



Product Catalogue

Ignition Systems and Accessories for GFI 35/48/70Pilot Burner HEI500/600 High Energy Igniter

LAMTEC

Sensors and Systems for Combustion Engineering

www.lamtec.de

Contents

- **Latest-Generation Ignition Systems.** 3
  - Presenting the GFI pilot burner series 3
- **GFI product range.** 4
- **Equipment of GFI35/48/70 pilot burner.** 5
- **GFI35 pilot burner for safe area.** 6
- **GFI48 pilot burner for safe area and Ex zone 2.** 8
- **GFI70 pilot burner for safe area and Ex zone 2.** 10
- **External power unit, safe area.** 12
- **External power unit for Ex zone 1.** 13
- **Common technical Data.** 14
  - GFI Ordering Information for Accessories and Spare Parts 17
- **High Energy Igniter BASIC HEI500 and High-End HEI600** 21
- **BASIC HEI500.** 22
- **High-End HEI600.** 23
- **High-End HEI600 Ex zone 2.** 24
- **High-energy ignition lance.** 26
- **Pneumatic retraction unit, safe area.** 27
- **Pneumatic retraction unit Ex zone 2.** 29
  - High energy igniters, spare parts 31
  - High energy igniters, accessories 31

Latest-Generation Ignition Systems.

Presenting the GFI pilot burner series

Pilot burners are required to ensure reliable ignition of main burners in industrial ovens and combustion systems. In the standard version, the GFI series is equipped with an integrated ignition transformer, ionisation electrode and SIL 3-certified, EU-type approved ionisation flame sensor (IFW).

Advantages:

- Fuels: natural gas, LPG, coke gas, refinery gas, hydrogen
- Thermal power up to 700 kW in special design up to 6 MW
- Flame length up to 3 m / 9.84 ft
- Intermittent or continuous operation
- SIL 3-certified
- Protection class IP 65
- Avaliable for hazardous areas

Example GFI 35 / GFI 48:



Version	Flame length with LPG
GFI 35	approx. 320 - 600 mm / 12,6 - 23,62” in
GFI 48	approx. 1.300 mm / 4.26 ft

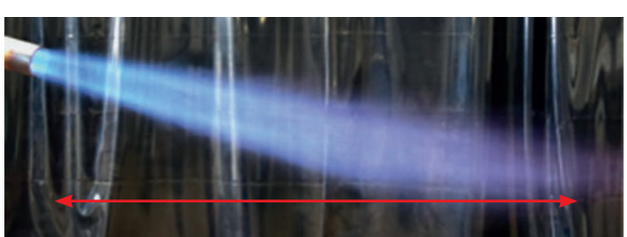


Version	Flame length with natural gas
GFI 48	approx. 750 mm / 29,53” in

Example GFI 70



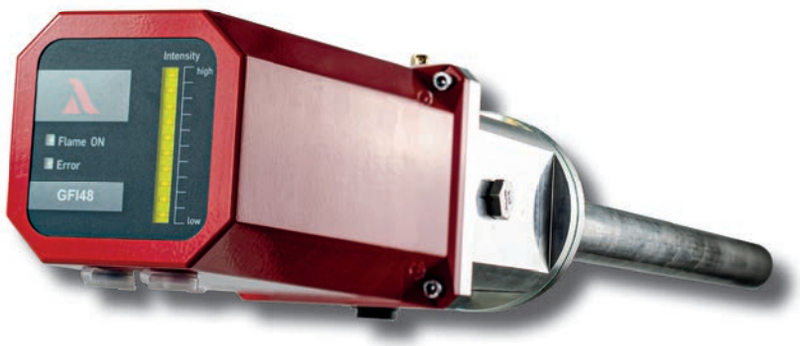
Version	Flame length with propane
GFI 70	approx. 2,000 mm / 6.56 ft



Version	Flame length with natural gas
GFI 70	approx. 1,200 mm / 3.94 ft

GFI product range.

- GFI with film display
- GFI without film display



GFI with film display

The GFI product range is used for the following purposes:

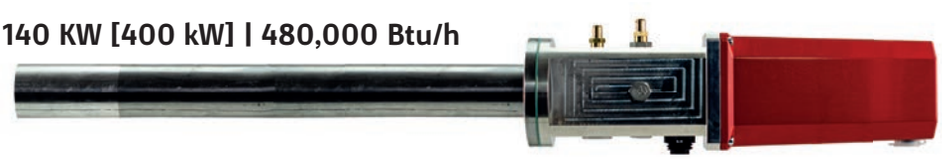
- Igniting the main burner (primary use)
- Preheating the plant
- Supporting the main burner flame

Thermal power range

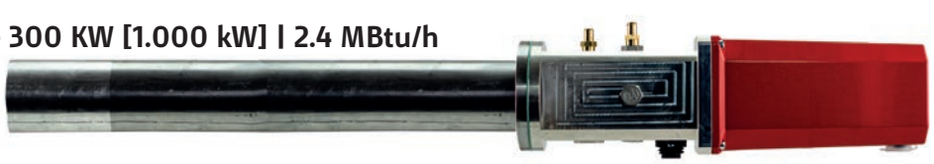
GFI 35, 25 KW - 57 KW | 190,000 Btu/h



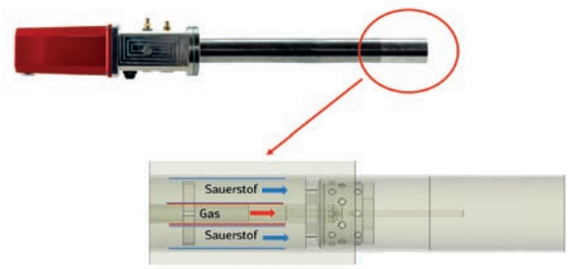
GFI 48, 70 KW - 140 KW [400 kW] | 480,000 Btu/h

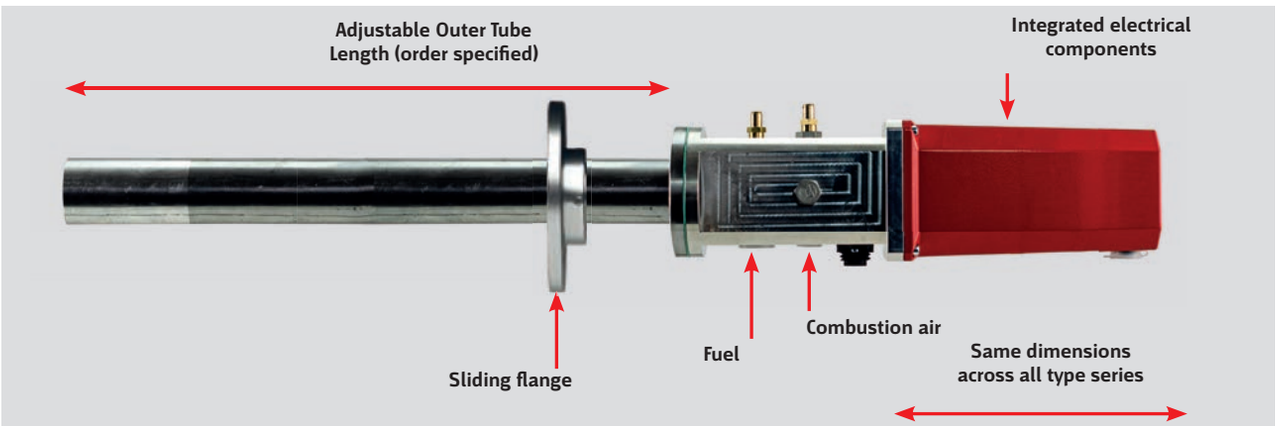


GFI 70, 150 KW - 300 KW [1.000 kW] | 2.4 MBtu/h



The pilot burner operates in accordance with the forced-air and nozzle-mixing principle.





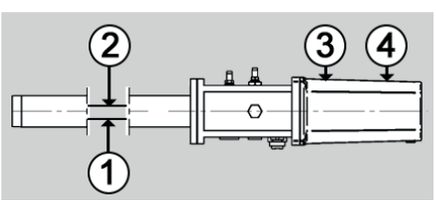
Equipment of GFI35/48/70 pilot burner.

Common technical data

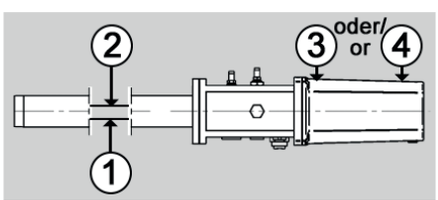
The electrical data are identical for all devices, only the air and gas volume flows differ.

Equipment

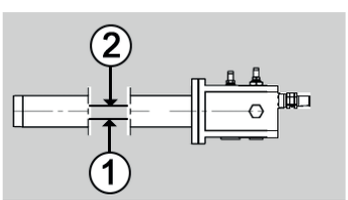
With respect to their electrical equipment, GFI pilot burners **and the external power unit** are available in 3 versions. The versions differ as follows:



Pilot burner, Type A



Pilot burner, Type B



Pilot burner, Type C C Safe Area or Ex Zone I

Equipment	Version A (standard)	Version B	Version C
1 Ignition electrode	✓	✓	✓
2 Ionisation electrode	✓	✓[2]	✓[2]
3 Spark igniter	✓	✓	
4 Flame scanner (IFM)[1]	✓		
5 Film display	✓[2]		

[1] IFM = Ionisation Flame Monitoring

[2] Optional

GFI35 pilot burner for safe area.

Technical data

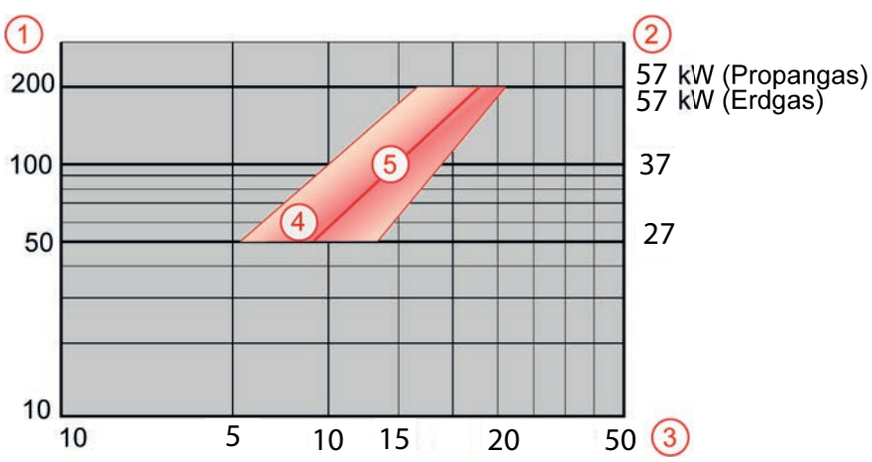


Side view of the GFI35 pilot burner, Type C (Safe Area) and Types A/B

Order no.	646R0035
Tube diameter	35 mm x 2 mm / 1.38” in x 0.08” in
Mounting flange	Sliding flange (e.g. DN 50, PN 6)
Thermal rating*	27 kW - 57 kW
Flame length	Up to 320 - 600 mm / 12.60” in x 23,62” in
Gas connection	$G^3/_8$“
Gas volume flow	2.6 - 5.8 Nm^3/h
Air connection	$G^3/_4$“
Air volume flow	7.2 - 12.6 Nm^3/h (at 15 mbar) for maximum thermal rating, lower volumetric flow at reduced output, additional air required for superstoichiometric combustion must be provided by the combustion chamber.

