

Technical Data Pilot Burner GFI35



Fig. 1 Side view of GFI35 pilot burner design C

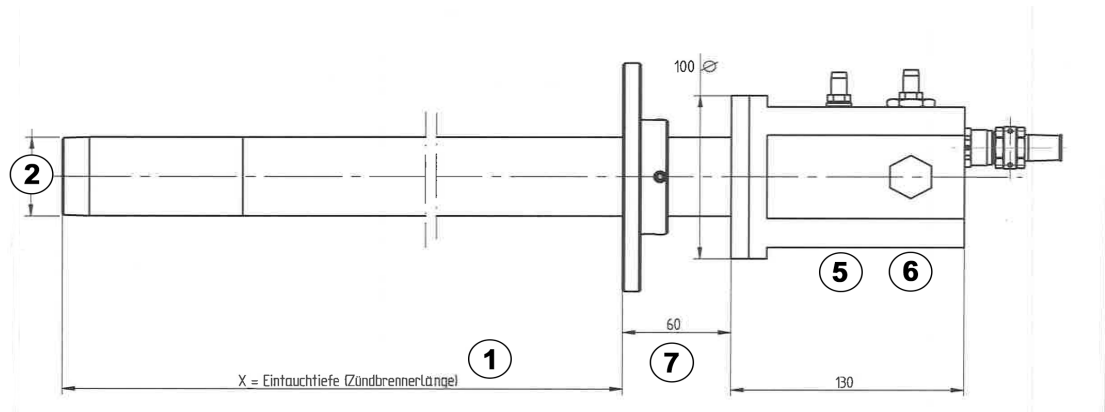


Fig. 2 Dimensions of GFI35 pilot burner design C

1	Dimension outer tube length	customer-specific
2	Outer tube diameter	35 mm x 2 mm (1,38 x 0.078 in)
5	Air supply connection	3/4 inch (BSPP inner threads)
6	Gas supply connection	3/8 inch (BSPP inner threads)
7	Distance between housing and connection flange	

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NOTICE

The electrical data are identical for all devices, only the air and gas volume flows differ.

Technical design Ignition and ionisation

GFI35	Single-electrode operation
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Design C:

Connection of external flame scanner to the ionisation electrode

Recommended cable specifications	
Cable type	RG62 coaxial cable
Cable lengths	< 10 m 32,8 ft
Inner conductor	solid copper-plated steel wire, uninsulated Ø: 0.64 ± 0.025 mm 0.025 ± 0,00098 in
Wire insulation	PE hollow space insulation (helix made from PE strands with PE hose on top) Ø: 3.7 mm 0.14 in
Shield	braided from bare Cu wires, 96 % coverage (nominal value)
Outer shell	PVC, black outside diameter: 6.15 ± 0.18 mm 0.24 ± 0.0070 in
Conductor resistance	max. 144 Ohm/km
Operating capacity	max. 43 pF/m (1 kHz)
Rated voltage	0.8 kV (50 Hz)
Test voltage	2 kV
Temperature range	-40 ... 80 °C -40 ... 176 °F (fixed installation)

Power supply voltage connection to the external ignition transformer

Recommended cable specifications	
Cable lengths	max. 200 m 656.168 ft
Cable cross-section	3 x 1.0 mm ² 3 x 17 AWG
Isolation	PVC
Temperature range	-40 ... +90 °C -40 ... 194 °F

Connection of external ignition transformer to the ignition electrode

Electrical data	
Ignition voltage to earth	See section 'Integrated ignition transformer'
Recommended cable specifications	
Cable lengths	max. 20 m 65.62 ft
Cable cross-section	1 x 1.0 mm ² 1 x 17 AWG
Isolation	Silicone, red-brown
Temperature range	-60 ... +180 °C -76 ... +356 °F

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Ground cable		
Recommended cable specifications		
Cable lengths	max. 200 m 656.168 ft	
Cable cross-section	1 x 1.5 mm ² 1 x 15 AWG and/or according to regional regulation	
Mode of operation		
Permitted mode of operation	intermittent operation/continuous operation	
Operating condition		
Relative humidity	max. 85 % (non-condensing)	
Environmental conditions		
Operation	Permissible temperature range	Safe Area: -20...+60 °C -4 ... +140 °F (Standard, without display) -40...+60 °C -40 ... +140 °F (Special, without display) 0...+60 °C -32 ... +140 °F (with display) Ex-Zone 2: -20...+60 °C -4 ... +140 °F
Transport	Permissible temperature range	-20 ... +60 °C -4 ... +140 °F
Storage	Permissible temperature range	-20 ... +60 °C -4 ... +140 °F
Degree of protection	DIN EN 60529	IP65 / NEMA 4 / NEMA 4X



DANGER!

