



## LOW NO<sub>x</sub> MODULATING GAS BURNERS

### ► MODUBLOC MB SM BLU SERIES

► MB 8 SM BLU	1300/3450 ÷	8300 kW
► MB 10 SM BLU	1100/4068 ÷	9200 kW
► MB 12 SM BLU	1500/4800 ÷	10400 kW



The MODUBLOC MB SM BLU series is characterised by a monoblock structure which means that all necessary components are combined in a single unit, making installation easier and faster.

The series covers a firing range from 3450 to 10400 kW, and it has been designed for use in hot water boilers or industrial steam generators.

Operation can be "two stage progressive" or alternatively "modulating" with the installation of a PID logic regulator or by external 4-20 mA/0-10 V signal.

The mechanical cam device of regulation allows to catch up a high modulation ratio on all firing rates range.

The burner can, therefore, supply with precision the demanded power, guaranteeing a high efficiency system level and the stability setting, obtaining fuel consumption and operating costs reduction.

The combustion head, engineered with advanced simulation devices, guarantees reduced polluting emissions.

An exclusive design, with fan unit fitted in axis with the combustion head, guarantees low sound emissions, easy use and maintenance.

# TECHNICAL DATA

Model		▼ MB 8 SM BLU	▼ MB 10 SM BLU	▼ MB 12 SM BLU
Burner operation mode		Modulating		
Modulation ratio at max. output		5 ÷ 1		
Servomotor	type	MM 10004 (air) - MM 10005 (gas)		
	run time	s		
Heat output	kW	1300/3450÷8300	1100/4068÷9200	1500/4800÷10400
	Mcal/h	1118/2967÷7138	946/3498÷7912	1294/4128÷8944
Working temperature		°C min./max. 0/40		
Net calorific value G20 gas		kWh/Nm <sup>3</sup> 10		
G20 gas density		kg/Nm <sup>3</sup> 0,71		
G20 gas delivery		130/345÷830	110/407÷920	150/480÷1000
Net calorific value G25 gas		kWh/Nm <sup>3</sup> 8,6		
G25 gas density		kg/Nm <sup>3</sup> 0,78		
G25 gas delivery		105/387÷978	128/465÷1070	175/558÷1168
Net calorific value LPG gas		kWh/Nm <sup>3</sup> 25,8		
LPG gas density		kg/Nm <sup>3</sup> 2,02		
LPG gas delivery		--	--	--
Fan		type Centrifugal with reverse curve blades		
Air temperature		max °C 60		
Electrical supply		Ph/Hz/V 3N/50/400~(±10%)		
Auxiliary electrical supply		Ph/Hz/V 1/50/230 ~ (±10%)		
Control box		type LFL 1.333		
Total electrical power		19	22	27
Auxiliary electrical power		0,7	0,7	0,7
Protection level		IP 40		
Motor electrical power		18,4	22	25
Rated motor current		32	34	49
Motor start up current		7,6 x I nom	8,1 x I nom	8,1 x I nom
Motor protection level		IP 55		
Ignition transformer		type		
		V1 - V2 230V - 2x5 kV		
		I1 - I2 1,9A - 30mA		
Operation		Intermittent (at least one stop every 24 h) or Continuous as optional (at least one stop every 72 h)		
Sound pressure		dB (A) 88		
Sound power		--	--	--
CO emission		mg/kWh < 10		
NOx emission		mg/kWh < 80		
Directive		90/396 - 89/336 - 73/23 EEC		
Conforming to		EN 676		
Certification		in progress		

## Reference conditions:

Temperature: 20°C

Pressure: 1000 mbar

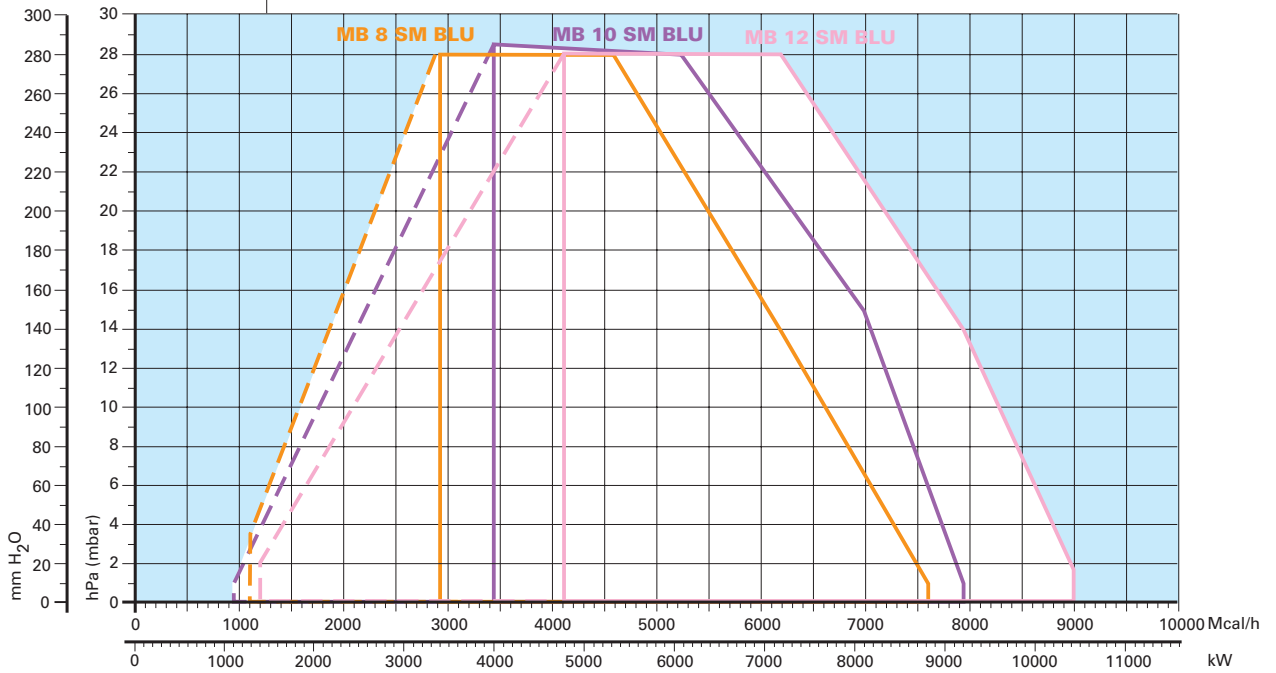
Altitude: 100 m a.s.l.

Noise measured at a distance of 1 meter.


Since the Company is constantly engaged in the production improvement, the aesthetic and dimensional features, the technical data, the equipment and the accessories can be changed.  
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# FIRING RATES



 Useful working field for choosing the burner

 Modulation range

**Test conditions conforming to EN 676:**

Temperature: 20°C  
 Pressure: 1000 mbar  
 Altitude: 100 m a.s.l.



# FUEL SUPPLY

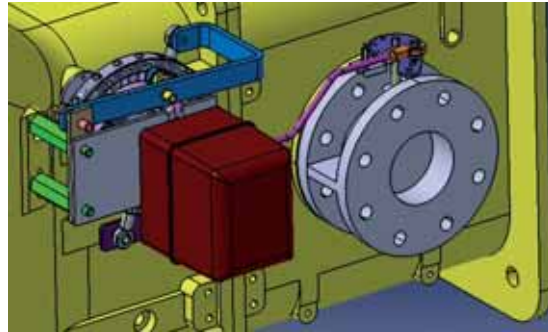
## GAS TRAIN

The burners are fitted with a butterfly valve to regulate the fuel, controlled by a variable profile cam servomotor.

Fuel can be supplied either from the right or left hand sides, on the basis of the application requirements. A maximum gas pressure switch stops the burner in case of an excess of pressure in fuel line.