* At International Standard Atmosphere, ISA: 15 °C / 59 °F, 1013.25 hPa

Adjusting the GFI 35 flame quality and flame stability



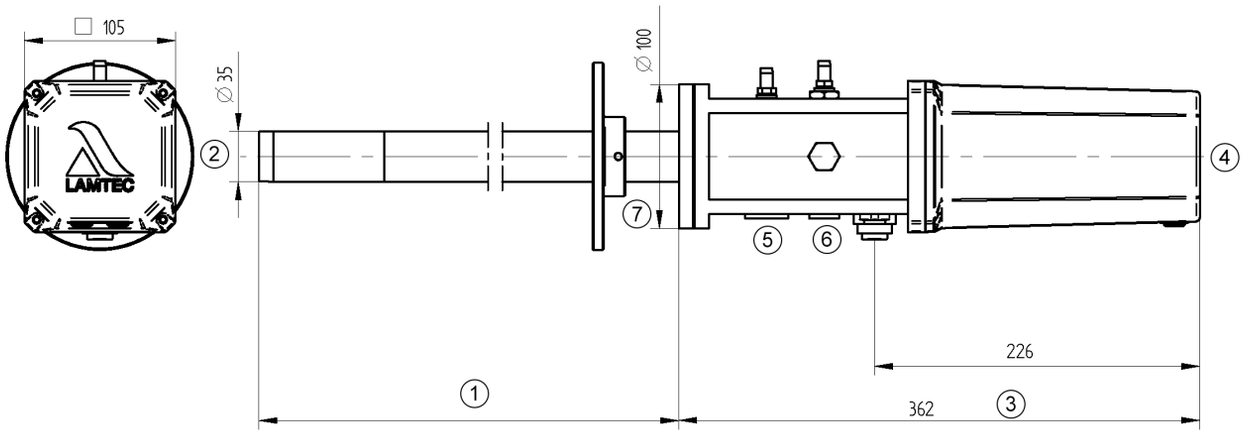
1 **Gas pre-pressure [mbar]**

2 **Thermal power in [kW]**

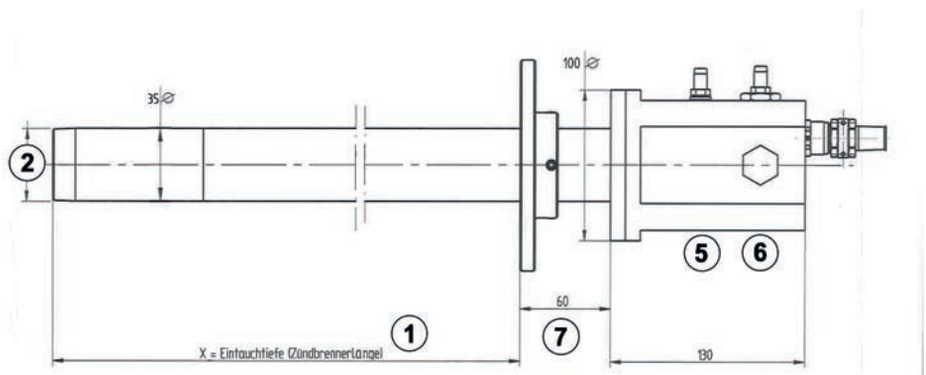
3 **Air volume flow [m^3/h]**

4 **Stability field in free self-sustaining combustion**

5 **Ideal curve**



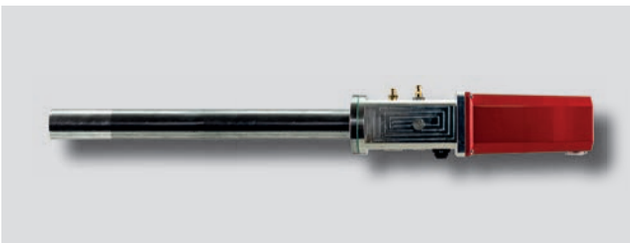
Dimensions of GFI35 pilot burner, Type A/B



Dimensions of the GFI35 pilot burner, Type C, Safe Area

GFI48 pilot burner for safe area and Ex zone 2.

Technical data



Side view of the GFI48 pilot burner, AB Type



Side view of the GFI48 pilot burner, Ex Zone 2

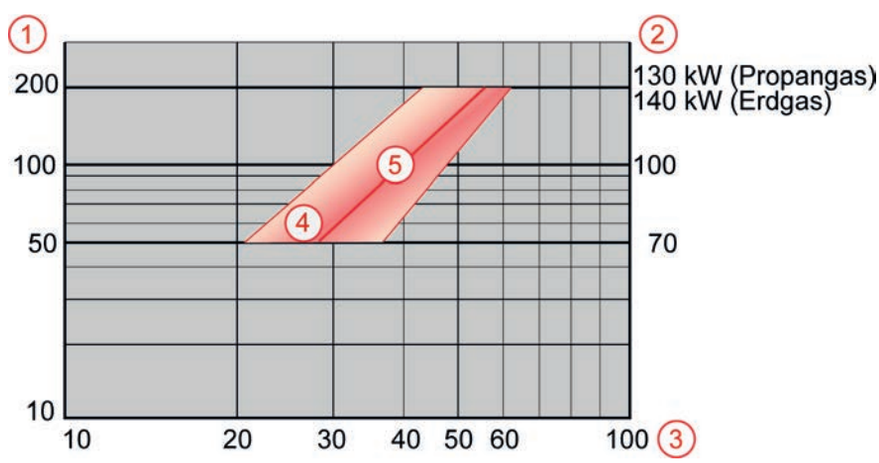


Side view of the GFI48 pilot burner, Type C, Safe Area

Order no.	646R0048
Tube diameter	48.3 mm x 2 mm / 1.90” in x 0.08” in
Mounting flange	Sliding flange (e.g. DN 50, PN 6)
Thermal rating*	70 kW - 130 kW (propane) 70 kW - 140 kW (natural gas)
Flame length	Up to 800 mm / 31.5” in
Gas connection	1/2“ BSPP inner threads
Gas volume flow	15 Nm^3/h natural gas (at 200 mbar) 6 Nm^3/h propane (at 200 mbar)
Air connection	1“ BSPP inner threads
Air volume flow	60 Nm^3/h (at 15 mbar) for maximum thermal rating, lower volumetric flow at reduced output, additional air required for superstoichiometric combustion must be provided by the combustion chamber.

