



## System Overview

# LAMTEC Ignition and Pilot Burner GFI.

Sensors and systems for combustion engineering



[www.lamtec.de](http://www.lamtec.de)

# SIL 3 Flame Monitoring Device F130I.



CE 0085

2016/426 Gas Appliance Regulations (GAR)

Pressure Equipment Directive 2014/68/EU, CE0036

SIL 3 Confirmation, DIN EN 61508 Parts 1-7

Safety Protection Ex ec IIB+ H2 T4 Gc  
Certificate No. IECEx KIWA 20.0005X



PESO

# LAMTEC GFI Pilot Burner Series - A New Generation

Pilot burners are required for use on industrial furnaces and firing systems, for the safe ignition of main burners required. The standard version of the GFI series is equipped with an integrated ignition transformer, ionization electrode and SIL3 certified, EC Type approved ionization flame detector.

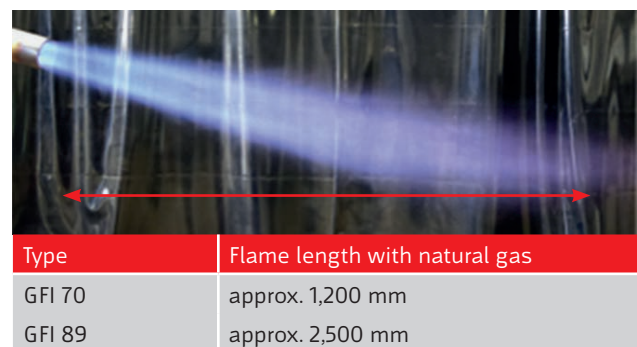
## Advantages:

- Fuel: natural gas, LPG (liquid propane gas), coke gas, refinery gas
- Thermal power up to 3 MW in special design up to 6 MW
- Flame length up to 3 m
- Intermittent- or continuous operation
- SIL 3 certified
- Protection class IP 65
- Available for hazardous areas

### Example GFI 35 / GFI 48:



### Example GFI 70 / GFI 89:

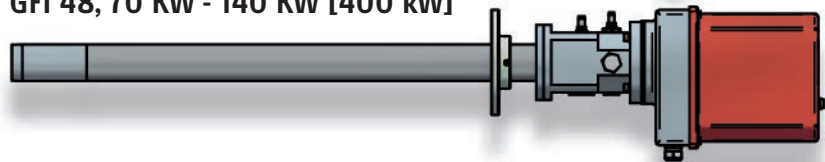


# Illustration of GFI Versions

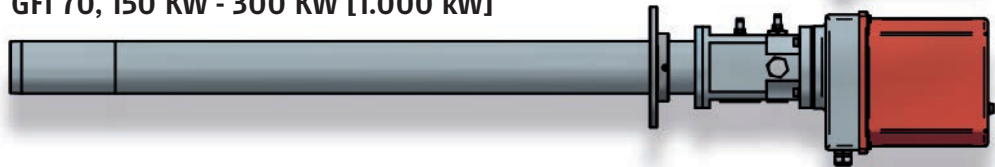
GFI 35, 25 KW - 57 KW



GFI 48, 70 KW - 140 KW [400 kW]



GFI 70, 150 KW - 300 KW [1.000 kW]



GFI 89, 400 KW - 700 KW [6.000 kW\*]



