

P61 - P65 - P71

LMV5x

*Microprocessor controlled
gas burners*

MANUAL OF INSTALLATION - USE - MAINTENANCE

CIB UNIGAS

BURNERS - BRUCIATORI - BRULERS - BRENNER - QUEMADORES - ГОРЕЛКИ

WARNINGS

THIS MANUAL IS SUPPLIED AS AN INTEGRAL AND ESSENTIAL PART OF THE PRODUCT AND MUST BE DELIVERED TO THE USER.

INFORMATION INCLUDED IN THIS SECTION ARE DEDICATED BOTH TO THE USER AND TO PERSONNEL FOLLOWING PRODUCT INSTALLATION AND MAINTENANCE.

THE USER WILL FIND FURTHER INFORMATION ABOUT OPERATING AND USE RESTRICTIONS, IN THE SECOND SECTION OF THIS MANUAL. WE HIGHLY RECOMMEND TO READ IT.

CAREFULLY KEEP THIS MANUAL FOR FUTURE REFERENCE.

1) GENERAL INTRODUCTION

- The equipment must be installed in compliance with the regulations in force, following the manufacturer's instructions, by qualified personnel.
- Qualified personnel means those having technical knowledge in the field of components for civil or industrial heating systems, sanitary hot water generation and particularly service centres authorised by the manufacturer.
- Improper installation may cause injury to people and animals, or damage to property, for which the manufacturer cannot be held liable.
- Remove all packaging material and inspect the equipment for integrity.

In case of any doubt, do not use the unit - contact the supplier.

The packaging materials (wooden crate, nails, fastening devices, plastic bags, foamed polystyrene, etc), should not be left within the reach of children, as they may prove harmful.

- Before any cleaning or servicing operation, disconnect the unit from the mains by turning the master switch OFF, and/or through the cut-out devices that are provided.
- Make sure that inlet or exhaust grilles are unobstructed.
- In case of breakdown and/or defective unit operation, disconnect the unit. Make no attempt to repair the unit or take any direct action.

Contact qualified personnel only.

Units shall be repaired exclusively by a servicing centre, duly authorised by the manufacturer, with original spare parts.

Failure to comply with the above instructions is likely to impair the unit's safety.

To ensure equipment efficiency and proper operation, it is essential that maintenance operations are performed by qualified personnel at regular intervals, following the manufacturer's instructions.

- When a decision is made to discontinue the use of the equipment, those parts likely to constitute sources of danger shall be made harmless.
- In case the equipment is to be sold or transferred to another user, or in case the original user should move and leave the unit behind, make sure that these instructions accompany the equipment at all times so that they can be consulted by the new owner and/or the installer.
- For all the units that have been modified or have options fitted then original accessory equipment only shall be used.
- This unit shall be employed exclusively for the use for which it is meant. Any other use shall be considered as improper and, therefore, dangerous.

The manufacturer shall not be held liable, by agreement or otherwise, for damages resulting from improper installation, use and failure to comply with the instructions supplied by the manufacturer.

2) SPECIAL INSTRUCTIONS FOR BURNERS

- The burner should be installed in a suitable room, with ventilation openings complying with the requirements of the regulations in force, and sufficient for good combustion.
- Only burners designed according to the regulations in force should be used.
- This burner should be employed exclusively for the use for which it was designed.
- Before connecting the burner, make sure that the unit rating is the same as delivery mains (electricity, gas oil, or other fuel).
- Observe caution with hot burner components. These are, usually, near to the flame and the fuel pre-heating system, they become hot during the unit operation and will remain hot for some time after the

burner has stopped.

When the decision is made to discontinue the use of the burner, the user shall have qualified personnel carry out the following operations:

- a Remove the power supply by disconnecting the power cord from the mains.
- b) Disconnect the fuel supply by means of the hand-operated shut-off valve and remove the control handwheels from their spindles.