* At International Standard Atmosphere, ISA: 15 °C / 59 °F, 1013.25 hPa

Adjusting the GFI 48 flame quality and flame stability



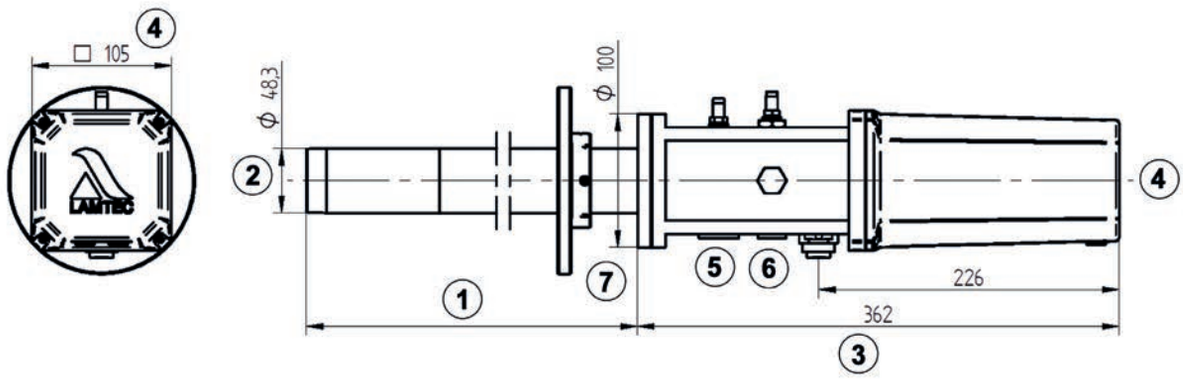
1 **Gas pre-pressure [mbar]**

2 **Thermal power in [kW]**

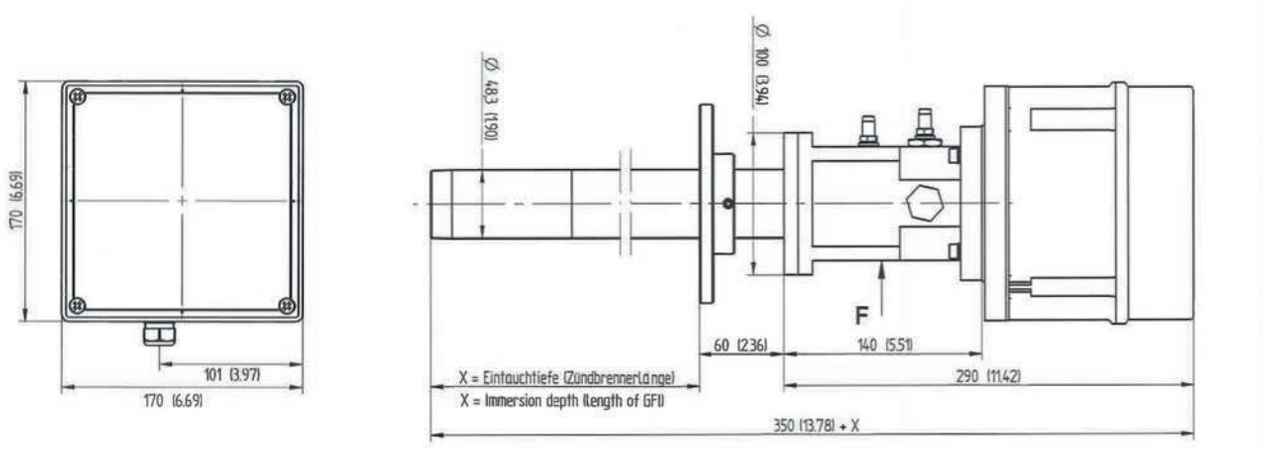
3 **Air volume flow [m^3/h]**

4 **Stability field in free self-sustaining combustion**

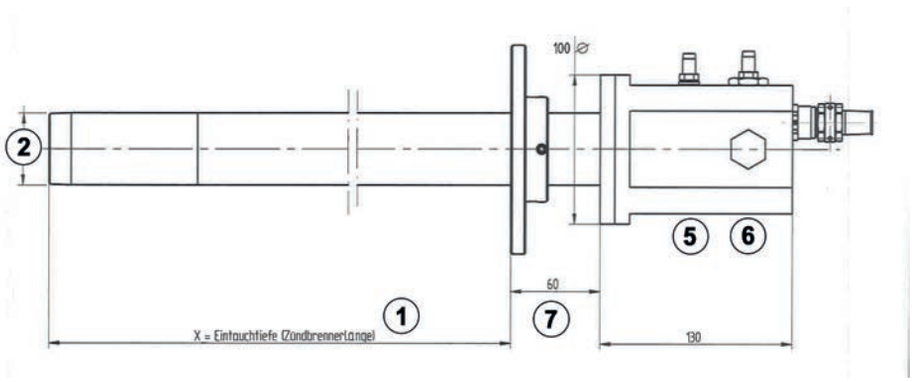
5 **Ideal curve**



Dimensions of the GFI48 pilot burner, AB design



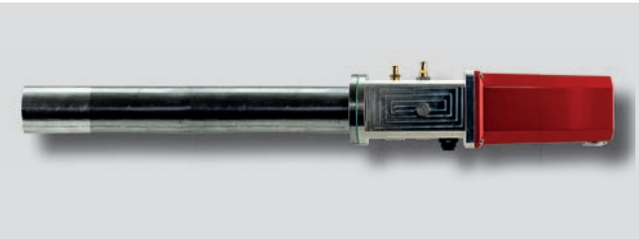
Dimensions of the GFI48 pilot burner for Ex Zone 2



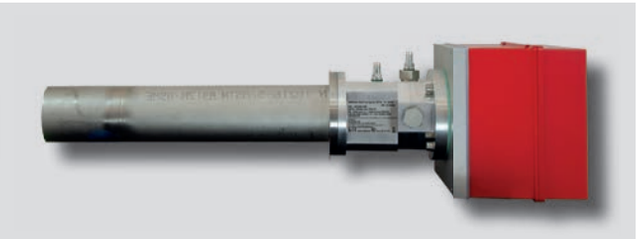
Dimensions of GFI48 pilot burner design C Safe Area

GFI70 pilot burner for safe area and Ex zone 2.

Technical data



Side view of the GFI70 pilot burner, AB version



Side view of the GFI70 pilot burner, Ex Zone 2

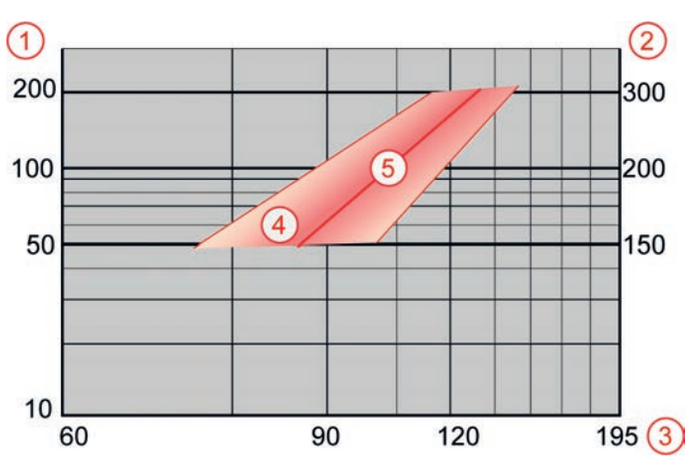


Side view of the GFI70 pilot burner, Type C, Safe Area

Order no.	646R0070
Tube diameter	70 mm x 2 mm / 2.76” in x 0.08” in
Mounting flange	Sliding flange (e.g. DN 65, PN 6)
Thermal rating*	150 kW - 300 kW
Flame length	Up to 1,200 mm / 3,94 ft
Gas connection	3/4“ BSPP inner threads
Gas volume flow	30 Nm^3/h natural gas (at 200 mbar) 12 Nm^3/h propane (at 200 mbar)
Air connection	1 1/2“ BSPP inner threads
Air volume flow	125 Nm^3/h (at 12 mbar) for maximum thermal rating, lower volumetric flow at reduced output, additional air required for superstoichiometric combustion must be provided by the combustion chamber.

* At International Standard Atmosphere, ISA: 15°C / 59 °F, 1013.25hPa

Adjusting the GFI 70 flame quality and flame stability



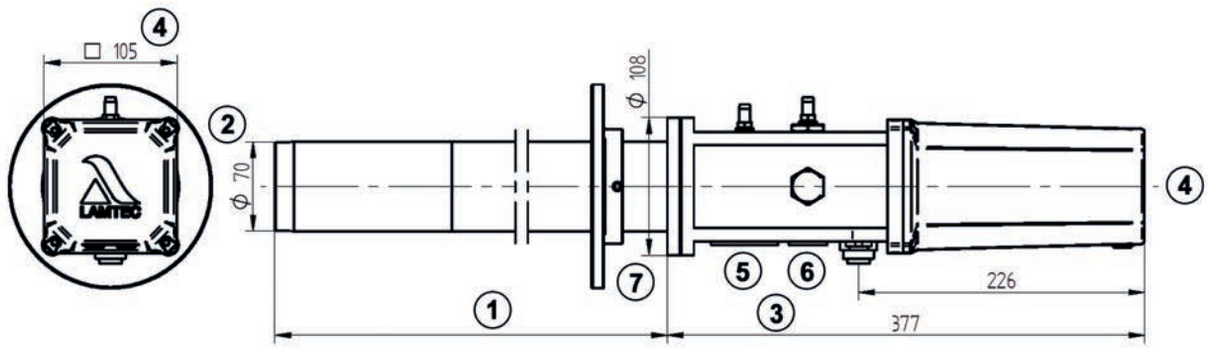
1 Gas pre-pressure [mbar]

2 Thermal power in [kW]

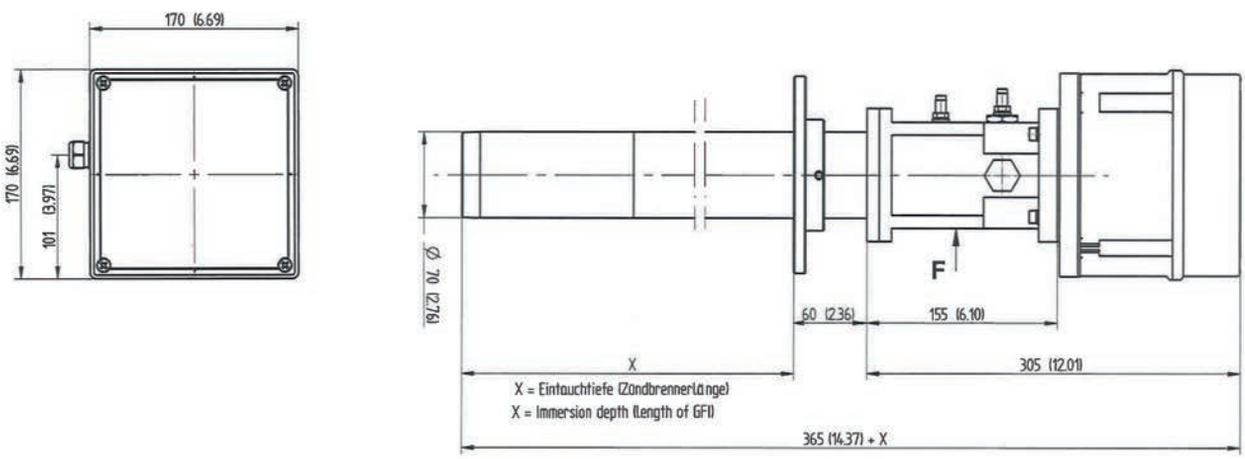
3 Air volume flow [m^3/h]

4 Stability field in free self-sustaining combustion

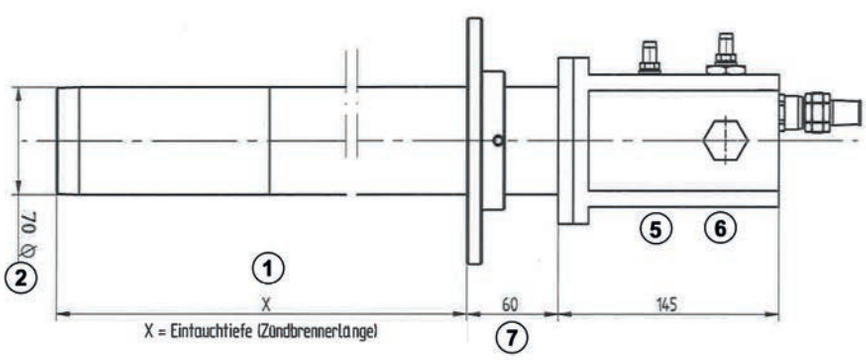
5 Ideal curve



Dimensions of the GFI70 pilot burner, AB version



Dimensions of the GFI70 pilot burner for Ex Zone 2



Dimensions of the GFI70 pilot burner, Type C, Safe Area

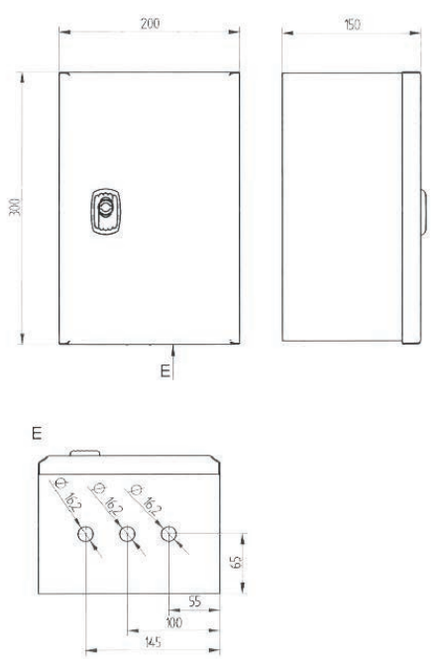
External power unit, safe area.