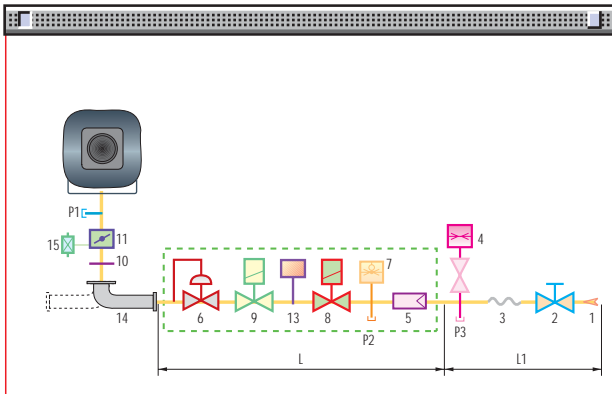
The gas train can be selected to best fit system requirements depending on the fuel output and pressure in the supply line.

The gas train can be "Multibloc" type (containing the main components in a single unit) or "Composed" type (assembly of the single components).

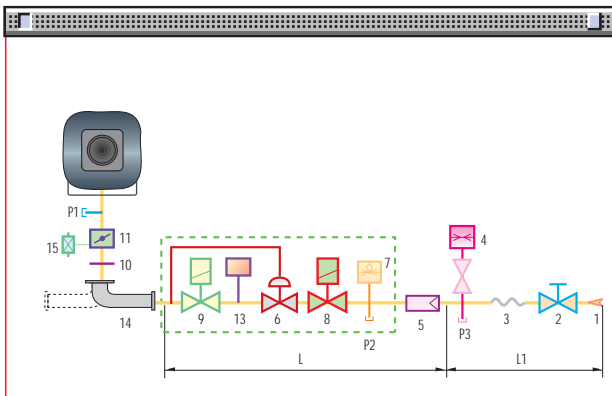


Example of the variable profile cam on MB SM BLU

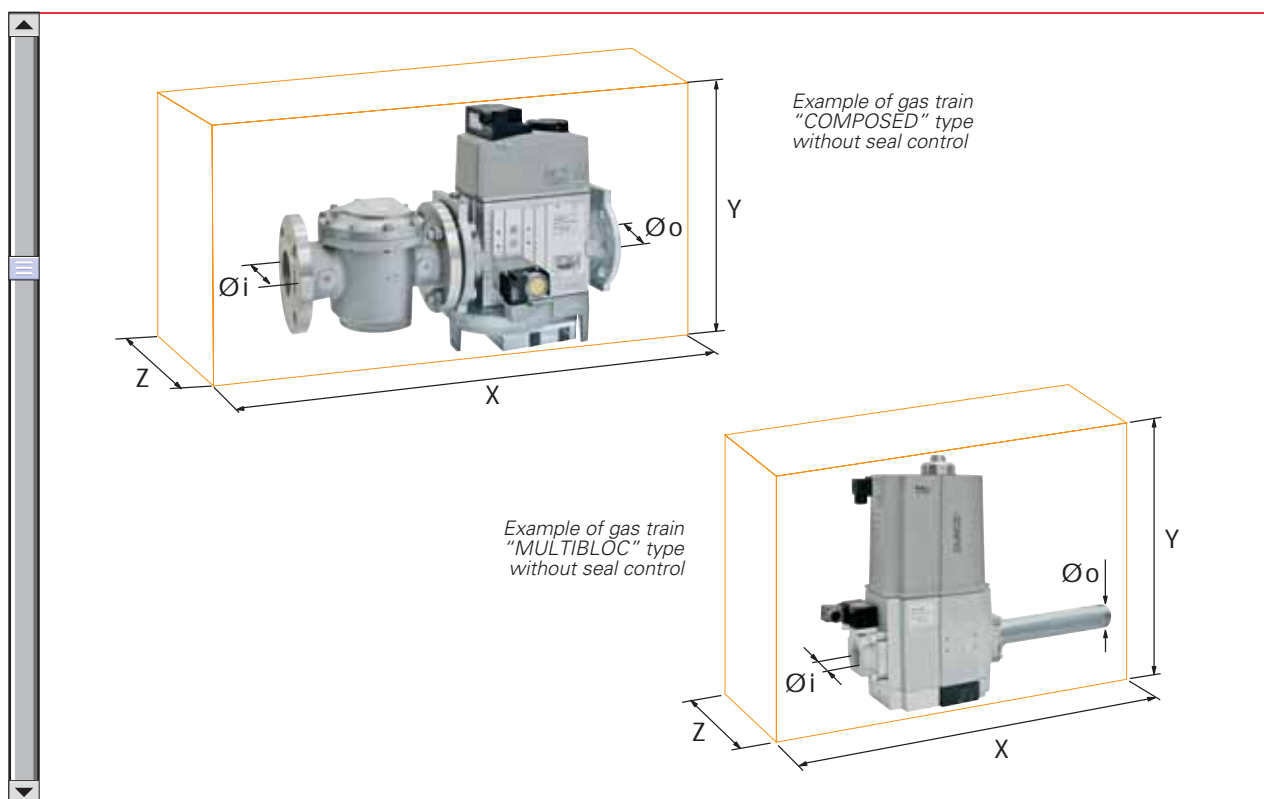
### MULTIBLOC type MBC 1200



### COMPOSED gas train



1	Gas input pipework
2	Manual valve
3	Anti-vibration joint
4	Pressure gauge with pushbutton cock
5	Filter
6	Pressure regulator (vertical)
7	Minimum gas pressure switch
8	VS safety solenoid (vertical)
9	VR regulation solenoid (vertical) Two settings: - firing output (rapid opening) - maximum output (slow opening)
10	Gasket and flange supplied with the burner
11	Gas adjustment butterfly valve
12	Burner
13	Seal control mechanism for valves 8-9. According to standard EN 676, the seal control is compulsory for burners with maximum output above 1200 kW
14	Gas train-burner adapter.
15	Maximum gas pressure switch
P1	Combustion head pressure
P2	Pressure downstream from the regulator
P3	Pressure upstream from the filter
L	Gas train supplied separately, with the code given in the table
L1	Installer's responsibility

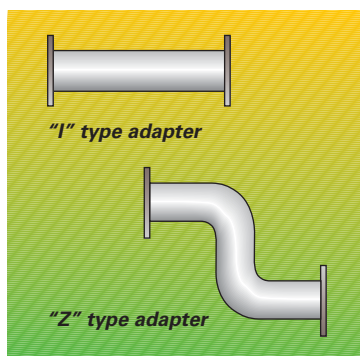


Gas trains are approved by standard EN 676 together with the burner.

The overall dimensions of the gas train depends on how they are constructed. The following table shows the maximum dimensions of the gas trains that can be fitted to MB SM BLU burners, intake and outlet diameters and seal control if fitted.

The maximum gas pressure of "Multibloc" type gas train is 360 mbar, while the one of "Composed" type gas train is 500 mbar. MULTIBLOC guarantees a range of pressure towards the burner from 3 to 60 mbar. For other versions it is from 20 to 40 mbar. The range of pressure in the MULTIBLOC with flange can be modified choosing the stabiliser spring (see gas train accessory).