\* = Up to 3 MW Propan or NG firing  
6 MW only NG firing

## GFI product line



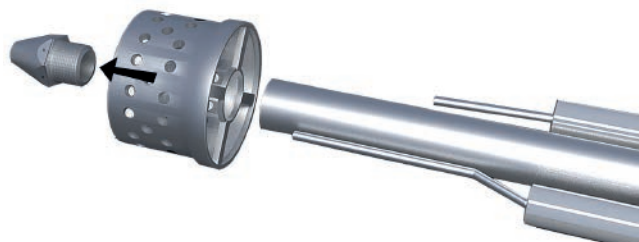
GFI with display



GFI without display

## Operating principle of GFI Igniters

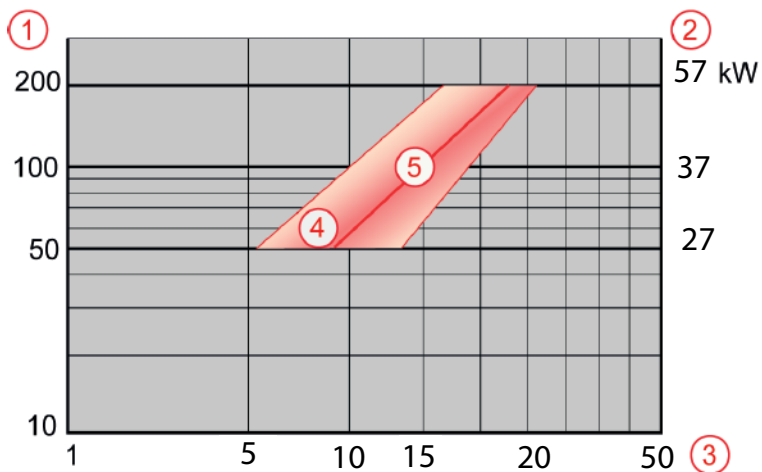
Forced air operated and muzzle mixing



# GFI 35.



## GFI 35 Adjustment of the flame quality and flame stability

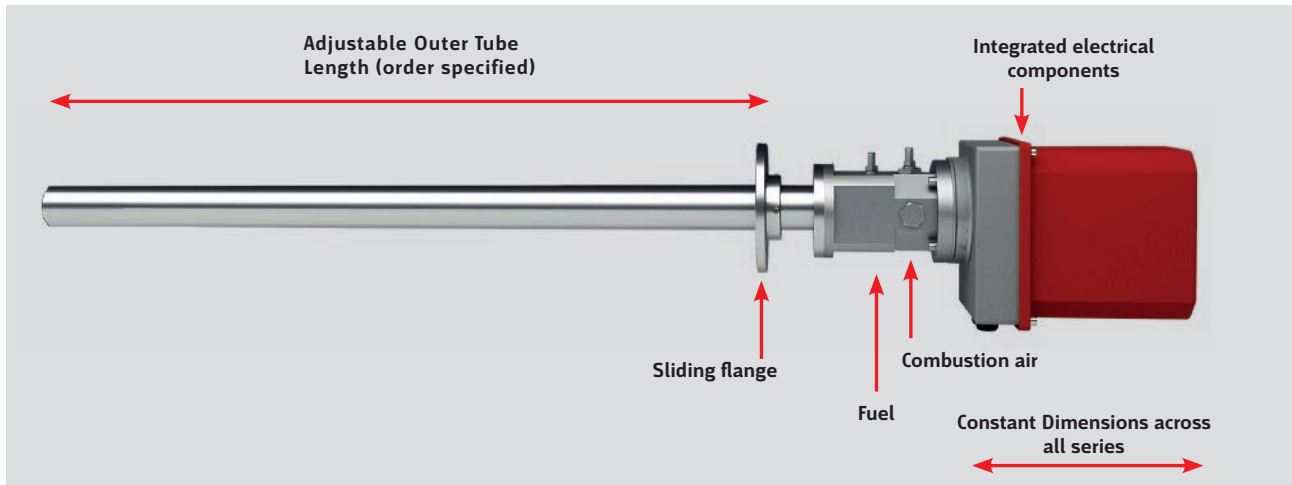


- 1 Gas pre-pressure [mbar]
- 2 Thermal output [kW]
- 3 Airflow [m<sup>3</sup>/h]
- 4 Stable field of combustion
- 5 Ideal fuel/air ratio setting

