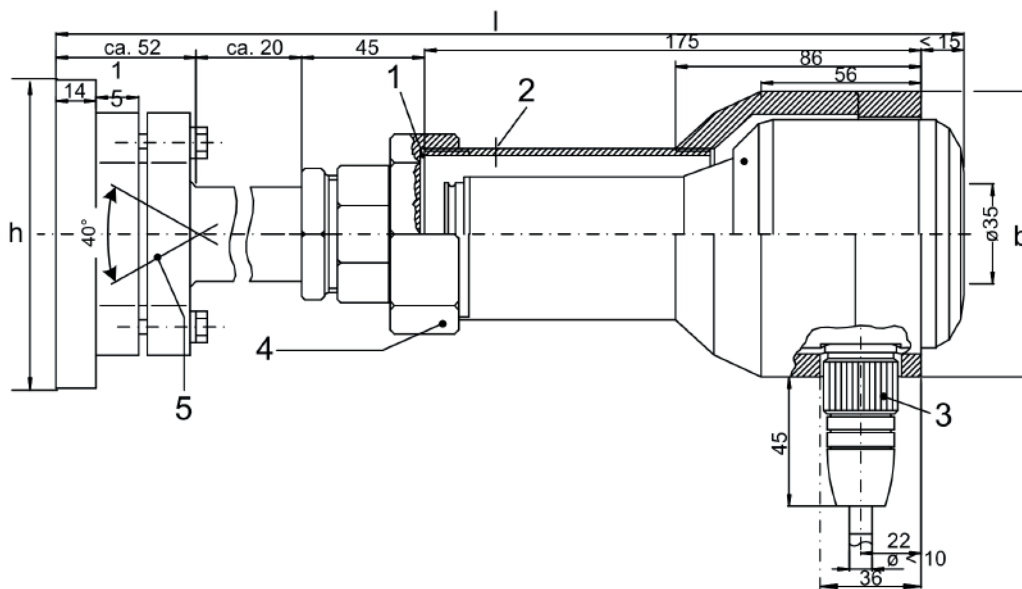
Cooling Air Housing with Ball-and-Socket Joint FS51.

Technical Data



Cooling Air Housing with Ball-and-Socket Joint FS51

Possible application	F200K	Dimensions [mm]	l	w	h
Item no.	659S6107		290	100	110
Material	Aluminium anodized, Zink coated steel	Holding device with F200K	302	100	110
Air connection	Adaptor G 1/2" i	Weight [kg]	2.13		

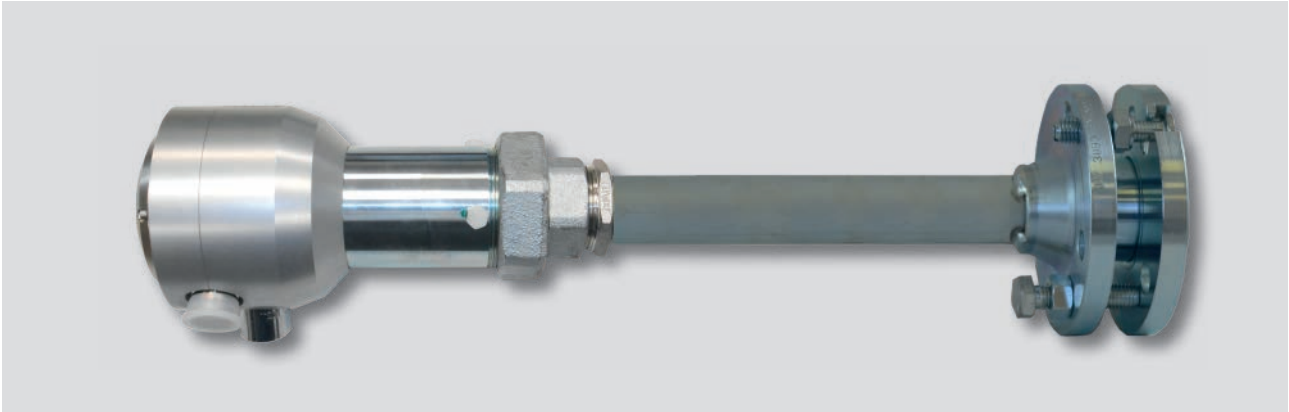


Dimensional drawing FS51 with flame scanner F200K

- 1 Sealing washer 56 x 42 x 2 mm
- 2 3 x Back-up screws M6, plastic - insulated fitting
- 3 Cable connection with screw cap
- 4 Detachable connection 8 Kt SW 66 (lens cleaning)
- 5 Ball-and-socket joint

