

HANSA

HEIZTECHNIK

Hansa Öl- und Gasbrenner GmbH



Instruction Manual

HPM1/1.1

Gasburner

Power: 10-70 kW

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Security advice

Please read this manual carefully before installation. Damages resulting from disregard of this manual will not be covered by liability and guarantee obligations.!

Improperly executed work might cause bodily harms or material damage!

Working on the heating system!

- Installation, putting into operation-, maintenance-, and servicing of the burner has to be carried out by an authorized heating systems' enterprise.

Working on burner and boiler!

- Switch off emergency-stop of heating and safeguard against power up again!
- Shut off gas-supply line and safeguard against unintentional opening

Safety first!!!

HPM1/1.1 10 - 70 kW

1. Norms and Regulations

1.1 Norms and Guidelines

The following norms and guidelines are to be observed during installation and commissioning.

The burner has to be installed and commissioned only by a specialist. Therefore the local valid regulations and instructions have to be observed. He is taking responsibility for the appropriate laying out.

Following standards are to be taken into consideration for a secure, environmental friendly and energy saving running:

DIN 4756 Gas firing devices
DIN 4788 gasburner with fan ventilation and gas burner with fan ventilation on heat generators,
VDE 0116 electrical equipment of firing plants.

On mounting of a gas firing unit DIN 4756, TRG I, DVGW-working sheets and state building regulations are to be taken into consideration. Gas pipes and fittings has to be laid according to DVGW - TV - Gas regulations.

In places with heavy dust laden atmosphere, high humidity or in places with corrosive vapor, the burner should not be taken into use.

The burner should only be used for the fuel which is indicated on the name-plate.

The plant should be scrutinized and maintained by a specialist at least once a year. The DIN 4756 is saying to that among other things the following: for reasons of security and economy the user should have the plant inspected at least once a year through a representative of the manufacturer or an expert.



Handling with inflammable matters, naked flame and smoking are strictly forbidden when carrying out work close by or directly on gas burners and gas pipelines.

Exhaust systems and actual heat demand. Boiler, Burner und Exhaust system (chimney) constitute an operational unit. Low temperature of exhaust gas must be taken into account when reducing the output.

With an exhaust temperature below 160°C the installation has to be prepared for that to prevent possible damage by condensate.

To achieve consistent combustion values and reduction of possible humidity it is recommended to install an air-flow-limiter.

If feasible it should be installed in the chimney to prevent possible noise in the flue tube.

2.1 The flame makes up the difference

Due to many years of experience in the development of gasburners, we could develop a product which does not only fulfill the high requirements of today's heating technique but surpass them by far. In the phase of development we were looking for entire new ways of construction.

The unique flame on a knitted surface (NIT) enables also operation in compact combustion chambers. This construction is the reason for his excellent flame stability and its low Nox and CO exhaust gas values. The knitted structure facilitates just minor pressure loss at the burner's head thus having a broad range of power. This knitted structure makes him resistant against rebounds of flames and strong variations in temperature on the burner's head, producing a very quiet flame.

● Exhaust-gas-temperature

The exhaust gas temperature will be measured by a thermometer available at specialised dealers.

There is a nozzle for measuring for the chimney sweeper to use for a performance test. If, after putting into operation, the exhaust temperature rises for more than 30°C, you might proceed on the assumption that there is coating in the combustion chamber, which will eventually lead to uneconomical operation. Cleaning the boiler should be carried out at your earliest convenience.

● Gas-amount-counter

Gas consumption can be read from this counter and compared with last year's consumption to get an approx. control of efficiency.

Comparing measurements have to take into account the actual outer temperature of the year concerned.

● Smoke gas shutoff damper

Smoke gas shutoff damper will be used sometimes to prevent too great a cooling down while down time. When absolutely airtight it might happen that, because of the interrupted air flow, boiler and chimney generate condensate. By a shutoff damper or an auxiliary ventilation facility however you can guarantee a satisfying aeration of the chimney and prevent too much a cooling down of the boiler.



NIT flame tube

2.2 Saving of Energy

Acquisition of this burner already means a great step concerning saving costs in gas and electricity (only 40 Watt of power input!)

In addition, according to DIN 4755, control and maintenance of heating system by an expert is recommended at regular intervals.

Control of exhaust gas temperature and running time of burner also provides valuable evidence on quality of combustion and gas consumption.

2.3 Tendering

One step, two step, with booster and modulating regulation with potentiometer and pre-aeration and admitted for intermitting operation on cast iron and steel boilers.

Components of burner:

- Premix fan motor
Spiral casing (Aluminium)
- Burner tube (high quality knit surface - NIT) featuring good isolation.
- Curbed noise combustion system with surface burner.
- Gasvalve
- Gasfiring device for intermittent operation with flame monitoring based on ionisation and ignition transformer.
- Ignition electrodes
- Cover
- Connectors
- Mounting flange
- Flange gasket and connecting screws.

The burner is tried and tested. Quality of combustion is ensured by commisionning certificate.



The HPM.....



The burner will be put into the boiler in quite a simple way



.....after installation

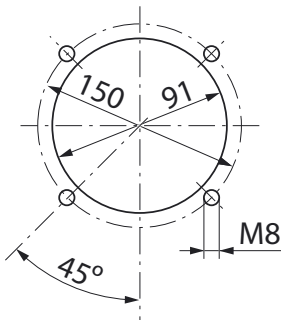
3. Installation

HPM1/1.1

3.1 Dimensions

The following dimensions have to be observed while mounting the burner to the boiler

- Pitch circle:
Ø 150 mm ± 1,5 mm
- Bore of boiler's door:
min Ø 91 mm

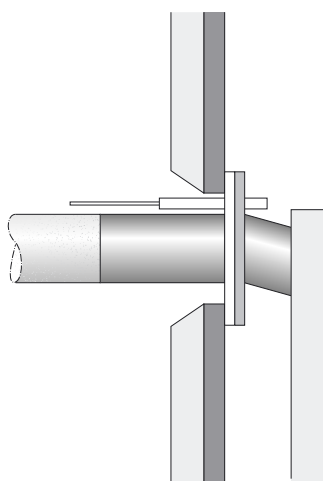


Setting of Flange

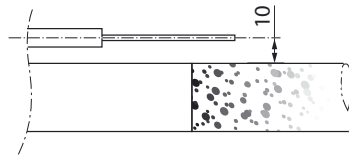


3.2 Mounting the burner

Bringing the flame tube into use into boiler's door, take care not to touch boiler's door with electrodes because this might cause a short circuit.