	Name	Code	Ø i	Ø o	X mm	Y mm	Z mm	Seal Control
<b>MULTIBLOC GAS TRAIN</b>	<b>MBC 1200 SE 50</b>	3970221	2"	2"	573	424	161	accessory
	<b>MBC 1200 SE 50 CT</b>	3970225	2"	2"	573	424	290	incorporated
<b>COMPOSED GAS TRAIN</b>	<b>MBC 1900 SE 65 FC</b>	3970222	DN 65	DN 65	583	430	237	accessory
	<b>MBC 1900 SE 65 FC CT</b>	3970226	DN 65	DN 65	583	430	300	incorporated
	<b>MBC 3100 SE 80 FC</b>	3970223	DN 80	DN 80	633	500	240	accessory
	<b>MBC 3100 SE 80 FC CT</b>	3970227	DN 80	DN 80	633	500	320	incorporated
	<b>MBC 5000 SE 100 FC</b>	3970224	DN 100	DN 100	733	576	350	accessory
	<b>MBC 5000 SE 100 FC CT</b>	3970228	DN 100	DN 100	733	576	350	incorporated



When the diameter of the gas train is different from the set diameter of the burners, an adapter must be fitted between the gas train and the burner.

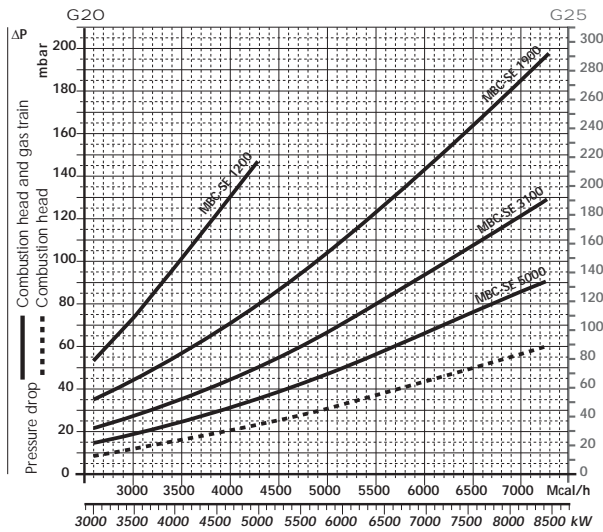
For further information see paragraph "Accessories".

## ► PRESSURE DROP DIAGRAM

The diagrams indicate the minimum pressure drop of the burners with the various gas trains that can be matched with them; at the value of these pressure drop add the combustion chamber pressure. The value thus calculated represents the minimum required input pressure to the gas train.

### NATURAL GAS

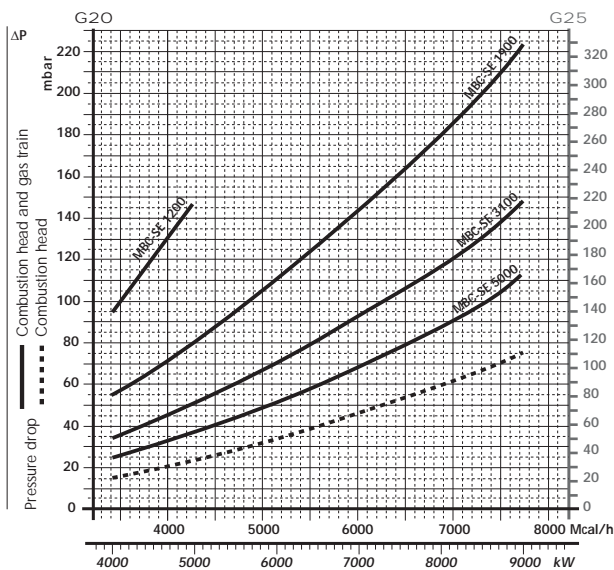
#### MB 8 SM BLU



Gas train	Code	Adapter	Seal Control
<b>MBC 1200 SE 50</b>	3970221	3000826 (I)	accessory
<b>MBC 1900 SE 65</b>	3970222	3010221 (I) 3010225 (Z)	accessory
<b>MBC 3100 SE 80</b>	3970223	3010222 (I) 3010226 (Z)	accessory
<b>MBC 5000 SE 100</b>	3970224	3010223 (I) 3010227 (Z)	accessory

Gas train	Code	Adapter	Seal Control
<b>MBC 1200 SE 50 CT</b>	3970225	3000826 (I)	incorporated
<b>MBC 1900 SE 65 CT</b>	3970226	3010221 (I) 3010225 (Z)	incorporated
<b>MBC 3100 SE 80 CT</b>	3970227	3010222 (I) 3010226 (Z)	incorporated
<b>MBC 5000 SE 100 CT</b>	3970228	3010223 (I) 3010227 (Z)	incorporated

#### MB 10 SM BLU



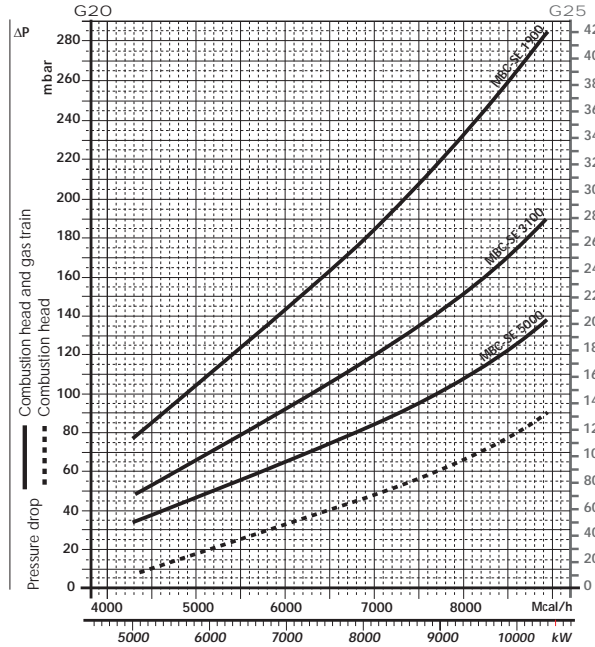
Gas train	Code	Adapter	Seal Control
<b>MBC 1200 SE 50</b>	3970221	3000826 (I)	accessory
<b>MBC 1900 SE 65</b>	3970222	3010221 (I) 3010225 (Z)	accessory
<b>MBC 3100 SE 80</b>	3970223	3010222 (I) 3010226 (Z)	accessory
<b>MBC 5000 SE 100</b>	3970224	3010223 (I) 3010227 (Z)	accessory

Gas train	Code	Adapter	Seal Control
<b>MBC 1200 SE 50 CT</b>	3970225	3000826 (I)	incorporated
<b>MBC 1900 SE 65 CT</b>	3970226	3010221 (I) 3010225 (Z)	incorporated
<b>MBC 3100 SE 80 CT</b>	3970227	3010222 (I) 3010226 (Z)	incorporated
<b>MBC 5000 SE 100 CT</b>	3970228	3010223 (I) 3010227 (Z)	incorporated



## NATURAL GAS

### MB 12 SM BLU



Gas train	Code	Adapter	Seal Control
<b>MBC 1900 SE 65</b>	3970222	3010221 (I) 3010225 (Z)	accessory
<b>MBC 3100 SE 80</b>	3970223	3010222 (I) 3010226 (Z)	accessory
<b>MBC 5000 SE 100</b>	3970224	3010223 (I) 3010227 (Z)	accessory

Gas train	Code	Adapter	Seal Control
<b>MBC 1900 SE 65 CT</b>	3970226	3010221 (I) 3010225 (Z)	incorporated
<b>MBC 3100 SE 80 CT</b>	3970227	3010222 (I) 3010226 (Z)	incorporated
<b>MBC 5000 SE 100 CT</b>	3970228	3010223 (I) 3010227 (Z)	incorporated

**note** Please contact the Riello Burner Technical Office for different pressure levels from those above indicated and refer to the technical manual for the correct choice of the spring.

*MBC 1200 gas train: the minimum operating pressure (\*) is higher or equal to 10 mbar. The gas train has to be installed next to the burner (if needed, only with the adapters listed in the catalogue) and it has to operate in its own working field.*

*MBC 1900-3100-5000 gas train: the minimum operating pressure (\*) is higher or equal to 15 mbar. The gas train has to be installed next to the burner (if needed, with the adapters listed in the catalogue) and it has to operate in its own working field.*

(\*) it is the upstream gas train pressure in full load operation conditions.