Special warnings

- Make sure that the burner has, on installation, been firmly secured to the appliance, so that the flame is generated inside the appliance firebox.
- Before the burner is started and, thereafter, at least once a year, have qualified personnel perform the following operations:
 - a set the burner fuel flow rate depending on the heat input of the appliance;
 - b set the flow rate of the combustion-supporting air to obtain a combustion efficiency level at least equal to the lower level required by the regulations in force;
 - c check the unit operation for proper combustion, to avoid any harmful or polluting unburnt gases in excess of the limits permitted by the regulations in force;
 - d make sure that control and safety devices are operating properly;
 - e make sure that exhaust ducts intended to discharge the products of combustion are operating properly;
 - f on completion of setting and adjustment operations, make sure that all mechanical locking devices of controls have been duly tightened;
 - g make sure that a copy of the burner use and maintenance instructions is available in the boiler room.
- In case of a burner shut-down, reset the control box by means of the RESET pushbutton. If a second shut-down takes place, call the Technical Service, **without trying to RESET further**.
- The unit shall be operated and serviced by qualified personnel only, in compliance with the regulations in force.

3) GENERAL INSTRUCTIONS DEPENDING ON FUEL USED

3a) ELECTRICAL CONNECTION

- For safety reasons the unit must be efficiently earthed and installed as required by current safety regulations.
- It is vital that all safety requirements are met. In case of any doubt, ask for an accurate inspection of electricians by qualified personnel, since the manufacturer cannot be held liable for damages that may be caused by failure to correctly earth the equipment.
- Qualified personnel must inspect the system to make sure that it is adequate to take the maximum power used by the equipment shown on the equipment rating plate. In particular, make sure that the system cable cross section is adequate for the power absorbed by the unit.
- No adaptors, multiple outlet sockets and/or extension cables are permitted to connect the unit to the electric mains.
- An omnipolar switch shall be provided for connection to mains, as required by the current safety regulations.
- The use of any power-operated component implies observance of a few basic rules, for example:
 - do not touch the unit with wet or damp parts of the body and/or with bare feet;
 - do not pull electric cables;
 - do not leave the equipment exposed to weather (rain, sun, etc.) unless expressly required to do so;
 - do not allow children or inexperienced persons to use equipment;
- The unit input cable shall not be replaced by the user.

In case of damage to the cable, switch off the unit and contact qualified

personnel to replace.

When the unit is out of use for some time the electric switch supplying all the power-driven components in the system (i.e. pumps, burner, etc.) should be switched off.

3b) FIRING WITH GAS, LIGHT OIL OR OTHER FUELS

GENERAL

- The burner shall be installed by qualified personnel and in compliance with regulations and provisions in force; wrong installation can cause injuries to people and animals, or damage to property, for which the manufacturer cannot be held liable.
- Before installation, it is recommended that all the fuel supply system pipes be carefully cleaned inside, to remove foreign matter that might impair the burner operation.
- Before the burner is commissioned, qualified personnel should inspect the following:
 - a the fuel supply system, for proper sealing;
 - b the fuel flow rate, to make sure that it has been set based on the firing rate required of the burner;
 - c the burner firing system, to make sure that it is supplied for the designed fuel type;
 - d the fuel supply pressure, to make sure that it is included in the range shown on the rating plate;
 - e the fuel supply system, to make sure that the system dimensions are adequate to the burner firing rate, and that the system is equipped with all the safety and control devices required by the regulations in force.
- When the burner is to remain idle for some time, the fuel supply tap or taps should be closed.

SPECIAL INSTRUCTIONS FOR USING GAS

Have qualified personnel inspect the installation to ensure that:

- a the gas delivery line and train are in compliance with the regulations and provisions in force;
 - b all gas connections are tight;
 - c the boiler room ventilation openings are such that they ensure the air supply flow required by the current regulations, and in any case are sufficient for proper combustion.
- Do not use gas pipes to earth electrical equipment.
 - Never leave the burner connected when not in use. Always shut the gas valve off.
 - In case of prolonged absence of the user, the main gas delivery valve to the burner should be shut off.

Precautions if you can smell gas

- a do not operate electric switches, the telephone, or any other item likely to generate sparks;
 - b immediately open doors and windows to create an air flow to purge the room;
 - c close the gas valves;
 - d contact qualified personnel.
- Do not obstruct the ventilation openings of the room where gas appliances are installed, to avoid dangerous conditions such as the development of toxic or explosive mixtures.