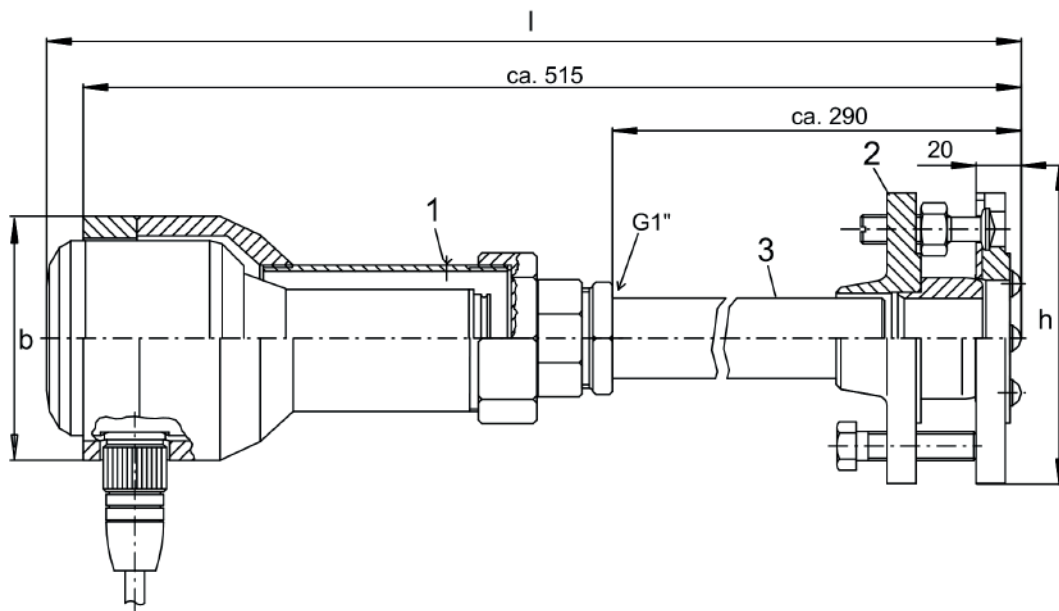
Cooling Air Housing with Holding Device, Adjustable and Detachable FS56.

Technical Data



Cooling Air Housing with Holding Device, Adjustable and Detachable FS56

Possible application	F200K	Dimensions [mm]	l	w	h
Item no.	659S6099		Holding device with F200K	495	100
Material	Aluminium anodized, Zink coated steel	Weight [kg]	1.29		
Air connection	Adaptor G 1/2" i	Spare parts	659R6098 Bracket, detachable		

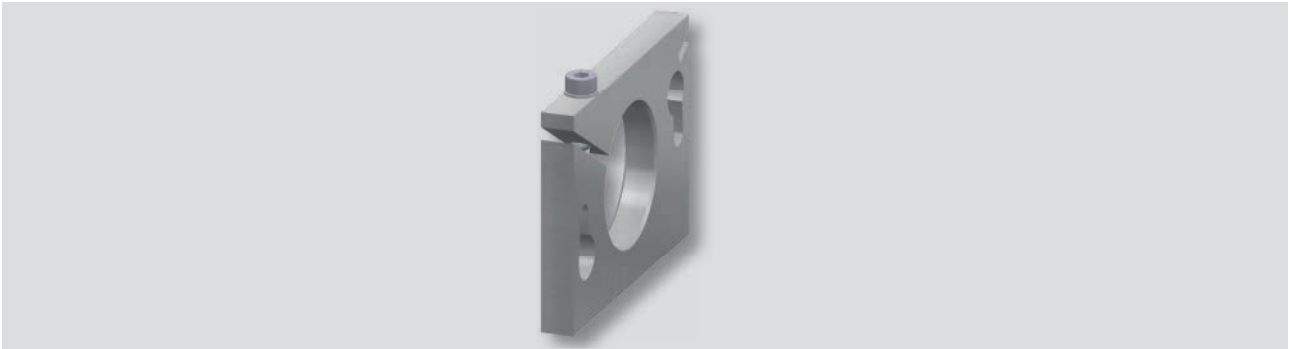


Dimensional drawing FS56 with flame scanner F200K

- 1 3 x Back-up screws M6, plastic - insulated fitting
- 2 Flange holding device adjustable and detachable
- 3 Distance sleeve

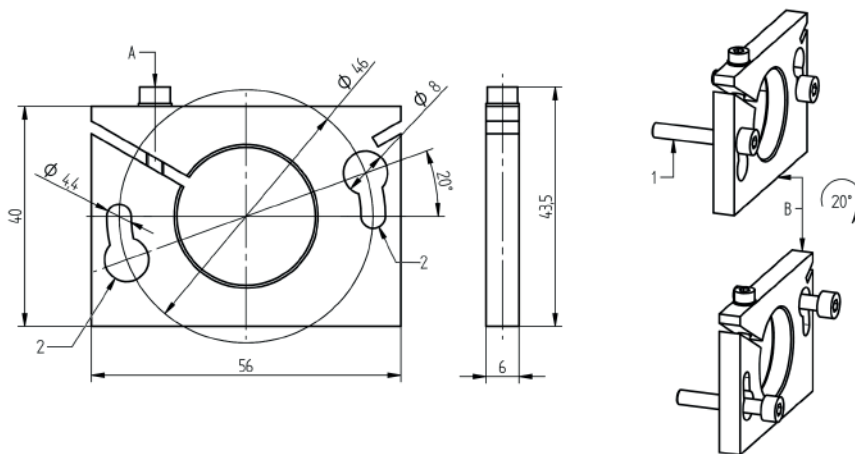
Holding Device FS60-00.