High voltage on the bare ignition electrode!

- ▶ Pilot burner is only permitted to be operated with correct earthing.
With version C in particular there is a danger of death when removing or omitting the earthing, the housing earthing must be connected directly to the ignition transformer earthing!
- ▶ In the event of damage to the earthing insulation, the device should be shut down; further operation without repair is not permitted.

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Thermal Power*		Propane	Natural gas	Hydrogen
Thermal power	GFI35:	25 ... 57 kW	25 ... 57 kW	15 ... 52 kW
	GFI48:	70 ... 140 kW	70 ... 140 kW	45 ... 100 kW
	GFI70:	150 ... 300 kW	150 ... 300 kW	not available
	GFI89:	400 ... 700 kW	400 ... 700 kW	not available

Connection: Gas

GFI35

Flow rate (gas quantity)	2,7 ... 5,6 Nm ³ /h 3.53 ... 7.32 yd ³ /h	2,7 ... 5,6 Nm ³ /h 3.53 ... 7.32 yd ³ /h	4,0 ... 17,5 Nm ³ /h 5.23 ... 22,88 yd ³ /h
Operating pressure	min. 50 mbar 0.725 psi max. 200 mbar 2.90 psi	min. 50 mbar 0.725 psi max. 200 mbar 2.90 psi	min. 16 mbar 0,23 psi max. 150 mbar 2,17 psi

GFI48

Flow rate (gas quantity)	3,2 ... 6,0 Nm ³ /h 4.18 ... 7.84 yd ³ /h	8,0 ... 15,0 Nm ³ /h 10.46 ... 19.61 yd ³ /h	15 ... 33,3 Nm ³ /h 19.61 ... 43,55 yd ³ /h
Operating pressure	min. 50 mbar 0.725 psi max. 200 mbar 2.90 psi	min. 50 mbar 0.725 psi max. 200 mbar 2.90 psi	min. 10 mbar 0,14 psi max. 47 mbar 0,68 psi

GFI70

Flow rate (gas quantity)	6 ... 12,0 Nm ³ /h 7.84 ... 15.69 yd ³ /h	15,0 ... 30,0 Nm ³ /h 19.61 ... 39.23 yd ³ /h	
Operating pressure	min. 50 mbar 0.725 psi max. 200 mbar 2.90 psi	min. 50 mbar 0.725 psi max. 200 mbar 2.90 psi	

GFI89

Flow rate (gas quantity)	14 ... 28,0 Nm ³ /h 18.31 ... 36.62 yd ³ /h	35,0 ... 70,0 Nm ³ /h 45.77 ... 91.55 yd ³ /h	
Operating pressure	min. 50 mbar 0.725 psi max. 200 mbar 2.90 psi	min. 50 mbar 0.725 psi max. 200 mbar 2.90 psi	

NOTICE

Higher pressure ratings can be realised by connecting a restrictor upstream.

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Connection: Air	
Air type	Combustion air
Operating pressure (natural gas and propane)	GFI35: 4 - 8 mbar 0,058 - 0,116 psi + 4 mbar 0,058 psi per metre of tube length GFI48: 6 - 20 mbar 0,087 - 0,290 psi + 6 mbar 0,087 psi per metre of tube length GFI70: 5 - 16 mbar 0,072 - 0,232 psi + 5 mbar 0,072 psi per metre of tube length GFI89: min. 15 mbar 0,217 psi + 5 mbar 0,072 psi per metre of tube length
Operating pressure (Hydrogen)	GFI35: 15 - 20 mbar 0,22 - 0,29 psi + 4 mbar 0,058 psi per metre of tube length GFI48: 15 mbar 0,22psi + 6 mbar 0,087 psi per metre of tube length
Air temperature	max. 80 °C 176 °F
Relative air humidity	max. 70 %
Air quality	Free of dust, oil, grease and aerosols The quality for the compressed air supply should conform to ISO 8573-1:2010 class (7 : 4 : 4). Non-observance can result in short-circuits due to material deposits in the housing.
Air ratio	0.3 ... 0.5 (the remaining air quantity must be provided by the combustion chamber)
Flow rate (air quantity)	GFI35: max. 22 Nm ³ /h 28.77 yd ³ /h GFI48: max. 50 m ³ /h 65.39 yd ³ /h GFI70: max. 150 m ³ /h 196.19 yd ³ /h GFI89: max. 250 m ³ /h 326.98 yd ³ /h

NOTICE

At temperatures in the combustion chamber of over 500 °C | 932 °F, if the pilot burner is off, a cooling air supply of 50 % of the max. combustion air should be provided.