Technical data



External power unit, safe area

Order no.	646R0500...SAF
Material	Steel, painted RAL7035
Cable lengths	IP66
Temperature range	-20 ... +60 °C / -4 °F ... 140 °F



Dimensions external power unit safe area

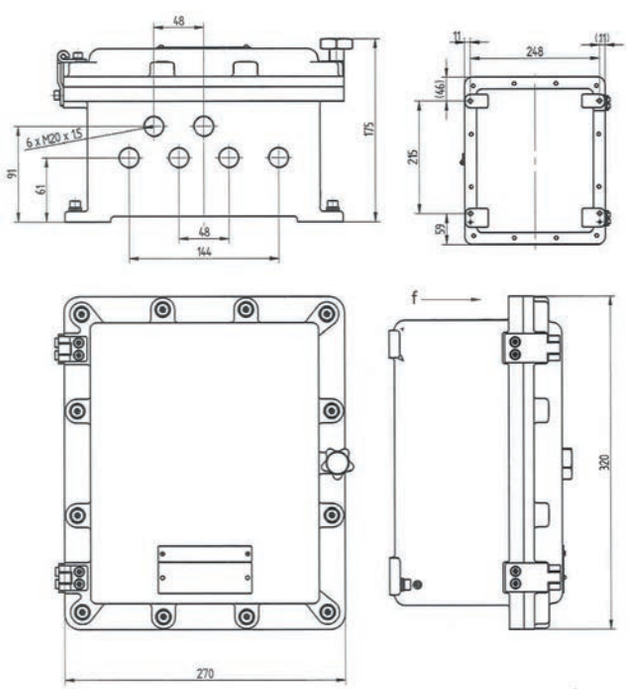
External power unit for Ex zone 1.

Technical data



External power unit for Ex zone 1

Order no.	646R0500...Ex 1
Explosion protection	II 2 G Ex db IIB + H2 T6/T5 Gb II 2 D Ex tb IIIC T80 °C...T95 °C Db
Material	Copper-free aluminium, stainless steel 1.4404/316
Certificates / test certificates Certificate holder Rose Systemtechnik	ITS 15 ATEX 18302X, IECEx ITS 15.0041X
Protection class	IP 66 in accordance with EN 60529
Impact resistance	7 joules in accordance with EN 60079-0
Temperature range	-20 ... +60 °C / -4 °F ... 140 °F
Design	For Ex zone 1 & variant with external power unit
With standard threaded connection	-20 °C ... +80 °C / -4 °F ... 176 °F
With Ex 1 conduit threaded connection	-40 °C ... +80 °C / -40 °F ... 176 °F



Dimensions external power unit for Ex-Zone I

GFI35/48/70 pilot burner.

Common technical data

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
GFI48/70	Two-electrode operation

Design A and B

Auxiliary power/device supply	
Power supply voltage	Factory setting 230 VAC +10 % -15 % or 120 VAC +10 % -20 %
Mains frequency	47 Hz ... 63 Hz
Power consumption	≤ 7,5 VA (integrated flame scanner F120I Z) 92 VA (ignition transformer)
Device fuse F120I Z internal, replaceable	32 m AT for 230 V device 64 m AT for 120 V device
Integrated flame scanner - Ionisation input	
Ionisation voltage	390 V
Ionisation current	Flame ON from 2 µADC ± 10 %, theoretical max. approx. 70 µADC
Single-electrode operation	Spark igniter type max. 5 kV, 15 mA loss of voltage at ION input, against grounding approx. 100 V
Connection cable for the ionisation electrode	Possible length: normally max. 100 m I 328 ft, in special cases max. 300 m I 984 ft (under favourable conditions) (Note! The possible cable length depends on the attenuation properties of the cable used in connection with the depends on the high resistance of the individual flame. For a stable flame detection the minimum sensor current should not be undercut!)
Integrated flame scanner - Digital outputs	
Output 'flame signal'	Relay contact
Contact type	Safety-oriented, floating contact NO, for 'flame ON' the contact is closed
Protection class	Safe disconnection (SKII)
Switching voltage/switching current	230 VAC/250 mA, 120 VAC/250 mA, 24 VDC/100 mA
Contact fuse (internal, soldered)	0,5 AT
Min. switching current	2 mA
Safety time (FFDT) response time in the event of flame failure	t_VOff ≤ 1 s (setting 1 s) t_VOff ≤ 3 s (setting 3 s) t_VOff ≤ 5 s (setting 3 s at 5 s Variante)
Switch-on time (flame detection)	t_VOn ≤ 0,7 s (setting 1 s) t_VOn ≤ 1,5 s (setting 3 s) t_VOn ≤ 3,0 s (setting 3 s for 5 s variant)

GFI35/48/70 pilot burner.

Common technical data

Integrated flame scanner - Digital outputs	
Switching the flame relay without load	
Cable type	when restart > 30 s A load-free switching of a flame relay in accordance with DIN EN 60730-2-5 is performed if, after the flame signal has dropped, the ionisation current returns after > 30 s.
Output 'Flame ON'	electronically, digital (status signal)
Contact	Open Drain, switch NO
Electrical safety by	PELV (SK III)
Reference potential	Device GND (connection at X14/3, F120I Z X3/3)
Switching voltage	max: 24 VDC +20 %
Fuse, internal	20 mA self-resetting, at +70 °C | +158 °F
Integrated flame scanner - Analogue outputs	
Output current loop "ionisation current"	electronically, analogue
Current	4 ... 20 mA
Electrical safety by	PELV (SK III)
Load	max. 250 Ω
Basic error	≤10 % via measuring range
Integrated flame scanner - Technical capacity	
Connection cross section	flexible 1,5 mm² | AWG 16 rapid 1,5 mm² | AWG 16
Mode of operation	Continuous operation
Operating altitude above sea level	≤ 3.500 m NHN
Safety integrity level	DIN EN 61508 Teil 2 - SIL 3
Overvoltage category	DIN EN 60730-1, ÜK III
Susceptibility to interference	DIN EN 298
Emitted interference	DIN EN 55022, class B
Integrated spark igniter	
Secondary voltage RMS	1 x 5 kV
Secondary peak voltage	7,07 kV
Secondary current	15 mA
max. switching time	6,25% for 4 minutes (15" ON; 3' 45" OFF)

Design C

Connection of external flame scanner to the ionisation electrode		
Ionisation cable specifications		
Cable type	RG62 coaxial cable	
Cable lengths	< 10 m I 32,8 ft	
Inner conductor	solid copper-plated steel wire, uninsulated Ø: 0.64 ± 0.025 mm I 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 I 0.14 in	
Shield	braided from bare Cu wires, 96 % coverage (nominal value)	
Outer shell	PVC, black outside diameter: 6.15 ± 0.18 mm I	
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 I -40 ... 176 °F (fixed installation)	
Connection of external ignition transformer to the ignition electrode		
Specification of ignition Cable		
Cable lengths	max. 20 m I 66 ft	
Cable cross-section	1 x 1.0 mm^2 I 3 x 17 AWG	
Isolation	Silicone, red-brown	
Temperature range	-40 ... +180 °C I -40 ... 356 °F	
Grounding cable		
Specification of grounding cable		
Cable lengths	max. 200 m I 656.168 ft	
Cable cross-section	1 x 1.5 mm^2 I 1 x 16 AWG or according to regional regulations	
Operating condition		
Relative humidity	3K5, 5 % ... 95 % according to DIN EN 60721-3-3	
Environmental Conditions		
Operation	Permissible temperature range	-20 ... +65 °C I -4 ... +149 °F Ex-Zone 2:-20 ... +60 °C I -4 ... +140 °F
Transport	Permissible temperature range	-20 ... +65 °C I -4 ... +149 °F
Storage	Permissible temperature range	-20 ... +65 °C I -4 ... +149 °F
Degree of protection	DIN EN 60529	IP65 / NEMA 4 / NEMA 4X

GFI Comparison Table			
	GFI35	**GFI48**	**GFI70**
Ignition	Ignition of the main burner with the aid of natural gas, LPG, coke gas. Can ignite any type of gas as well as Light Fuel Oil (LFO) or Heavy Fuel Oil (HFO)		
Area of application	Safe area	Safe area + Ex zone1, Ex zone 2 + ATEX, IECEx	
Tube diameter (mm)	35 x 2	48.3 x 2	70 x 2
Thermal rating (kW)	propane 27 ... 57 natural gas 25 ... 57 hydrogen 15 ... 52	natural gas 70 - 140 propane 70 - 150 hydrogen 45 ... 100	propane 150 ... 300 natural gas 150 ... 300 hydrogen – not available
Flame length up to (mm)	320 - 600	800	1,200
Gas volume flow 200 mbar (Nm^3/h)	2.6 - 5.8	natural gas 15 /propane 6	natural gas 30 / propane 12
Sliding flange DN - PN	50 - 6	50 - 6	65 - 6

Accessories and spare parts for GFI pilot burners

- Thermal jacket for GFI pilot burners
- High-pressure needle valve for GFI pilot burners
- Ball valve for GFI pilot burners
- Double nipple for GFI pilot burners
- Air regulation sleeve for GFI pilot burners
- Manometer for GFI pilot burners
- Feed-through flange with seal and screws
- F130I flame scanner
- Inspection diode for GFI
- Transformer for GFI pilot burners



