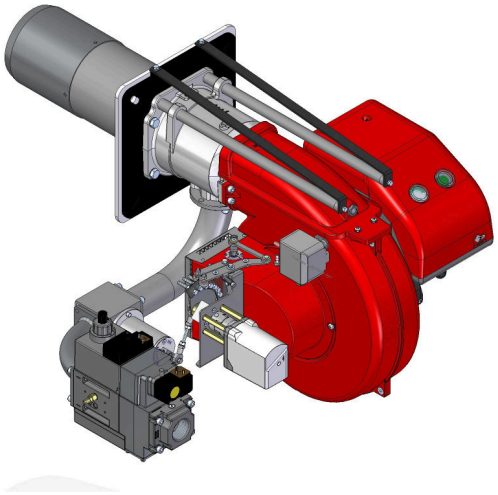
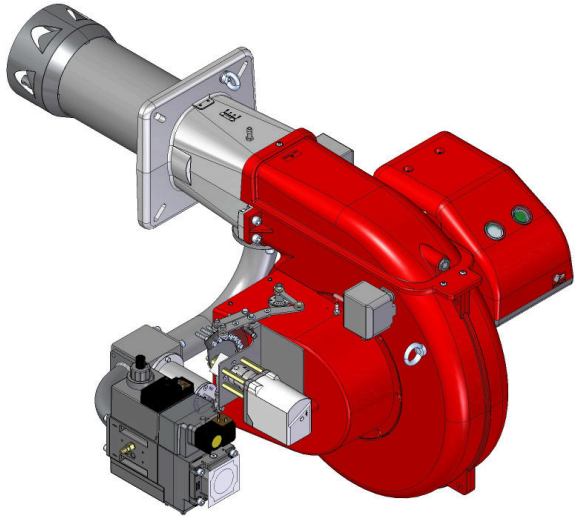
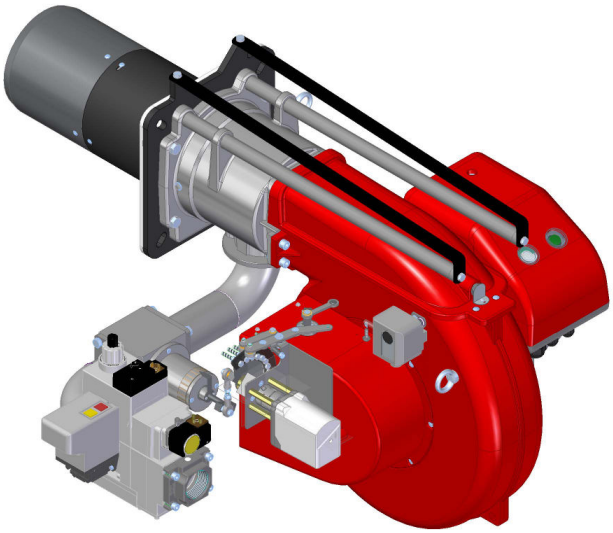
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BURNERS MADE IN ITALY



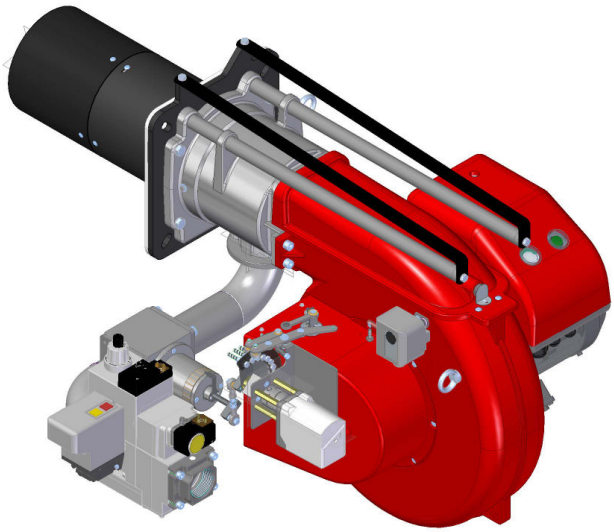
GAS XP80/MCE LX4



GAS P100/MCE LX4 EVO



GAS P130/MCE LX4 EVO



GAS P160/MCE LX4

Installation, operation and maintenance instructions

073072_3C

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TECHNICAL DATA GAS XP80/MCE LX4 - GAS P100/MCE LX4 EVO

MODEL		GAS XP80/MCE LX4	GAS P100/MCE LX4 EVO
Thermal power min. 1°st. / min. 2°st. - max. 2°st. *	[Mcal/h]	110/350-731	172/500-1000
Thermal power min. 1°st. / min. 2°st. - max. 2°st. *	[kW]	128/407-850	200/581-1163
Gas flow G20 (NATURAL GAS) min. 1°st. / min. 2°st. - max. 2°st. *	[Nm³/h]	12.8/40.8-85.3	20.1/58.3-116.7
Gas flow G25 (NATURAL GAS) min. 1°st. / min. 2°st. - max. 2°st. *	[Nm³/h]	14.9/47.5-99.1	23.3/67.8-135.7
Gas flow G25.3 (NATURAL GAS) min. 1°st. / min. 2°st. - max. 2°st. *	[Nm³/h]	14.6/46.4-97	22.8/66.3-132.7
Gas flow G31 (L.P.G.) min. 1°st. / min. 2°st. - max. 2°st. *	[Nm³/h]	5/15.8-33	11.2/22.5-45.1
Fuel: NATURAL GAS (second family, G20, G25, G25.3) - L.P.G. (third family, G31)			
Fuel category:	I2R,I2H,I2L,I2E,I2E+,I2Er,I2ELL,I2E(R),I3B/P,I3+,I3P,I3B,I3R		
Intermitted working operation (min. 1 stop every 24 hours) modulating			
Environmental conditions operation / storage:	-15...+40°C / -20...+70°C, rel. humidity max. 80%		
Max. temperature combustion air	[°C]	60	60
Min. pressure gas train D1"1/4-S NATURAL GAS/L.P.G. **	[mbar]	99/56	96/58
Min. pressure gas train D1"1/2-S NATURAL GAS/L.P.G. **	[mbar]	29/28	52/37
Min. pressure gas train D2"-S NATURAL GAS/L.P.G. **	[mbar]	26/26	43/31
Min. pressure gas train DN65-FS65 NATURAL GAS/L.P.G. **	[mbar]	20/24	25/23
Min. pressure gas train DN80-FS80 NATURAL GAS/L.P.G. **	[mbar]	-	21/22
Max. pressure at the entry of valves (D 1"1/4 - 1"1/2 - 2")	[mbar]	360	360
Max. pressure at the entry of valves (DN65 - DN80)	[mbar]	500	500
Nominal electric power	[kW]	1.7	1.7
Fan motor	[kW]	1.5	1.5
Nominal motor current absorption	[A]	3.1	3.6
Nominal auxiliary absorption	[A]	0.7	0.7
Power supply:	3~400V, 1/N~230V-50Hz		
Electric protection degree:	IP 40		
NOx Class, NATURAL GAS (second family)	4		
NOx Class, L.P.G. (third family)	4		
Noisiness *** min. - max.	[dB(A)]	79-82	81-82
Burner weight ****	[kg]	50	52

*For GAS P100/MCE LX4 EVO L.P.G. Minimum 1st stage power: 249 Mcal/h - 290 kW. Reference conditions: Environment temperature 20°C - Barometric pres- sure 1013 mbars - Altitude 0 metre (sea level).
** Minimal feeding-gas pressure to the gas train to get the maximum power of the burner, considering counter-pressure in combustion chamber of value 0 (zero).
*** Measured sonorous pressure in the laboratory combustion, with functional burner on beta boiler to 1 metre of distance (UNI EN ISO 3746 law - Control method class 3 - The measured sound pressure tolerance can be assumed to be ± 1 [dB (A)]).
**** For burner with long head add 2 kg to the weight.

OPERATING RANGE DIAGRAM GAS XP80/MCE LX4

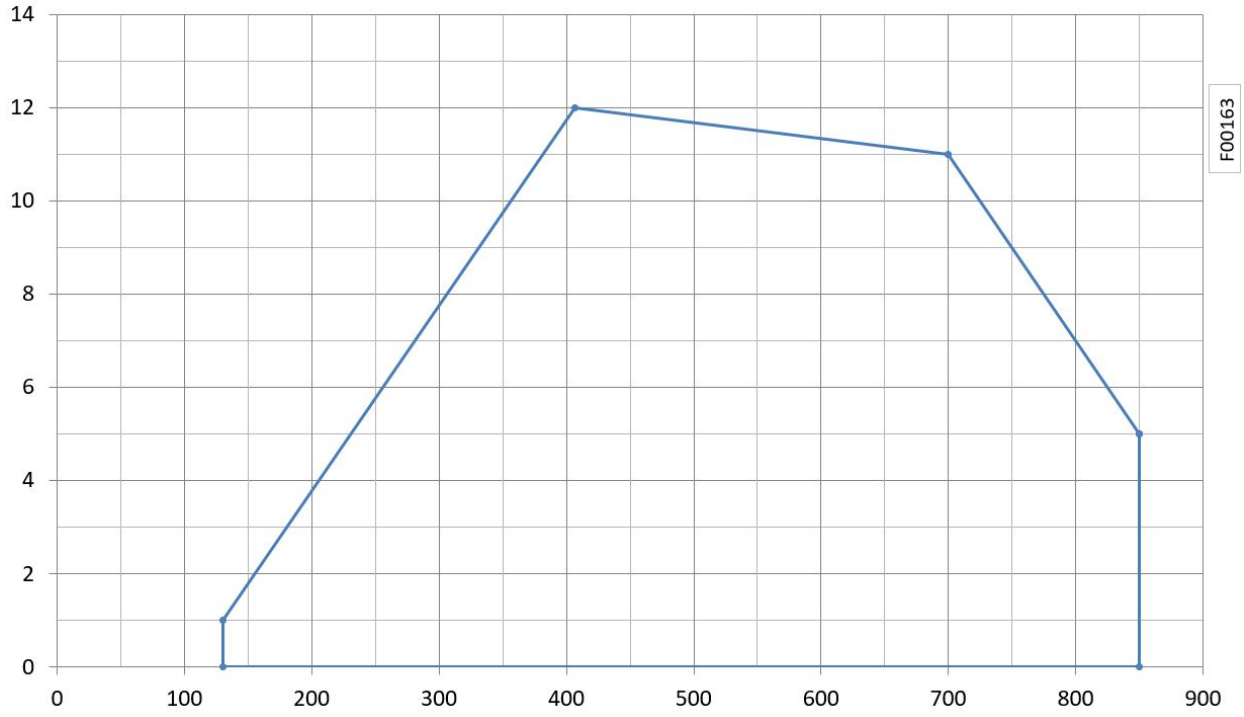


Fig. 1 X = Thermal power [kW] Y = Pression in the combustion chamber [mbar]

The firing rates has been obtained based on test boilers in accordance with EN267 standards and are indicative of matching the burner to the boiler. For the correct operation of the burner, combustion chamber dimensions must be in accordance with current regulation. In case of non-compliance, contact the manufacturer.

OPERATING RANGE DIAGRAM GAS P100/MCE LX4 EVO

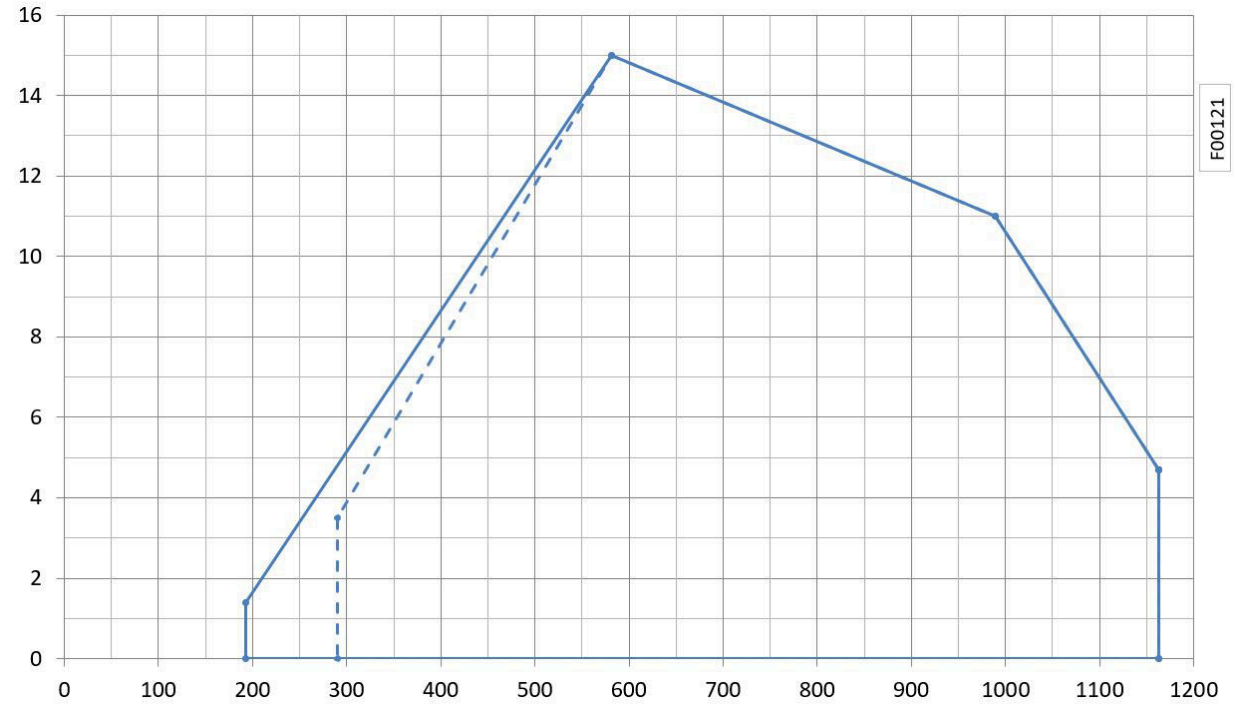


Fig. 2 X = Thermal power [kW] Y = Pression in the combustion chamber [mbar]

For L.P.G. Minimum 1st stage power: 249 Mcal/h - 290 kW.
The firing rates has been obtained based on test boilers in accordance with EN267 standards and are indicative of matching the burner to the boiler. For the correct operation of the burner, combustion chamber dimensions must be in accordance with current regulation. In case of non-compliance, contact the manufacturer.

TECHNICAL DATA GAS P130/MCE EVO LX4 - NATURAL GAS -

MODEL		GAS P130/MCE EVO LX4
Thermal power min. 1°st. / min. 2°st. - max. 2°st. *	[Mcal/h]	241/612-1247
Thermal power min. 1°st. / min. 2°st. - max. 2°st. *	[kW]	280/712-1450
Gas flow G20 (NATURAL GAS) min. 1°st. / min. 2°st. - max. 2°st. *	[Nm³/h]	28.2/71.5-146
Fuel: NATURAL GAS (second family)		
Fuel category:	I2R,I2H,I2L,I2E,I2E+,I2Er,I2ELL,I2E(R)	
Intermitted working operation (min. 1 stop every 24 hours) modulating		
Environmental conditions operation / storage:	-15...+40°C / -20...+70°C, rel. humidity max. 80%	
Max. temperature combustion air	[°C]	60
Min. pressure gas train D2"-S NATURAL GAS **	[mbar]	52.8
Min. pressure gas train D2"-S MBE NATURAL GAS **	[mbar]	--
Min. pressure gas train DN65-FS65 NATURAL GAS **	[mbar]	35.5
Min. pressure gas train DN80-FS80 NATURAL GAS **	[mbar]	29.8
Maximum pressure at the entry of valves (D2")	[mbar]	360
Maximum pressure at the entry of valves (D2" MBE - DN65 - DN80)	[mbar]	500
Nominal electric power	[kW]	2.4
Fan motor	[kW]	2.2
Nominal motor current absorption	[A]	4.35
Nominal auxiliary absorption	[A]	0.7
Power supply:	3~400V, 1/N~230V-50Hz	
Electric protection degree:	IP 40	
NOx Class, NATURAL GAS (second family)	4	
Noisiness *** min. - max.	[dB(A)]	81-82

* Reference conditions: Environment temperature 20°C - Barometric pressure 1013 mbars - Altitude 0 metre (sea level).
** Minimal feeding-gas pressure to the gas train to get the maximum power of the burner, considering counter-pressure in combustion chamber of value 0 (zero).
*** Measured sonorous pressure in the laboratory combustion, with functional burner on beta boiler to 1 metre of distance (UNI EN ISO 3746 law - Control method class 3 - The measured sound pressure tolerance can be assumed to be ± 1 [dB (A)]).