Conoidal cut out cover of boiler's door



Ignition electrodes must keep a minimum distance of 10 mm from the flametube. Less distance leads to damage of the surface burner.



Attention!
Cleaning of the flame tube only by compressed air. Never use a wirebrush.



3.3 Tips for mounting

During installation of the burner take care that the hose for gas connection is long enough to allow for strain relief of the connecting cable so that for maintenance reasons the burner can be easily drawn out of the boiler.

Attention! Do not drop below the minimum size of the combustion chamber!
HPM1 : Minimum diameter 280 mm, Depth for mounting from flange ca. 300 mm.

Prior to the first start, perform a leakage test of gas pipe!

In no case confuse phase and non-conductor! Take care for proper connection of grounding wire!

3.4 Check of installation

Prior to mounting burner and putting into operation please take care to the following instructions:

1. DIN 4765 u. 4788 for the use of city gas
2. DIN 4705 Calculation of chimney dimensions
3. DIN 4751 for control panel displays
4. DIN 37116
Electrical installation
Burner connection
5. VDE-Rules for electrical installation
6. DVGW-G 600
Regulations for laying gas-pipes
7. DIN 4756
Gasfiring devices safety-related requirements
8. TRF

Mounting, commissioning, repair and maintenance have to be done by an expert. Please use only OEM spares. VDE and ÖVE regulations for electrical installations are to be observed. Electrical installations must be done by an expert.

All works related to connecting to city gas pipe must be done by a corporation specialised in such business, and which has to guarantee in written form trouble-free functionality of the installation. In the boiler's room there must be a plate easy to be seen, showing this particular information

3.5 Burner operation

Der HPM gasburner is very well suited to be mounted to commercially available boilers (intermittent way of operation) for heating and hot water. Our development and testing conditions are exactly attuned to these operating conditions.



3.6 Special areas of operation

Special requirements and operating conditions are to be observed for the following fields of operation:

- Dark beamer
- Baking oven
- Kiln
- Annealing furnace
- Industrial Application

For these fields of operation we expressly reserve approval!

With higher furnace or temperature load we recommend seeking accord with HANSA.



Only pure air must be used with burner!

This is to safeguard by appropriate means, particularly in rooms with contaminated air by halogen-hydrocarbons (Print shops, hairdressers, dry cleaners and laboratories). Please contact us!



Not much dust should accrue during the burner's operation!



High humidity and frost is to be avoided!



Good aeration is important!



Non observance of these guidelines means loss of warranty!

4.1 Commissioning and settings

To maintain durable high burner efficiency and safe running a qualified expert has to adjust the settings.

After starting the burner and elapse of prevention the fan keeps the ignition fanspeed for approx. 10 seconds.

After ignition there is a stabilisation time of approx. 15 sec. After that the fan regulates itself to the output set on the potentiometer. (see page 8) After reaching the adjusted speed please check the exhaust gas values. CO₂-values (see tables) should be in the ranges given below.


The draft effect should not exceed 0,1 mbar.

In normal operation you have to check combustion values, to start with the check of CO₂-values. This value determines the quality of combustion(see tables below)

If it is not possible to set the CO₂-values as shown in the table, check the boiler for leakage of air on the boiler as well as on the flue tube connector.

Seal the boiler airtight and check again.

Important: In boiler systems, CO values can be affected by left-overs of combustion.

 **The boiler has to be airtight and must have a smoke gas connector to be able to measure CO-values correctly, because air leakage will alter the measurement!**

Tables

| Type | CO | CO ₂ | Nox |
|------|--------|-----------------|----------|
| HPM1 | <10ppm | 8,7%-8,9% | 30-35ppm |

Tab x Type of gaz G 20 at full-load
H-Gaz

| Type | CO | CO ₂ | Nox |
|------|--------|-----------------|----------|
| HPM1 | <10ppm | 9,0%-9,1% | 30-35ppm |

Tab x Type of gaz G 25 at full-load
L-Gaz

| Type | CO | CO ₂ | Nox |
|------|-------|-----------------|----------|
| HPM1 | 10ppm | 10-10,5% | 40-45ppm |

Tab x Type of gaz G-31 at full load
Propane

| Type | CO | CO ₂ | Nox |
|------|-------|-----------------|----------|
| HPM1 | 10ppm | 10-10,5% | 40-45ppm |

Tab x Type of gaz G 30 at full-load
Butane

| Type | CO | CO ₂ | Nox |
|------|--------|-----------------|----------|
| HPM1 | <10ppm | 8,0%-8,1% | 30-35ppm |

Tab x Type of gaz G 20 at low-load
H-Gaz

| Type | CO | CO ₂ | Nox |
|------|--------|-----------------|--------|
| HPM1 | <10ppm | 8,4%-8,6% | <25ppm |

Tab x Type of gaz G 25 at low-load
L-Gaz

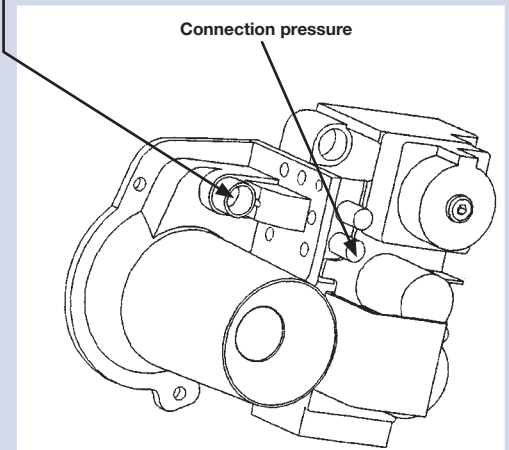
| Type | CO | CO ₂ | Nox |
|------|-------|-----------------|----------|
| HPM1 | 10ppm | 10-10,5% | 40-45ppm |