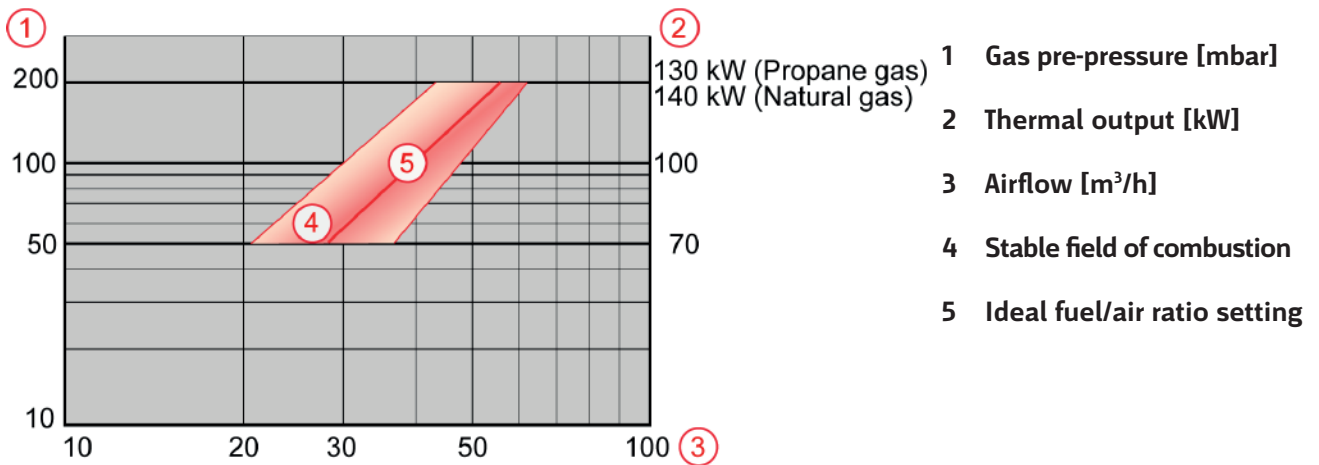
|                      | Standard   |
|----------------------|--|
| Tube diameter        | 35 mm x 2 mm   |
| Mountingflange       | Side flange (e.g. DN 50, PN 6)   |
| Thermal power*       | 27 kW - 57 kW  |
| Flame length         | Bis zu 320 - 600 mm  |
| Gas connection       | G <sup>3/8</sup> "   |
| Fuel gas volume flow | 2.6 - 5.8 Nm <sup>3</sup> /h   |
| Air connection       | G <sup>3/4</sup> "   |
| Air volume flow      | 7.2 - 12.6 Nm <sup>3</sup> /h (@ 15 mbar) for a maximum heat capacity; if reduced heat capacity, lower air volume flow is needed; additional required air for over stoichiometric combustion shall be available on side. |

\* At International Standard Atmosphere, ISA: 15 °C, 1013.25 hPa

# Components GFI 48.



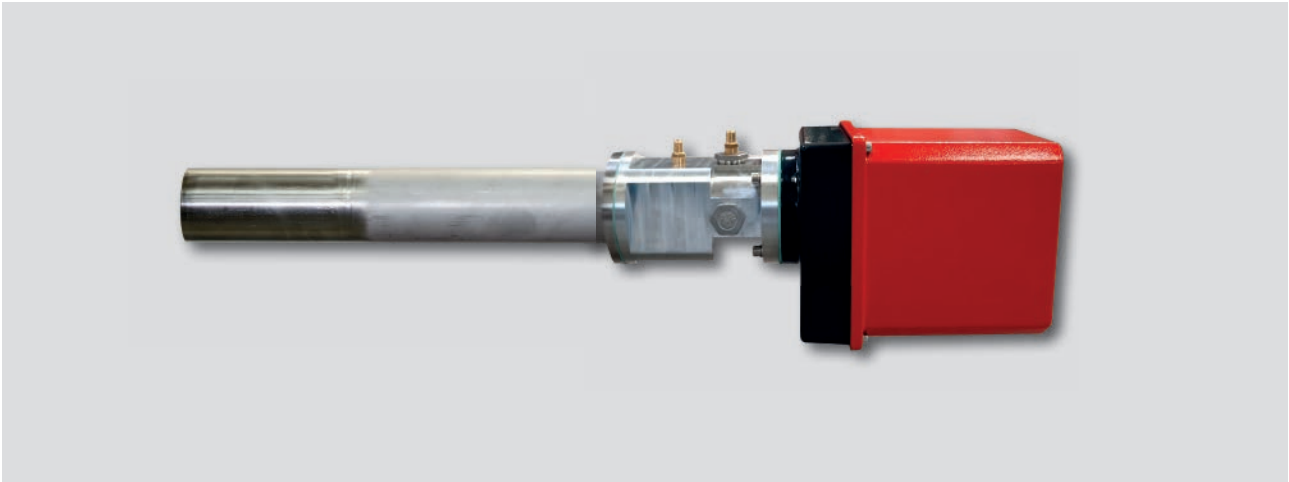
## GFI 48 Adjustment of the flame quality and flame stability