Technical Data

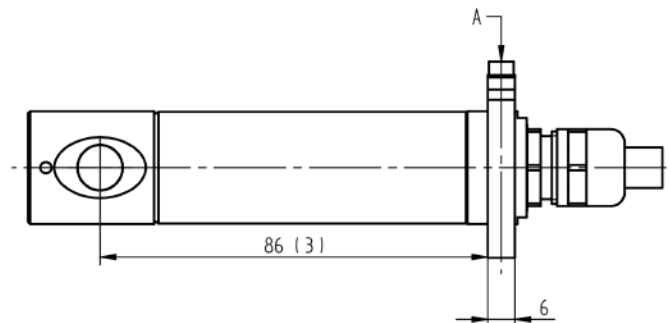


Holding Device FS60-00

Possible application	FFS06, FFS08	Dimensions [mm]	l	w	h
Item no.	659S0500			56	40
Material	Aluminium anodized	with FFS06, FFS08	133	56	40
		Weight [kg]	0.05		



Dimensional drawing FS60-00 for flame sensor FFS06, FFS08



Dimensional drawing FS60-00 with flame sensor FFS06, FFS08

- A** Clamping screw tightened by allen key for M3
- B** Disassembly by removing the screws M4 and 20° rotation of the rotary plate
- 1** M4 fixing screws (not supplied) Nominal length depends on assembly,
- 2** Holes for mounting screws ISO4762 - M4 ... (not supplied), nominal length depends on assembly
- 3** max. Depth of the flame sensor FFS08, with extension L max. = 166 mm

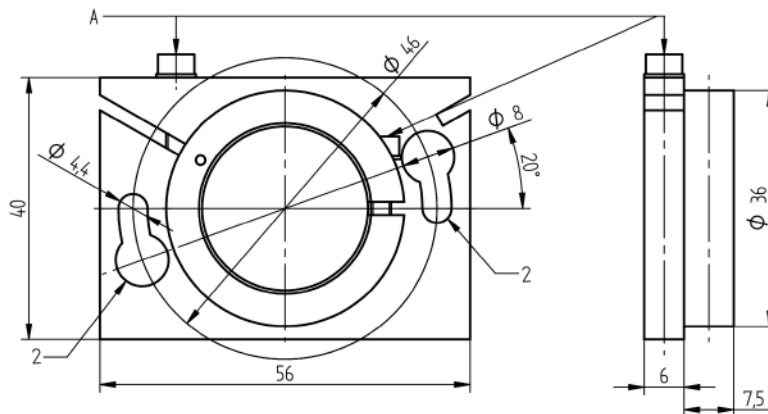
Holding Device FS60-10.

Technical Data

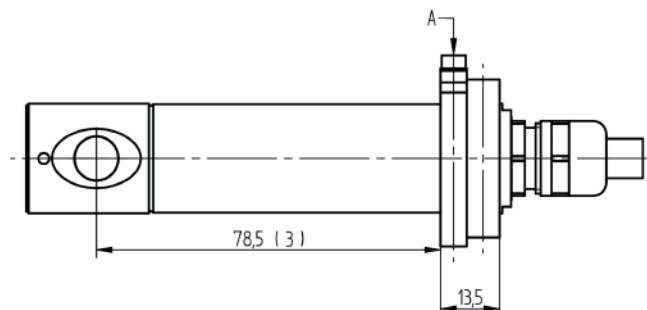


FS60-10 Halterung

Possible application	FFS06, FFS08	Dimensions [mm]	l	w	h
Item no.	659S0510			56	40
Material	Aluminium anodized	Holding device with FFS06, FFS08	133	56	40
		Weight [kg]	0.05		



Dimensional drawing FS60-10 for flame sensor FFS06, FFS08

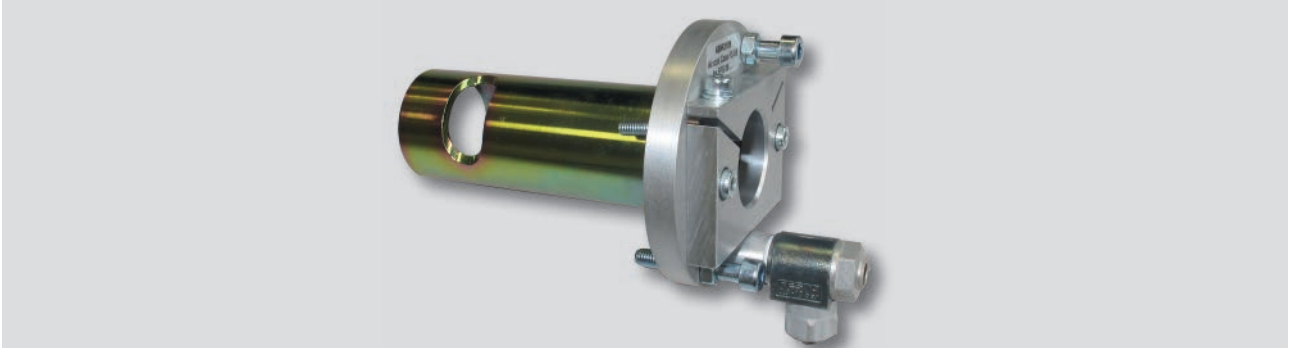


Dimensional drawing FS60-10 with flame sensor FFS06, FFS08

- A Clamping screw tightened by allen key for M3
- 2 Holes for mounting screws ISO4762 - M4 ... (not supplied), nominal length depends on assembly
- 3 Max. Depth of the flame sensor FFS08, with extension L max. = 158.5 mm