Tab x Type of gaz G 31 at low-load
Propane

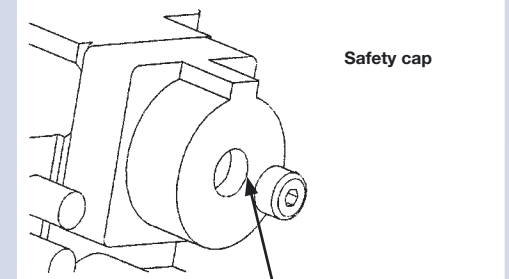
| Type | CO | CO ₂ | Nox |
|------|-------|-----------------|----------|
| HPM1 | 10ppm | 10-10,5% | 40-45ppm |

Tab x Type of gaz G 30 at low-load
Butane

A. If an adjustment becomes necessary, the CO₂ value can be changed. Correction has to be done at full load and executed by the regulation screw on Venturi.
Anti-clockwise more gas, clockwise less gas.
For adaptation to propane and butane the burner has to be sent in to manufacturer because this requires reprogramming by software



Adjustment of main load via Venturi by CO₂ value at maximum fan speed.



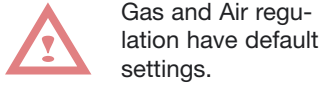
Basic load adjustment
Adjustment of low load via basic load adjustment by CO₂ value at minimal fan speed.

B. Now start to check the low load. Adjustment is to be made at gas valve (see fig. above)
Anti-clockwise less gas, clockwise more gas.
Tip: The gas valve is more sensible than the Venturi.

C. Put the burner into operation again with full load and safeguard that the CO-value is in the given range.

D. Put on safety caps again, close cover, finished!

4.2 Adjustment of potentiometer



Gas and Air regulation have default settings.

Burner output is adjustable by potentiometer (see table p.10). Please carry out any alterations of speed (revolutions per minute) via potentiometer at a low pace because pulses are possible.

You will find the required CO and CO₂ values for specific kinds of gas on page 7. In case your values are at variance with them, please modify the min and max load as shown in figure p.7)

Potentiometer / Output-regulator



Reset

4.3 Electronic Control

Digital burner control with ignition and fan regulation integrated.

1 step operation
One adjustable speed for constant burner output level.

2 step operation
Two adjustable speeds for two constant burner output levels
Constant operation by control 0 – 10 / 4- 20mA
Fan speed will be variably controlled depending on output demand by an external constant output signal.
Deployment of DDC- or control-stations



PC-Connection

5.1 Grafical User Interface
-Software-diagnosis

V1026 (stopped)

File Settings Information Help

Parameter settings

Timing settings

Prepurge Time Seconds Postpurge Time Seconds Stabilization Time Seconds

Prepurge Time Minutes Postpurge Time Minutes APS Switching Time Seconds

Control settings

Maximum Fanspeed *30 RPM Absolute max. Fanspeed *30 RPM

Minimum Fanspeed *30 RPM Absolute Min. Fanspeed *30 RPM

Pre Purge Fanspeed *30 RPM Fan Continuous Fanspeed *30 RPM

Ignition Fanspeed *30 RPM Fan I Factor

Post Purge Fanspeed *30 RPM Fan P Factor

Slope Control *30 RPM/sec

Configuration settings

Fan Continuous Off Fan Continuous On

Use modulation input On/Off control

0-10 Volt modulation 4-20mA modulation

Fan Off During Error Fan On During Error

no APS APS

No APS mod. check APS mod. check

Runtime Information

Requested Fanspeed: RPM Comfort State: Flame: uA

Fanspeed RPM

Abs.Min. - Abs.Max. -

Testmode

Testmode 0 %

Error Information

Reset

CVBC version

Hup: Lup: Eprom

Parameter File Info

Current file loaded: none

Honeywell

5.2 Output table

HPM 1.1 10 - 45 kW

Output table L Gas (G25) in standard values for exact metering see table

| Gas consumption per minute (m ³) | Output in kW | Position governor | Fan pressure in mbar |
|--|--------------|-------------------|----------------------|
| 0,020 | 10 | 1 | 0,4 |
| 0,023 | 12 | 2 | 0,4 |
| 0,030 | 15 | 3 | 0,5 |
| 0,044 | 21 | 4 | 0,6 |
| 0,047 | 25 | 5 | 0,7 |
| 0,057 | 30 | 6 | 0,9 |
| 0,066 | 35 | 7 | 1,0 |
| 0,077 | 40 | 8 | 1,2 |
| 0,086 | 45 | 9 | 1,3 |

HPM 1.1 10 - 45 kW

Output table L Gas (G20) in standard values for exact metering see table

| Gas consumption per minute (m ³) | Output in kW | Position governor | Fan pressure in mbar |
|--|--------------|-------------------|----------------------|
| 0,020 | 10 | 1 | 0,4 |
| 0,023 | 12 | 2 | 0,4 |
| 0,030 | 15 | 3 | 0,5 |
| 0,044 | 21 | 4 | 0,6 |
| 0,047 | 25 | 5 | 0,7 |
| 0,057 | 30 | 6 | 0,9 |
| 0,066 | 35 | 7 | 1,0 |
| 0,077 | 40 | 8 | 1,2 |
| 0,086 | 45 | 9 | 1,3 |