## SELECTING THE FUEL SUPPLY LINES

The following diagram enables pressure drop in a pre-existing gas line to be calculated and to select the correct gas train.

The diagram can also be used to select a new gas line when fuel output and pipe length are known. The pipe diameter is selected on the basis of the desired pressure drop. The diagram uses methane gas as reference; if another gas is used, conversion coefficient and a simple formula (on the diagram) transform the gas output to a methane equivalent (refer to figure A). Please note that the gas train dimensions must take into account the back pressure of the combustion chamber during operations.

### Control of the pressure drop in an existing gas line or selecting a new gas supply line.

The methane output equivalent is determined by the formula fig. A on the diagram and the conversion coefficient.

Once the equivalent output has been determined on the delivery scale ( $\dot{V}$ ), shown at the top of the diagram, move vertically downwards until you cross the line that represents the pipe diameter; at this point, move horizontally to the left until you meet the line that represents the pipe length.

Once this point is established you can verify, by moving vertically downwards, the pipe pressure drop of on the bottom scale below (mbar).

By subtracting this value from the pressure measured on the gas meter, the correct pressure value will be found for the choice of gas train.

**Example:**

- gas used G25
- gas output 9.51 mc/h
- pressure at the gas meter 20 mbar
- gas line length 15 m
- conversion coefficient 0.62 (see figure A)

$$\text{- equivalent methane output } \dot{V} = \left[ \frac{9.51}{0.62} \right] = 15.34 \text{ mc/h}$$

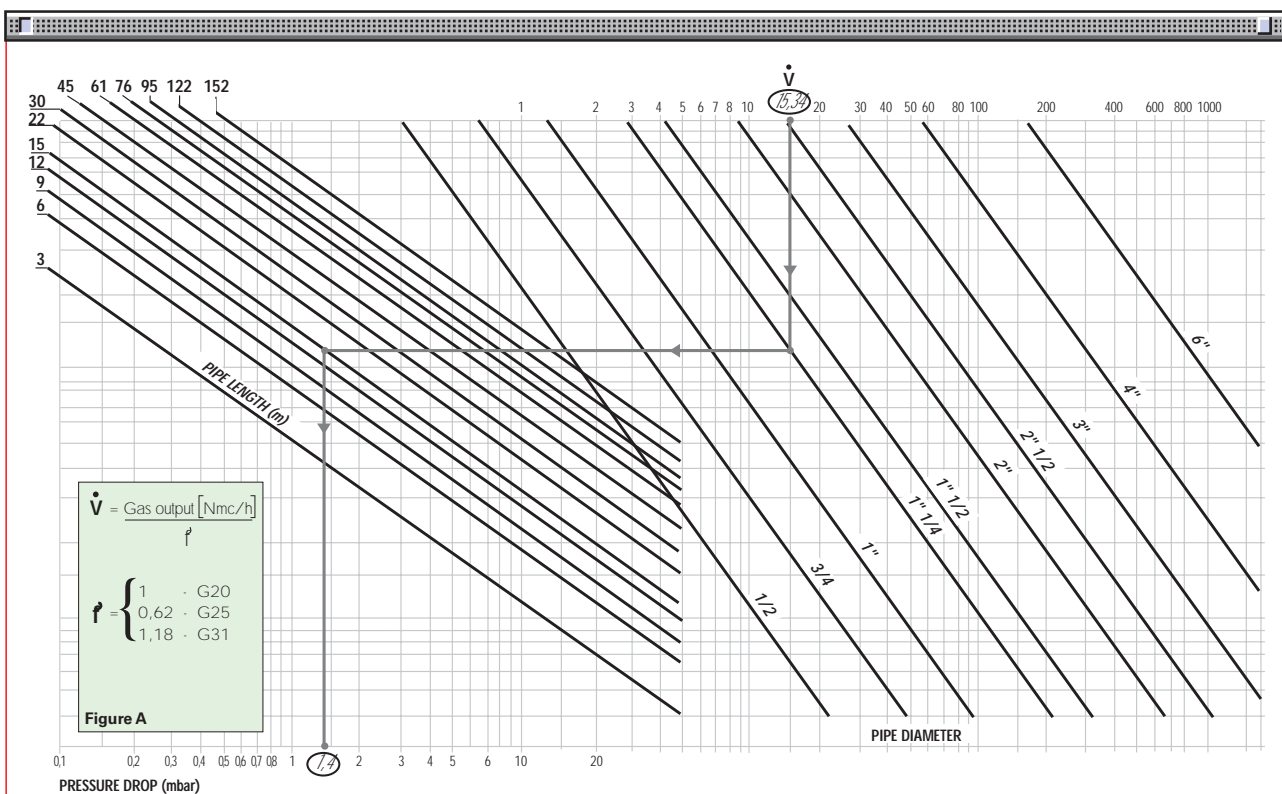
- once the value of 15.34 has been identified on the output scale ( $\dot{V}$ ), moving vertically downwards you cross the line that represents 1" 1/4 (the chosen diameter for the piping);

- from this point, move horizontally to the left until you meet the line that represents the length of 15 m of the piping;

- move vertically downwards to determine a value of 1.4 mbar in the pressure drop bottom scale;

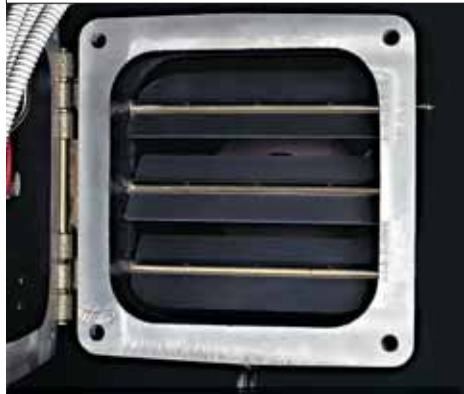
- subtract the determined pressure drop from the meter pressure, the correct pressure level will be found for the choice of gas train;

- correct pressure = ( 20-1.4 ) = 18.6 mbar





## VENTILATION



Example of air damper

All MB series burners are fitted with fans with reverse curve blades, which give excellent performance and are fitted in axis with the combustion head.

The air flow and sound-deadening materials used in the construction are designed to reduce sound emissions to the minimum and guarantee high levels of performance in terms of output and air pressure.

A variable profile cam connects fuel and air setting, ensuring fuel efficiency on all firing rates.