TECHNICAL DATA GAS P130/MCE EVO LX4 - L.P.G. -

MODEL		GAS P130/MCE EVO LX4
Thermal power min. 1°st. / min. 2°st. - max. 2°st. *	[Mcal/h]	258/612-1247
Thermal power min. 1°st. / min. 2°st. - max. 2°st. *	[kW]	300/712-1450
Gas flow G31 (L.P.G.) min. 1°st. / min. 2°st. - max. 2°st. *	[Nm³/h]	11.6/27.6-56.2
Fuel: L.P.G. (third family)		
Fuel category:	I3B/P,I3+,I3P,I3B,I3R	
Intermitted working operation (min. 1 stop every 24 hours) modulating		
Environmental conditions operation / storage:	-15...+40°C / -20...+70°C, rel. humidity max. 80%	
Max. temperature combustion air	[°C]	60
Min. pressure gas train D2"-S L.P.G. **	[mbar]	38.9
Min. pressure gas train D2"-S MBE L.P.G. **	[mbar]	--
Min. pressure gas train DN65-FS65 L.P.G. **	[mbar]	33
Min. pressure gas train DN80-FS80 L.P.G. **	[mbar]	30.2
Maximum pressure at the entry of valves (D2")	[mbar]	360
Maximum pressure at the entry of valves (D2" MBE - DN65 - DN80)	[mbar]	500
Nominal electric power	[kW]	2.4
Fan motor	[kW]	2.2
Nominal motor current absorption	[A]	4.35
Nominal auxiliary absorption	[A]	0.7
Power supply:	3~400V, 1/N~230V-50Hz	
Electric protection degree:	IP 40	
NOx Class, L.P.G. (third family)	4	
Noisiness *** min. - max.	[dB(A)]	81-82

* Reference conditions: Environment temperature 20°C - Barometric pressure 1013 mbars - Altitude 0 metre (sea level).
** Minimal feeding-gas pressure to the gas train to get the maximum power of the burner, considering counter-pressure in combustion chamber of value 0 (zero).
*** Measured sonorous pressure in the laboratory combustion, with functional burner on beta boiler to 1 metre of distance (UNI EN ISO 3746 law - Control method class 3 - The measured sound pressure tolerance can be assumed to be ± 1 [dB (A)]).

TECHNICAL DATA GAS P160/MCE LX4 - NATURAL GAS -

MODEL		GAS P160/MCE LX4
Thermal power min. 1°st. / min. 2°st. - max. 2°st. *	[Mcal/h]	206/765-1647
Thermal power min. 1°st. / min. 2°st. - max. 2°st. *	[kW]	240/890-1915
Gas flow G20 (NATURAL GAS) min. 1°st. / min. 2°st. - max. 2°st. *	[Nm³/h]	24/89.5-192
Fuel: NATURAL GAS (second family)		
Fuel category:	I2R,I2H,I2L,I2E,I2E+,I2Er,I2ELL,I2E(R)	
Intermitted working operation (min. 1 stop every 24 hours) modulating		
Environmental conditions operation / storage:	-15...+40°C / -20...+70°C, rel. humidity max. 80%	
Max. temperature combustion air	[°C]	60
Min. pressure gas train D2"-S NATURAL GAS **	[mbar]	82.9
Min. pressure gas train D2"-S MBE NATURAL GAS **	[mbar]	67.4
Min. pressure gas train DN65-FS65 NATURAL GAS **	[mbar]	54.2
Min. pressure gas train DN80-FS80 NATURAL GAS **	[mbar]	44.2
Maximum pressure at the entry of valves (D2")	[mbar]	360
Maximum pressure at the entry of valves (D2" MBE - DN65 - DN80)	[mbar]	500
Nominal electric power	[kW]	4.2
Fan motor	[kW]	4
Nominal motor current absorption	[A]	7.45
Nominal auxiliary absorption	[A]	0.7
Power supply:	3~400V, 1/N~230V-50Hz	
Electric protection degree:	IP 40	
NOx Class, NATURAL GAS (second family)	4	
Noisiness *** min. - max.	[dB(A)]	81-82

* Reference conditions: Environment temperature 20°C - Barometric pressure 1013 mbars - Altitude 0 metre (sea level).
** Minimal feeding-gas pressure to the gas train to get the maximum power of the burner, considering counter-pressure in combustion chamber of value 0 (zero).
*** Measured sonorous pressure in the laboratory combustion, with functional burner on beta boiler to 1 metre of distance (UNI EN ISO 3746 law - Control method class 3 - The measured sound pressure tolerance can be assumed to be ± 1 [dB (A)]).

TECHNICAL DATA GAS P160/MCE LX4 - L.P.G. -

MODEL		GAS P160/MCE LX4
Thermal power min. 1°st. / min. 2°st. - max. 2°st. *	[Mcal/h]	258/765-1647
Thermal power min. 1°st. / min. 2°st. - max. 2°st. *	[kW]	300/890-1915
Gas flow G31 (L.P.G.) min. 1°st. / min. 2°st. - max. 2°st. *	[Nm³/h]	11.6/34.5-74.2
Fuel: L.P.G. (third family, G31)		
Fuel category:	I3B/P,I3+,I3P,I3B,I3R	
Intermitted working operation (min. 1 stop every 24 hours) modulating		
Environmental conditions operation / storage:	-15...+40°C / -20...+70°C, rel. humidity max. 80%	
Max. temperature combustion air	[°C]	60
Min. pressure gas train D2"-S L.P.G. **	[mbar]	44
Min. pressure gas train D2"-S MBE L.P.G. **	[mbar]	37.8
Min. pressure gas train DN65-FS65 L.P.G. **	[mbar]	32.8
Min. pressure gas train DN80-FS80 L.P.G. **	[mbar]	28.9
Maximum pressure at the entry of valves (D2")	[mbar]	360
Maximum pressure at the entry of valves (D2" MBE - DN65 - DN80)	[mbar]	500
Nominal electric power	[kW]	4.2
Fan motor	[kW]	4
Nominal motor current absorption	[A]	7.45
Nominal auxiliary absorption	[A]	0.7
Power supply:	3~400V, 1/N~230V-50Hz	
Electric protection degree:	IP 40	
NOx Class, L.P.G. (third family)	4	
Noisiness *** min. - max.	[dB(A)]	81-82

* Reference conditions: Environment temperature 20°C - Barometric pressure 1013 mbars - Altitude 0 metre (sea level).
** Minimal feeding-gas pressure to the gas train to get the maximum power of the burner, considering counter-pressure in combustion chamber of value 0 (zero).
*** Measured sonorous pressure in the laboratory combustion, with functional burner on beta boiler to 1 metre of distance (UNI EN ISO 3746 law - Control method class 3 - The measured sound pressure tolerance can be assumed to be ± 1 [dB (A)]).

OPERATING RANGE DIAGRAM

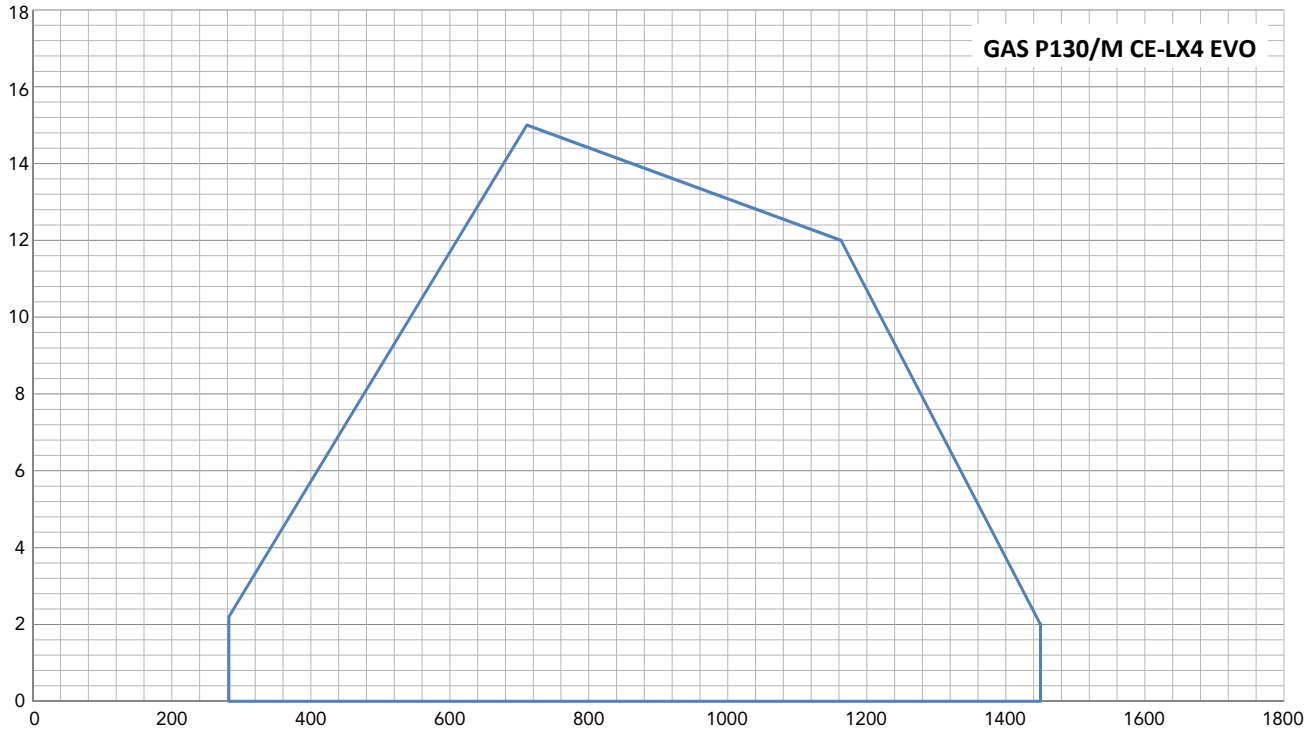


Fig. 2 X = Thermal power [kW] Y = Pression in the combustion chamber [mbar]

For L.P.G. Minimum 1st stage power: 300 kW.
The firing rates has been obtained based on test boilers in accordance with EN267 standards and are indicative of matching the burner to the boiler. For the correct operation of the burner, combustion chamber dimensions must be in accordance with current regulation. In case of non-compliance, contact the manufacturer.

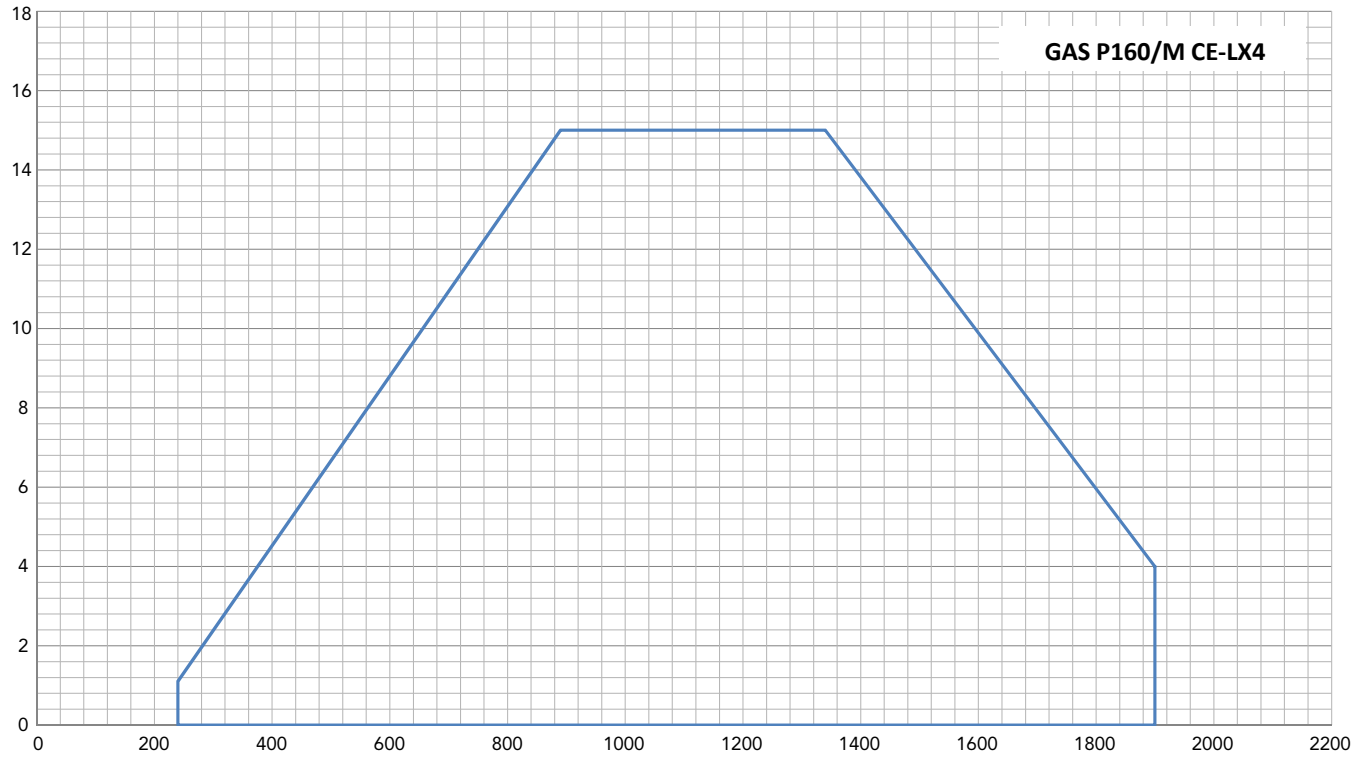


Fig. 2 X = Thermal power [kW] Y = Pression in the combustion chamber [mbar]

For L.P.G. Minimum 1st stage power: 300 kW.
The firing rates has been obtained based on test boilers in accordance with EN267 standards and are indicative of matching the burner to the boiler. For the correct operation of the burner, combustion chamber dimensions must be in accordance with current regulation. In case of non-compliance, contact the manufacturer.

DIMENSIONS GAS XP80/MCE LX4 [mm]

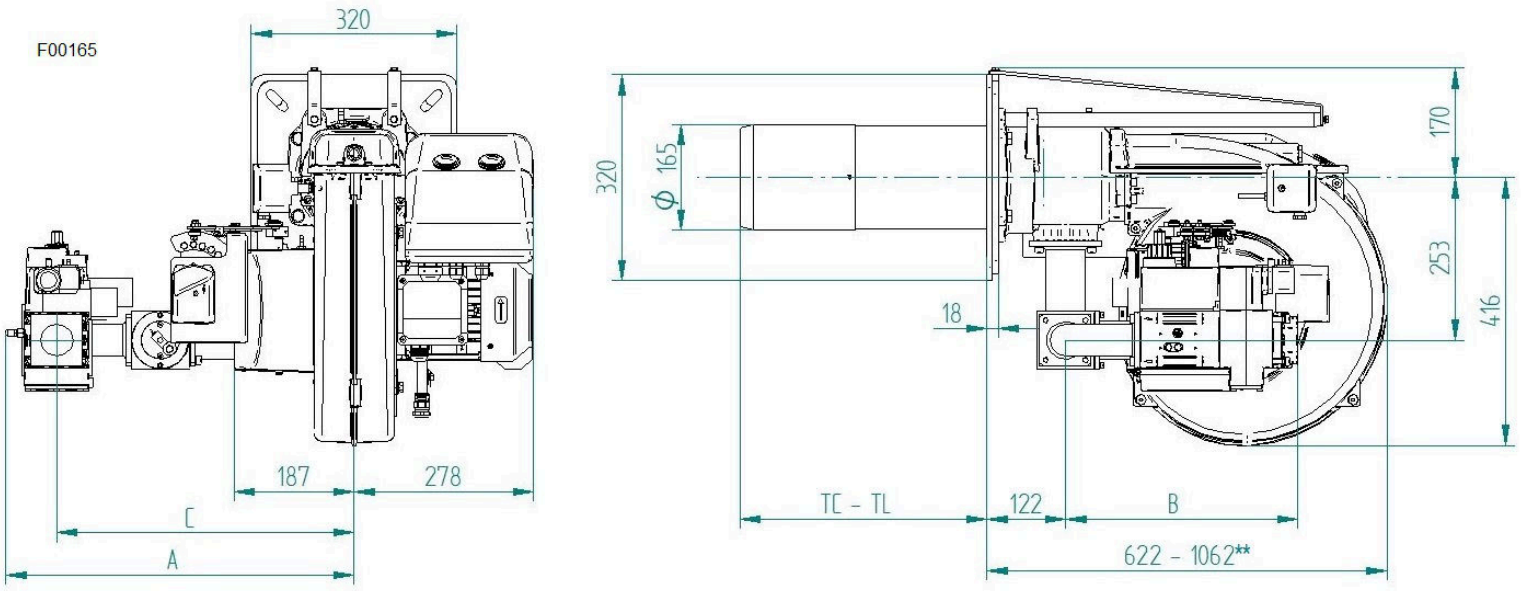


Fig. 3 Dimensions GAS XP80/MCE LX4

DIMENSIONS GAS P100/MCE LX4 EVO [mm]