HPM 1 20 - 90 kW

Output table L Gas (G25) in standard values for exact metering see table

| Gas consumption per minute (m ³) | Output in kW | Position governor | Fan pressure in mbar |
|--|--------------|-------------------|----------------------|
| 0,040 | 21 | 1 | 0,6 |
| 0,052 | 27 | 2 | 0,8 |
| 0,066 | 35 | 3 | 0,9 |
| 0,085 | 45 | 4 | 1,1 |
| 0,100 | 53 | 5 | 1,4 |
| 0,120 | 63 | 6 | 1,7 |
| 0,140 | 74 | 7 | 2,1 |
| 0,160 | 84 | 8 | 2,4 |
| 0,170 | 90 | 9 | 2,7 |

HPM 1 20 - 90 kW

Output table L Gas (G25) in standard values for exact metering see table

| Gas consumption per minute (m ³) | Output in kW | Position governor | Fan pressure in mbar |
|--|--------------|-------------------|----------------------|
| 0,040 | 21 | 1 | 0,6 |
| 0,052 | 27 | 2 | 0,8 |
| 0,066 | 35 | 3 | 0,9 |
| 0,085 | 45 | 4 | 1,1 |
| 0,100 | 53 | 5 | 1,4 |
| 0,120 | 63 | 6 | 1,7 |
| 0,140 | 74 | 7 | 2,1 |
| 0,160 | 84 | 8 | 2,4 |
| 0,170 | 90 | 9 | 2,7 |

Butane (G30) connection pressure 50 mbar

| Gas consumption per minute (m ³) | Output in kW | Position governor | Fan pressure in mbar |
|--|--------------|-------------------|----------------------|
| 0,015 | 20 | 1 | 0,6 |
| 0,018 | 26 | 2 | 0,8 |
| 0,022 | 30 | 3 | 0,9 |
| 0,029 | 39 | 4 | 1,1 |
| 0,035 | 47 | 5 | 1,4 |
| 0,041 | 56 | 6 | 1,7 |
| 0,047 | 64 | 7 | 2,1 |
| 0,050 | 68 | 8 | 2,4 |
| 0,052 | 70 | 9 | 2,7 |

Propane (G31) connection pressure 50 mbar

| Gas consumption per minute (m ³) | Output in kW | Position governor | Fan pressure in mbar |
|--|--------------|-------------------|----------------------|
| 0,015 | 20 | 1 | 0,6 |
| 0,018 | 26 | 2 | 0,8 |
| 0,022 | 30 | 3 | 0,9 |
| 0,029 | 39 | 4 | 1,1 |
| 0,035 | 47 | 5 | 1,4 |
| 0,041 | 56 | 6 | 1,7 |
| 0,047 | 64 | 7 | 2,1 |
| 0,050 | 68 | 8 | 2,4 |
| 0,052 | 70 | 9 | 2,7 |

6.1 Causes of error and corrections

Permanent checks and safety conditions serve safeguarding burner and environment.
 Demanding tight threshold values serves continuous supervision of given safety times and processes
 Variances in threshold values lead to error messages and lock-out.
 Severe fault conditions (Ignition locking) cause a lock-out. to be suspended only by a reset..

List of errors:

| Code | Fault | Redress |
|------|---|--|
| 01 | Flame lockout after several ignition trials | Replace ignition electrode |
| 02 | False Flame Lockout | Replace gas valve (check combustion chamber) |
| 03 | High Limit error | Unlock STB, check circulating pump |
| 05 | Fan Tacho Signal error | Replace motor |
| 08 | Flame circuit error | Replace control unit or wiring harness |
| 09 | Valve driver circuit error | Replace control unit, wiring harness or gaz bloc |
| 10 | EEPROM (I2C) communication error | Replace control unit |
| 20 | Lup I/O error | Replace control unit |
| 21 | Hup ADC error | Replace control unit |
| 22 | Lup ADC error | Replace control unit |
| 25 | CRC matching error between Hup & Lup | Replace control unit |
| 34 | Low mains voltage | Replace thermostat resp. fuse |
| 35 | Mains frequency error | Replace control unit or wiring harness |
| 36 | Mains difference error | Replace control unit |

6.2 Description of errors

Error messages are separated in two groups:

1. Error message with lock-out and locking
2. Error codes with shutoff

6.2.1 Error message with lock-out and locking

Shut-off of the firing device takes place with error codes 1 to 30 erfolgt mit den Störcores 1 bis 30

| | |
|----------|---|
| Error 1 | No flame after several attempts of ignition; Locking after max. 3 attempts of ignition. Unlocking device only possible by direct servicing and remote resetting via communication-cable (OEM only) Remote resetting via communication only 5 times in 60 min. permitted. |
| Error 2 | Outside light error Flame is identified when gas valve is closed. |
| Error 3 | STB Error; Safety temperature limiter triggers if temperature is $>105^{\circ}\text{C}$, (only when temperature sensor is connected). |
| Error 5 | Error tachometer-signal from fan; Actual value must reach nominal value of -900 RPM within 20 sec. . |
| Error 8 | Error internal flame electrical circuit; flame circuit will be checked regularly, if check is not successful, lock out takes place. |
| Error 9 | Error internal activation of valves; The circuit to control the valves will be checked regularly, with a lockout as consequence if this check is not successful. |
| Error 10 | internal error EEPROM |
| Error 20 | internal error Low-Volt I/O -Prozessor |
| Error 20 | internal error High-Volt ADC -Prozessor |
| Error 22 | internal error Low-Volt ADC -Prozessor |
| Error 25 | interner Fehler High/Low-Prozessor; Software hat unterschiedliche Daten |