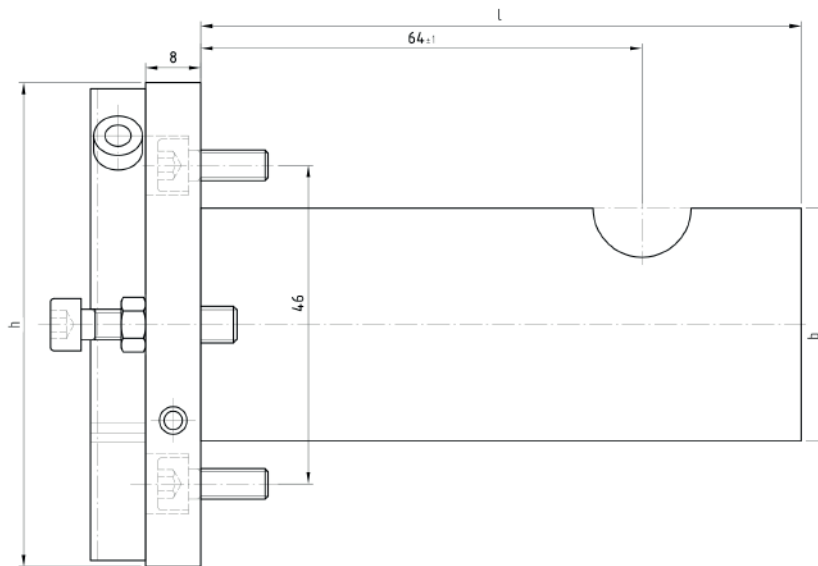
Cooling Air Housing FS65.

Technical Data



Cooling Air Housing FS65

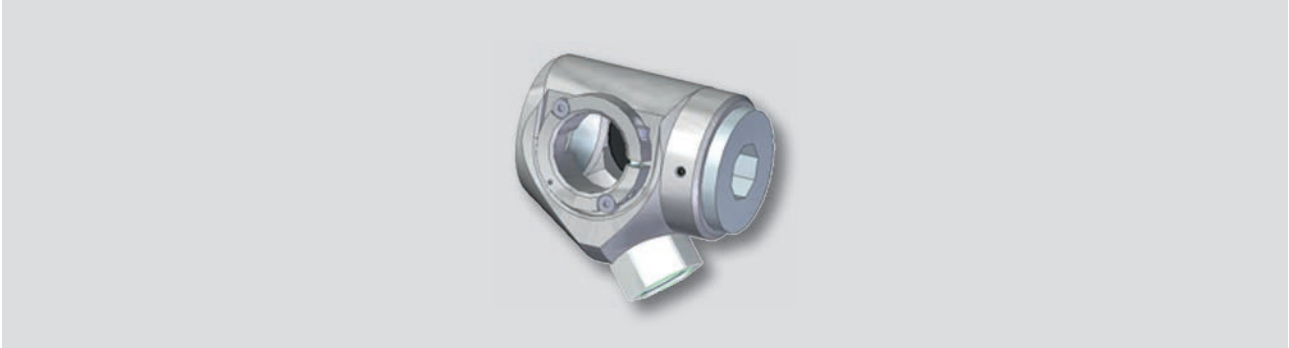
Possible application	FFS06, FFS08	Dimensions [mm]	l	w	h
Item no.	659R3109			34	70
Material	Aluminium anodized, plastic, Zink coated steel	Holding device with FFS06, FFS08	87	34	70
Air connection	GLRZ-1/8-PK6B ($\pm 90^\circ$ pivotable)	Weight [kg]	0.33		



Dimensional drawing FS65 for flame sensor FFS06, FFS08

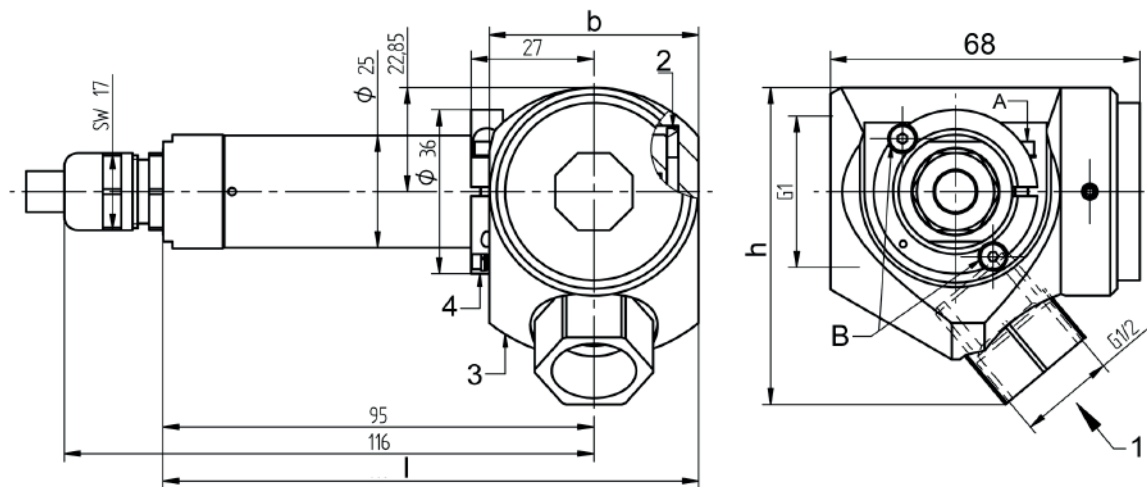
Holding Device FH80-00.