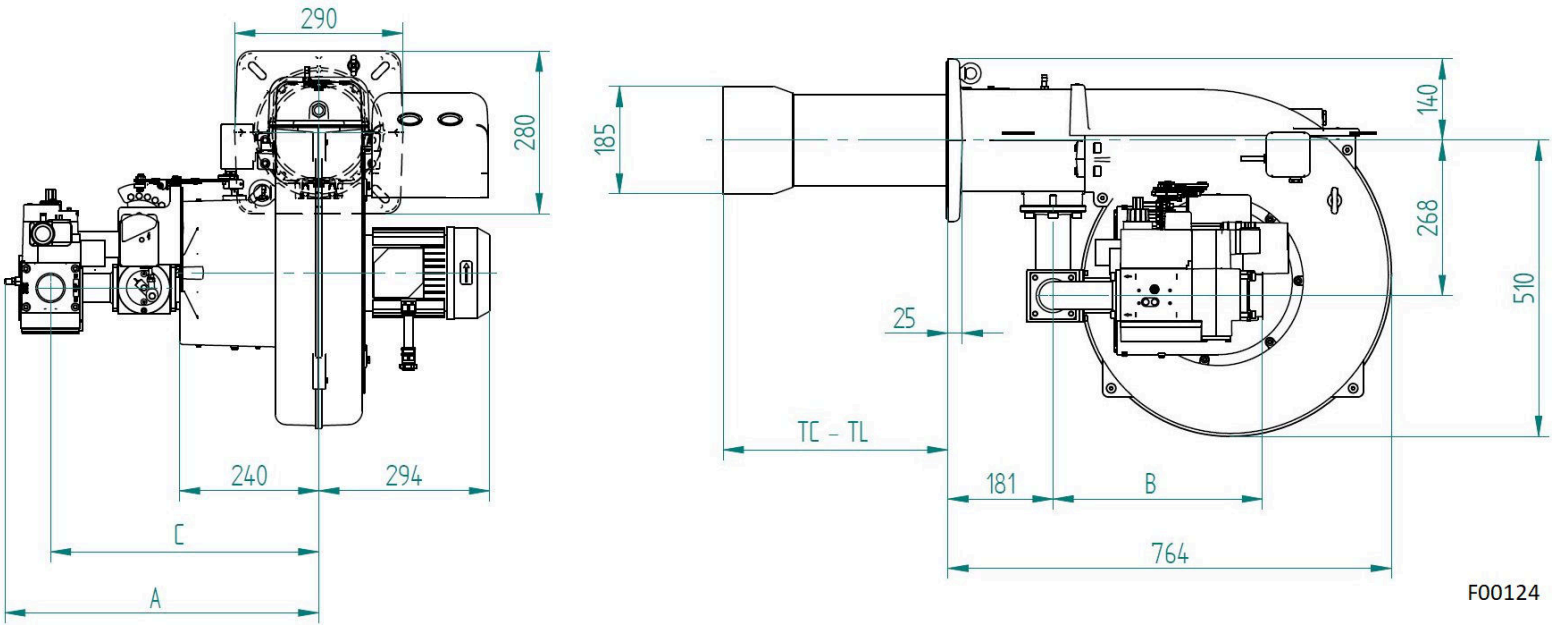


Fig. 4 Dimensions GAS P100/MCE LX4 EVO

GAS TRAIN	A	B	C
D1"1/4-S	520	345 *	462
D1"1/2-S	541	361	462
D2"-S	541	361	462
DN65-FS65	663	430	556
DN80-FS80	663	430	556

* Includes length of 66 mm due to adapter code 057020
**Overall dimensions with burner set back in maintenance position

TC - TL: Please see chapter "Flame tube length"

DIMENSIONS GAS P130/MCE LX4 EVO [mm]

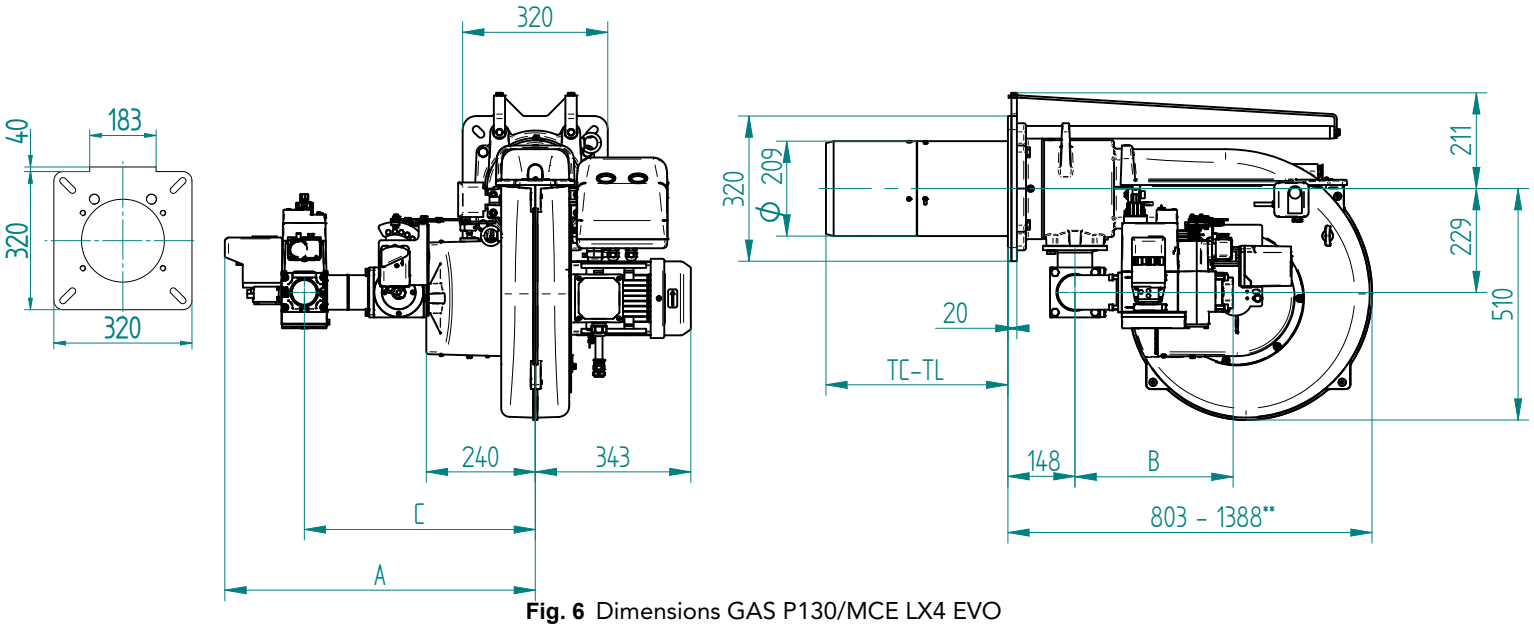


Fig. 6 Dimensions GAS P130/MCE LX4 EVO

GAS TRAIN	A	B	C
D2"-S	684	350	510
DN65-FS65	686	393	510
DN80-FS80	740	433	550

**Overall dimensions with burner set back in maintenance position

TC - TL: Please see chapter "Flame tube length"

DIMENSIONS GAS P160/MCE LX4 [mm]

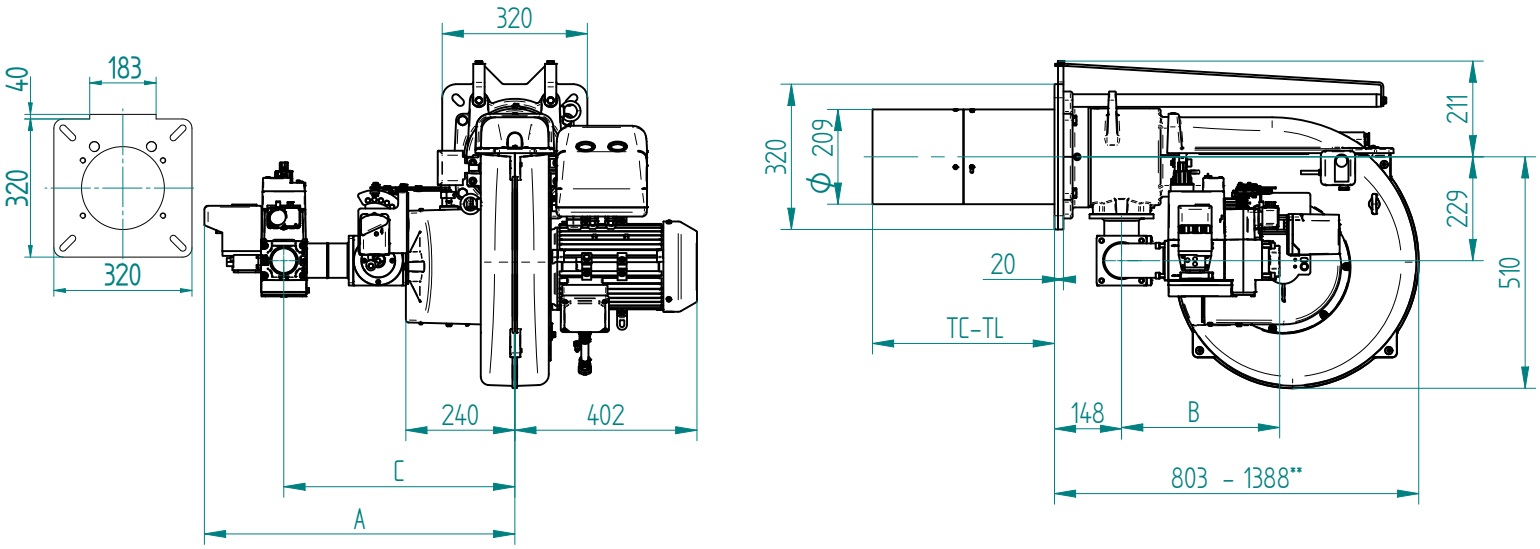


Fig. 7 Dimensions GAS P160/MCE LX4

GAS TRAIN	A	B	C
D2"-S	684	350	510
DN65-FS65	686	393	510
DN80-FS80	740	433	550

**Overall dimensions with burner set back in maintenance position

TC - TL: Please see chapter "Flame tube length"

BURNER INSTALLATION - GAS P100/MCE LX4 EVO.

For the installation of the burner to the generator, follow to the diagram shown below:

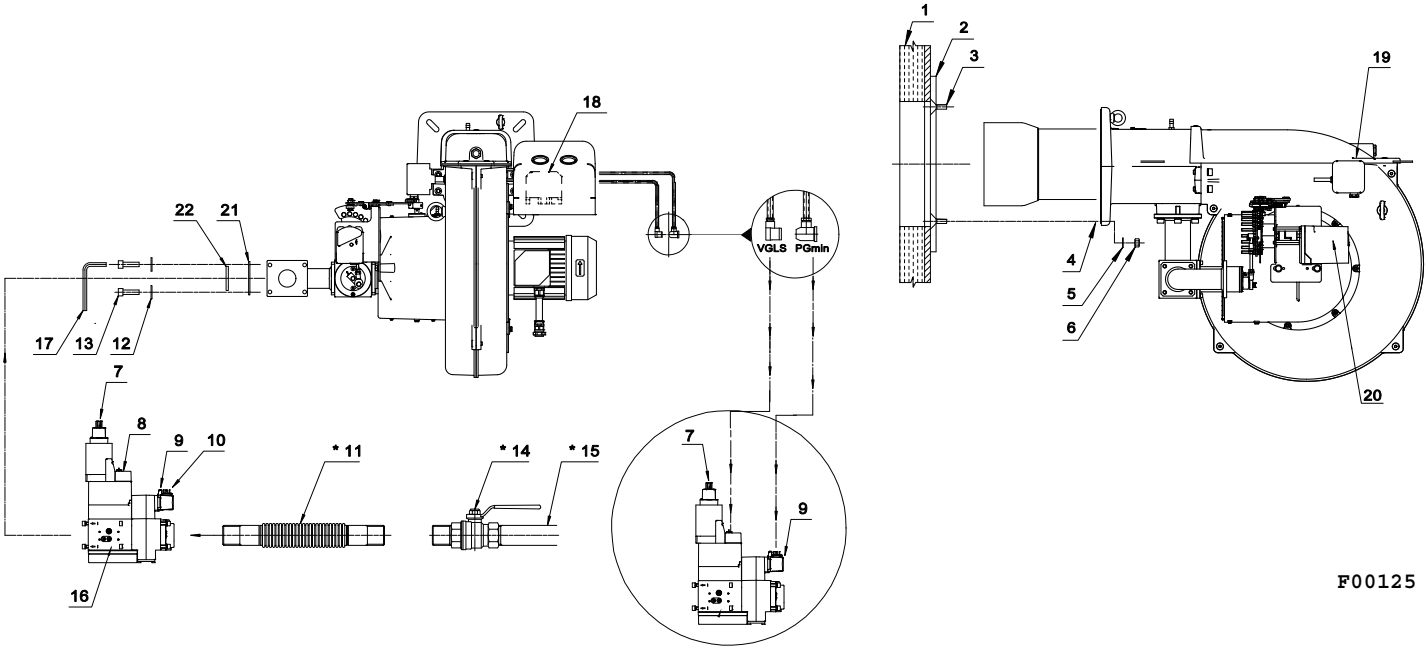


Fig. 8 Burner installation

LEGEND

1) Generator	7) Operating valve (VGL)	13) Screw	19) Air pressure switch (PA)
2) Counter-flange	8) Safety valve (VGS)	14) Gas tap *	20) Air servomotor
3) Stud bolt	9) Minimum gas pressure switch	15) Gas pipe *	21) Gasket
4) Gasket	10) Pressure outlet	16) Valve proving system	22) Cap
5) Washer	11) Antivibration coupling *	17) Hexagonal spanner	
6) Nut	12) Washer	18) Maximum gas pressure switch (PGmax)	

* To be mounted by the installer.

Before mounting the flange, make sure that the O-ring (pos.21) is correctly installed in its venue. Remove the cap (pos.22).

BURNER INSTALLATION - GAS XP80 - P130 - P160/MCE LX4

For the installation of the burner to the generator, follow to the diagram shown below:

1) Remove the slide from the burner and apply it to the boiler front.
2) Insert the burner on the pins as far as it will go and tighten the fixing screws to the boiler attachment plate.
   N.B.: Never suspend the burner on the pins without tie rods.
3) Immediately apply the tie rods to the pins.