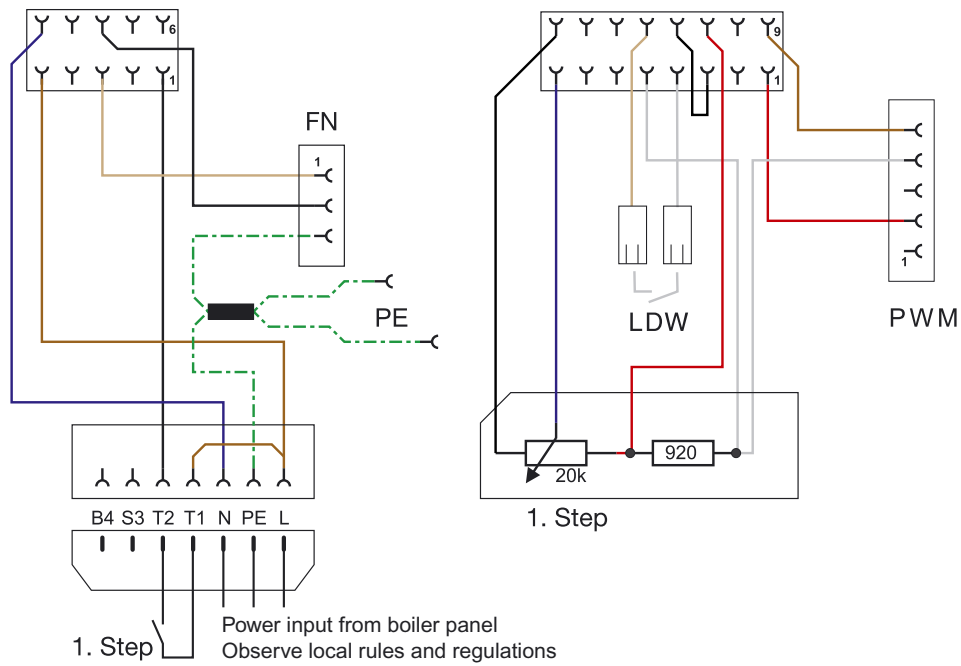
6.2.2 Error codes with shutoff

The firing automat identifies error conditions not leading to lock-out.
Having corrected the cause of the error the burner will start and continue operation.

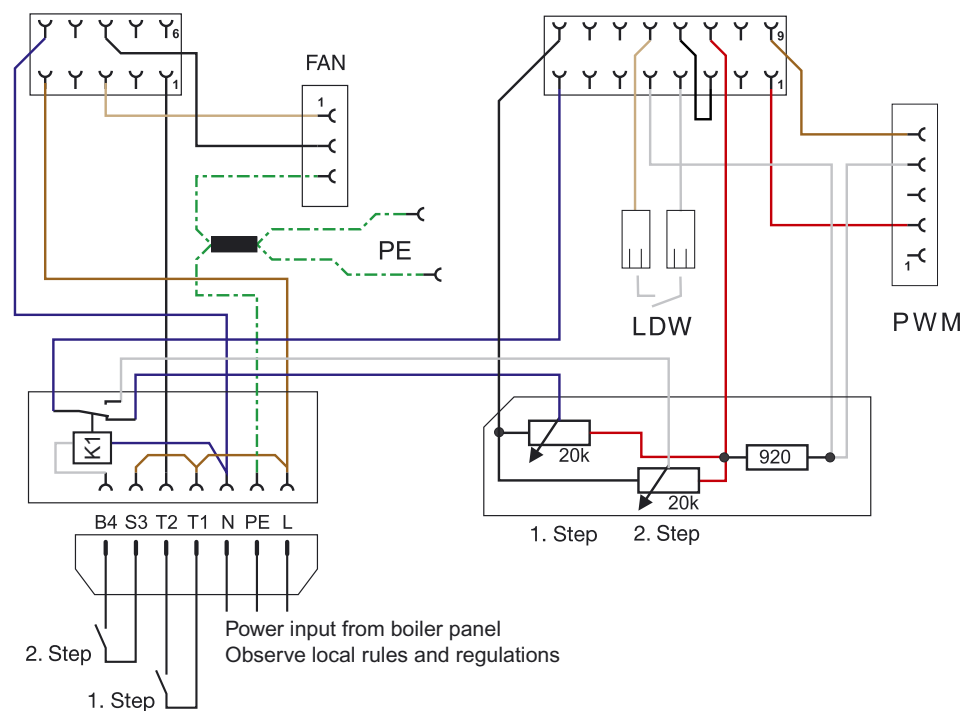
| | |
|----------|---|
| Error 34 | Voltage cut-off; Voltage is $<185\text{ VAC}$. If voltage returns to 190 - 250 VAC, this error will be rectified within 10 sec. |
| Error 35 | Supply frequency at fault; if supply frequency is outside of $\pm 5\%$ of nominal value, Error 35 takes place |
| Error 36 | Internal error of voltage; Voltage of high- and low voltage supply is outside tolerable values |