Thermal jacket for GFI pilot burners



High-pressure needle valve for GFI pilot burners



Ball valve for GFI pilot burners



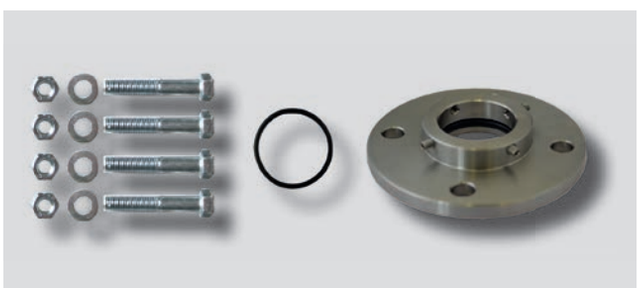
Double nipple for GFI pilot burners



Air regulation sleeve for GFI pilot burners



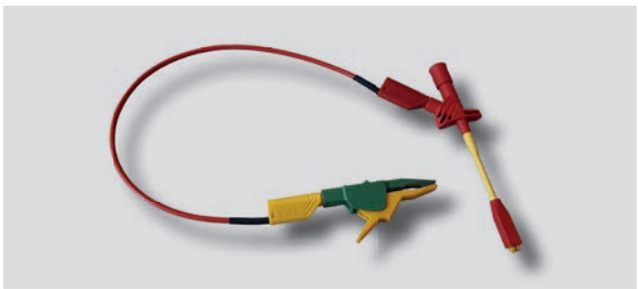
Manometer for GFI pilot burners



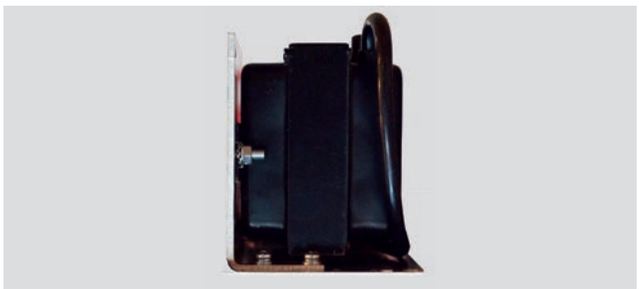
Feed-through flange with seal and screws



Flame scanner F120I



Inspection diode for GFI



Transformer for GFI pilot burners

Order information

Spare parts for GFI35

Designation/type	Selection
Ionisation and ignition electrodes with spacer and centring holder for the electrode rods	646R4115
Spacer and centring holder with insulator for the electrode rods	646R4116
Flame stabiliser, material 1.4301/1.4305	646R4100
Nozzle for natural gas	646R4105
Nozzle for propane	646R4106

Spare parts for GFI48

Designation/type	Selection
Ionisation and ignition electrodes with spacer and centring holder for the electrode rods	646R1115
Spacer and centring holder with insulator for the electrode rods	646R1116
Flame stabiliser, material 1.4301/1.4305	646R1100
Nozzle for natural gas	646R1105
Nozzle for propane	646R1106

Spare parts for GFI70

Designation/type	Selection
Ionisation and ignition electrodes with spacer and centring holder for the electrode rods	646R2115
Spacer and centring holder with insulator for the electrode rods	646R2116
Flame stabiliser, material 1.4301/1.4305	646R2100
Nozzle for natural gas	646R2105
Nozzle for propane	646R2106

Spare parts for GFI48/GFI70

Designation/type	Selection
Ignition transformer single- and dual-electrode operation, 230 V, 50 Hz, 0, 1 × 5 kV	646P1031
Ignition transformer single- and dual-electrode operation, 120 V, 50 Hz, 0, 1 × 5 kV	646P1032
Ionisation flame monitoring F120I Z, SIL3, 230 VAC pilot burner circuit board	659G2101
Ionisation flame monitoring F120I Z, SIL3, 120 VAC pilot burner circuit board	659G2102

Sliding flange for GFI48/GFI70

Designation/type	Selection
GFI35 sliding flange DN40 PN6, 1.4571	646R4151
GFI48 sliding flange with O-ring seal and grub screws, DN50 PN6, 1.4571 (4 mounting holes)	646R1151
GFI48 special sliding flange with O-ring seal and grub screws, 1.4571 (2 mounting holes)	646R1152
GFI70 sliding flange with O-ring seal and grub screws, DN65 PN6, 1.4571 (4 mounting holes)	646R2151

Connection cable for GFI48/GFI70

Designation/type	Selection
Connection cable with mating connector for plug connection, length 2 m	646R0150
Mating plug (straight) without connecting cable	646P1082
Mating plug (90° angled) without connecting cable	646P1085

General accessories for GFI48/GFI70

Designation/type	Selection
Double nipple 3", material: 1.4408	646R9001
Double nipple 1" external/external, stainless steel	646R9015
Double nipple R1 1/2" external/external, stainless steel	646R9016
Double nipple R1 3/4" external/external, stainless steel	646R9014
Double nipple R1 2" external/external, stainless steel	646R9017
Hexagon reducing double nipple NPT 3/4" on R 1/2", material: 1.4571	646R9030
Hexagon reducing double nipple NPT 11/4" on R 1", material: 1.4571	646R9031
Reducer, conical R 1/2 A X G 3/4 I MS.nickel-plated	646R9032
Stainless steel manometer 0 ... 160 mbar, housing Ø 63 mm, connection G1/8“ vertical	646R9040
Sliding nipple with O-ring seal and 3" external thread, 1.4301, for GFI48	646R9055
Needle valve 1 1/4" NPT internal thread, material 1.4571	646R9058
Needle valve 3/4" NPT internal thread, material 1.4571	646R9059
Ball valve for gas 1/2" internal/external, with DVGW approval, brass	646R9060
Ball valve for gas 3/4" internal/external, with DVGW approval, brass	646R9061
Ball valve for gas 1 1/2" internal/external, with DVGW approval, brass	646R9062
Ball valve for gas 2" internal/external, with DVGW approval, brass	646R9063
Ball valve (Mini) Ballofix for gas 3/4" internal/external, brass	646R9065
Ball valve (stainless steel) 3" internal/internal with lever, DN80	646R9069
Air regulation sleeve 1" internal/internal, black cast iron	646R9102
Air regulation sleeve 1 1/2" internal/internal, black cast iron	646R9103
Air regulation sleeve 3/4" internal/internal, black cast iron	646R9104
Air regulation sleeve 2" internal/internal, black cast iron	646R9105
Inspection diode for GFI	646R0100

High Energy Igniter.

BASIC HEI500 and High-End HEI600

The non-fuel-based high energy igniter is used for the following applications:

- oil and gas
- petrochemicals
- chemicals

It is used for the following purposes:

- ignition of the main fuel

Application

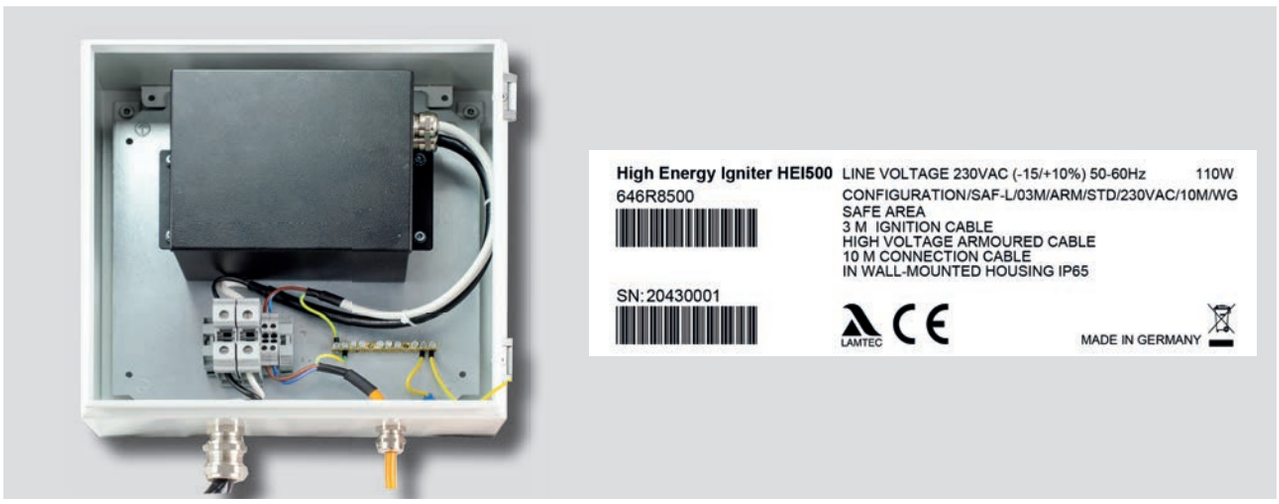
- Ignites liquid and gaseous fuels in burners of all output ranges.
- Compact design: control unit and ignition lance form one unit
- 100% watertight
- Suitable for Class 3 specifically in accordance with NFPA 8501/8502 for electrical ignition devices
- Available for danger areas
- High-intensity sparks even with long ignition lances



External steel housing High-energy igniters HEI600 and HEI500

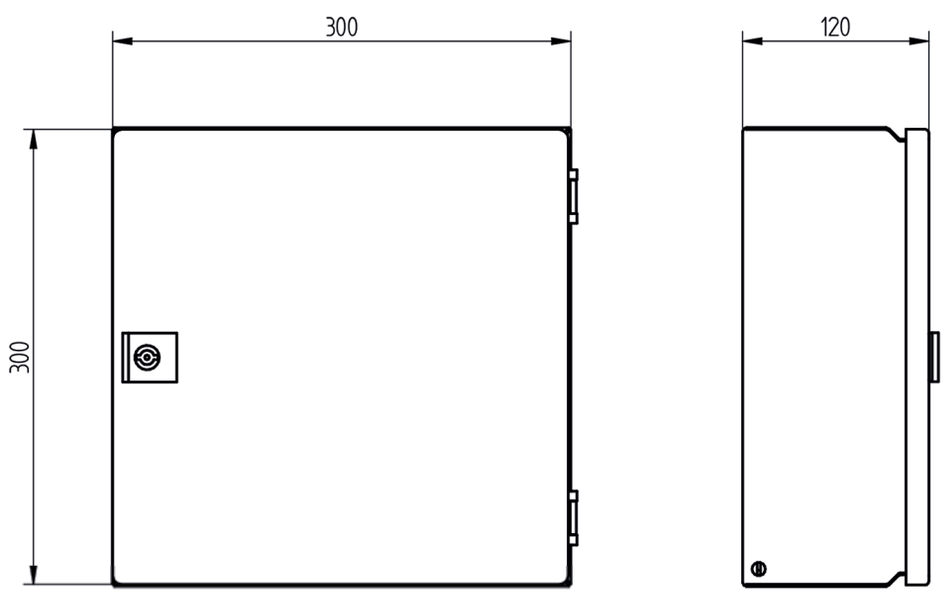
BASIC HEI500.