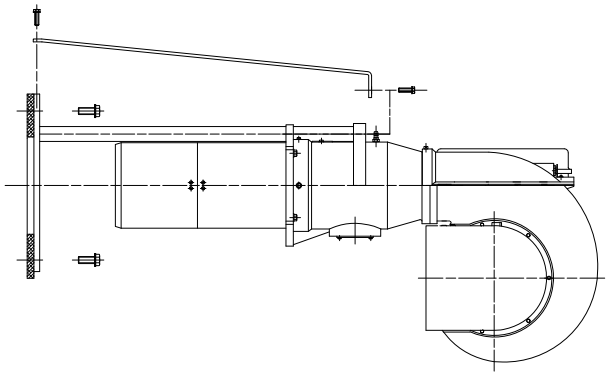


Fig. 9 Burner installation GAS XP80 - P130 - P160/MCE LX4

BURNER SIGNAL DESCRIPTION

In the picture below are indicated all the signalations present on the burner:

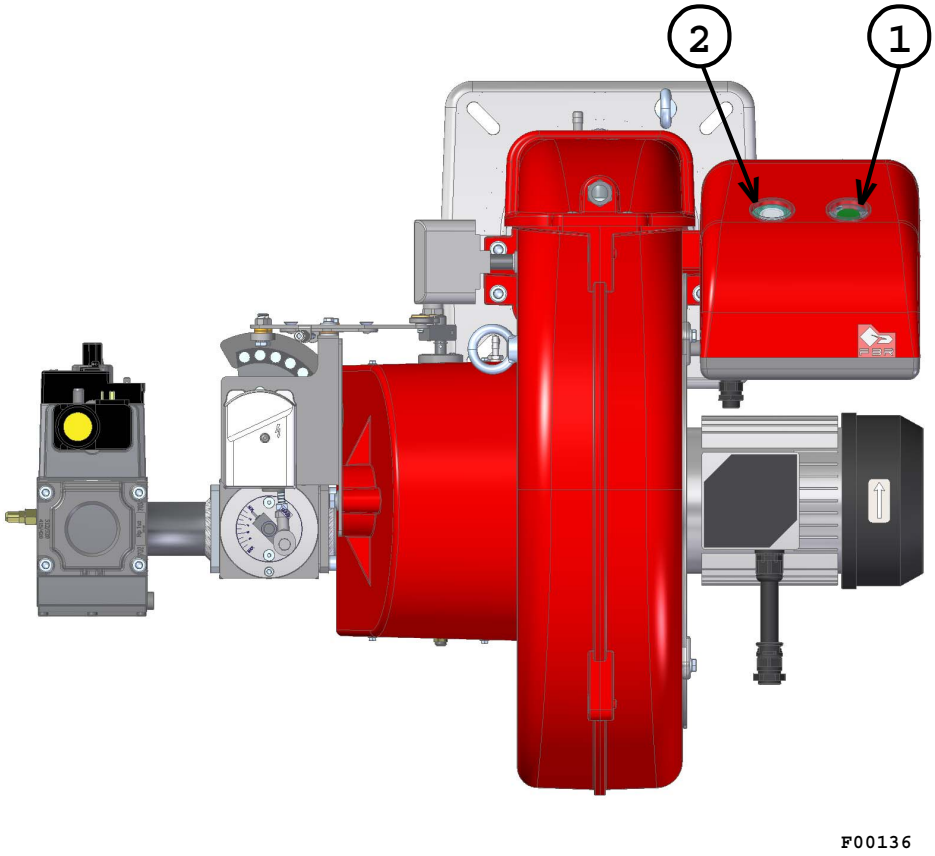


Fig. 6 Burner signal description

LEGEND

1) ON/OFF button

2) Reset from lockout button + status lamp

The multicolor signal lamp in the lockout reset button (pos.2) is the key indicating element for visual diagnostics and interface diagnostics.
In normal operation, the different operating states are indicated in the form of color codes; please refer to electrical device handbook supplied with the present instructions.

After a non-alterable lockout, the red signal lamp in the lockout reset button (pos.2) lights up.
By pressing the lockout reset button (pos.2) for more than 3 seconds, the visual diagnostics of the cause of fault can be activated; please refer to electrical device handbook supplied with the present instructions.

To close the diagnostics mode and to switch on the burner again, it is necessary to reset the burner control. Press the lockout reset button (pos.2) for about 1 second (<3 seconds).

After a non-alterable lockout, the red signal lamp in the lockout reset button (pos.2) lights up. To reset the control box press the lockout reset button (pos.2) for about 1 second (<3 seconds).

SAFETY

Before burner installation, clean carefully all around the area where the burner will be installed and arrange the correct lighting of the room.

The installation, adjustment and maintenance of the appliance must be carried out by professionaly qualified person in compliance with the standards and regulations of the laws in force as a wrong installation may cause damages to people, animals and things for which the Manufacturer will not be responsable.

Before starting installation, maintenance and disassembly turn off the electrical supply and check that it is not possible to turn accidentally the main switch on, close fuel inlet valves and make sure they could not accidentally be opened.

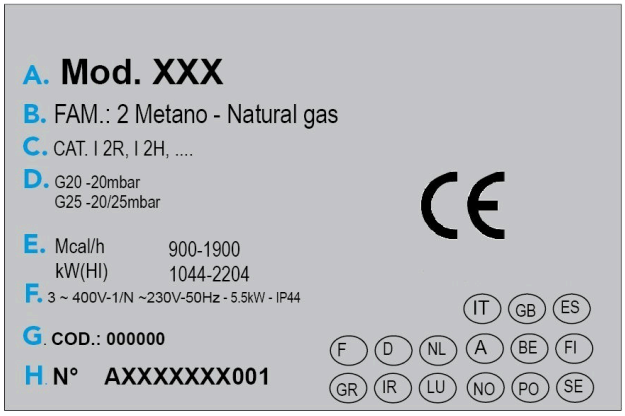
PRELIMINARY CHECKS

CHECK SUPPLY, TRANSPORT, PACKAGING, STORAGE

CHECK SUPPLY
Check that the supply is complete and without transport damages. After removing all the packaging, check the integrity of the contents. If in dubt do not use the burner and contact the supplier.
TRANSPORT
The transport weights of the burner and the gas train are indicated in the technical data.
STORAGE
Observe the environment temperatures which are allowed for storage and indicated in the technical data.

The packaging materials must not be abandoned as they may cause danger and pollution, but they should be collected and left in a appropriate place.

BURNER CHARACTERISTICS CHECK



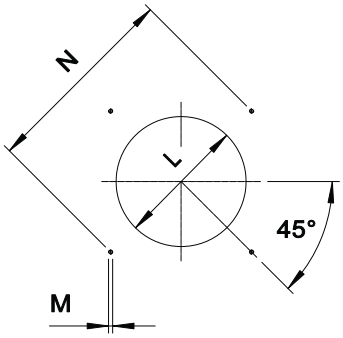
F00014

The data plate of the burner shows:
A. the model;
B. fuel family;
C. fuel category;
D. fuel 1 pressure (if appicable, fuel 2 pressure);
E. minimum and maximum thermal power;
F. the data for electrical supply, absorbed electrical power and electric protection degree;
G. the code;
H. the serial number.
Moreover the data plate includes CE labeling, CE Certification PIN and the list of countries where the certification is applicable.

Check that the capacity of the boiler is within the operating range of the burner.

Violation, removal or loss of the data plate of the burner and any other components compromise the correct identification of the burner and hinder the installation and maintenance operation.

BOILER PLATE



The dimensions of the boiler plate must be as indicated in the drawing.

* Suggested dimension of connection between burner and generator.

MODEL		L min	L*	L max	M	N min	N max
GAS XP80/MCE LX4	mm	175	175	250	M12	310	365
GAS P100/MCE LX4 EVO	mm	195	195	250	M12	275	325
GAS P130/MCE LX4 EVO	mm	220	220	250	M14	340	368
GAS P160/MCE LX4	mm	220	220	250	M14	340	368

FLAME TUBE LENGTH

Flame tube length must be selected based on the specifications supplied by boiler manufacturer and, in any case, it must be greater than the thickness of the boiler door included its insulation.
In case of boilers with flame inversion or front flue combustion chambers, it is necessary to insulate the area between the flame tube and front door with refractory material. This protection material must not impede flame tube extraction.

FLAME TUBE LENGTH GAS XP80/MCE LX4 - GAS P100/MCE LX4 EVO		
TC	mm	250
TL	mm	385 *

FLAME TUBE LENGTH GAS P130/MCE LX4 EVO - GAS P160/MCE LX4		
TC	mm	280
TL	mm	400 *

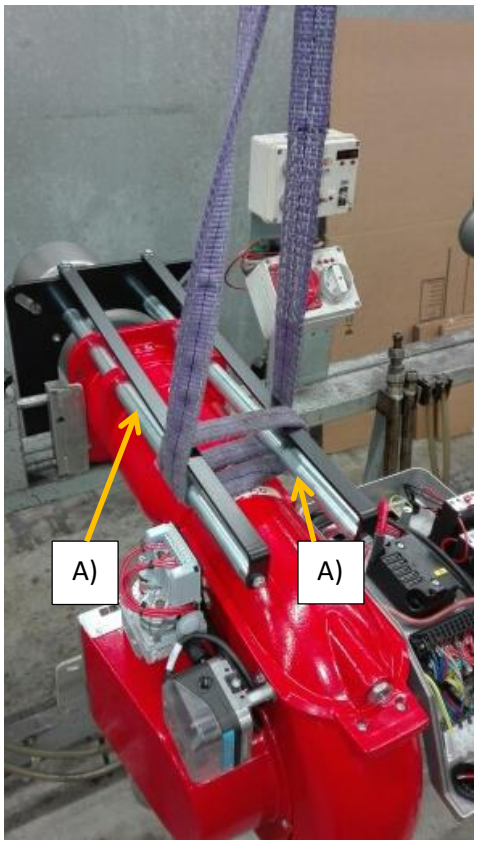
* For different flame lengths, please contact our Technical-Sales Department.

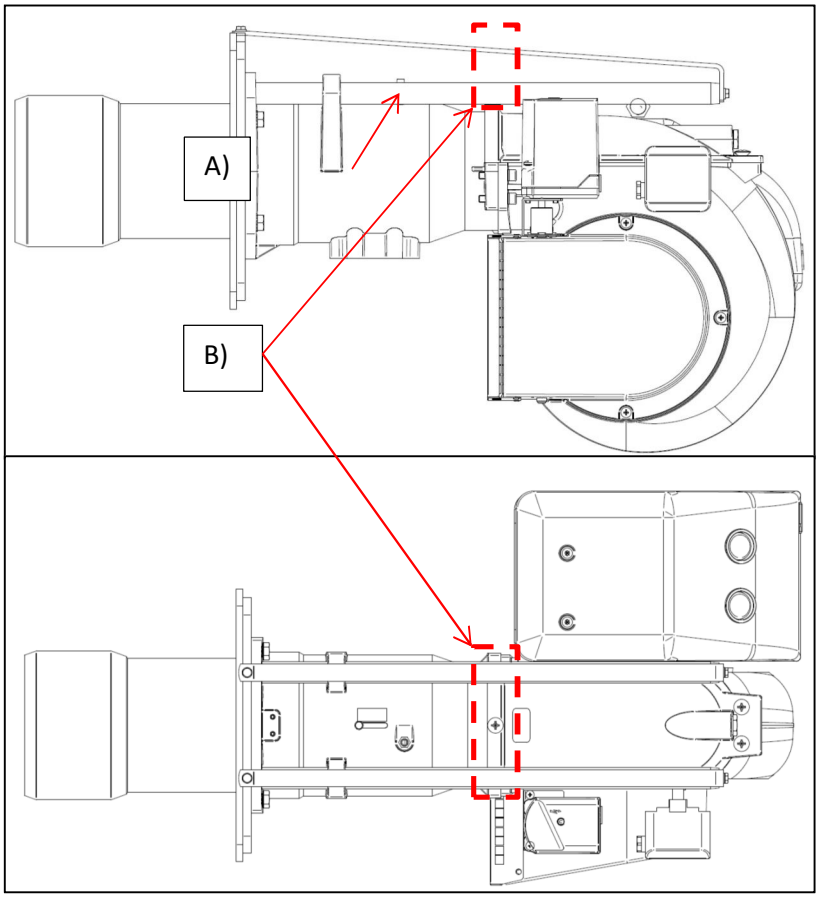
LIFTING AND MOVING OF THE BURNER

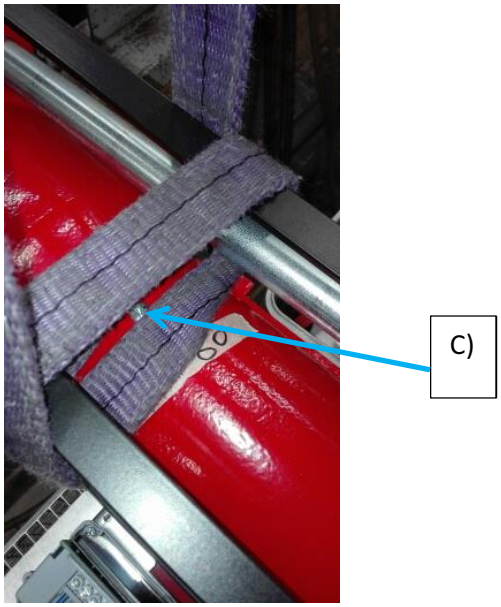
ATTENTION! These operations must be carried out by specialised and trained personnel. If these operations are not carried out perfectly, there is the residual risk of the burner to overturn and fall down.

BURNER MODEL GAS XP80 - P130 - P160/MCE LX4:

For the burner lifting is it necessary to use a band; the band it is passed under and around the pins slide according to the mode shown in the images below.
The band must be wrapped with a "double loop" (in order to be blocked to the burner) and the axial positioning of the band must be at the cover fixing screw.
This determines the correct load balancing.

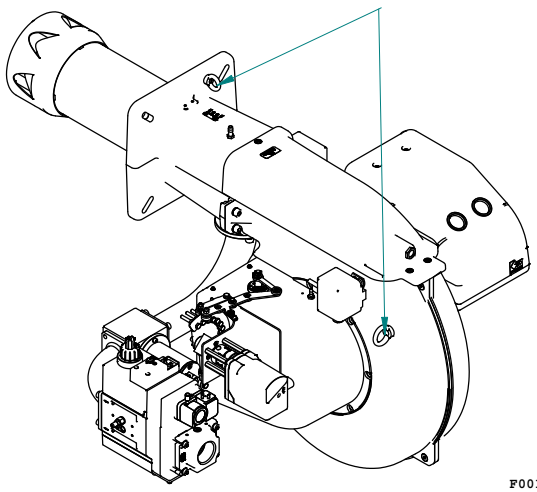

A)
A)


A)
B)



LEGEND
A) Pins slide
B) Axial positioning of the lifting band
C) The band must be wrapped in correspondence of the cover fixing screw

BURNER MODEL GAS P100/MCE LX4 EVO:



The burner is provided with eyebolts, for handling operations.

CORRECT BURNER POSITION

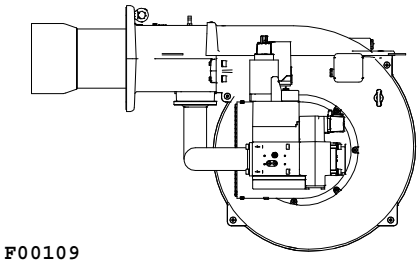


Fig. 7 Correct burner position

The burner is designed to work only in the position shown in picture.

In case of need for a different position, contact our Technical-Commercial Offices to check the availability of appropriate kits.

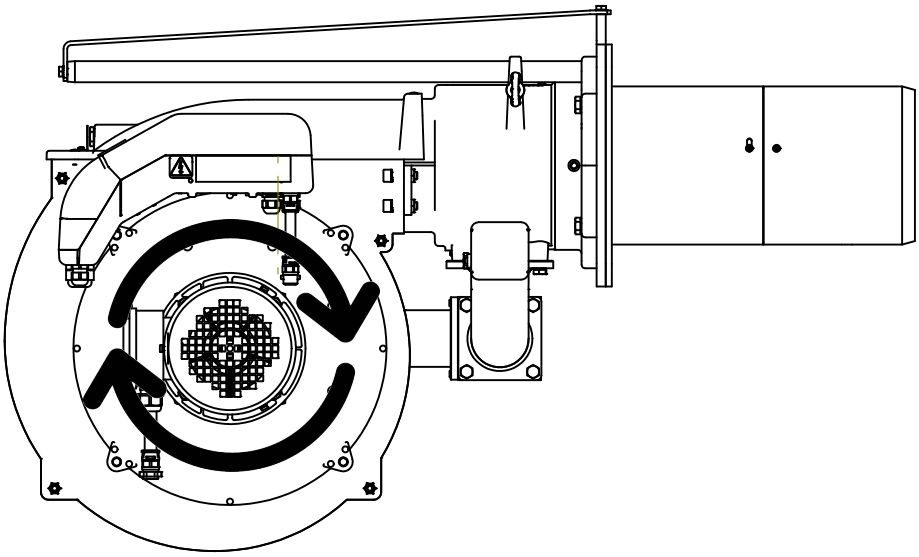
ELECTRICAL PANEL LAYOUT

Please refer to elctrical panel layout supplied with the present instructions.

WORKING DIAGRAM OF THE ELECTRICAL DEVICE

Please refer to electrical device handbook supplied with the present Instructions.

CHECKING DIRECTION OF ROTATION OF THE FAN MOTOR



Positioning yourself with the burner flame tube to your right, the motor must rotate clockwise.

CALIBRATION OF THE BURNER

Attention! Before starting the burner it's necessary to respect the general standards of security, in particularly check:

- **electrical supply.**
- **type of gas.**
- **gas pressure.**
- **the tightness of the plant and its correct realization.**
- **the presence of water in the plant.**
- **the ventilation of the heater area where the boiler is installed.**
- **the intervention of the thermostats or pressure switches of the boiler.**

Open the faucet and start the burner.
Wait for formation of the flame at the end of prepurge.
Set the capacity of the burner in according of the tables from the indicative calibrations. Proceed to definitive settings of the burner with the help of the combustion analyser.
Set the air pressure switch and test the intervention, obstructing gradually the air inlet.
Also test the intervention of the minimum GAS pressure switch closing the gas faucet slowly.

CALIBRATION OF THE AIR PRESSURE SWITCH (PA)

The air pressure switch checks the minimum AIR pressure of the fan.