Technical Data



Holding Device FH80-00

Possible application	FFS06, FFS08	Dimensions [mm]	l	w	h
Item no.	659S2100		–	46	70
Material	Aluminium anodized, plastic	with FFS06, FFS08	118	46	70
Air connection	Hexagonal fitting G 1/2" i	Weight [kg]	0.5		

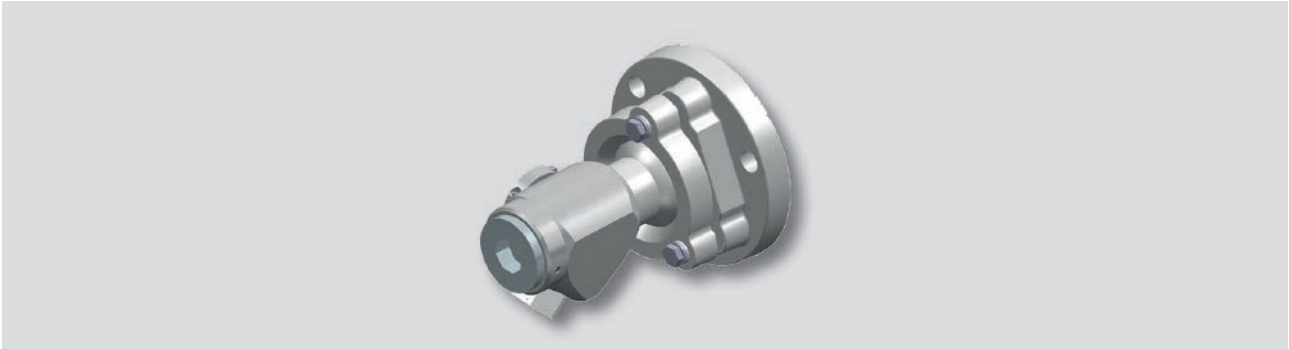


Dimensional drawing FH80-00 with flame sensor FFS06, FFS08

- 1 Purge air
- 2 Insulating part / Flame sensor housing is also isolated
- 3 Purge Air Connection
- 4 Setting ring
- A Flame sensor in Setting ring tightened by allen key for M3
- B Setting ring with allen key for M3

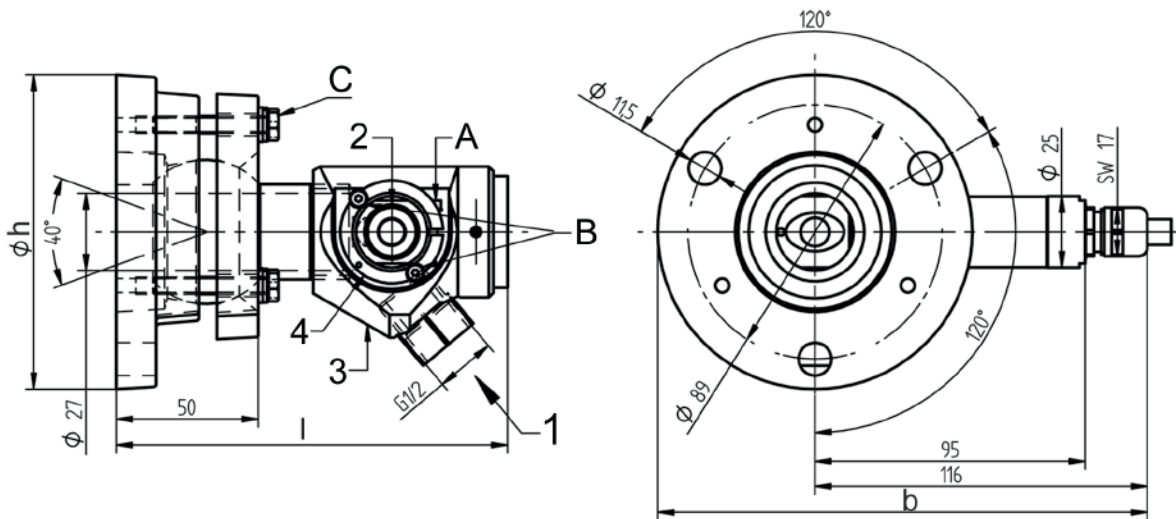
Holding Device FH80-10.