Technical data



External steel housing inside view High-energy igniter HEI500

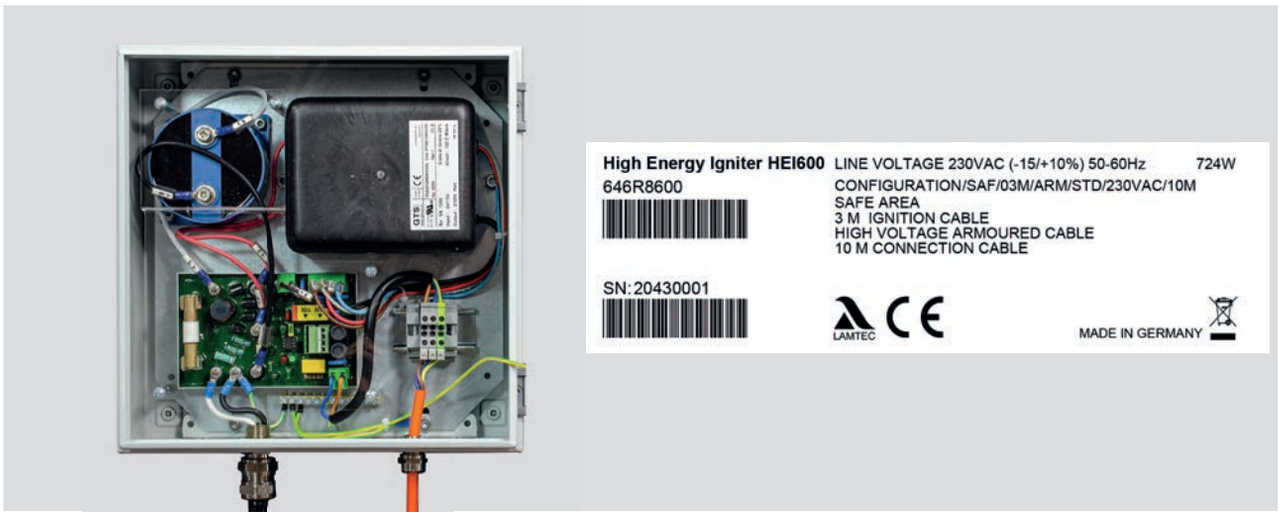
Order no.	646R8500
Ignition power	18 joules
Ignition frequency	2 Hz
Power supply voltage	115/230 VAC 50 Hz (60 Hz on request)
Ambient temperature	-40 °C ... +60 °C / -40 ... 140 °F
Input power	110 W (at 2 sparks per second)
Explosion protection	Ex zone II available for electrical power unit
Protection class	IP65



Dimensions of the external steel housing HEI500

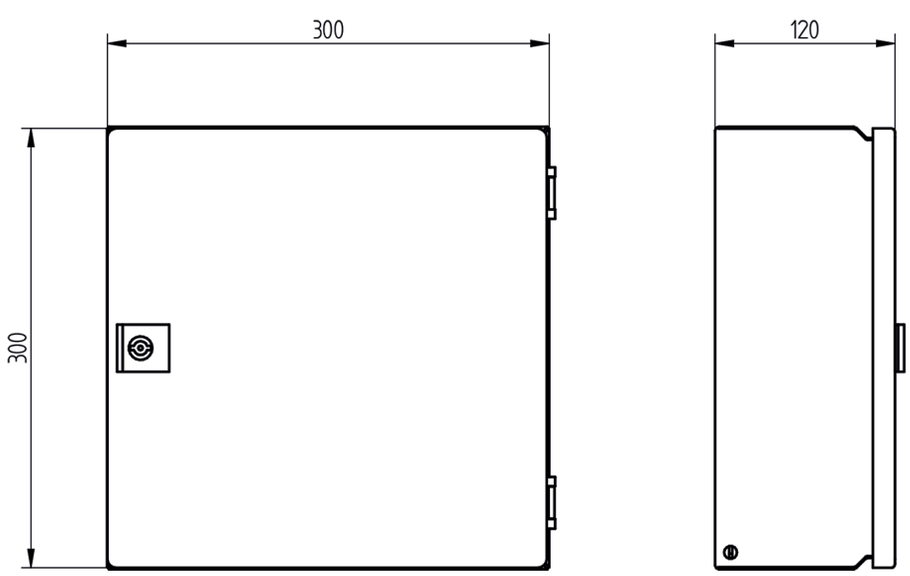
High-End HEI600.

Technical data



External steel housing inside view High-energy igniter HEI600

Order no.	646R8600
Ignition power	10 joules
Ignition frequency	26 Hz
Power supply voltage	115/230 VAC 50 Hz (60 Hz on request)
Ambient temperature	-40 °C ... +60 °C / -40 ... 140 °F
Input power	724 W (at 26 sparks per second)
Explosion protection	Ex zone II available for electrical power unit
Protection class	IP65/66



Dimensions of the external steel housing HEI600

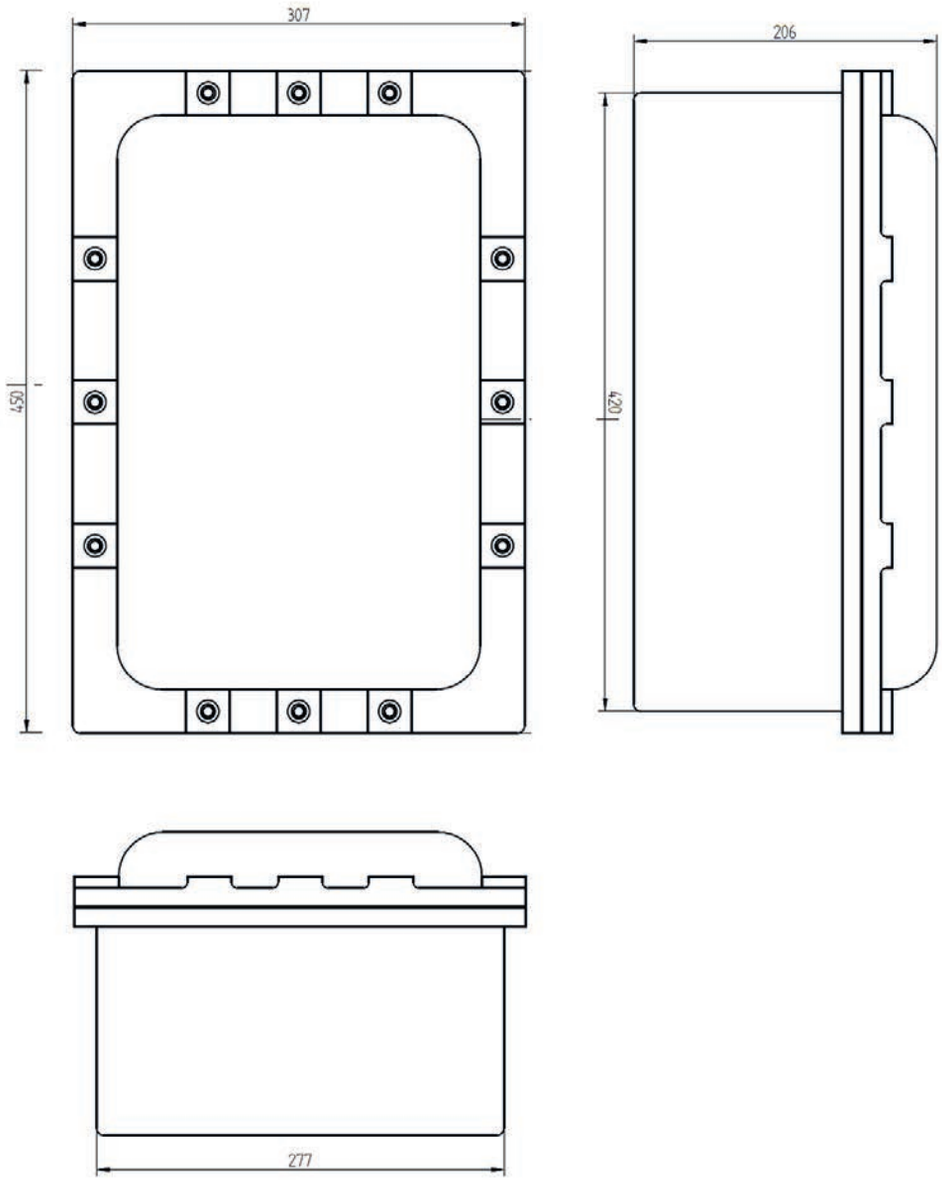
High-End HEI600 Ex zone 2.

Technical data



High energy igniter HEI600 Ex-Zone 2

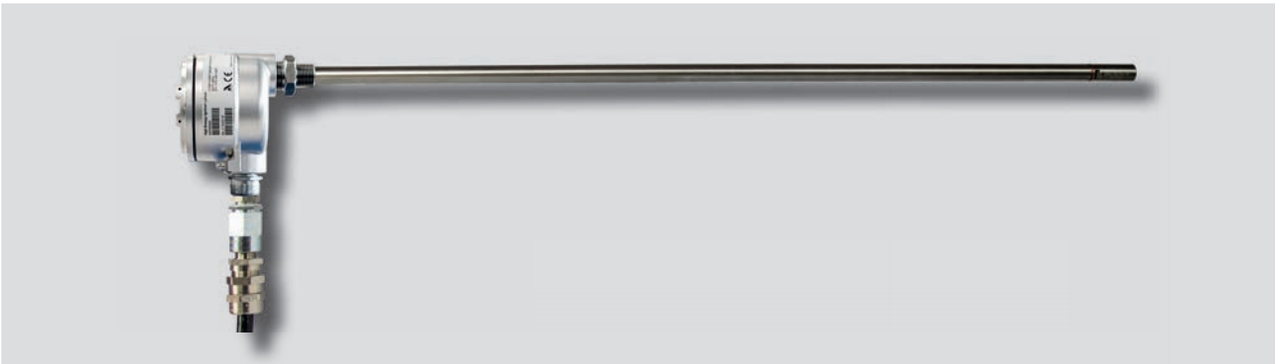
Order no.	646R8xxx
ATEX marking	II3G Ex db IIB+H2 T4 Gc
Ambient temperature	-20 °C ≤ Ta ≤ +60 °C / -40 ... 140 °F
Cross-section of the equipotential bonding conductor on both housings	4 mm² / 11 AWG
Protection class	IP65



Dimensions Ex-housing Zone 2

High-energy ignition lance.