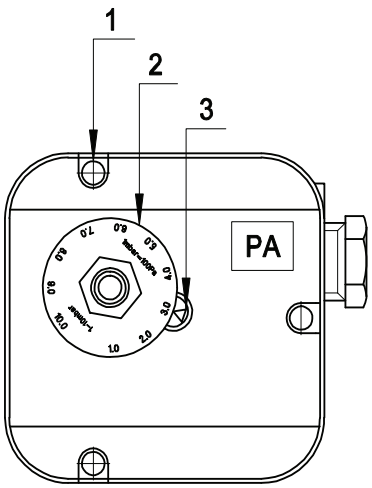


Fig. 8 1-Cover screw 2-Regulation collar 3-Regulation indicator

The air pressure switch controls the minimum AIR pressure of the fan. When the air pressure value supplied by the fan is lower than the pressure switch set-point, the burner goes into lockout.
To calibrate the air pressure switch, proceed as follows:

A) Adjust the air pressure switch to minimum;
B) Turn on the burner;
C) Measure the air pressure on the air pressure switch pressure point;
D) Calibrate the air pressure switch at 50% of the measured pressure value;
E) Turn the burner off and on again to check for correct operation.

CALIBRATION OF THE MINIMUM GAS PRESSURE SWITCH (PGMIN)

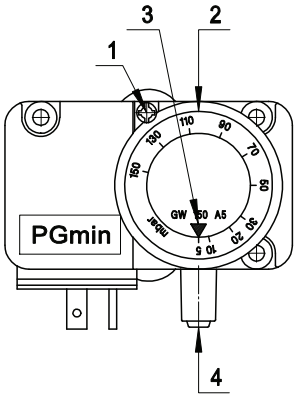


Fig. 9 MOD. DUNGS: 1-Cover screw 2-Regulation collar 3-Regulation indicator 4-Pressure control connection of the pressure switch

It is connected in series with the thermostats of the boiler and stops the burner when the gas pressure is less then the value of the set point (set the value 20% inferior of the operation gas pressure). The minimum gas pressure switch is mounted on the gas train in correspondence of the valve VS, for the setting proceed like follows:

A) Bring the burner up to the maximum power (relative to the heat generator).
B) Measure the pressure on the outlet of the pressure switch and close slowly the faucet until the pressure is 20% less than the measured pressure
C) Turn the collar of the pressure switch regulation slowly until you obtain the lock-out of the burner.
D) Open the faucet completely and start up the burner.
E) Repeat point A) and control the intervention of the pressure switch.

CALIBRATION OF THE MAXIMUM GAS PRESSURE SWITCH (PGMAX) *

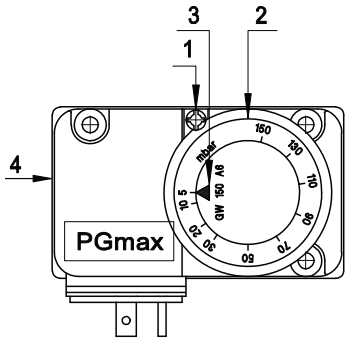


Fig. 10 1-Cover screw 2-Regulation collar 3-Regulation indicator 4-Pressure control connection of the pressure switch

It is connected in series with the flame sensor and it interrupts the current when the gas pressure is higher then the set point (set the value 30% higher then the operation gas pressure).
The maximum gas pressure switch is mounted on the burner in proximity of the connection flange of the gas train.
For setting proceed like follows:

a) Bring the burner up to the maximum power (relative to the heat generator).
b) Measure the pressure on the outlet of the pressure switch.
c) Turn the collar of the pressure switch regulation slowly until you obtain the lock-out of the burner.
d) Increase the pressure (set point) of intervention by 30% turning the regulation collar. Repeat the cycle of the burner again and in case of lock-out increase the set point for the pressure of intervention.

* Optional for model GAS XP80/MCE LX4

VALVE PROVING SYSTEM **

Valve proving system by DUNGS VPS 504
Please refer to instruction supplied on the gas train box

** Optional for models GAS XP80/MCE LX4 - GAS P100/MCE LX4 EVO

SERVOMOTOR CALIBRATION SIEMENS SQN71.424A20

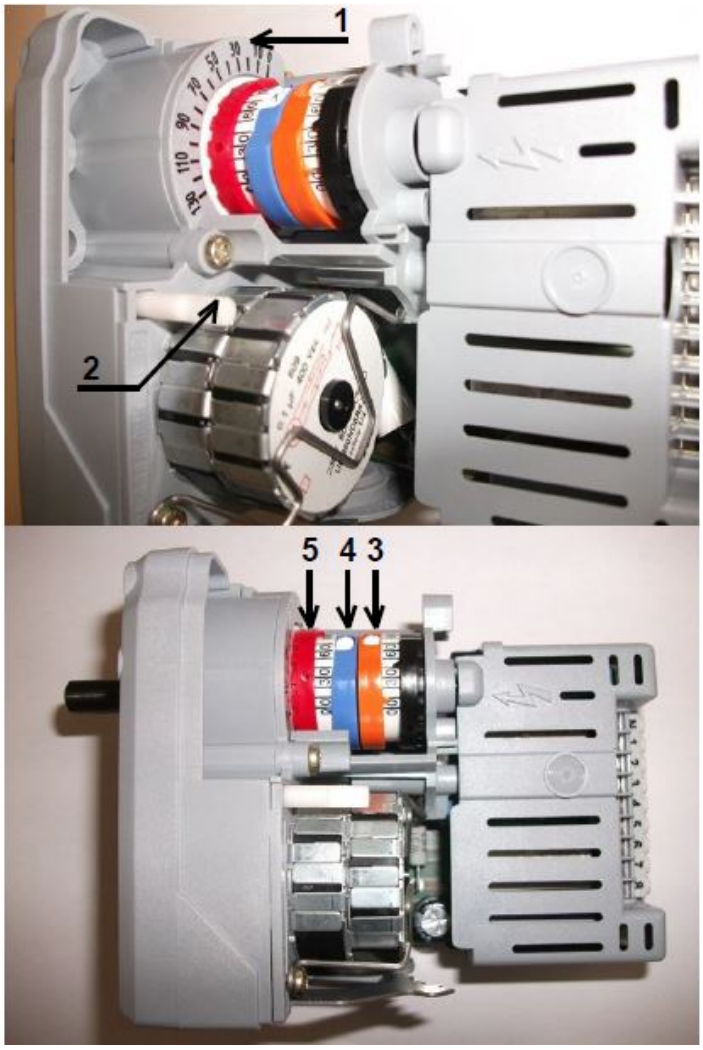


Fig. 11 SIEMENS SQN71.424A20

LEGEND

1) Index of air shutter opening
2) Release pivot (PUSH TO RELEASE)
3) Minimum cam [10°] (ORANGE)
4) Close cam [0°] (BLUE)
5) Maximum cam [130°] (RED)

CALIBRATION OF THE BURNER

Start the burner and set at the maximum opening of the servobrake [cam (I) set at the factory], regulate the gas flow by means of the activity valve and regulate the quantity of air by means of the screws which are on the sector; then return at the position of minimum modulation and regulate the power by means of the cam (III) of minimum modulation of the servobrake and calibrate the quantity of air.
It is necessary only the regulation of air for intermediate points.
In order to ensure a better calibration of all points, it is necessary to align every screw of the sector with the axis of the superior bearing then proceed with the regulation of the required quantity of air.

During the whole operation of calibration of the burner it is necessary the aid of a combustion analyzer.

Example of calibration of the cams:

- Close cam: 0° cam (II) (BLUE)
- Minimum modulation cam: 10° cam (III) (ORANGE)
- Maximum modulation cam: 130° cam (I) (RED)

GAS TRAIN CALIBRATION

GAS TRAIN CALIBRATION - DUNGS MODEL

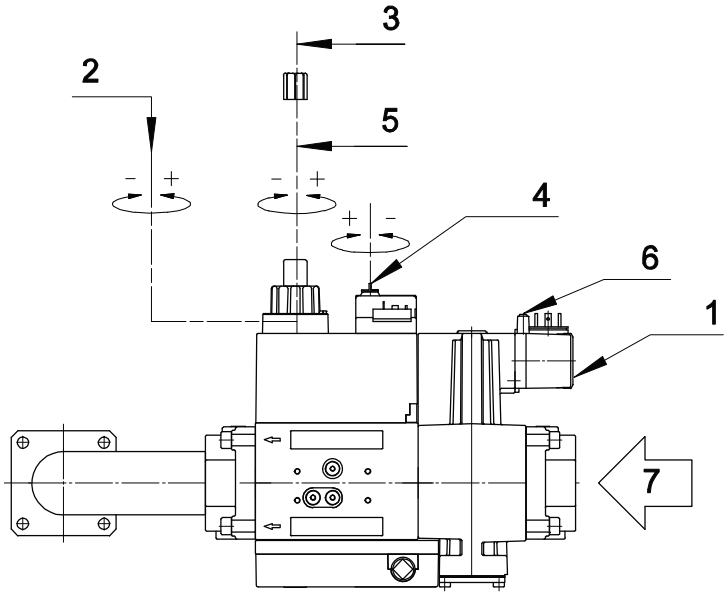


Fig. 12 DUNGS MB-DLE

1) Minimum GAS pressure switch

2) Adjustment of GAS flow

3) To adjust it is necessary to remove the cover from the upper side of the valve

4) Stabilizer

5) Adjustment of START flow (quick starting step)

6) Entrance GAS pressure

7) GAS inlet

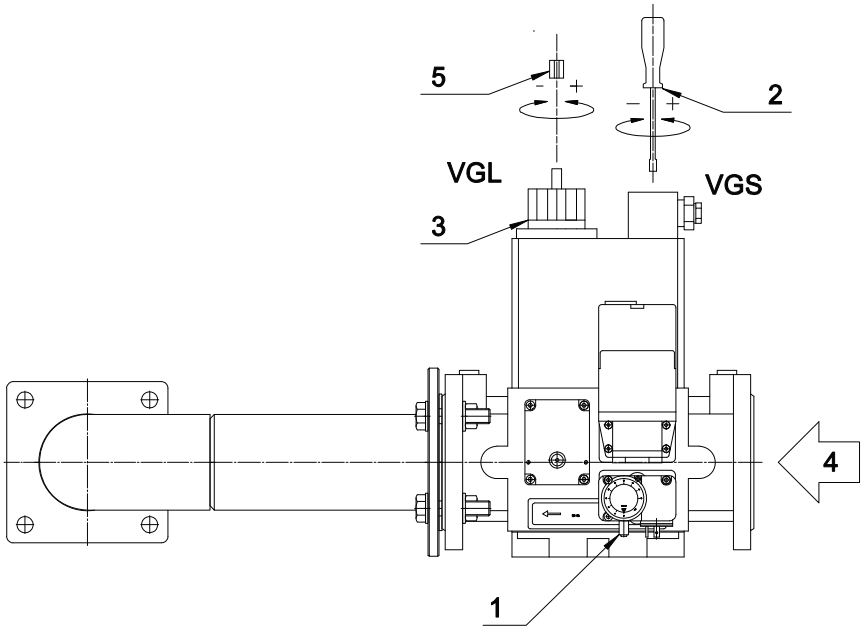


Fig. 13 DUNGS DMV-DLE

1) Minimum GAS pressure switch

2) Adjustment of Gas flow on VGL (operating valve)

3) Adjustment of opening speed VGL (SPEED) (Don't change, pre-calibrated and sealed valve)

4) GAS inlet

5) VGL STARTING FLOW REGULATION KNOB (rapid starting snap)

TABLE OF INDICATIVE CALIBRATIONS

TABLE OF INDICATIVE CALIBRATIONS GAS XP80/MCE LX4

Calibrations effected with pressure in chamber 0,1 mbar.
The definitive calibration must be done in operation by means of a combustion analyser.

G20 (NATURAL GAS)

THERMAL POWER		1st STAGE				2nd STAGE			
1st STAGE [kW]	2nd STAGE [kW]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]
130	407	13,1	0,5	0,4	0,1	40,9	4,0	3,5	2,3
130	450	13,1	0,5	0,4	0,1	45,2	4,9	3,7	3,0
130	500	13,1	0,5	0,4	0,1	50,3	6,0	4	3,7
130	550	13,1	0,5	0,4	0,1	55,3	7,3	4,4	4,5
130	600	13,1	0,5	0,4	0,1	60,3	8,3	4,8	5,7
130	650	13,1	0,5	0,4	0,1	65,3	9,7	5,2	6,7
130	700	13,1	0,5	0,4	0,1	70,4	11,5	5,7	7,6
130	750	13,1	0,5	0,4	0,1	75,4	13,2	5,9	8,7
130	800	13,1	0,5	0,4	0,1	80,4	14,9	6,2	10,1
130	850	13,1	0,5	0,4	0,1	85,4	16,8	6,4	10,5

G31 (L.P.G.)

THERMAL POWER		1st STAGE				2nd STAGE			
1st STAGE [kW]	2nd STAGE [kW]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]
130	407	5,1	0,7	0,5	0,1	15,8	4,9	2,8	2,4
130	450	5,1	0,7	0,5	0,1	17,5	6,3	3,2	2,9
130	500	5,1	0,7	0,5	0,1	19,5	7,4	3,6	3,6
130	550	5,1	0,7	0,5	0,1	21,4	9,4	4,2	4,4
130	600	5,1	0,7	0,5	0,1	23,3	10,7	4,5	5,2
130	650	5,1	0,7	0,5	0,1	25,3	13,2	4,8	6,1
130	700	5,1	0,7	0,5	0,1	27,2	14,5	5,1	7,1
130	750	5,1	0,7	0,5	0,1	29,2	17,5	5,3	8,2
130	800	5,1	0,7	0,5	0,1	31,1	19,0	5,7	9,3
130	850	5,1	0,7	0,5	0,1	33,1	22,5	6	10,5

TABLE OF INDICATIVE CALIBRATIONS GAS P100/MCE LX4 EVO

Calibrations effected with pressure in chamber 0,1 mbar.
The definitive calibration must be done in operation by means of a combustion analyser.

G20 (NATURAL GAS)

THERMAL POWER		1st STAGE				2nd STAGE			
1st STAGE [kW]	2nd STAGE [kW]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]
193	580	19.4	0.6	0.7	0.4	58.3	5.0	2.3	4.6
193	650	19.4	0.6	0.7	0.4	65.3	6.2	2.6	5.7
193	700	19.4	0.6	0.7	0.4	70.4	7.2	2.8	6.7
193	750	19.4	0.6	0.7	0.4	75.4	8.4	3	7.8
193	800	19.4	0.6	0.7	0.4	80.4	9.6	3.2	9
193	850	19.4	0.6	0.7	0.4	85.4	10.8	3.4	10.1
193	900	19.4	0.6	0.7	0.4	90.5	11.6	3.6	10.8
193	950	19.4	0.6	0.7	0.4	95.5	12.9	3.9	12.1
193	1000	19.4	0.6	0.7	0.4	100.5	14.3	4.3	13.8
193	1050	19.4	0.6	0.7	0.4	105.5	15.9	4.8	15.1
193	1100	19.4	0.6	0.7	0.4	110.6	17.5	5.5	16.5
193	1163	19.4	0.6	0.7	0.4	116.9	19.3	7	18.1

G31 (L.P.G.)

THERMAL POWER		1st STAGE				2nd STAGE			
1st STAGE [kW]	2nd STAGE [kW]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]
290	580	11.3	1.2	1.3	1.1	22.6	5.2	2.3	4.3
290	650	11.3	1.2	1.3	1.1	25.3	6.6	2.6	5.5
290	700	11.3	1.2	1.3	1.1	27.2	7.7	2.8	6.4
290	750	11.3	1.2	1.3	1.1	29.2	8.8	3	7.4
290	800	11.3	1.2	1.3	1.1	31.1	10.0	3.2	8.4
290	850	11.3	1.2	1.3	1.1	33.1	11.3	3.4	9.5
290	900	11.3	1.2	1.3	1.1	35.0	12.6	3.6	10.7
290	950	11.3	1.2	1.3	1.1	37.0	14.1	3.9	11.9
290	1000	11.3	1.2	1.3	1.1	38.9	15.6	4.3	13.2
290	1050	11.3	1.2	1.3	1.1	40.9	17.3	4.8	14.5
290	1100	11.3	1.2	1.3	1.1	42.8	19.0	5.5	15.9
290	1163	11.3	1.2	1.3	1.1	45.3	21.2	7	17.8

TABLE OF INDICATIVE CALIBRATIONS GAS P130/MCE LX4 EVO

Calibrations effected with pressure in chamber 0,1 mbar.
The definitive calibration must be done in operation by means of a combustion analyser.