## COMBUSTION HEAD



Example of a MODUBLOC MB SM BLU burner combustion head

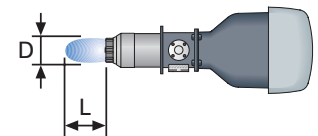
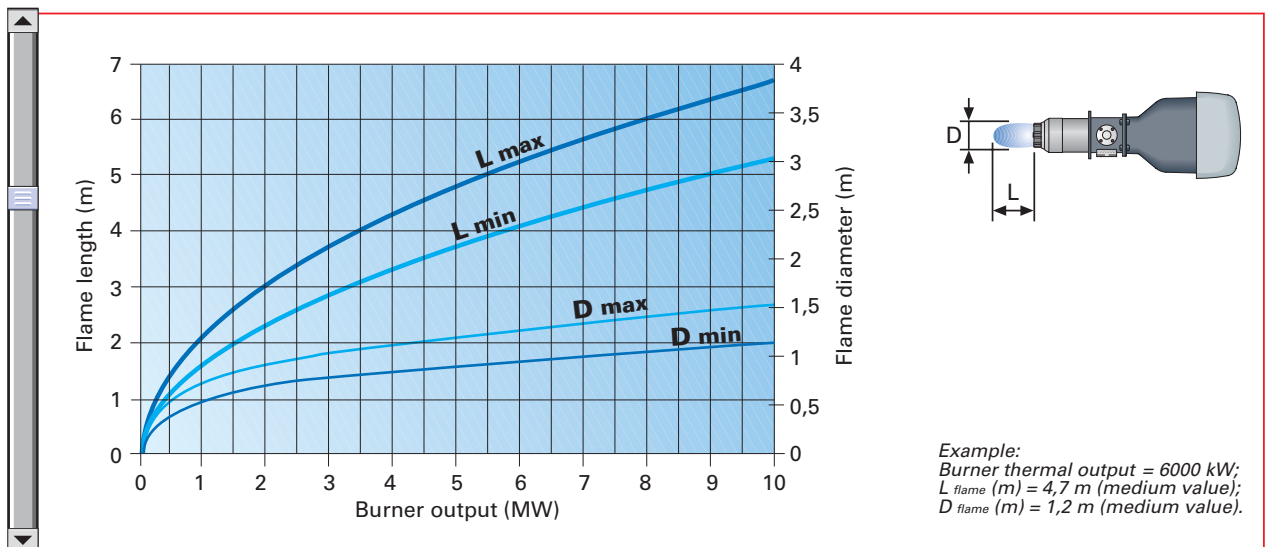
Simple adjustment of the combustion head allows to adapt internal geometry of the head to the output of the burner.

The same adjustment servomotor for the air damper also varies, depending on the required output, the setting of the combustion head through a simple lever.

This system guarantees an excellent mix on all firing rates ranges.



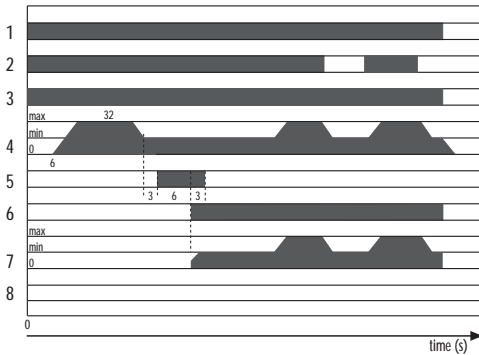
## Flame dimensions



Example:  
 Burner thermal output = 6000 kW;  
 $L_{\text{flame}}$  (m) = 4,7 m (medium value);  
 $D_{\text{flame}}$  (m) = 1,2 m (medium value).

## START UP CYCLE

### MB 8-10-12 SM BLU

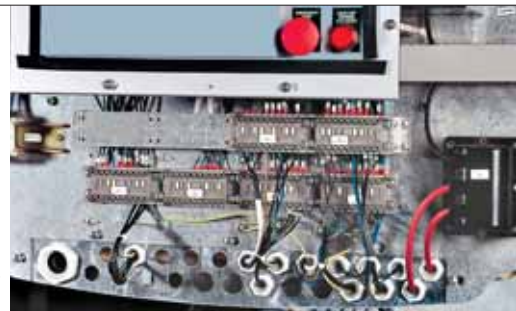


- 1 - Load limit remote control system
- 2 - Two stage progressive control
- 3 - Motor
- 4 - Air gate valve
- 5 - Ignition transformer
- 6 - Valve
- 7 - Flame
- 8 - Lock-out



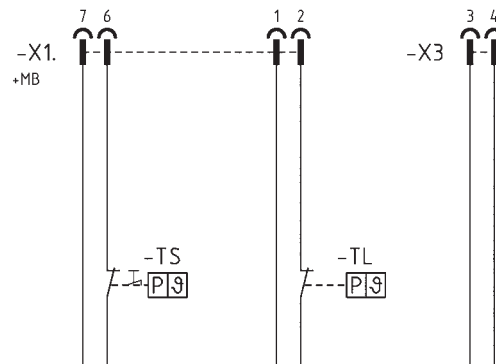
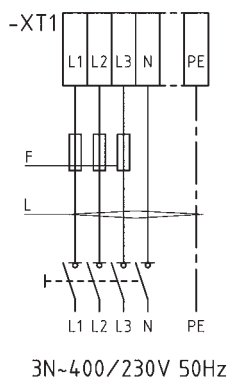
## WIRING DIAGRAMS

Electrical connections must be made by qualified and skilled personnel, according to the local norms.



Example of the terminal board for electrical connections

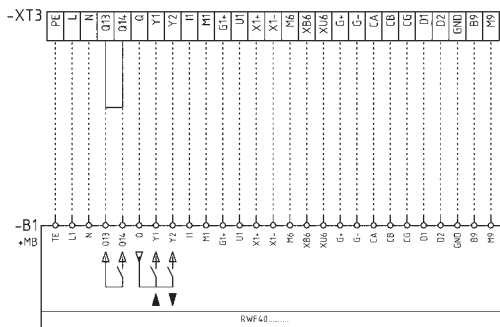
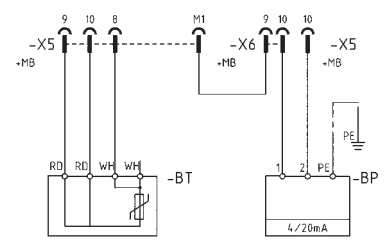
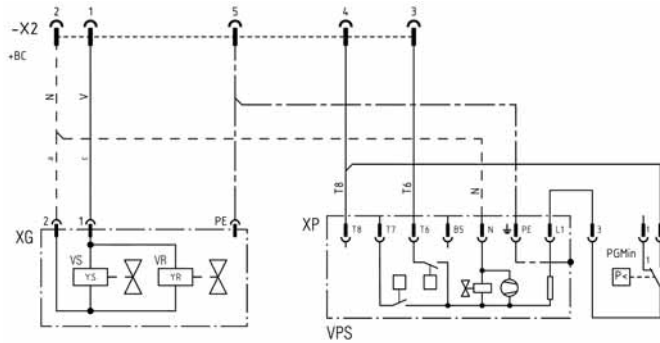
## THREE PHASE SUPPLY TO THE POWER CIRCUIT AND CONNECTING THE AUXILIARY CONTROLS



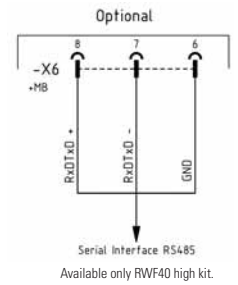
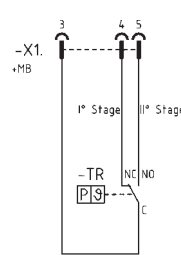
- XT1** - General supply terminal board
- X1** - 10 pin plug
- X3** - Available for gas circuit external interlock
- TS** - Safety thermostat
- TL** - Threshold thermostat
- F** - Fuse (refer to table A)
- L** - Lead section (refer to table A)



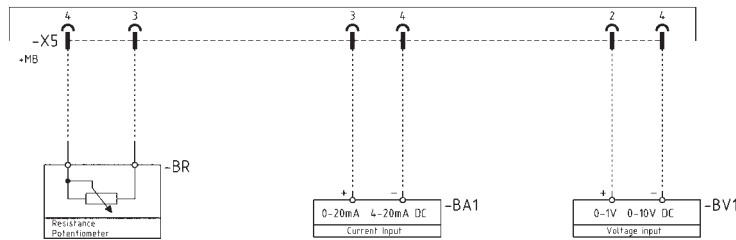
## CONNECTION OF THE PROBES FOR THE CONTROLLED PARAMETER AND DATA CONNECTION FOR THE VARIOUS MODULES (Accessories)



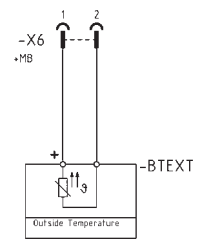
When applying the internal RWF40 kit, remove wire jumper Q13-Q14 from terminal board X2.