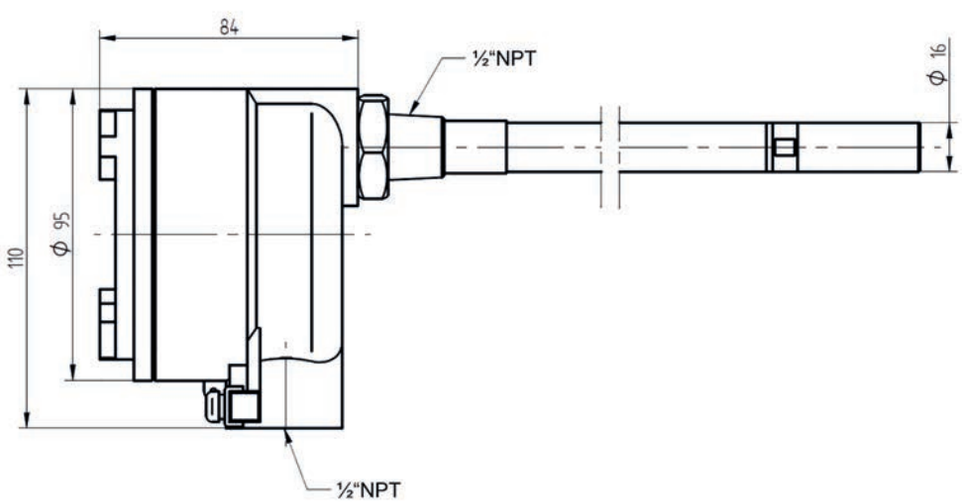
Technical data



Lance of the high energy igniter

Order no.	646R8550
Housing dimensions	See dimensional drawing
Available length	Up to 13 m* / 42,65 ft , minimum length: 300 mm / 11,81" in
Material of junction box	Aluminium (standard) Stainless steel (special)
Connection	2-wire Cross-section of the grounding cable: at least 1 x 1.5 mm² / 1 x 15 AWG
Max. counter-pressure from the combustion chamber	Standard: 1 bar Special: 9 bar
Max. permissible constant temperature at ignition tip	Standard: 720 °C / 1328 °F Special: 1000 °C / 1832 °F
Ambient temperature	-20 ... +60 °C / -4 °F ... 140 °F -40 °C / 104 °F optional
Protection class	IP65

* With excess lengths, the sections are partly rigid, partly flexible

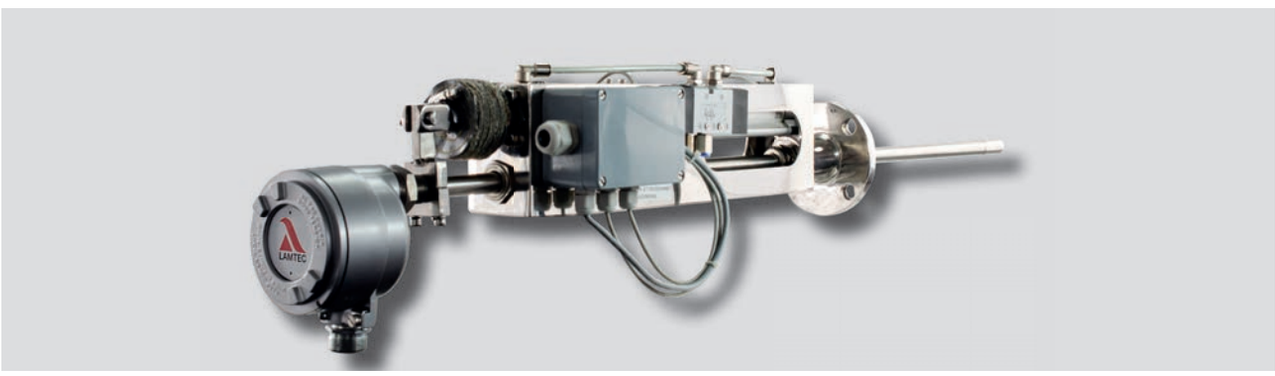


Dimensions of the ignition lance with aluminium connection box

Pneumatic retraction unit, safe area.

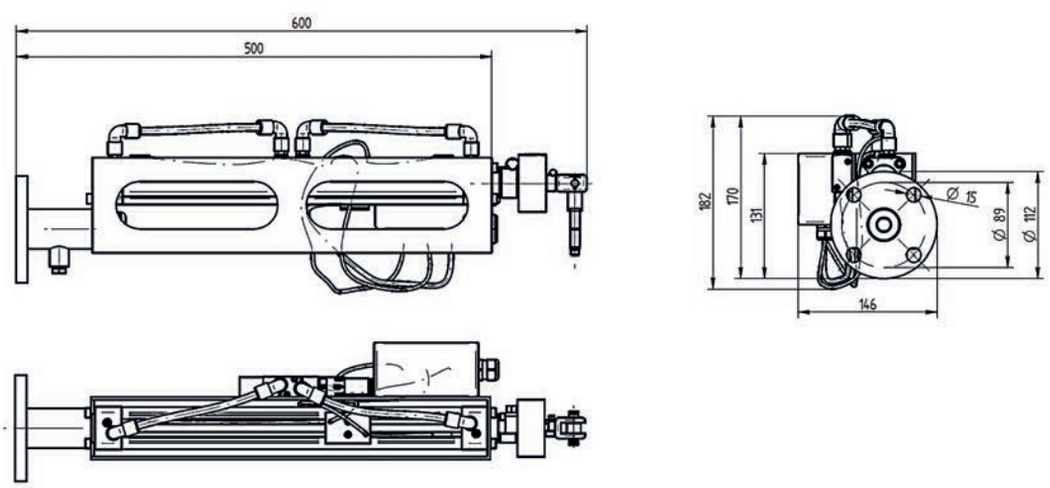
Use of the pneumatic retraction unit

- Ignition lance is constantly exposed to over 600 °C / 1,112 °F
- The ignition tip is exposed to a constant temperature of over 720 °C / 1328 °F (standard ignition tip)
- The ignition tip is exposed to a constant temperature of over 1000 °C / 1832 °F (special ignition tip)
- High degree of pollution in the combustion process



Pneumatic Retraction Unit for Safe Area

Order no.	646R8581 Safe Area
Housing dimensions	See dimensional drawing
Material	Cylinder: aluminium Junction box: fibreglass reinforced polyester (GRP)
Power supply	115 VAC, 230 VAC, 24 VDC
Max. possible equipment	5/3 directional control valve, magnetic switch, 2 limit switches, 2 final dampers
Stroke	320 mm / 12,60" in, 400 mm / 15,75" in , 500 mm / 19,69" in, 600 mm / 23,62" in
Ambient temperature	-5 ... +60 °C / 23 ... 140 °F
Protection class	IP65

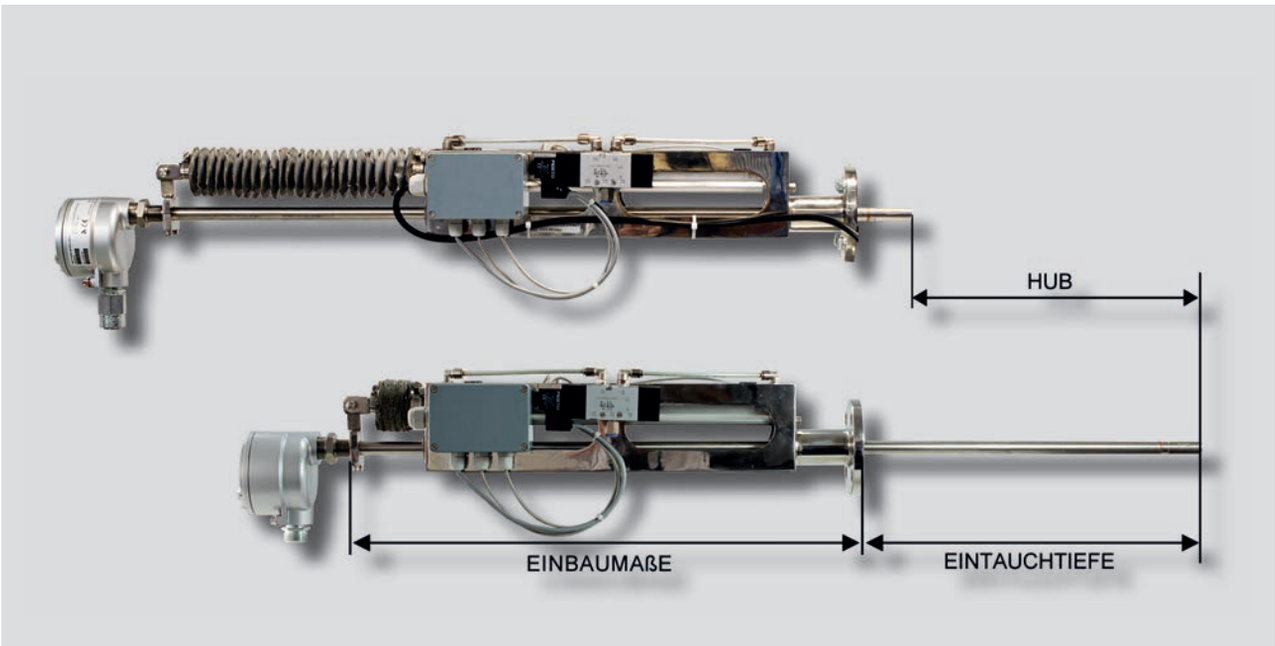


Dimensions Retraction Unit Safe Area

Pneumatic retraction unit, safe area.

Installation dimensions and stroke

The end-of-stroke attenuation can be adjusted by means of the adjusting screws on the cylinder.



Pneumatic Retraction Unit 646R8581 Stroke and mounting dimensions

Art.Nr.: 646R8581 Safe Area

Stroke	Installation dimensions	Minimum length of lance
320 mm / 12,60” in	600 mm / 23,62” in	1000 mm / 39,37” in
400 mm / 15,75” in	680 mm / 26,77” in	1100 mm / 43,31” in
500 mm / 19,69” in	780 mm / 30,71” in	1300 mm / 51,18” in
600 mm/ 23,62” in	880 mm / 34,65” in	1500 mm / 59,05” in

Art.Nr.: 646R8580 Ex Zone II

Stroke	Installation dimensions	Minimum length of lance
320 mm / 12,60” in	540 mm / 21,26” in	900 mm / 35,43” in

We recommend allowing a further 20 mm / 0,79” in for adjustment.
The ignition lance must never be shorter than the installation dimension of the retraction unit + the stroke dimensions.