Technical Data



Holding Device FH80-10

Possible application	FFS06, FFS08	Dimensions [mm]	l	w	h
Item no.	659S2110		137	--	110
Material	Aluminium anodized, plastic	with FFS06, FFS08	137	171	110
Air connection	Hexagonal fitting G 1/2" i	Weight [kg]	1.35		

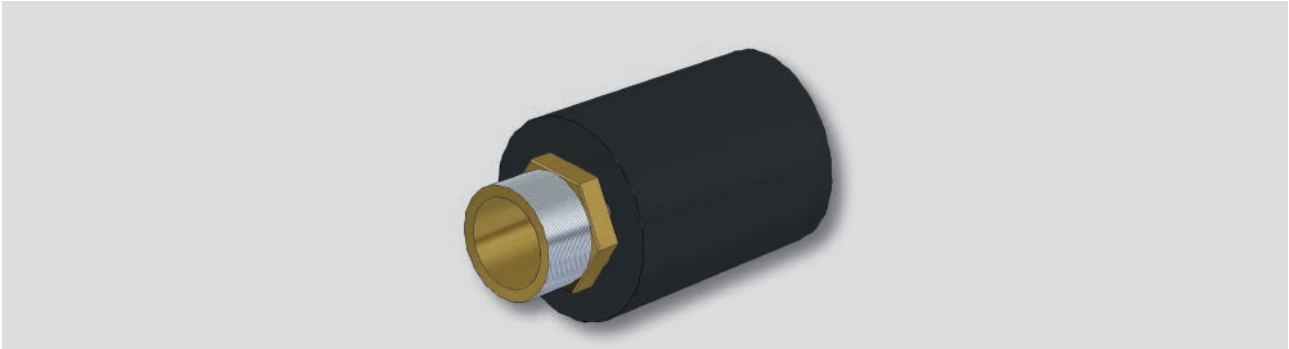


Dimensional drawing FH80-10 with flame sensor FFS06, FFS08

- 1 Purge air
- 2 Insulating part / Flame sensor housing is also isolated
- 3 Purge Air Connection
- 4 Setting ring
- A Flame sensor in Setting ring tightened by allen key for M3
- B Setting ring with allen key for M3
- C Clamping of the ball-and-socket joint by using SW 10.

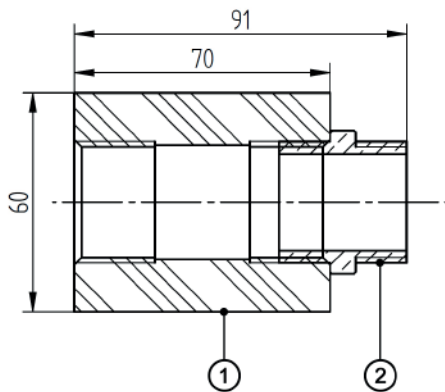
Insulation part for Flame Scanner Holding Device.

Technical Data

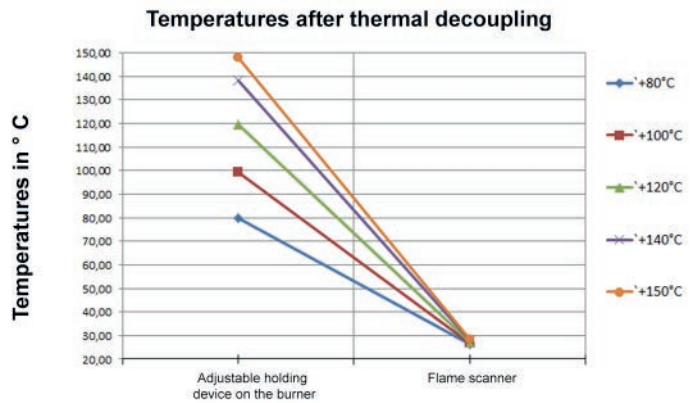


Insulation part for Flame Scanner Holding Device

Possible application	For thermal insulation of the flame scanner F300K, F200K and FFS07	Dimensions [mm]	l	w	d
Item no.	659S3900		70	--	60
Material	Brass, plastic (PPS)				
Connection	G1"IG / G1"AG	Weight [kg]	0.3		



Dimensional drawing Insulation part



Temperatures after thermal decoupling

- 1 Insulation part G1"IG / G1"IG
- 2 Double nipple DN25, 1"G-AG / 1"G-AG, brass

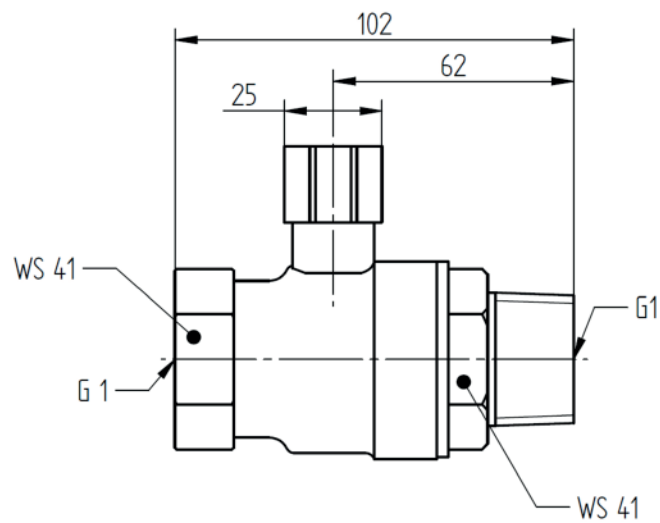
Ball Valve.