G20 (NATURAL GAS)

THERMAL POWER		1st STAGE				2nd STAGE			
1st STAGE [kW]	2nd STAGE [kW]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]
260	711	26.1	0.7	1.2	0.6	71.5	6.1	2.8	4.8
260	800	26.1	0.7	1.2	0.6	80.4	7.5	3.1	6.5
260	900	26.1	0.7	1.2	0.6	90.5	9.7	3.5	8.3
260	1000	26.1	0.7	1.2	0.6	100.5	11.5	3.9	9.9
260	1100	26.1	0.7	1.2	0.6	110.6	14.1	4.4	12
260	1200	26.1	0.7	1.2	0.6	120.6	16.4	4.8	13.6
260	1300	26.1	0.7	1.2	0.6	130.7	19.2	6	16.2
260	1400	26.1	0.7	1.2	0.6	140.7	21.2	8	17.3
260	1450	26.1	0.7	1.2	0.6	145.7	22.3	9	18.1

G31 (L.P.G.)

THERMAL POWER		1st STAGE				2nd STAGE			
1st STAGE [kW]	2nd STAGE [kW]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]
237	711	9.2	1.4	1.4	0.9	27.7	7.4	2.7	5.1
267	800	10.4	1.4	1.4	0.9	31.1	9.3	3	6.4
300	900	11.7	1.4	1.4	0.9	35.0	11.5	3.3	7.9
330	1000	12.8	1.4	1.4	0.9	38.9	14.2	3.7	9.8
367	1100	14.3	1.4	1.4	0.9	42.8	17.0	4.1	11.7
400	1200	15.6	1.4	1.4	0.9	46.7	20.0	4.6	13.6
433	1300	16.8	1.4	1.4	0.9	50.6	23.1	5.2	15.7
460	1400	17.9	1.4	1.4	0.9	54.5	26.1	7.4	17.0
480	1450	18.7	1.4	1.4	0.9	56.4	27.8	8.5	18

TABLE OF INDICATIVE CALIBRATIONS GAS P160/MCE LX4

Calibrations effected with pressure in chamber 0,1 mbar.
The definitive calibration must be done in operation by means of a combustion analyser..

G20 (NATURAL GAS)

THERMAL POWER		1st STAGE				2nd STAGE			
1st STAGE [kW]	2nd STAGE [kW]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]
300	890	30.2	0.8	1.1	0.1	89.4	6.7	2.9	2.9
300	1000	30.2	0.8	1.1	0.1	100.5	8.4	3.1	3.5
300	1100	30.2	0.8	1.1	0.1	110.6	10.4	3.4	4.6
300	1200	30.2	0.8	1.1	0.1	120.6	12.2	3.7	5.3
300	1300	30.2	0.8	1.1	0.1	130.7	14.5	4	6.6
300	1400 *	30.2	0.8	1.1	0.1	140.7	16.6	4.3	7.3
300	1500 *	30.2	0.8	1.1	0.1	150.8	19.1	5.2	8.8
300	1600 *	30.2	0.8	1.1	0.1	160.8	21.9	6	10.2
300	1700 *	30.2	0.8	1.1	0.1	170.9	24.6	6.5	11.6
300	1800 *	30.2	0.8	1.1	0.1	180.9	27.9	7.3	13
300	1900 *	30.2	0.8	1.1	0.1	191.0	30.6	8.5	13.8

* Open 2 holes in the front head plate.

G31 (L.P.G.)

THERMAL POWER		1st STAGE				2nd STAGE			
1st STAGE [kW]	2nd STAGE [kW]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]	FLOW [Nm³/h]	HEAD PRESSURE [mbar]	AIR SHUTTER OPENING [a°]	PRESSURE OF VENTILATION AIR [mbar]
300	890	11.7	0.7	1.1	0.1	34.6	5.6	2.8	2.6
300	1000	11.7	0.7	1.1	0.1	38.9	7.1	3	3.5
300	1100	11.7	0.7	1.1	0.1	42.8	8.5	3.4	4.3
300	1200	11.7	0.7	1.1	0.1	46.7	10.1	3.7	5.1
300	1300	11.7	0.7	1.1	0.1	50.6	11.9	4	6
300	1400	11.7	0.7	1.1	0.1	54.5	13.7	4.3	6.9
300	1500	11.7	0.7	1.1	0.1	58.4	15.5	4.5	7.8
300	1600	11.7	0.7	1.1	0.1	62.3	17.3	4.9	8.9
300	1700	11.7	0.7	1.1	0.1	66.1	19.2	5.2	10.0
300	1800	11.7	0.7	1.1	0.1	70.0	21.5	6.2	11.2
300	1900	11.7	0.7	1.1	0.1	73.9	23.9	7.2	12.5

NOZZLE POSITIONING CALIBRATION GAS XP80/MCE LX4 - GAS P100/MCE LX4 EVO

NATURAL GAS (G20, G25, G25.3)

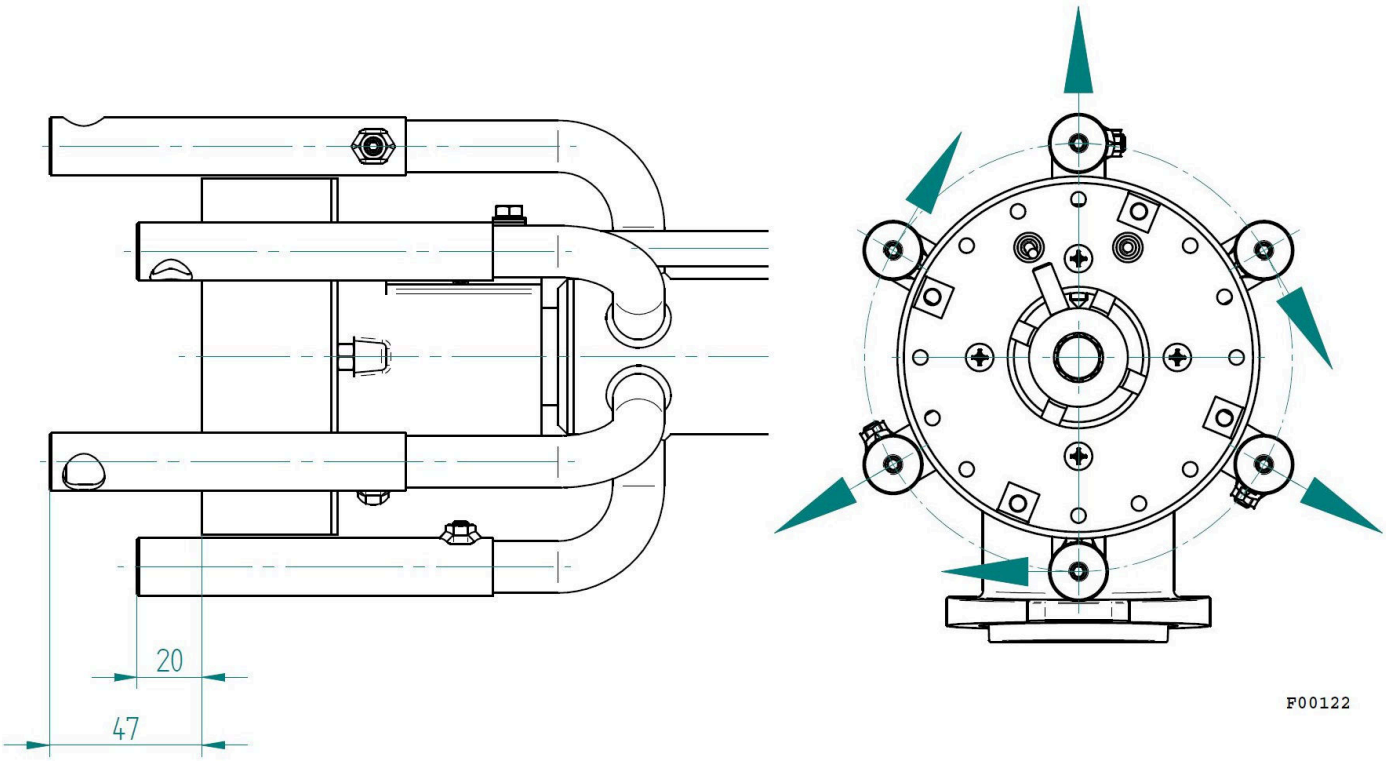


Fig. 14 [mm]

LPG (G31)

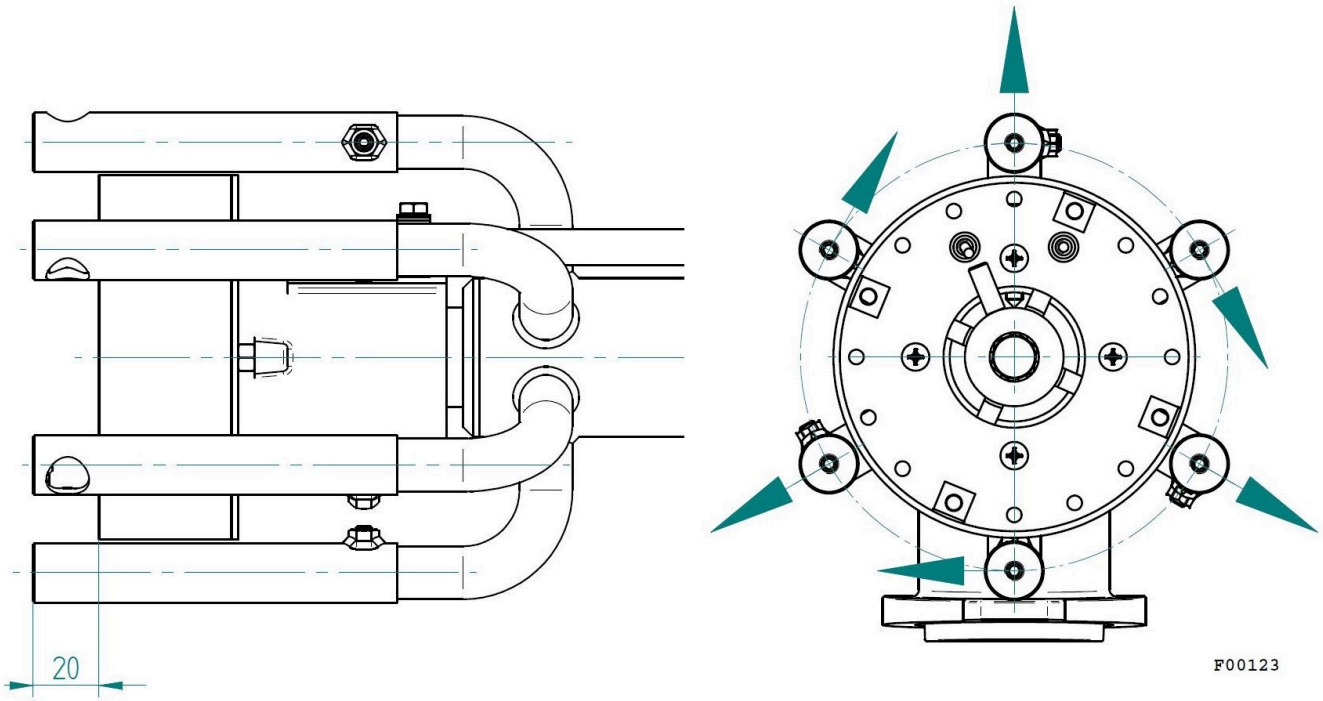


Fig. 15 [mm]

NOZZLE POSITIONING CALIBRATION GAS P130/MCE LX4 EVO

NATURAL GAS (G20)

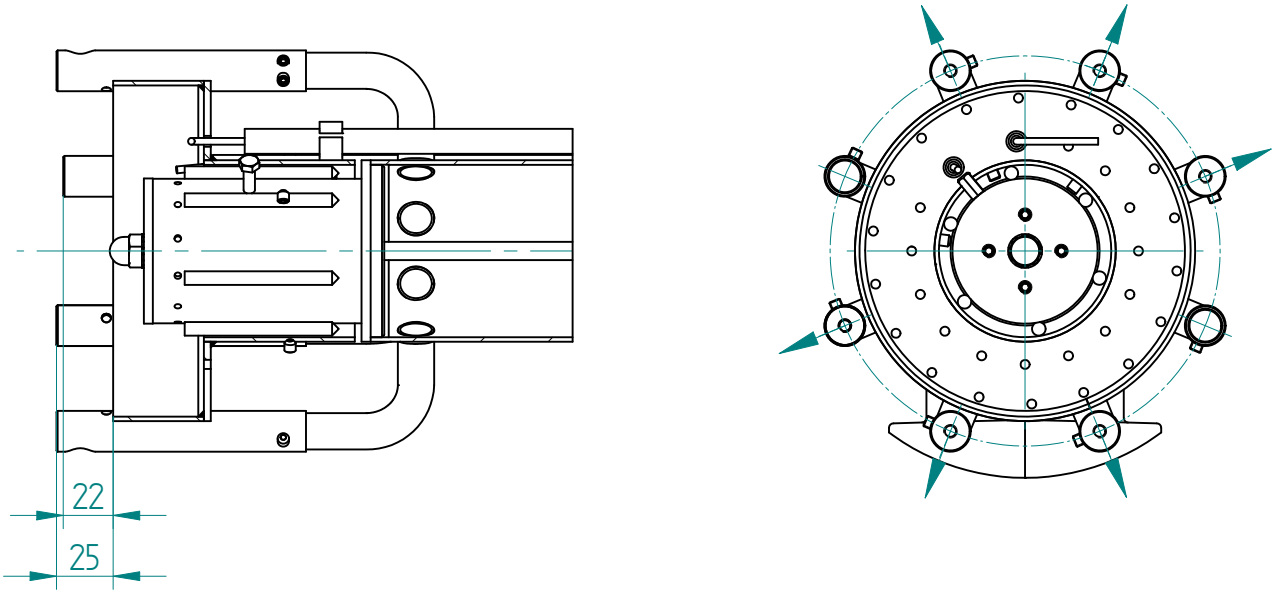


Fig. 18 [mm]

LPG (G31)

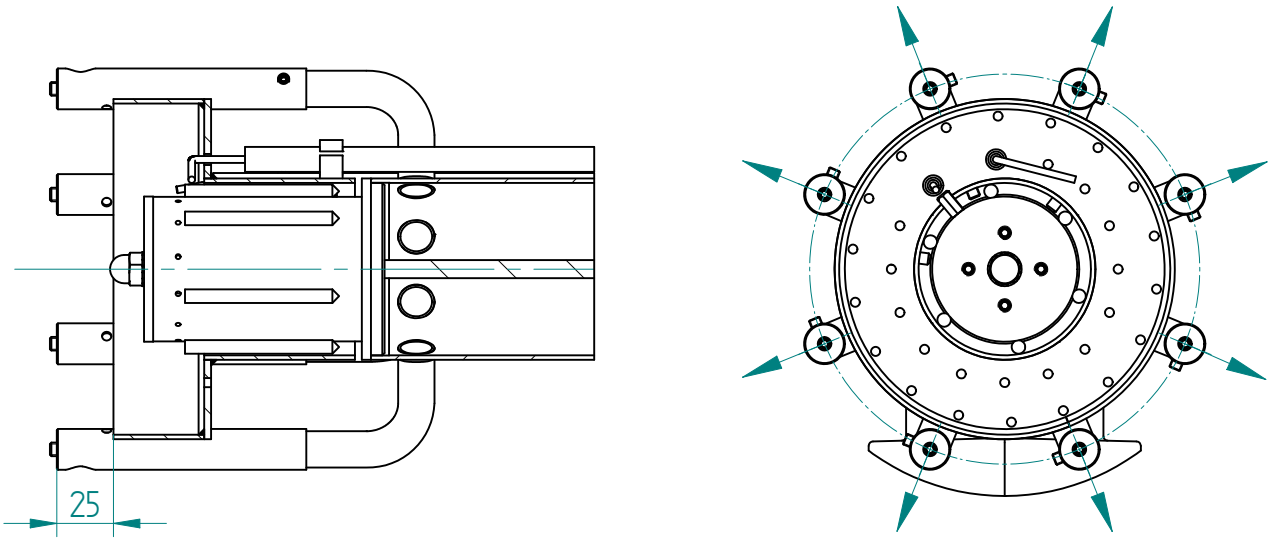


Fig. 19 [mm]

NOZZLE POSITIONING CALIBRATION GAS P160/MCE LX4

NATURAL GAS (G20)