Example, information provided by the customer:

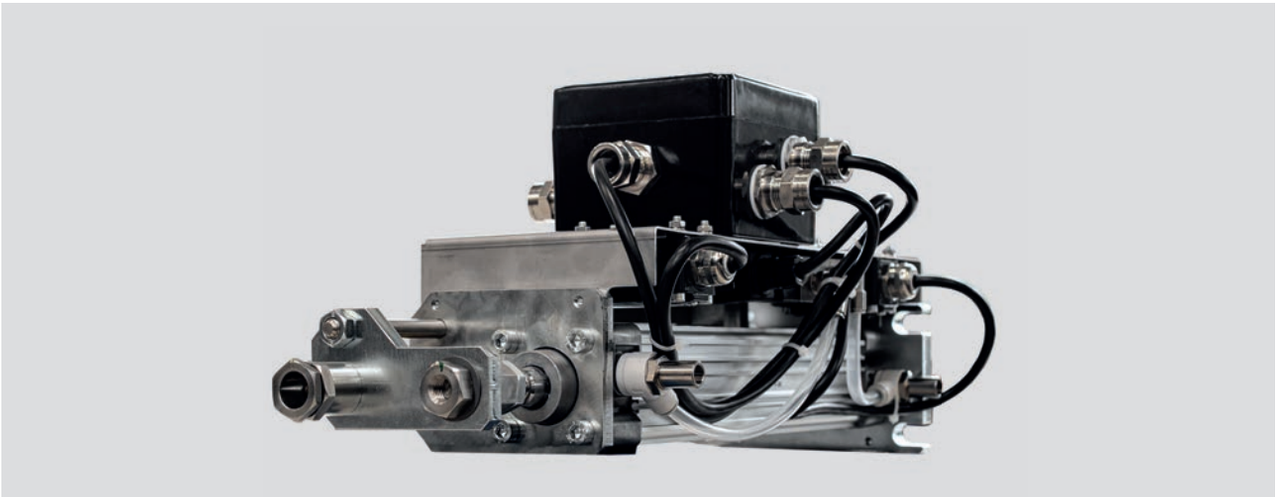
Lance = 1000 mm / 39,37” in
Stroke = 320 mm / 12,60” in

Solution:
1000 mm + 600 mm + (20 mm) = 1620 mm / 63,78” in

Customer receives the lance with a length of 1620 mm / 63,78” in!
The minimum lance length should be 1 m / 39,37” in.

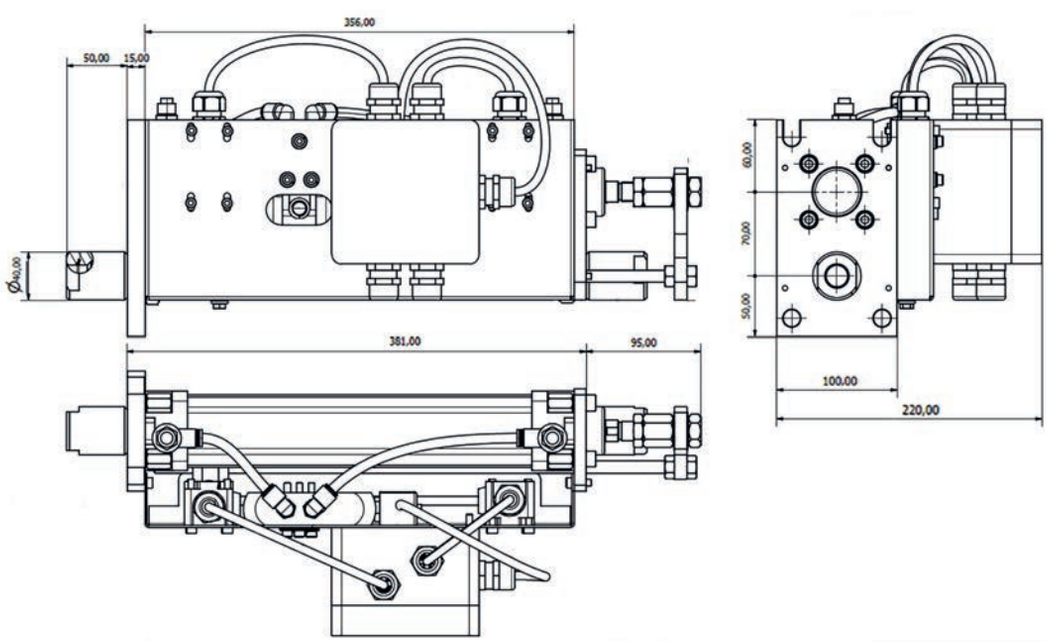
Pneumatic retraction unit Ex zone 2.

Technical data



Pneumatic Retraction Unit Ex Area II

Order no.	646R8580 Ex Zone II
Housing dimensions	See dimensional drawing
Material	Cylinder: aluminium Junction box: fibreglass reinforced polyester (GRP)
Power supply	115 VAC, 230 VAC, 24 VDC
Max. possible equipment	5/3 directional control valve, magnetic switch, 2 limit switches, 2 final dampers
Stroke	320 mm / 12,60” in, 400 mm / 15,75” in , 500 mm / 19,69” in, 600 mm / 23,62” in
Ambient temperature	-5 ... +60 °C / 23 ... 140 °F
Protection class	IP65

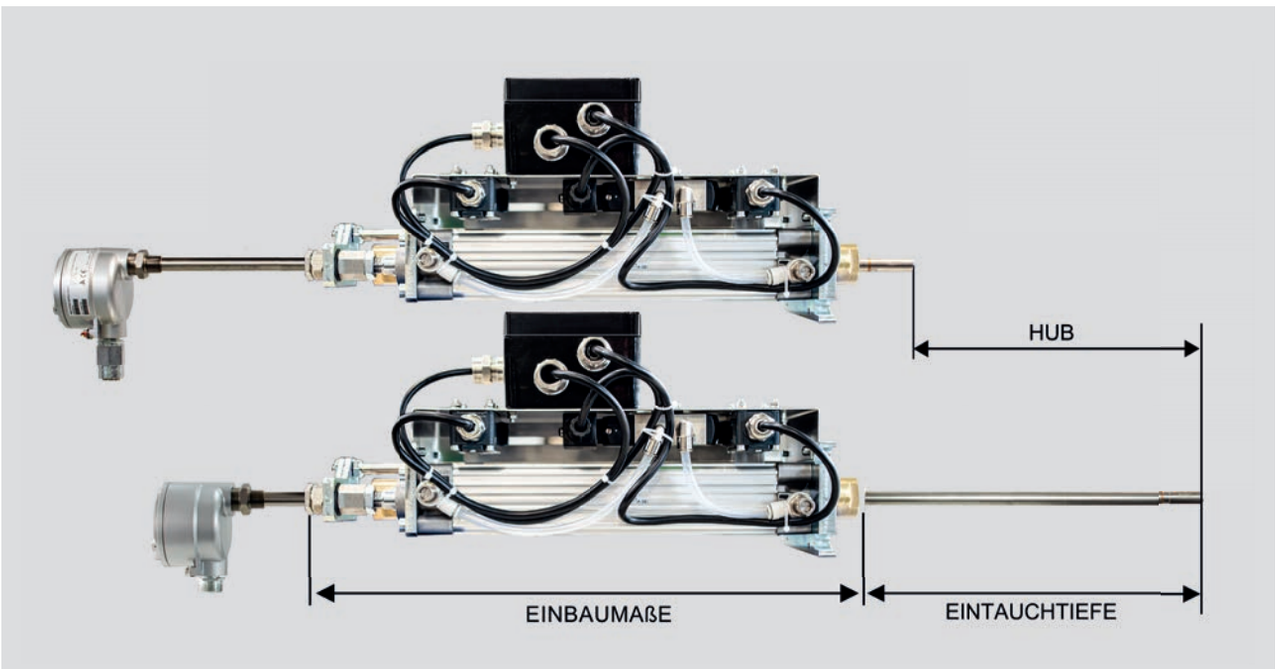


Dimensions Retraction Unit Ex Area II

Pneumatic retraction unit Ex zone 2.

Installation dimensions and stroke

The end-of-stroke attenuation can be adjusted by means of the adjusting screws on the cylinder.



Pneumatic Retraction Unit 646R8580 Stroke and mounting dimensions

Stroke	Installation dimensions
300 mm / 11,81” in	540 mm / 21,26” in

We recommend allowing a further 20 mm / 0,79” for adjustment.
The ignition lance must never be shorter than the installation dimension of the retraction unit + the stroke dimensions.

Example, information provided by the customer:

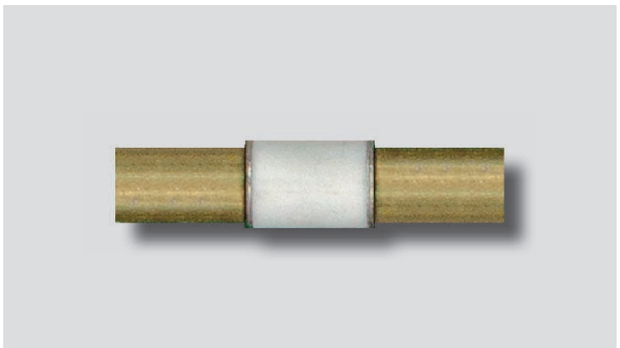
Lance = 1000 mm / 39,37” in

Solution:
1000 mm + 540 mm + (20 mm) = 1560 mm / 61,42” in

Customer receives the lance with a length of 1560 mm/ 61,42” in!
The minimum lance length should be 900 mm / 35,43” in.



Ignition tip ST/HT



Spark gap

High energy igniters, spare parts

Designation/type	Selection
Ignition tip, high energy igniter	646R8570
Ignition tip, high energy igniter HT	646R8571
Spark gap	646R8590

High energy igniters, accessories

Designation/type	Selection
Pneumatic retraction unit for the Ex zone	646R8580
Pneumatic retraction unit for the safe area	646R8581

Table, comparison of high energy igniters

	HEI500	**HEI600**
Energy [J]	18	10
Sparks/sec. (frequency) [Hz]	2	26
Ignition power/ sec. (max) [J]	36	260
Power supply	115/230 VAC 50 Hz (60 on request)	115/230 VAC 50 Hz (60 on request)
Ambient temperature	-20 ... +60 °C / -4 °F ... 140 °F	-20 ... + 60 °C / -4 °F ... 140 °F
Explosion protection	IP65 safe area	IP65/66 safe area
Fuels	Gas without moisture and contamination as LPG or LNG	All types of gas, LFO, HFO up to No. 6 Bunker C (HFO analysis required)

LAMTEC GmbH & Co. KG
Josef-Reiert-Straße 26
D-69190 Walldorf, Germany
Telephone: +49 (0) 6227 6052-0
Telefax: +49 (0) 6227 6052-57

info@lamtec.de
www.lamtec.de

Publication no. DLT7140-26-EN-003
Printed in Germany I Copyright © 2026 LAMTEC