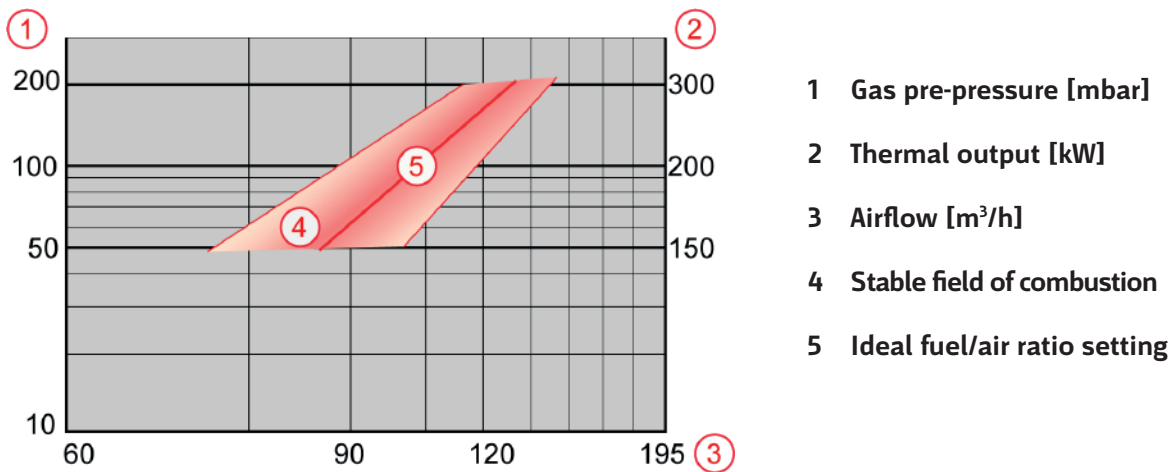
|                      | Standard  |
|----------------------|---|
| Tube diameter        | 48.3 mm x 2 mm  |
| Mounting flange      | Slide flange (e.g. DN 50, PN 6)   |
| Thermal power*       | 70 kW - 130 kW (Propane gas) 70 kW - 140 kW (Natural gas)   |
| Flame length         | Up to 800 mm  |
| Gas connection       | 1/2" BSPP internal thread   |
| Fuel gas volume flow | 15 Nm <sup>3</sup> /h Natural gas (@ 200 mbar)<br>6 Nm <sup>3</sup> /h Propane (@ 200 mbar)   |
| Air connection       | 1" BSPP internal thread   |
| Air volume flow      | 60 Nm <sup>3</sup> /h (@15 mbar) for a maximum heat capacity; if reduced heat capacity, lower air volume flow is needed; additional required air for over stoichiometric combustion shall be available on side. |

\* At International Standard Atmosphere, ISA: 15 °C, 1013.25 hPa

# GFI 70.



## GFI 70 Adjustment of the flame quality and flame stability



|                      | Standard  |
|----------------------|---|
| Tube diameter        | 70 mm x 2 mm  |
| Mounting flange      | Side flange (e.g. DN 65, PN 6)  |
| Thermal power*       | 150 kW - 300 kW   |
| Flame length         | Up to 1,200 mm  |
| Gas connection       | 3/4" BSPP internal thread   |
| Fuel gas volume flow | 30 Nm <sup>3</sup> /h Natural gas (@ 200 mbar)<br>12 Nm <sup>3</sup> /h Propane (@ 200 mbar)  |
| Air connection       | 1 1/2" BSPP internal thread   |
| Air volume flow      | 125 Nm <sup>3</sup> /h (@ 12 mbar) for a maximum heat capacity; if reduced heat capacity, lower air volume flow is needed; additional required air for over stoichiometric combustion shall be available on side. |