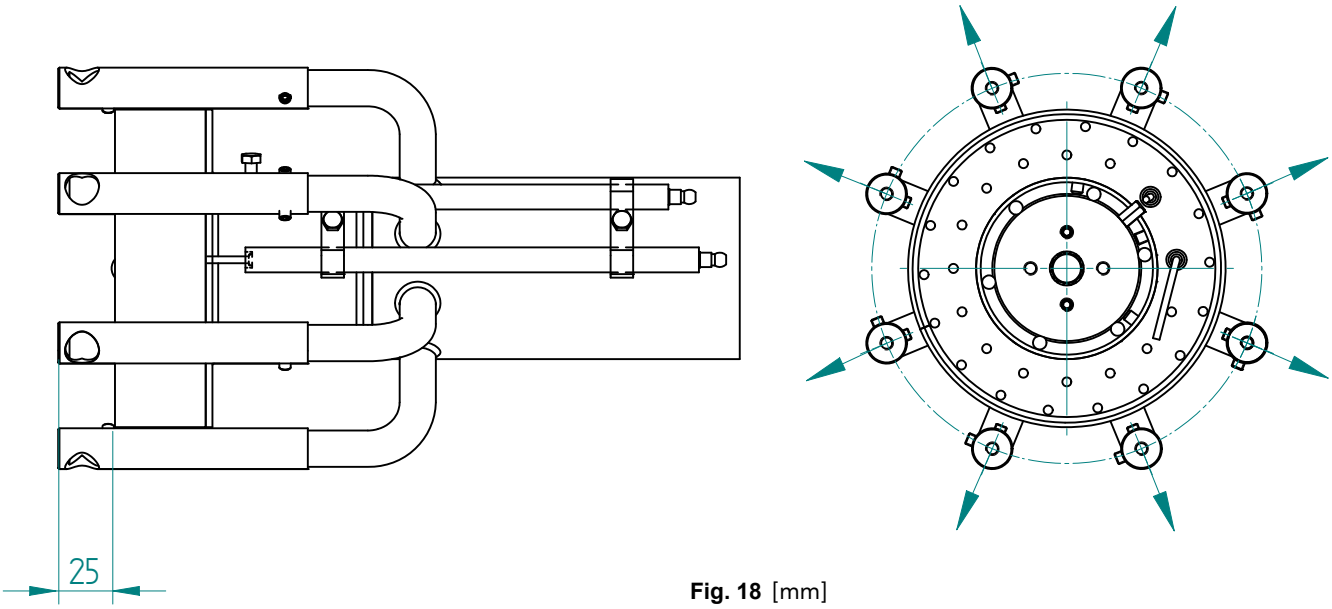


Fig. 18 [mm]

LPG (G31)

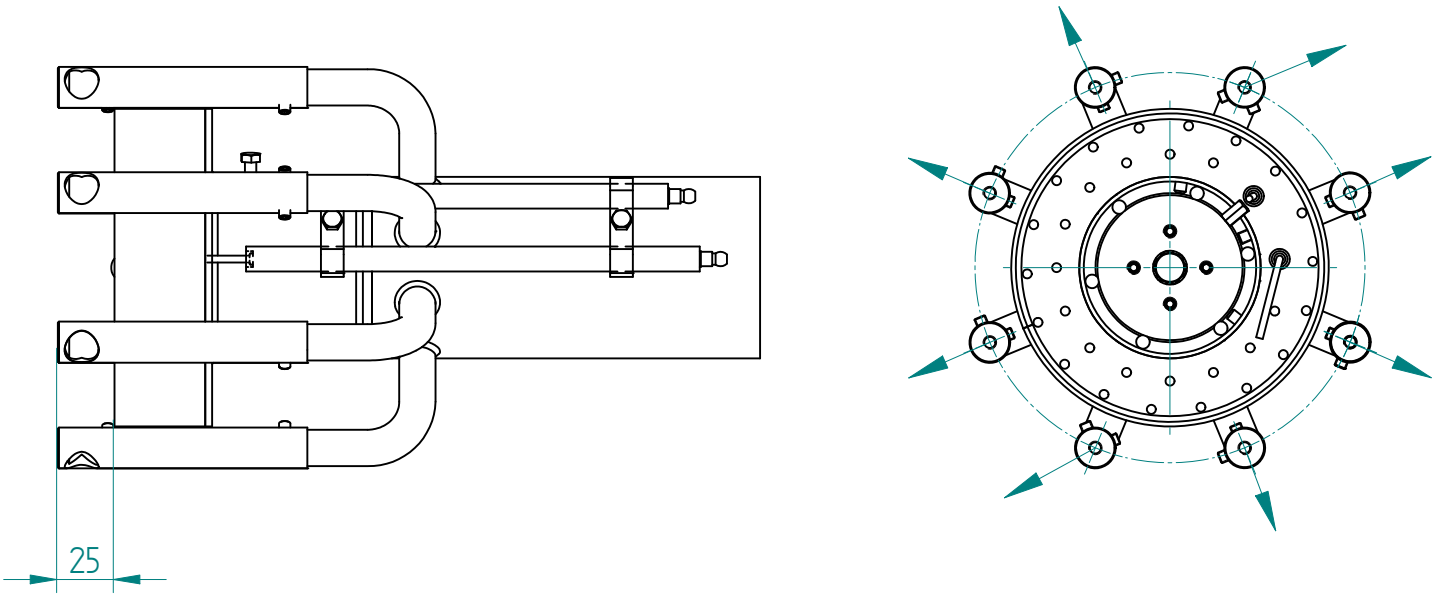


Fig. 19 [mm]

EXTRACTION OF THE COMBUSTION HEAD GAS XP80 - P130 - P160/MCE LX4

ATTENTION: REMOVE VOLTAGE!

The combustion head can be taken out without removing the burner from the boiler:
a) Disconnect the gas train from the burner by removing the four screws (pos. 9) with a hexagonal spanner.
N.B. Be careful not to lose or damage the O-ring located on the ramp flange.
b) Remove the four screws (pos. 8) and move the burner back as far as possible on the slides.
c) Loosen the two headless screws (pos.1) and remove the flame tube (pos.6).
d) Remove the cover (pos.5) by loosening the three screws (pos.4).
e) Remove the ignition (RED) and probe (BLACK) cables.
f) Remove the screw (pos.3) and extract the combustion head (pos.7).

N.B. When reassembling it, be careful not to mix up the cables. (See POSITIONING THE ELECTRODES).

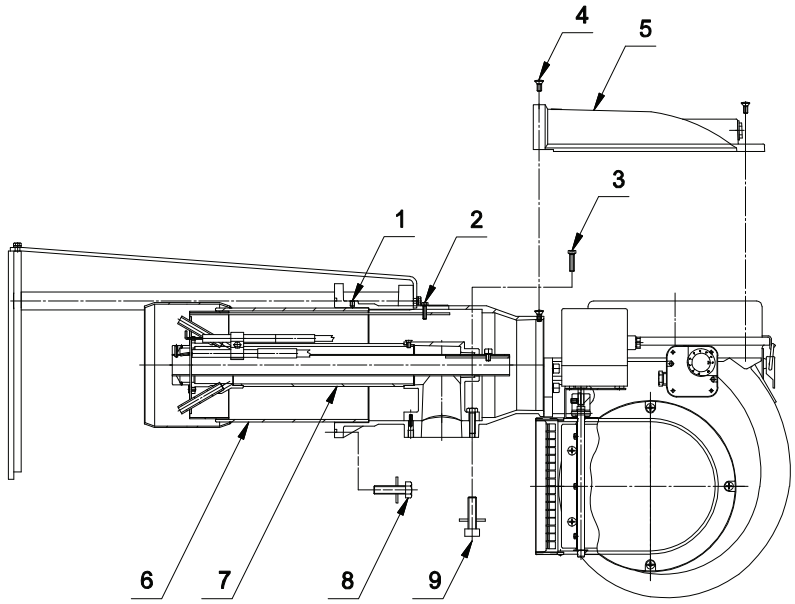


Fig. 16 Extraction of the combustion head GAS XP80 - P130 - P160/MCE LX4

EXTRACTION OF THE COMBUSTION HEAD GAS P100/MCE LX4 EVO

ATTENTION: REMOVE VOLTAGE!

The combustion head can be taken out without removing the burner from the boiler:
a) Remove the cover (pos.1) by loosening the screws (pos.2).
b) Remove the ignition (RED) and probe (BLACK) cables.
c) Remove the screws (pos.3) and extract the combustion head (pos.4).

N.B. When reassembling it, pay attention not to exchange the cables. (See ELECTRODES POSITIONING).

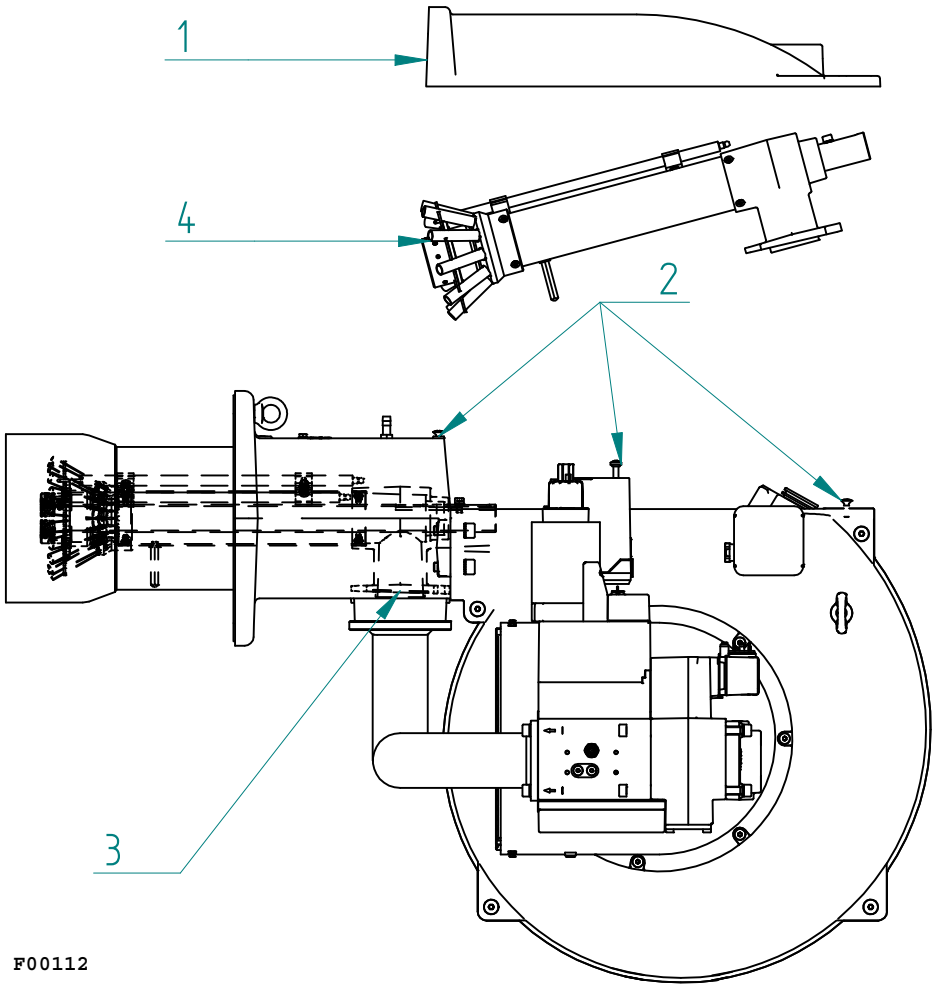


Fig. 17 Extraction of the combustion head GAS P100/MCE LX4 EVO

Only for model GAS P100/MCE LX4 EVO: to ensure the correct position of the flame tube, insert the M5 screw, shown in the picture in position 1

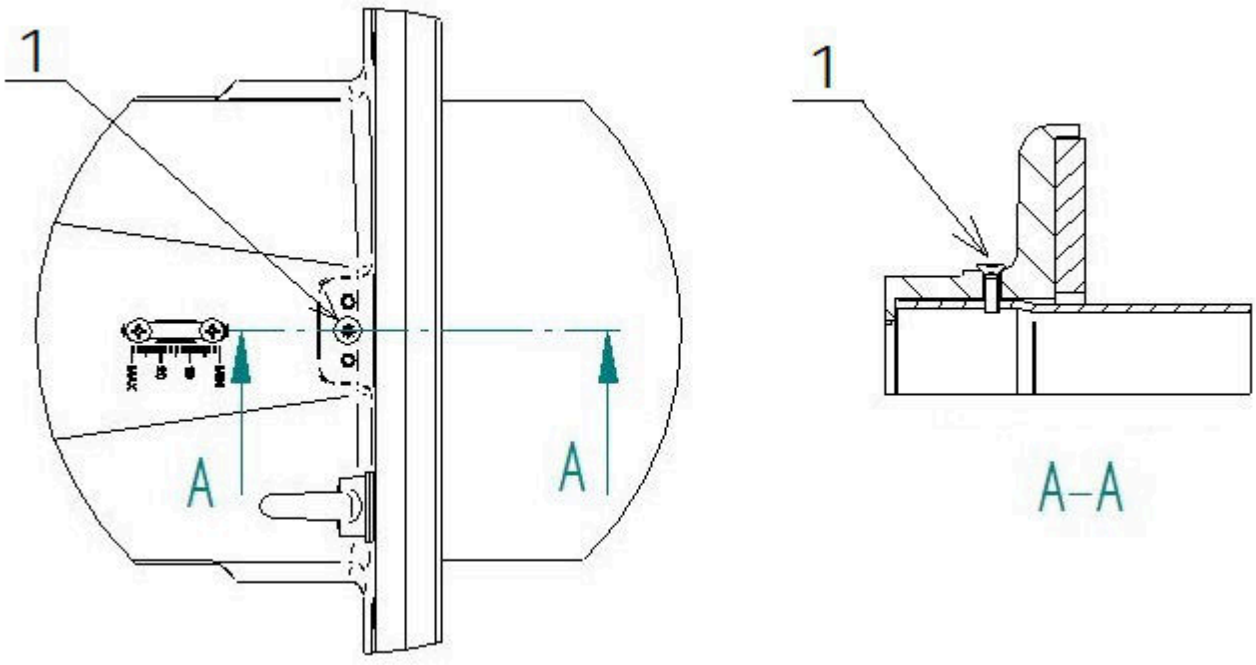


Fig. 18 Screw M5 (position 1) to ensure correct position of the flame tube.