7.1 Wiring diagramm

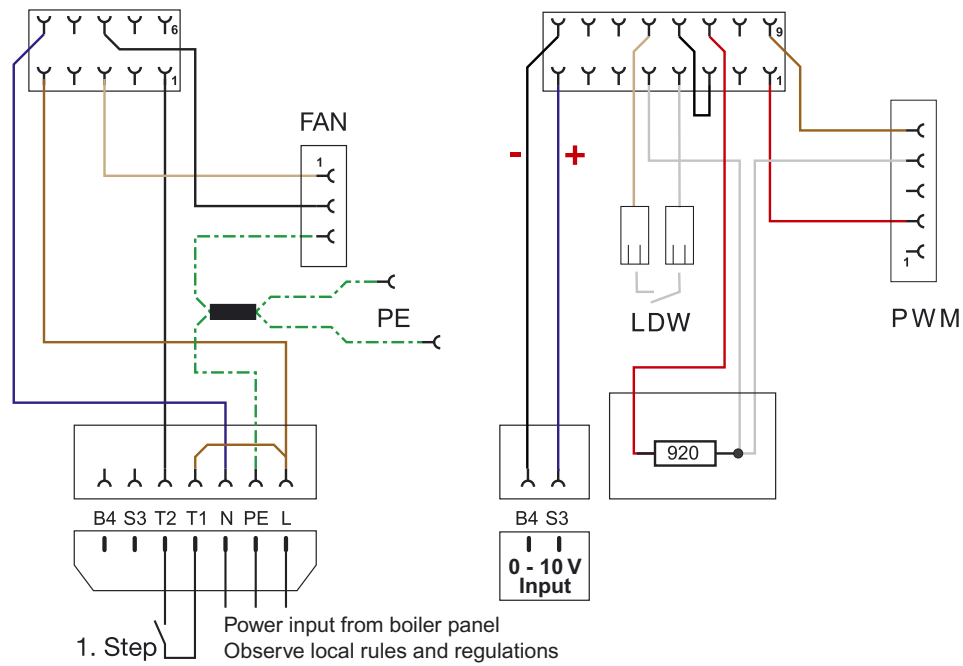
Wiring diagramm Hansa burner 1-step



Wiring diagramm Hansa burner 2-step

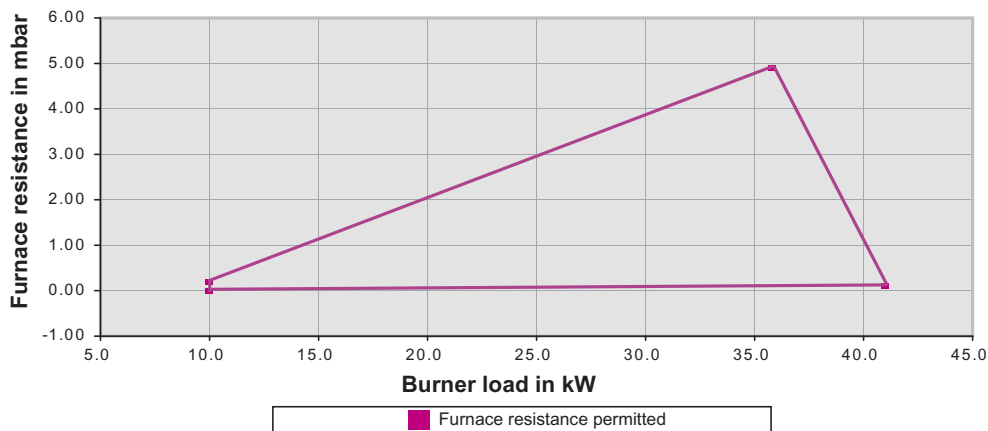


Wiring diagramm Hansa burner modulating

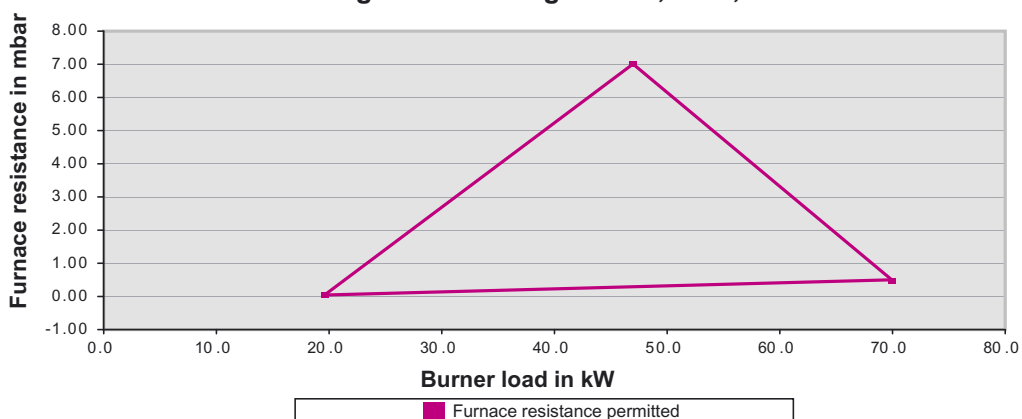


7.2 Measuring fields

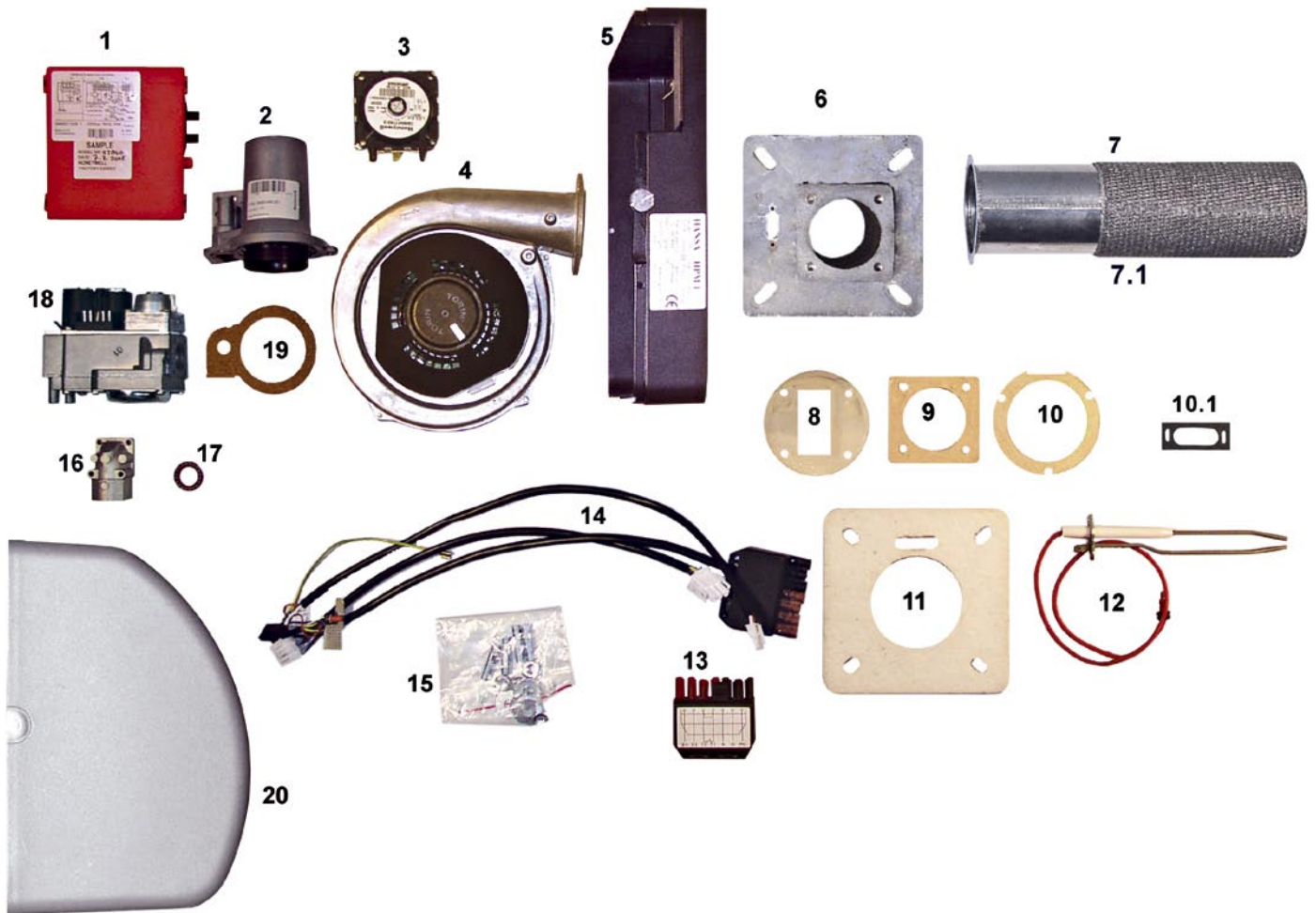
Hansa Premix HPM 1.1
Measuring field natural gas G 20, G 25