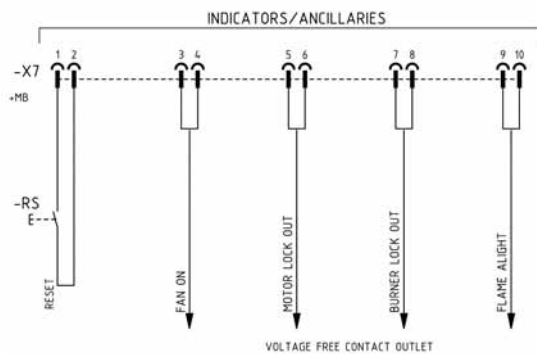
### POSSIBILITY OF SETPOINT INPUT AND SETPOINT SHIFT



### EXTERNAL TEMPERATURE COMPENSATION



## AUXILIARY SIGNALS



- X1-X2** - 10 pin plug
- X5-X6-X7** - RWF40 power controller
- B1** - RWF40 power controller
- BT** - Temperature probe
- BP** - Pressure probe
- BTEXT** - External temperature sensor
- PG** - Minimum gas pressure switch
- TR** - Two stages progressive control
- VPS** - Seal control
- VR** - Adjustment valve
- VS** - Safety valve
- XP** - Seal control plug
- XG** - Gas train plug
- XT3** - Power controller (RWF40) interface terminal strip

The following table shows the supply lead sections and the type of fuse to be used.

Model	▼ MB 8 SM BLU	▼ MB 10 SM BLU	▼ MB 12 SM BLU
F A	400V 50A aM	400V 50A aM	400V 63A aM
L mm <sup>2</sup>	10	10	16

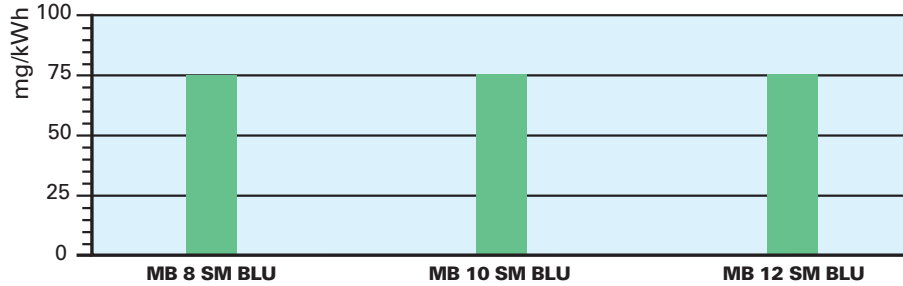
Table A



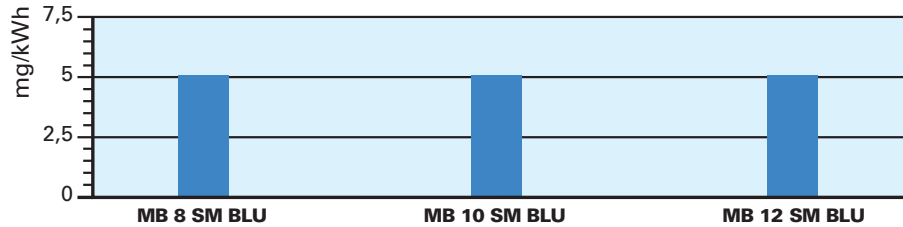


## EMISSIONS

### NO<sub>2</sub> EMISSIONS



### CO EMISSIONS

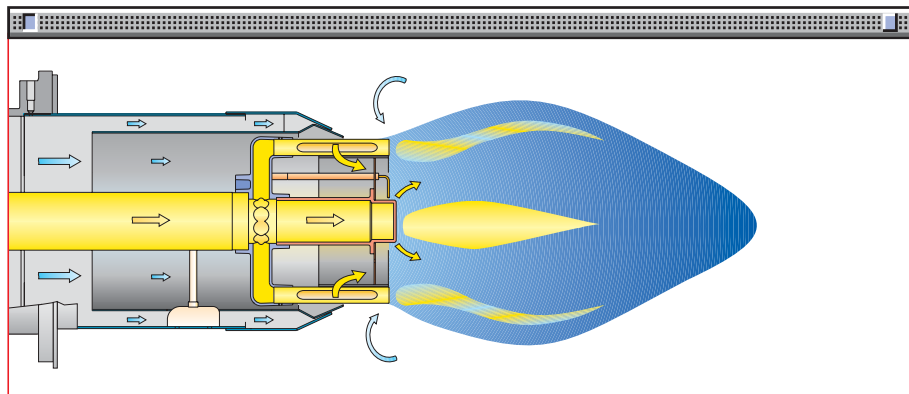


For the various models, the emissions have been obtained on the basis of EN 676 standard.

The MB SM BLU series reduces polluting emissions with its exclusive design which optimises air/fuel mixture.

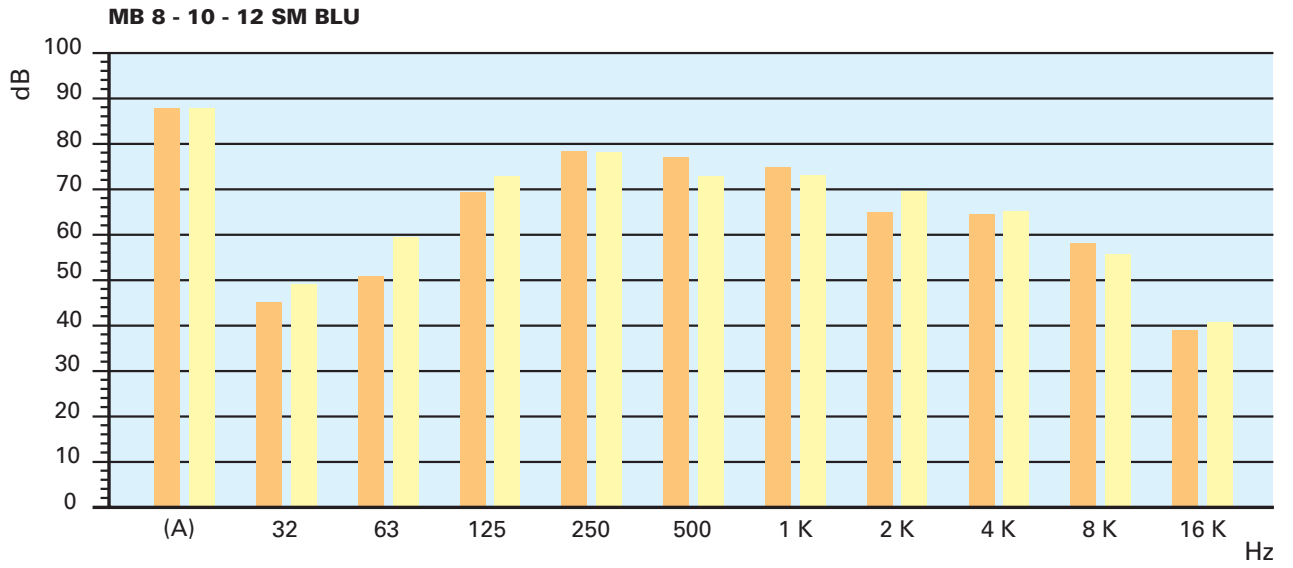
The gas in the combustion head is distributed through openings which are perpendicular to the air flow; part of the fuel is injected directly into the centre of the flame.

This results in low flame temperature combustion to prevent the formation of NO. Gradual and progressive combustion throughout the flame prevents areas of high oxidation inside the flame. Emissions are further reduced by the re-circulation of combustion gases due to the high velocity of air leaving the combustion head. Pollution levels are below even the most severe standard requirements.