ELECTRODE AND PROBE POSITIONING GAS XP80/MCE LX4 - GAS P100/MCE LX4

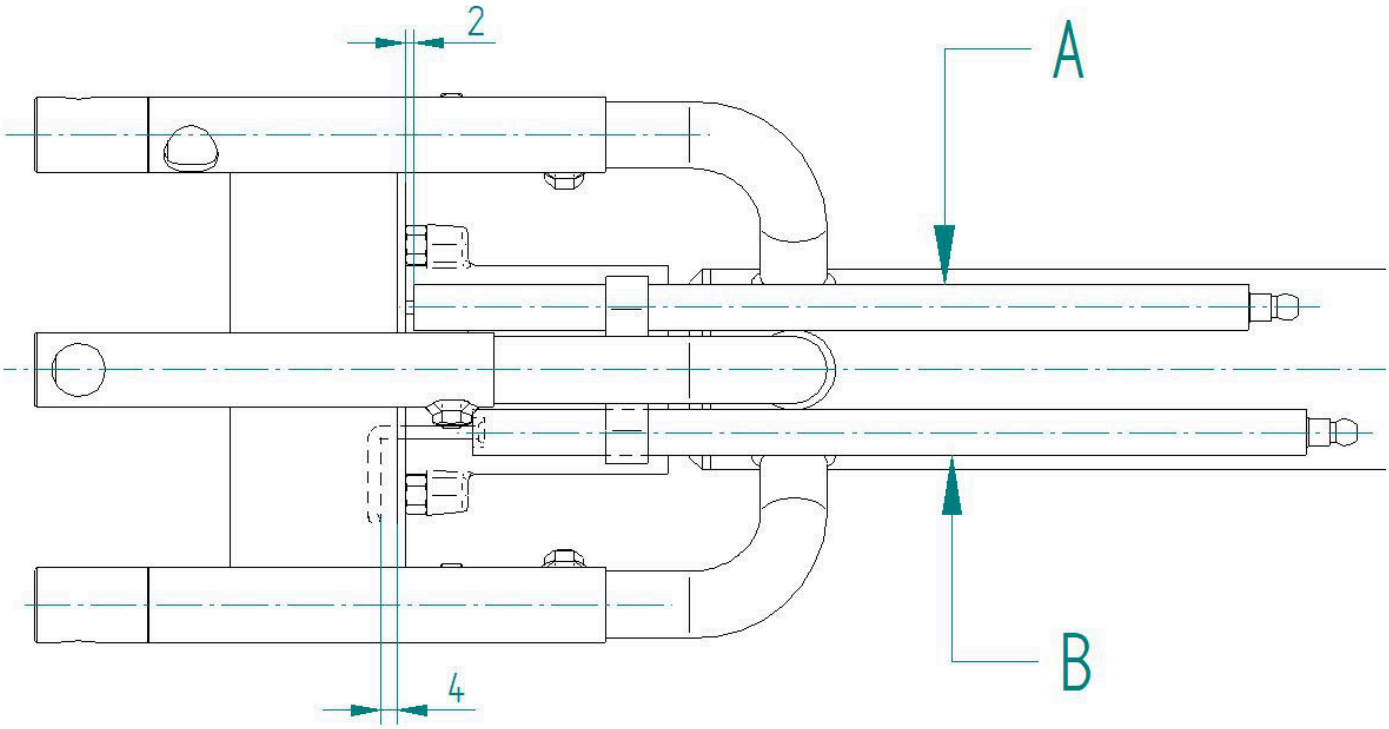


Fig. 19 [mm] Electrode and probe positioning NATURAL GAS

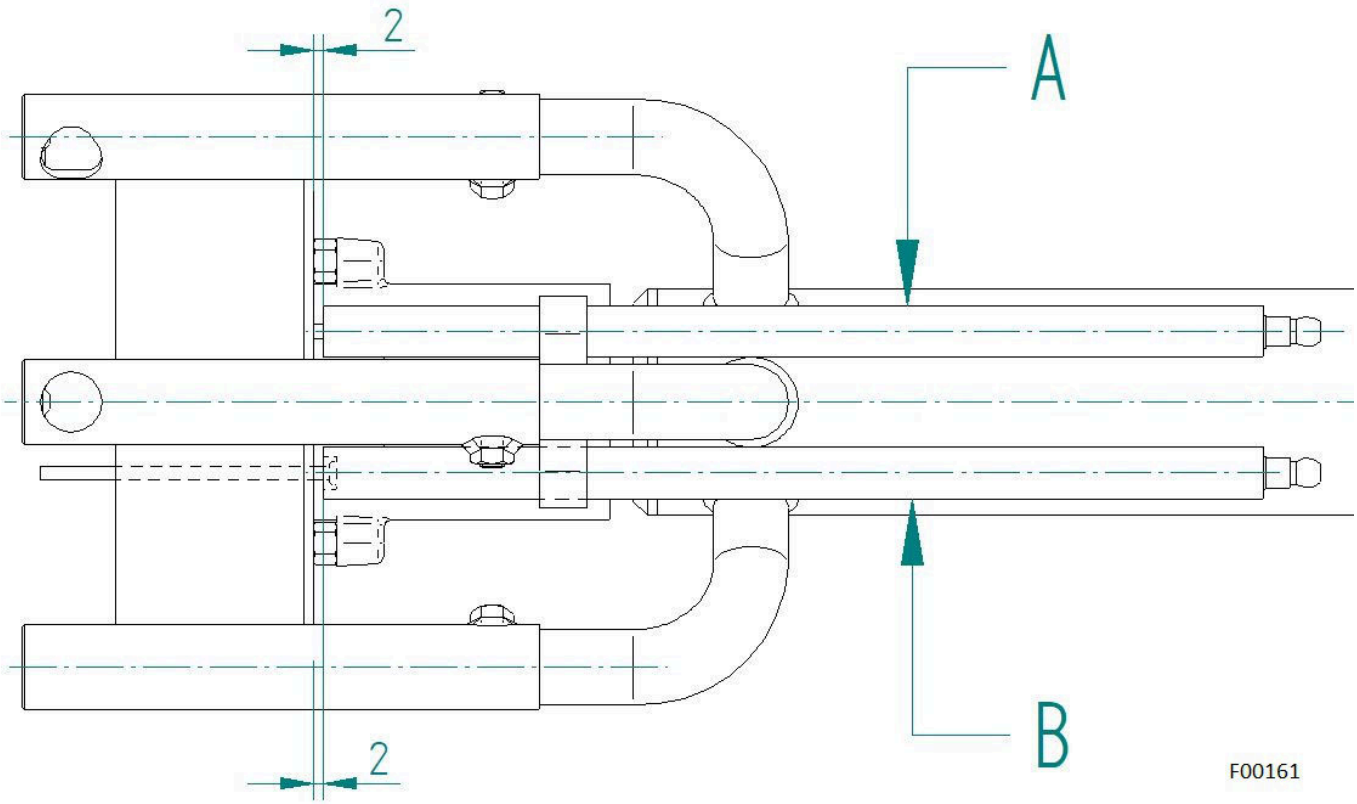


Fig. 20 [mm] Electrode and probe positioning L.P.G.

LEGEND:

A - Ignition electrode

B - Ionization probe

ELECTRODE AND PROBE POSITIONING GAS P130/MCE LX4 EVO

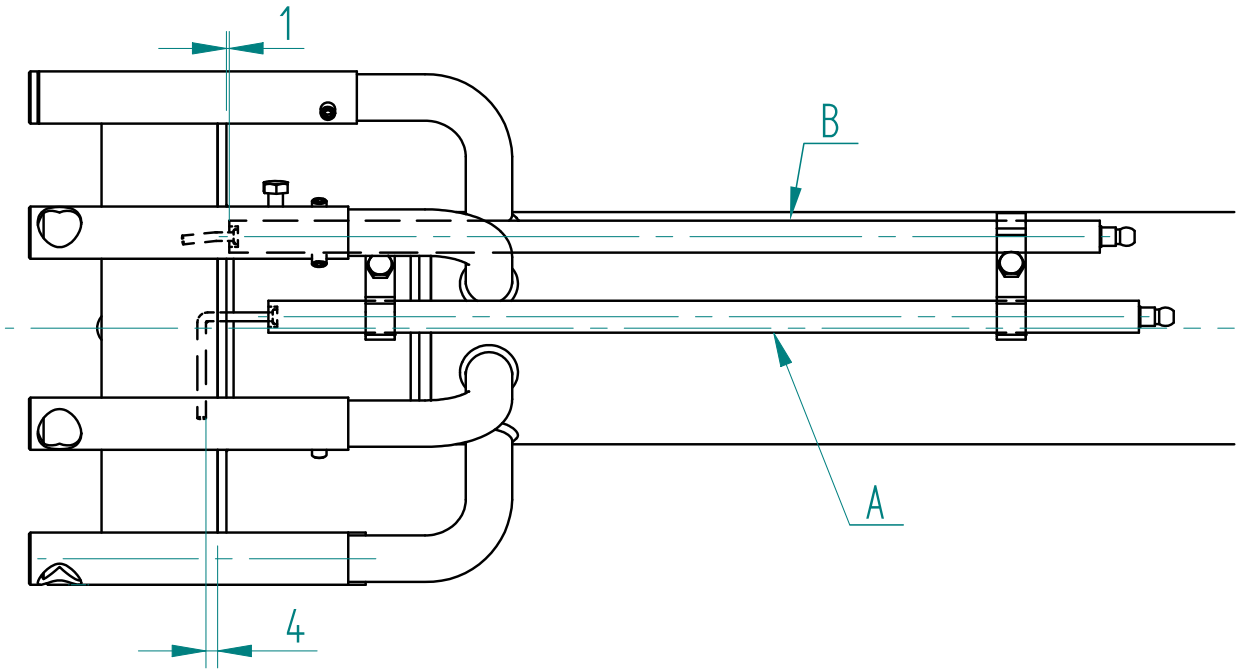


Fig. 25 [mm] Electrode and probe positioning NATURAL GAS

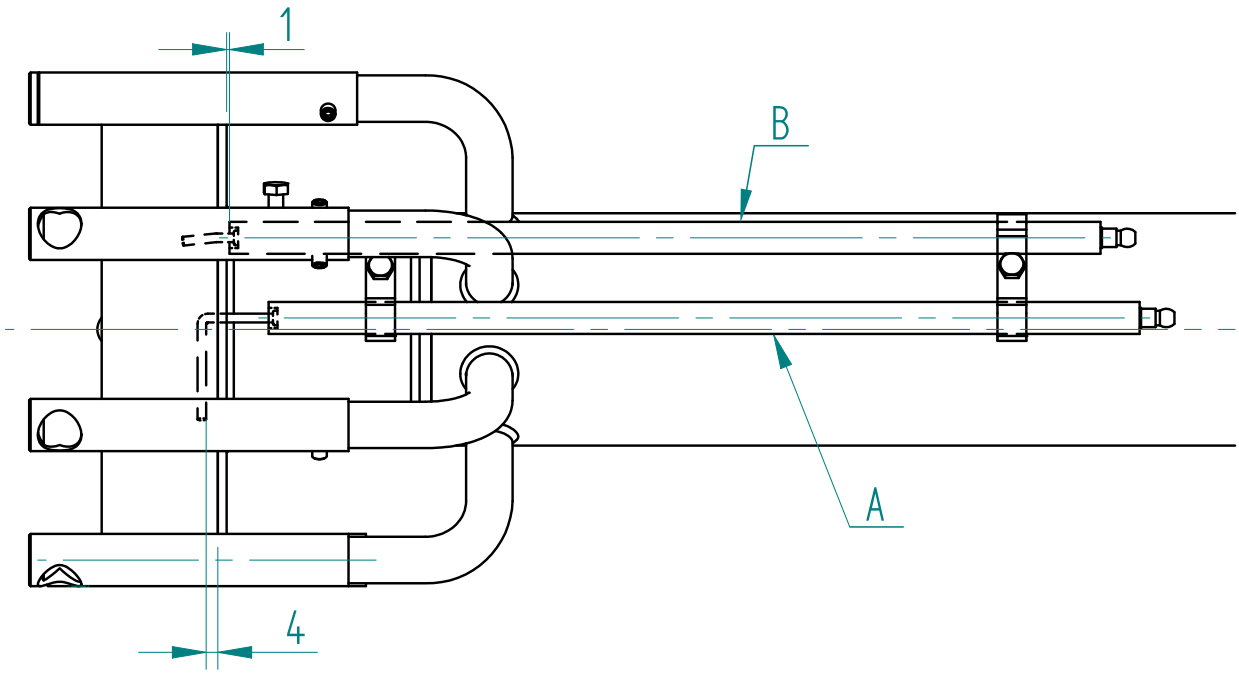


Fig. 26 [mm] Electrode and probe positioning L.P.G.

LEGEND:
A - Ionization probe
B - Ignition electrode

ELECTRODE AND PROBE POSITIONING GAS P160/MCE LX4

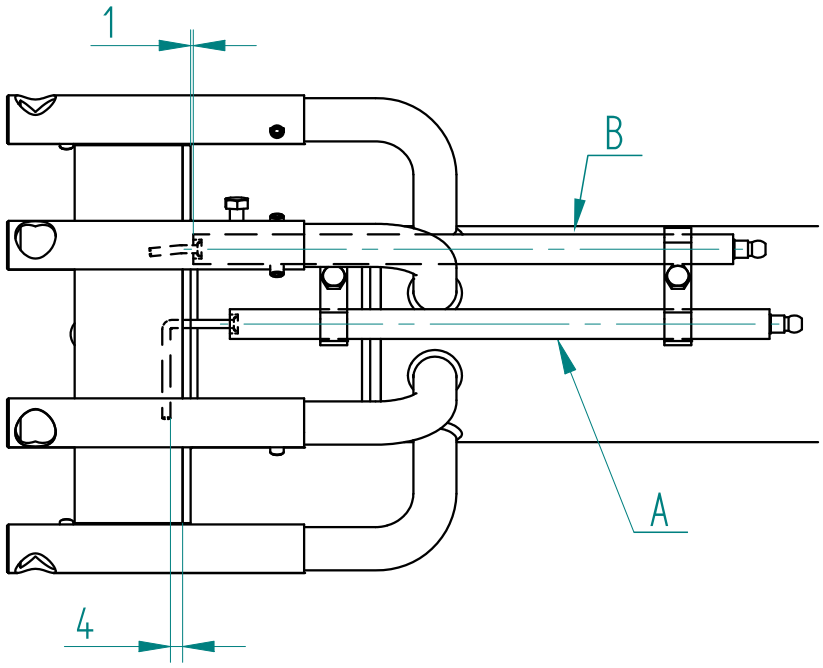


Fig. 25 [mm] Electrode and probe positioning NATURAL GAS

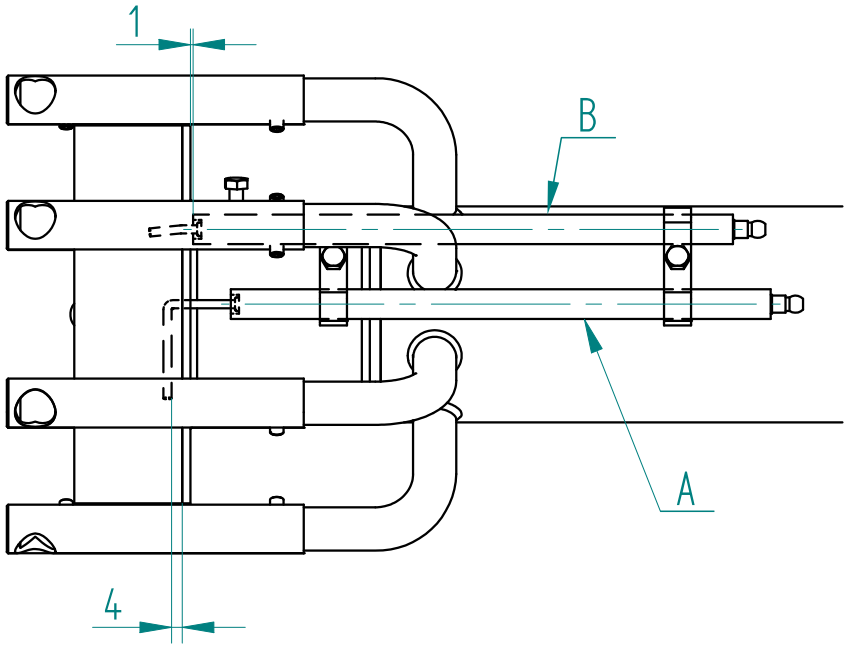


Fig. 26 [mm] Electrode and probe positioning L.P.G.

LEGEND:
A - Ionization probe
B - Ignition electrode

TROUBLESHOOTING

TYPE OF IRREGULARITY	PROBABLE CAUSE	RIMEDY
The burner does not start.	1) Lack of current.	1) Check the fuses of the feed line. Check the line of the thermostats.
	2) Gas does not reach the burner.	2) Check the opening of the detecting devices located along the feeding pipes.
	3) Defective fan motor.	3) Replace the fan motor.
	4) Defective control box.	4) Replace the control box.
	5) A limit or safety control device is open.	5) Adjust or replace.
	6) Control box lock-out.	6) Reset the control box.
	7) Air pressure switch in operating position.	7) Replace or adjust the air pressure switch.
	8) No gas supply.	8) Check if in the supply line there is no electric or manual shut-off valves closed and that there are no obstructions, if the checks are positive, contact your gas company.
	9) Minimum gas pressure switch not switch in operating position.	9) Replace or adjust the minimum gas pressure switch.
The burner does not start	1) The control box sees flame.	1) Check cleaning and tightness of the fuel valves.
and it goes into lock-out position.	2) Flame sensor short-circuit.	2) Replace the flame sensor.
The burner starts, but it no performs the prepurge phase and then it goes into lock-out position.	1) Air pressure switch not switch in operating position.	1) Check to air pressure to the pressure switch. Check the rotation direction of the fan motor.
	2) Defective air pressure switch.	2) Replace the air pressure switch.
	3) Dirty fan.	3) Clean the fan.
The burner, after the prepurge and the safety phase, goes into lock-out position without appearance of the flame.	1) Erroneous fuel valves connections.	1) Check the electrical connections.
	2) Erroneous ignition transformer connections.	2) Check the electrical connections.
	3) Defective ignition transformer.	3) Replace the ignition transformer.
	4) Defective control box.	4) Replace the control box.
	5) There is no spark at the electrode.	5) Check the operation of the ignition transformer. Check the position of the electrodes ends.
	6) Insufficient gas pressure.	6) Increase pressure at governor.
	7) High voltage cable defective.	7) Replace the high voltage cable.
	8) High voltage cable deformed by high temperature.	8) Replace the high voltage cable.
The burner starts, the flame ignites then it goes into lock-out position.	1) The flame it isn't detect.	1) Check the flame intensity.
Flame is smokey.	1) Combustion air is to low.	1) Check that the air damper opens normally. Check if the fan is dirty.
During operation, the burner goes into lock-out position.	1) Inadequate flame signal.	1) Check the flame intensity. Check the burner calibration.

SPARE PARTS AND DISPOSAL

It shall be used only original spare parts, for more information refer to the document "General Instructions".

The appliance contains electrical and/or electronic components. Such components are to dispose of in according to local legislations.



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