Hansa Premix HPM 1
Measuring field natural gas G 20, G 25, G31



7.3 Exploded view



7.3.1 Legend

| Pos | Item | Artikel-Nr.: |
|------|---------------------------|--------------|
| 1 | Automatic gas stoker | 0972 |
| 2 | Venturi-mixer system | 0980 |
| 3 | Pressure switch | 0971 |
| 4 | Motor DSB HPM | 0961 |
| 5 | Burner casing | 0968 |
| 6 | Double flange | 0962 |
| 7 | Flame tube | 0960 |
| 7.1 | Flame tube long | 0960L |
| 8 | Fan gasket | 0967a |
| 9 | Outer flange gasket | 0976b |
| 10 | Flametube gasket | 0967c |
| 10.1 | Ignition electrode gasket | 0967d |

| Pos | Item | Artikel-Nr.: |
|-----|--------------------------------|--------------|
| 11 | Inner flange gasket | 0967e |
| 12 | Double ignition electrode HPM | 0963 |
| 13 | Euro-Connector 7 pole | 4123 |
| 14 | Cable harness PM 1step | 0974 |
| 15 | Clamping bolt | 3359 |
| 16 | Flange Rp/ 1/2 angle 90° | 0969 |
| 17 | Gasvalve flange sealing gasket | 0984 |
| 18 | Gasvalve VK 4115 | 0973 |
| 19 | Gasket for Venturi | 0983 |
| 20 | Burner cap | 0966 |
| 21 | Service case | 4747 |

7.4 Warranty

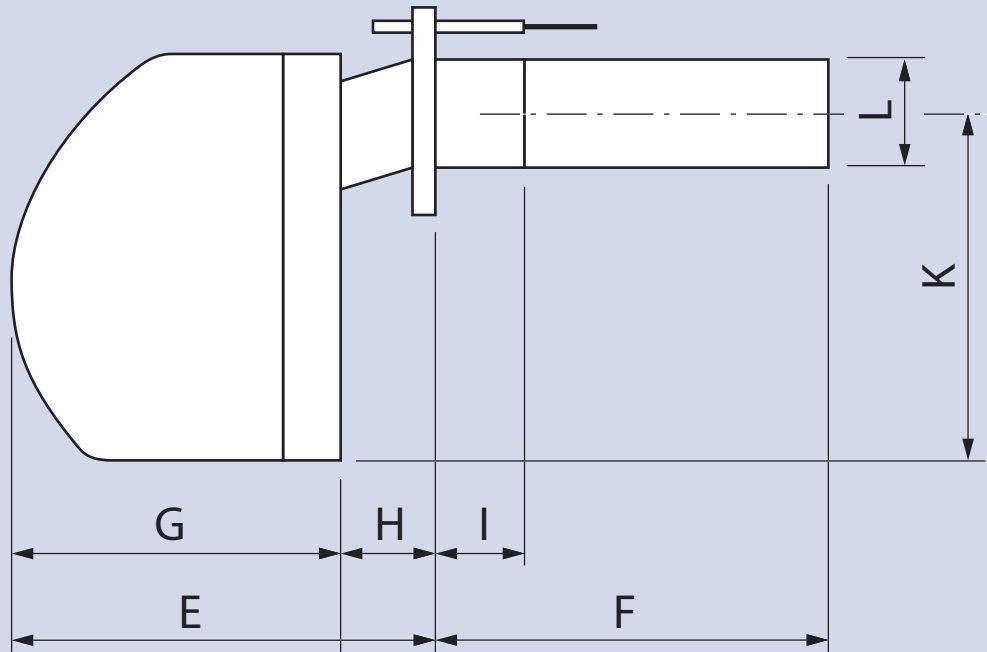
This gasburner will proper function when professionally installed and putting into operation.

⚠ Attention ! When putting into operation control of tightness and control of flow pressure is to be done and a thermal safe gas tap is to be built in.