Technical Data



Ball valve

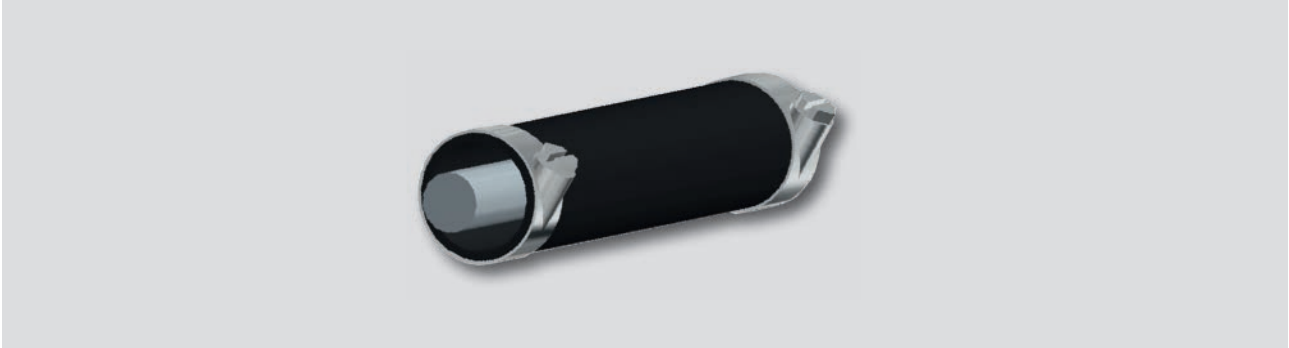
Possible application	Simulation Flame demolition	Dimensions [mm]	see dimensional drawing
Item no.	659R5008		
Design	Stainless steel ball valve 1" AG/IG with butterfly handle, PN64	Weight [kg]	0.76



Dimensional drawing ball valve

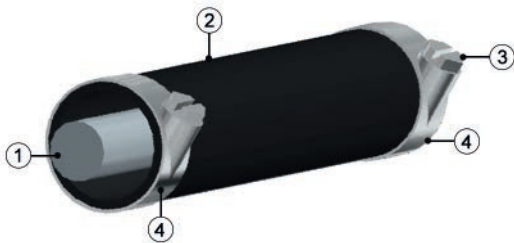
Connector Cable Protective Tube.

Technical Data



Connector cable protective tube

Possible application	For protection of the LAMTEC Standard- and Silikoncabel F300K, F200K	Dimensions	d		l	
			18/21 mm		3/5/10 m	
Item no.	659N9900 length 3 m 659N9901 length 5 m 659N9902 length 10 m	Features	UV-resistant, Ozon-resistant, weatherproof, temperature-resistant - 35°C bis + 100°C			
Material	inner tube: light rubberized cord-web hose cover: SBR-rubber, black		Connector	Stainless steel hose clip		



Details connector cable protective tube

- 1 LAMTEC standard cable additional with shrinking hose at the cable ends
- 2 Cable protective tube / outer diameter 21 mm
- 3 Wrench size 7
- 4 Overlap of metal sheet press on outer diameter !

Heated Thermal Jacket for F200K.

Technical Data



Heated Thermal Jacket

Possible application	With the „heated thermal jacket,“ F200K can be operated up to an ambient temperature T _{min} of -55 °C. The ambient temperature T _{max} drops to +50 °C..	Closure type	Velcro/brushed wool
Item no.	659S400.	Material	The surface consists of an anti-static PTFE-coated Thermo-E glass fabric with a 20 mm non-woven fabric filling.