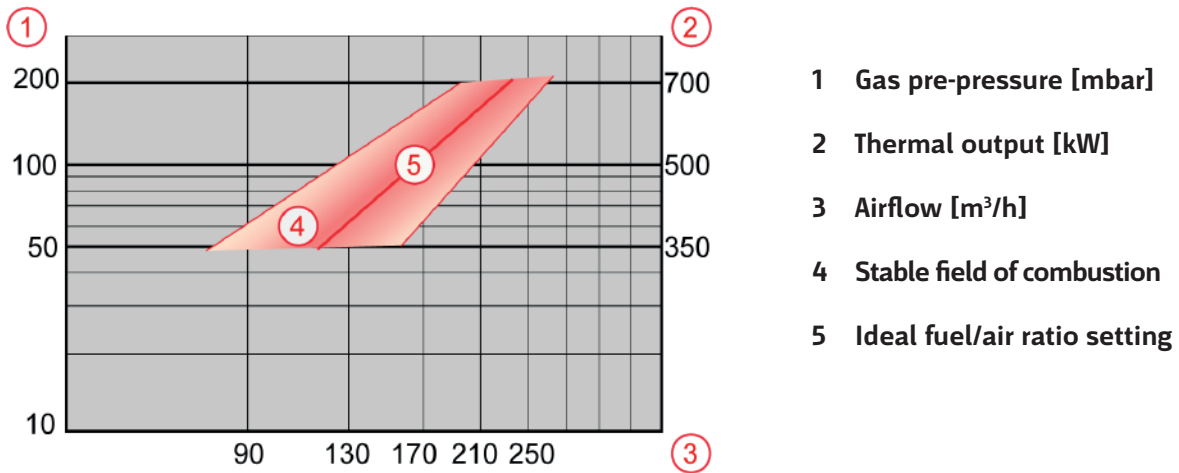
\* At International Standard Atmosphere, ISA: 15 °C, 1013.25 hPa



# GFI 89.



## GFI 89 Adjustment of the flame quality and flame stability



|                      | Standard  |
|----------------------|---|
| Tube diameter        | 88.9 mm x 2 mm  |
| Mounting flange      | Slide flange (e.g. DN 80, PN 6)   |
| Thermal power        | 400 kW - 700 kW   |
| Flame length         | Up to 3,000 mm  |
| Gas connection       | 1 1/2" BSPP internal thread   |
| Fuel gas volume flow | 70 Nm <sup>3</sup> /h Natural gas (@ 200 mbar)<br>28 Nm <sup>3</sup> /h Propane (@ 200 mbar)  |
| Air connection       | 2" BSPP internal thread   |
| Air volume flow      | 250 Nm <sup>3</sup> /h (@ 15 mbar) for a maximum heat capacity; if reduced heat capacity, lower air volume flow is needed; additional required air for over stoichiometric combustion shall be available on side. |

\* At International Standard Atmosphere, ISA: 15 °C, 1013.25 hPa



## Safe Zone Power Unit for GFI



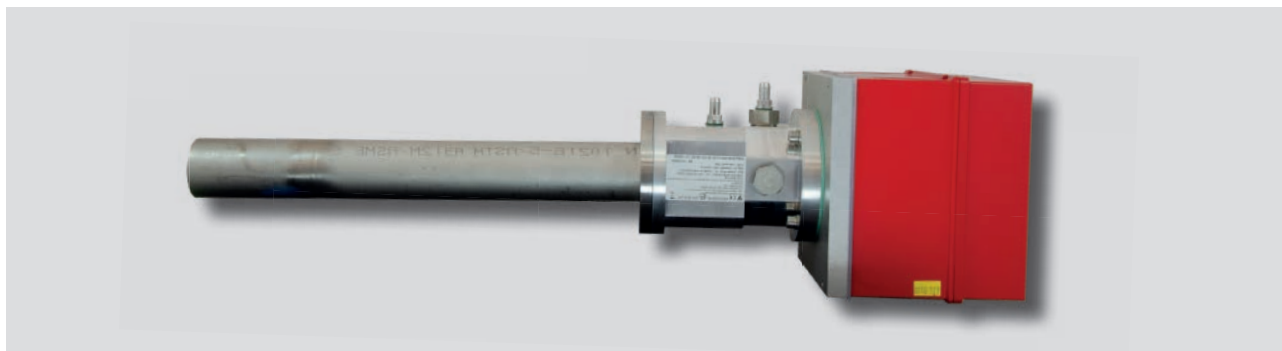
|                             | Standard                           |
|-----------------------------|------------------------------------|
| Material                    | Varnished steel RAL7035            |
| Degree of protection        | IP 66                              |
| Temperature operating range | -20 °C bis +60 °C / -4 ... +140 °F |