* At International Standard Atmosphere, ISA: 15 °C, 1013,25 hPa

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Thermal rating with high power versions*

GFI48	natural gas: 250 ... 400 kW propane: 250 ... 400 kW
GFI70	natural gas: 500 ... 800 kW propane: 500 ... 800 kW
GFI89	natural gas I: 2300 ... 3000 kW natural gas II: 4600 ... 6000 kW propane: 2300 ... 3000 kW

Connection: GFI48 gas

Flow rate (gas quantity)	natural gas: 25 ... 40 m ³ /h 32.69 ... 52.31 yd ³ /h propane: 9.5 ... 15 m ³ /h 12.42 ... 19.61 yd ³ /h
Operating pressure	natural gas: 500 ... 1000 mbar 7.25 ... 14.50 psi propane: 400 ... 800 mbar 5.80 ... 11.60 psi

Connection: GFI70 gas

Flow rate (gas quantity)	natural gas: 50 ... 80 m ³ /h 65.39 ... 104.63 yd ³ /h propane: 19 ... 31 m ³ /h 24.85 ... 40.54 yd ³ /h
Operating pressure	natural gas: 500 ... 1000 mbar 7.25 ... 14.50 psi propane: 500 ... 1000 mbar 7.25 ... 14.50 psi

Connection: GFI89 gas

Flow rate (gas quantity)	natural gas I: 230 ... 300 m ³ /h 300.82 ... 392.38 yd ³ /h natural gas II: 460 ... 600 m ³ /h 601.65 ... 784.76 yd ³ /h propane: 90 ... 115 m ³ /h 117.71 ... 150.41 yd ³ /h
Operating pressure	natural gas I: 700 ... 1000 mbar 10.15 ... 14.50 psi natural gas II: 700 ... 1000 mbar 10.15 ... 14.50 psi propane: 700 ... 1000 mbar 10.15 ... 14.50 psi

NOTICE

This is not a control range as for a burner as the appropriate air volume must be set accordingly when changing the gas pre-pressure.

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Connection: Air	
Air type	combustion air
Operating pressure	GFI48/70: min. 15 mbar + 6 mbar 0.217 psi + 0.087 psi per metre of tube length GFI89: min. 15 mbar + 5 mbar 0.217 psi + 0.072 psi per metre of tube length
Air temperature	max. 80 °C 176 °F
Relative air humidity	max. 70 %
Air quality	free of dust, oil, grease and aerosols The quality for the compressed air supply should conform to ISO 8573-1:2010 class (7 : 4 : 4). Non-observance can result in short-circuits due to material deposits in the housing.
Air ratio	0.3 ... 0.5 (the remaining air quantity must be provided by the combustion chamber)
Flow rate (air quantity)	GFI48: max. 50 m ³ /h 65.39 yd ³ /h GFI70: max. 150 m ³ /h 196.19 yd ³ /h GFI89: max. 250 m ³ /h 326.98 yd ³ /h

NOTICE

At temperatures in the combustion chamber of over 500°C | 932 °F, if the pilot burner is off, a cooling air supply of 50% of the max. combustion air should be provided.