Ordering Information

Thermo-Jacket	Selection
	659S4000
	659S4001
	659S4002
	659S4003
	659S4012

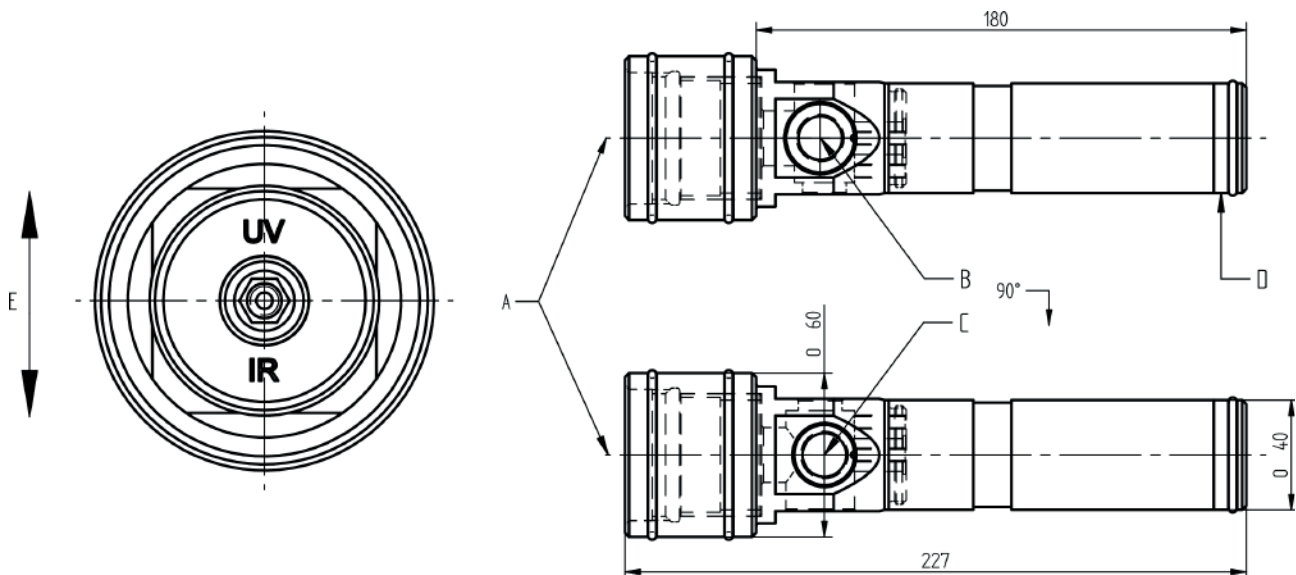
Flame Scanner Testing Device FFP30.

Technical Data



Flame Scanner Testing Device FFP30

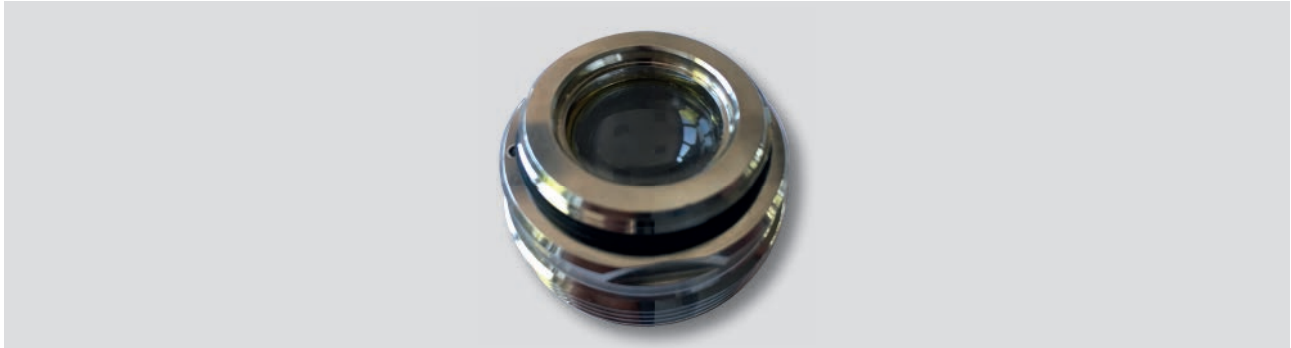
Possible application	Flame simulation for IR- und UV Flame scanner	Dimensions	See dimensional drawing
Voltage supply	Alkaline battery 9 V, 500 mAh, Automatic switch-off after approx. 5 min	Material	Aluminium
Frequency range	Flame simulation in 4 frequency ranges	Weight [kg]	0.52
Montage	Threaded receptacle for F200K, F300K, Plug-in receptacle for FFS07, FFS08, F200K	Battery life	approx. 3 years
		Ambient temperature	- 10 ... + 60 °C



Dimensional drawing Flame Scanner Testing Device FFP30.

- A, B, C Threaded receptacle for F200K, F300K
Plug-in receptacle for FFS07, FFS08, F200K
- D Changing battery (9 V, 500 mA - turn left to open housing)
- E Toggle switch

Optic Holders and Lenses for Flame Sensors



Optic Holder with Lens for FFS05-UV_V and F200K

Ordering Information

Description / Type	Selection
Optic Holder with Lens (biconvex) for FFS05-UV and F200K ... UV to Ser.-Nr.: 82900999	659E2001
Optic Holder with Lens (biconvex) for FFS05-UV /V and F200K ... UV /V to Ser.-Nr.: 82900999	659E2001/V
Optic Holder with Lens (biconvex) for FFS05-UV /EX2 and F200K ... UV /EX2 to Ser.-Nr.: 82900999	659E2001/Z2
Optic Holder with filter disc for FFS05-IR and F200K...IR	659E1001
Optic Holder with filter disc for FFS05-IR /V and F200K ... IR /V	659E1001/V
Optic Holder with filter disc for FFS05-IR /EX2 and F200K ... IR /EX2	659E1001/Z2
Optic Holder with Lens (planconvex) for FFS07-UV and F200K ... UV from Ser.-Nr.: 82902000	659EV402
Optic Holder with Lens (planconvex) for FFS07-UV /V and F200K ... UV /V from Ser.-Nr.: 82902000	659EV404
Optic Holder with filter disc for FFS07-IR	659EV401
Optic Holder with filter disc for FFS07-IR /V	659EV403
O-ring for optics FFS05 / FFS07 / F200K (5 pieces per pack)	659E1000



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