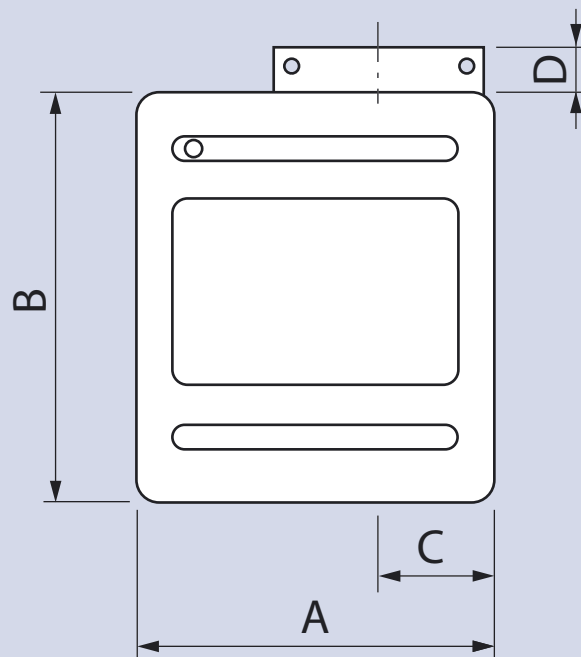
Our guarantee is valid up to 24 month after putting into operation however 27 month after the date of selling at the longest and is limited to the replacement of defect parts.

Please use only HANSA OEM-spares otherwise you will loose your claim under guarantee.

7.5 Dimensions



| Dimensions | A | B | C | D | E | F | G | H | I | K | L |
|----------------|-----|-----|----|----|-----|-----|-----|----|-----|-----|----|
| HPM 1/1.1 | 240 | 270 | 80 | 30 | 280 | 260 | 220 | 60 | 100 | 230 | 70 |
| Long flametube | 240 | 270 | 80 | 30 | 280 | 310 | 220 | 60 | 150 | 230 | 70 |



8.1 Manufacturer's certification

Hansa Öl- und Gasbrenner GmbH is certifying approval for pre-mix gasburners as given below:

| | | |
|--------------------|-------------|-----------------|
| Product | | Gasburner |
| Trade name | | HPM 1 / 1.1 |
| Type/ Model No. | (BUWAL/VKF) | HPM 1 / |
| Norms | | DIN EN 676 |
| Testing Centre | | TÜV - Rheinland |
| Quality-management | | DIN EN ISO 9001 |
| Certification | | Dekra-ITS |
| Product-ID-number | | CE-0085BQ0333 |

These products are matching the requirements of the above mentioned norms and regulations and are corresponding with models examined by the aforementioned testing centre. This declaration, however, does not mean any formal guarantee of features.

Subsequent norms for a safe, environmental friendly and energy saving operation are taken into consideration. DIN 4756 Gasfiring devices, DIN EN 676 Gasburner with fan, gasburners with fan on thermal generators, VDE 0116 Electrical equipment of firing devices.

The installer has to insure, that all valid regulations for fully functioning and collaboration of gasburner and boiler are observed.

8.2 Declaration of conformity

Hansa Öl- und Gasbrenner GmbH herewith certifies, that below mentioned gasburner:

| | |
|------------|-------------|
| Product | Gasbrenner |
| Trade name | HPM 1 /1.1 |
| Type | HPM 1 / 1.1 |

has been tested having regard to subsequent norms and regulations:

Low voltage regulation 73/23 EWG - 01.1973
EMV - regulation 89/337 EWG 05.1989

Regulation for gas devices 90 / 396 / EWG
bearing reference to the gasburner-norm DIN EN 676

Hansa Öl- und Gasbrenner GmbH

DIN EN ISO 9001

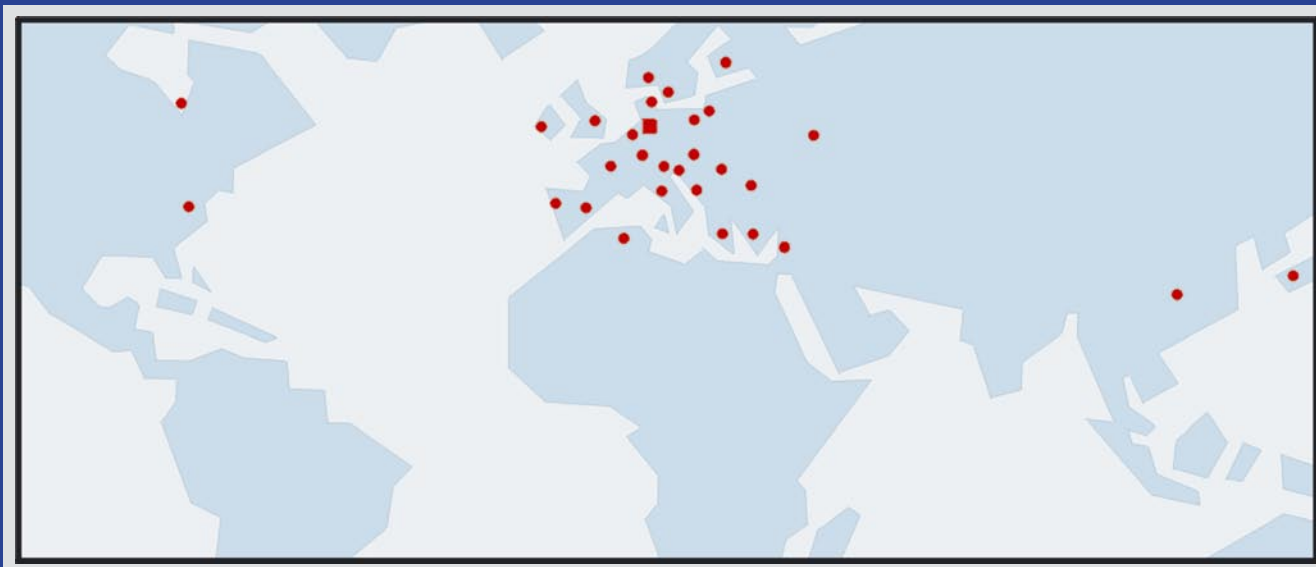

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