## Ex- Zone I power unit for GFI



|                                | Standard   |
|--------------------------------|--|
| Explosion protection           | II 2 G Ex db IIB + H2 T6/T5 GbII 2 D Ex tb IIIC T80 °C...T95 °C Db |
| Material                       | Copper-free aluminium, stainless steel 1.4404/316                  |
| Certificates/Test certificates | ITS 15 ATEX 18302X, IECEx ITS 15.0041X, Fa. Rose Systemtechnik     |
| Electrical safety              | IP 66 according to EN 60529  |
| Impact resistance              | 7 Joule according to EN 60079-0                                    |
| Temperature range              | -20 ... +60 °C / -4 ... +140 °F                                    |

## GFI with integrated power unit EX zone II.



|                      | Standard   |
|----------------------|--|
| Degree of protection | IP 65 / NEMA 4 / NEMA 4X   |
| Type                 | No display possible  |
| Device marking       | Ex ec nC IIB+H2 T4 Gc (with flame scanner)<br>Ex ec IIB+H2 T4 Gc (without flame scanner)<br>certificate no.: IECEx KIWA 20.0005X |

## EX zone I as well as variant GFI for external power unit



| Type                           | For Ex zone I & variant with external power unit |
|--------------------------------|--|
| With standard screw connection | -20 °C ... + 80 °C                               |
| With Ex-I conduit screw        | -40 °C ... + 80 °C                               |

# Technical data.

|  | Standard   |
|--|--|
| Technical data and features                                    | Gas fired ignitor/pilot burner with integrated high tension transformer, ionisation rod, SIL 3 certified, EU type approved, ionisation flame monitor (IFM) |
| IFM approved for   | Continuous operation   |
| Flame response time  | ≤ 1 s or ≤ 3 s   |
| SIL classification   | SIL 3, flame monitor F130I   |
| Flame signal output  | Switching contact additional 0-300 mV on measuring sockets for commissioning support intensity display (optional)  |
| Ambient temperature Safe Area (permissible temperature range)  | -20... + 60 °C (standard, without display)<br>-40... + 60 °C (special, without display)<br>0... + 60 °C (with display)                                     |
| Ambient temperature Ex zone II (permissible temperature range) | -20... + 60 °C   |
| Amplifier  | 1 potential free NO contact, 230 VAC, 0.5 A  |
| Supply voltage   | 120 - 127 VAC, 220 - 230 VAC (-15 % / +10 %), 50/60 Hz   |
| Ignition voltage   | 8 kV (at U <sub>N</sub> = 230 V), 7 kV (at U <sub>N</sub> = 120 V)   |
| Power input  | U <sub>N</sub> = 230 V, 230 VA spark igniter ≤ 10 VA flame monitor<br>U <sub>N</sub> = 120 V, 192 VA spark igniter ≤ 10 VA flame monitor                   |
| Electrical connection  | Plug connection with pre-assembled cable   |
| Cable length   | 2 - 100 m  |
| IP protection  | IP65   |
| Housing material (electric)                                    | Aluminium, seawater resistant aluminium (optional)   |
| Tube length  | 300 - 6,000 mm   |
| Tube material  | Stainless steel 1,4301 or 1,4571 optional<br>Heat resistant end tube 1,4841  |
| Fuel gas   | Natural gas, butane/propane<br>Coke oven gas and special gases (optional)  |
| Fuel gas supply pressure                                       | 50 - 200 mbar (effective)  |
| Air supply pressure  | Depending on size  |
| Cooling air flow   | Depending on size, at least 50 % combustion air flow   |

Valid for all versions



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