## SOUND EMISSIONS



**(A)** Value obtained in dB(A)

Maximum modulation

Minimal modulation

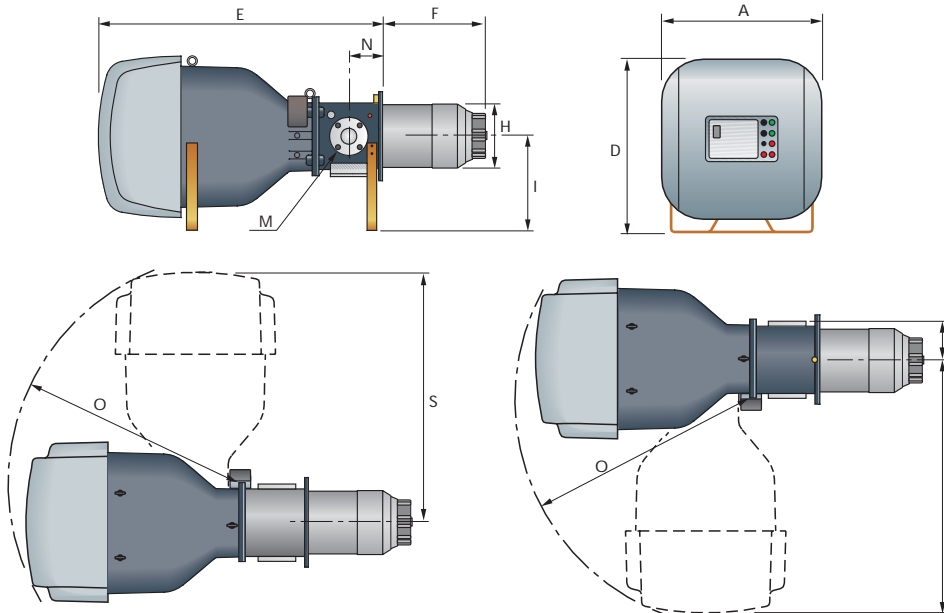




## OVERALL DIMENSIONS (mm)

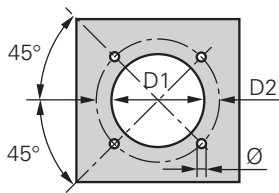
### ► BURNERS

#### MB 8-10-12 SM BLU



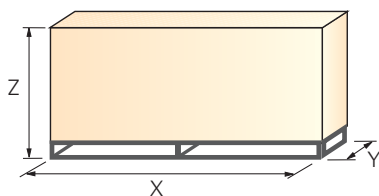
Model	A	D	E	F	H	I	M	N	O	S	T
► MB 8 SM BLU	1007	1079	1900	660	413	575	DN80	208	1570	1740	221
► MB 10 SM BLU	1007	1079	1900	660	413	575	DN80	208	1570	1740	221
► MB 12 SM BLU	1007	1079	1900	664	456	575	DN80	208	1570	1740	221

### ► BURNER - BOILER MOUNTING FLANGE



Model	D1	D2	Ø
► MB 8 SM BLU	418	608	M20
► MB 10 SM BLU	418	608	M20
► MB 12 SM BLU	470	608	M20

### ► PACKAGING



Model	X	Y	Z	kg
► MB 8 SM BLU	2690	1170	1350	450
► MB 10 SM BLU	2690	1170	1350	450
► MB 12 SM BLU	2690	1170	1350	460

## INSTALLATION DESCRIPTION

Installation, start up and maintenance must be carried out by qualified and skilled personnel.

All operations must be performed in accordance with the technical handbook supplied with the burner.

Access to the internal components is very simple, as the back of the burner is hinged which means it can be completely opened.

The burners can be supplied with the opening on the right or left, depending on installation requirements.



### ▶ BURNER SETTING

- ▶ All the burners have lifting rings, for easier installation and maintenance.
- ▶ After drilling the boilerplate, using the supplied gasket as template, prepare a suitable lifting system and, after hooking onto the rings, fix burner to the boiler.
- ▶ Install the gas train, choosing it on the basis of the maximum boiler output and on the basis of the diagrams enclosed with the burner instructions.
- ▶ Adjust the combustion head run, using the mechanism lever.



### ▶ ELECTRICAL CONNECTIONS AND START UP

- ▶ Make the electrical connections to the burner following the wiring diagrams included in the instruction handbook.
- ▶ Turning the motor check the led signalling correct rotation direction, at left of the plugs group, is on.
- ▶ Perform a first ignition calibration on the gas train.
- ▶ On start up, check:
  - gas pressure at the combustion head (to max. and min. output)
  - combustion quality, in terms of unburned substances and excess air.





## BURNER ACCESSORIES

### Burner support

For easier maintenance, a mobile burner support has been designed, which means the burner can be dismantled without the need for forklift trucks.



Burner support	
Burner	Support code
MB 8 - 10 - 12 SM BLU	<b>3010385</b>

### Accessories for modulating operation



Probe			
Burner	Probe type	Range (°C) (bar)	Probe code
MB 8-10-12 SM BLU	Temperature	0 ÷ 500°C	<b>3010110</b>
MB 8-10-12 SM BLU	Pressure	0 ÷ 2,5 bar	<b>3010213</b>
MB 8-10-12 SM BLU	Pressure	0 ÷ 16 bar	<b>3010214</b>



Regulator		
Burner	Type	Regulator code
MB 8-10-12 SM BLU	RWF 40 BASIC	<b>3010356</b>
MB 8-10-12 SM BLU	RWF 40 HIGH	<b>3010357</b>

NOTE: RWF 40 HIGH version with RS485 serial interface.



Analogic control signal converter		
Burner	Type (input signal)	Code
MB 8-10-12 SM BLU	0/2 - 10 V (impedance 200 KΩ)	<b>3010390</b>
	0/4 - 20 mA (impedance 250 Ω)	



Potentiometer	
Burner	Code
MB 8-10-12 SM BLU	<b>3010021</b>

It is necessary for analogic control signal converter operation.

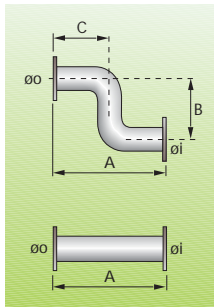


# GAS TRAIN ACCESSORIES



## Adapters

In certain cases, an adapter must be fitted between the gas train and the burner, when the diameter of the gas train is different from the set diameter of the burner.  
Below are given the adapters than can be fitted on the various burners:



Adapters								
Burner	Gas train	Adapter type	Dimensions					Adapter code
			Øi DN	Øo DN	A mm	B mm	C mm	
MB 8-10 SM BLU	MBC 1200 SE 50 (CT)*	I	2" (1)	80	--	--	--	<b>3000826</b>
MB 8-10-12 SM BLU	MBC 1900 SE 65 FC (CT)*	I	65	80	320	--	--	<b>3010221</b>
MB 8-10-12 SM BLU	MBC 3100 SE 80 FC (CT)*	I	80	80	320	--	--	<b>3010222</b>
MB 10-12 SM BLU	MBC 5000 SE 100 FC (CT)*	I	100	80	320	--	--	<b>3010223</b>
MB 8-10-12 SM BLU	MBC 1900 SE 65 FC (CT)*	Z	65	80	400	480	225	<b>3010225</b>
MB 8-10-12 SM BLU	MBC 3100 SE 80 FC (CT)*	Z	80	80	400	480	225	<b>3010226</b>
MB 10-12 SM BLU	MBC 5000 SE 100 FC (CT)*	Z	100	80	400	480	225	<b>3010227</b>

\* with and without seal control  
(1) Unless flange

## Stabiliser spring

To vary the pressure range of the gas train stabilisers, accessory springs are available. The following table shows these accessories with their application range:



Stabiliser spring		
Gas train	Spring	Spring code
MBC 1900 SE 65 FC (CT)*	White from 4 to 20 mbar	<b>3010381</b>
MBC 3100 SE 80 FC (CT)*	Red from 20 to 40 mbar	<b>3010382</b>
MBC 5000 SE 100 FC (CT)*	Black from 40 to 80 mbar	<b>3010383</b>
	Green from 80 to 150 mbar	<b>3010384</b>

\* with and without seal control

Please refer to the technical manual for the correct choice of spring.