* At International Standard Atmosphere, ISA: 15 °C, 1013,25 hPa

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Order Information

Ignition and Pilot Burner

35 mm | 1.38 "in GFI35, Performance Range 27 ... 57 kW

Configuration

Description / Type	Order-no.
Ignition and pilot burner GF35, 27 ... 57 kW, installation diameter 35 mm 1.38 "in IP65 / NEMA 4 / NEMA 4X	646R0035...
A10 "RANGE OF APPLICATION"	Selection
SAFETY AREA (NO EXPLOSIVE ATMOSPHERE), -20 ... +60 °C -4 ... +140 °C	SAF
A20 "FUEL"	Selection
NATURAL GAS	N
PROPANE/BUTANE (LPG)	P
A30 "TUBE LENGTH"	Selection
BASELINE 300 mm 11.81 "in, Material stainless steel 1.4301 / end section 1.4841	V2A
ADDITIONAL PIPE LENGTH 300 mm 11.81 "in each, Material stainless steel 1.4301 (up to 3 m 9.84 ft total length possible)	
BASELINE 300 mm 11.81 "in, Material stainless steel 1.4571 / end section 1.4841	V4A
ADDITIONAL PIPE LENGTH 300 mm 11.81 "in each, Material stainless steel 1.4571 (up to 3 m 9.84 ft total length possible)	
A40 "IGNITION TRANSFORMER"	Selection
WITHOUT IGNITION TRANSFORMER, EXTERNAL IGNITION	0
INTEGRATED IGNITION TRANSFORMER	TR
A45 "IONISATION FLAME MONITOR"	Selection
WITHOUT IONISATION ELECTRODE, WITHOUT IONISATION FLAME MONITORING, EXTERNAL MONITORING	0
IONISATION ELECTRODE, WITHOUT IONISATION FLAME MONITORING, EXTERNAL MONITORING	IO
INTEGRATED IONISATION FLAME MONITORING (IFM), 0 ... 60 °C 32 ... 140 °F, SIL3 AND RELAY OUTPUT MAKE CONTACT (NO) 230 VAC/0.5 A, FFDT 1S	IFM
INTEGRATED IONISATION FLAME MONITORING (IFM), 0 ... 60 °C 32 ... 140 °F, SIL3 AND RELAY OUTPUT MAKE CONTACT (NO) 230 VAC/0.5 A, FFDT 3S	IFM3
A50 "SUPPLY VOLTAGE"	Selection
230 VAC, 50/60 Hz	230VAC
120 VAC, 50/60 Hz	120VAC

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A60 "CONNECTION TYPE"	Selection
WITH PLUG (2X 7-PIN), WITHOUT MATING CONNECTOR *	STE
WITH PLUG (2X 7-PIN), WITH MATING PLUG (FOR SELF-ASSEMBLY)	STEG
2 m 6.6 ft CABLE, 7-CORE FIRMLY CONNECTED WITH FREE CABLE ENDS	2M
3 m 9.84 ft CABLE, 7-CORE FIRMLY CONNECTED WITH FREE CABLE ENDS	3M
5 m 16.54 ft CABLE, 7-CORE FIRMLY CONNECTED WITH FREE CABLE ENDS	5M
10 m 32.81 ft CABLE, 7-CORE FIRMLY CONNECTED WITH FREE CABLE ENDS	10M
15 m 49.21 ft CABLE, 7-CORE FIRMLY CONNECTED WITH FREE CABLE ENDS	15M
20 m 65.62 ft CABLE, 7-CORE FIRMLY CONNECTED WITH FREE CABLE ENDS	20M
5 m 16.54 ft IGNITIONCABLE, SILICONE, -50 ... +180 °C -58 ... +356 °F	5Z
10 m 32.81 ft IGNITIONCABLE, SILICONE, -50 ... +180 °C -58 ... +356 °F	10Z
5 m 16.54 ft IGNITION and 5 m 16.54 ft IONISATION CABLE, SILICONE, -50 ... +180 °C -58 ... +356 °F	5ZI
10 m 32.81 ft IGNITION and 10 m 32.81 ft IONISATION CABLE, SILICONE, -50 ... +180 °C -58 ... +356 °F	10ZI

A62 "CABLE GLAND"	Selection
WITHOUT CABLE GLAND	0
1X CABLE GLAND M20, NICKEL-PLATED BRASS	M20
1X ATEX CABLE GLAND M20 CONDUIT, ½" NPT, NICKEL-PLATED BRASS	M20CU

A65 "GAS/ AIR CONNECTION"	Selection
GAS CONNECTION G3/8" ISO, AIR CONNECTION G3/8" ISO (STANDARD)	G3/8

A70 "PRESSURE STAGE"	Selection
UP TO 200 mbar BACK PRESSURE	0,2B

A80 "MOUNTING"	Selection
WITHOUT FIXED FLANGE*	0

* Additionally required if necessary: Sliding flange (under accessories)

A85 "POWER UNIT"	Selection
WITHOUT POWER UNIT FOR TRANSFORMER/IFM (EXTERNAL IGNITION/MONITORING)	0

A87 "HOUSING SURFACE"	Selection
C2 POWDER COATING, RAL3020 TRAFFIC RED / RAL 7016 ANTHRACITE GREY	STD

A90 "CUSTOMER"	Selection
STANDARD	STD

A99 "SPECIAL CONFIGURATION"	Selection
WITHOUT	00

Approvals



The information in this publication is subject to technical changes.



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