## Seal control



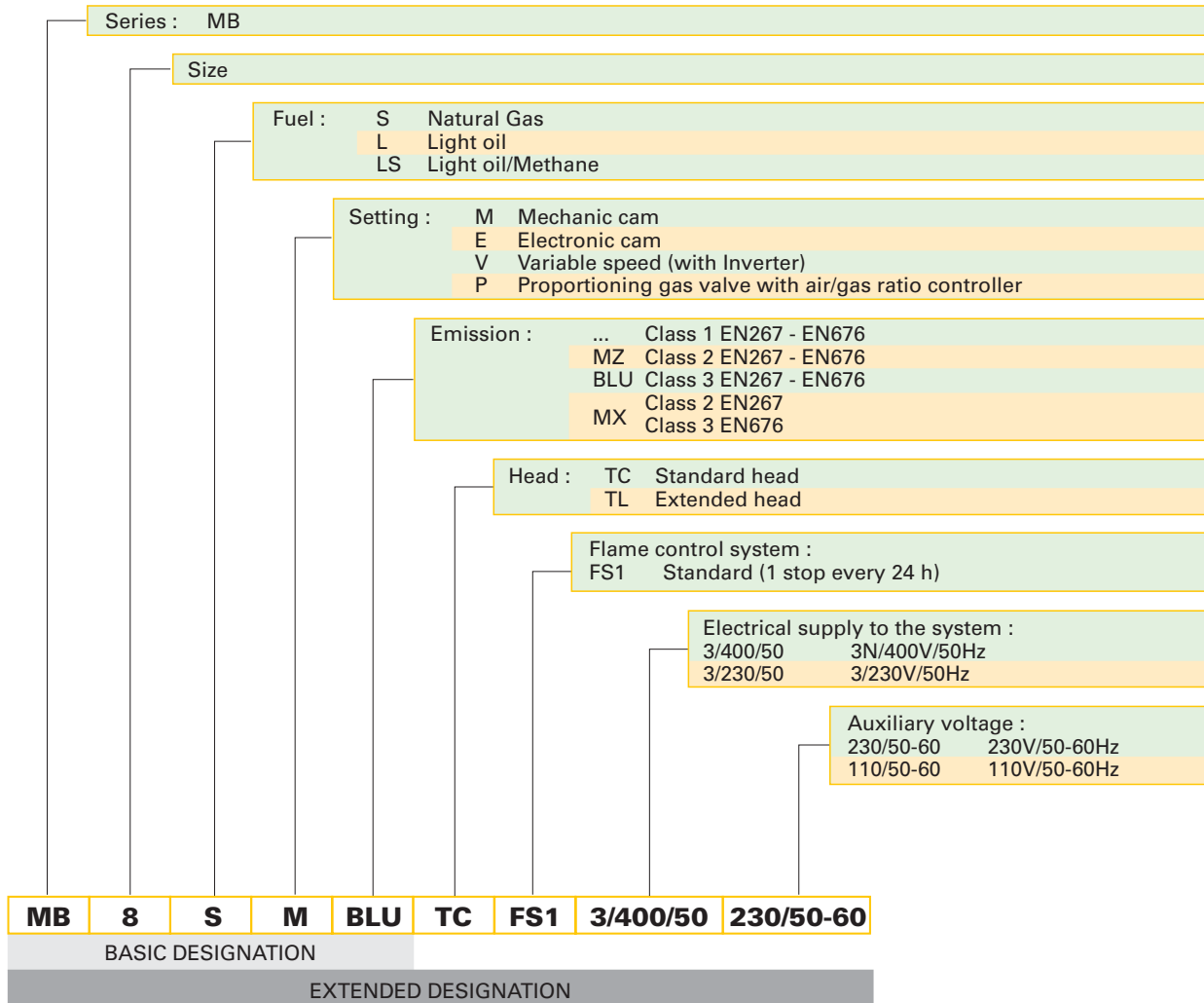
Seal control		
Burner	Gas train	Code
All models	All models	<b>3010123</b>



## SPECIFICATION

A specific index guides your choice of burner from the various models available in the MODUBLOC MB series. Below is a clear and detailed specification description of the product.

### DESIGNATION OF SERIES



### AVAILABLE BURNER MODELS

MB8SM	BLU	TC	FS1	3/400/50	230/50-60
MB8SM	BLU	TC	FS2	3/400/50	230/50-60
MB10SM	BLU	TC	FS1	3/400/50	230/50-60
MB10SM	BLU	TC	FS2	3/400/50	230/50-60
MB12SM	BLU	TC	FS1	3/400/50	230/50-60
MB12SM	BLU	TC	FS2	3/400/50	230/50-60



## ▶ PRODUCT SPECIFICATION

### **Burner**

Monoblock forced draught gas burner with modulating operation, fully automatic, made up of:

- Fan with reverse curve blades high performance with low sound emissions
- Air suction circuit lined with sound-proofing material
- Air damper for air setting controlled by a high precision servomotor
- Air pressure switch
- Fan starting motor at 2900 rpm, three-phase 230/400 - 400/690 V with neutral, 50Hz
- Low emission combustion head, that can be set on the basis of required output, fitted with:
  - stainless steel end cone, resistant to corrosion and high temperatures
  - ignition electrodes
  - flame stability disk
- Maximum gas pressure switch, with pressure test point, for halting the burner in the case of over pressure on the fuel supply line
- Module for air/fuel setting and output modulation with incorporated PID control of temperature or pressure of the heat generator
- Flame control panel for controlling the system safety
- Photocell for flame detection
- Star/triangle starter for the fan motor
- Main electrical supply terminal board
- Burner on/off switch
- Auxiliary voltage led signal
- Manual or automatic output increase/decrease switch
- Burner working led signal
- Contacts motor and thermal relay with release button
- Motor internal thermal protection
- Motor failure led signal
- Burner failure led signal and lighted release button
- Led signal for correct rotation direction of fan motor
- Emergency button
- Coded connection plugs-sockets
- Burner opening hinge
- Lifting rings
- IP 40 electric protection level.

### **Gas train**

Fuel supply line, in the MULTIBLOC configuration (for 2" diameter) or COMPOSED configuration (from a diameter of DN 65 until a diameter of DN 100), fitted with:

- Filter
- Stabiliser
- Minimum gas pressure switch
- Safety valve
- Valve seal control (for output > 1200 kW)
- One stage working valve with ignition gas output regulator.

### **Conforming to:**

- 89/336/EEC directive (electromagnetic compatibility)
- 73/23/EEC directive (low voltage)
- 90/396/EEC directive (gas)
- EN 676 (gas burners).

### **Standard equipment:**

- 1 flange gasket
- 8 screws for fixing the flange
- 1 thermal screen
- 4 screws for fixing the burner flange to the boiler
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

### **Available accessories to be ordered separately:**

- Burner support
- Temperature probe 0 - 500°C
- Pressure probe 0 - 2,5 bar
- Pressure probe 0 - 16 bar
- RWF 40
- Analogic control signal converter
- Potentiometer
- Adapters
- Stabiliser spring
- Seal control.



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