DIRECTIVES AND STANDARDS

Gas burners

European directives:

- Directive 2009/142/EC - Gas Appliances;
- Directive 2006/95/EC on low voltage;
- Directive 2004/108/EC on electromagnetic compatibility

Harmonised standards :

- UNI EN 676 (Gas Burners;-EN 55014-1Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus.
- CEI EN 60335-1(Household and similar electrical appliances - Safety. Part 1: General requirements;
- EN 50165 (Electrical equipment of non-electric appliances for household and similar purposes. Safety requirements.
- EN 60335-2-102 (Household and similar electrical appliances. Safety. Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections)

Light oil burners

European directives:

- Directive 2006/95/EC on low voltage;
- Directive 2004/108/EC on electromagnetic compatibility

Harmonised standards :

- CEI EN 60335-1(Household and similar electrical appliances - Safety. Part 1: General requirements;
- UNI 267 Automatic forced draught burners for liquid fuels
- EN 55014-1Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus.
- EN 50165 (Electrical equipment of non-electric appliances for household and similar purposes. Safety requirements.

National standards :

- UNI 7824: Monobloc nebulizer burners for liquid fuels. Characteristics and test methods

Heavy oil burners

European directives:

- Directive 2006/95/EC on low voltage;
- Directive 2004/108/EC on electromagnetic compatibility

Harmonised standards :

- CEI EN 60335-1 Household and similar electrical appliances - SafetyPart 1: General requirements;
- EN 55014-1Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus.
- EN 50165 Electrical equipment of non-electric appliances for household and similar purposes. Safety requirements.

National standards :

- UNI 7824: Monobloc nebulizer burners for liquid fuels. Characteristics and test methods

Gas - Light oil burners

European directives:

- Directive 2009/142/EC - Gas Appliances;
- Directive 2006/95/EC on low voltage;
- Directive 2004/108/EC on electromagnetic compatibility

Harmonised standards :

- UNI EN 676 Gas Burners
- EN 55014-1Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus.
- UNI 267 Automatic forced draught burners for liquid fuels
- CEI EN 60335-1(Household and similar electrical appliances - Safety. Part 1: General requirements;
- EN 50165 Electrical equipment of non-electric appliances for household and similar purposes. Safety requirements.

National standards :

- UNI 7824: Monobloc nebulizer burners for liquid fuels. Characteristics and test methods

Gas - Heavy oil burners

European directives:

- Directive 2009/142/EC - Gas Appliances;
- Directive 2006/95/EC on low voltage;
- Directive 2004/108/EC on electromagnetic compatibility

Harmonised standards :

-EN 55014-1 Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus.

-UNI EN 676 (Gas Burners;

-CEI EN 60335-1 (Household and similar electrical appliances - Safety. Part 1: General requirements;

- EN 50165 Electrical equipment of non-electric appliances for household and similar purposes. Safety requirements.

National standards :

-UNI 7824: Monobloc nebulizer burners for liquid fuels. Characteristics and test methods

Industrial burners

European directives:

- Directive 2009/142/EC - Gas Appliances;

- Directive 2006/95/EC on low voltage;

- Directive 2004/108/EC on electromagnetic compatibility

Harmonised standards :

-EN 55014-1 Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus.

-EN 50165 Electrical equipment of non-electric appliances for household and similar purposes. Safety requirements.

-UNI EN 746-2: Industrial thermoprocessing equipment

PART I: SPECIFICATIONS

1.0 BURNERS FEATURES

1.1 Burner model identification

Burners are identified by burner type and model. Burner model identification is described as follows.

Type	P71	Model	M-. MD. S. *. A. 1. 80. ES
	(1)		(2) (3) (4) (5) (6) (7) (8) (9)

1	BURNER TYPE	P61 - P65 - P71
2	FUEL	M - Natural gas L - LPG
3	OPERATION (Available versions)	PR - Progressive MD - Fully modulating
4	BLAST TUBE	S - Standard L - Extended
5	DESTINATION COUNTRY	* - see data plate
6	BURNER VERSION	A - Standard Y - SpecialeSpecial
7	EQUIPMENT	1 = 2 valves + gas proving system 8 = 2 valves + gas proving system + high gas pressure switch
8	GAS CONNECTION	32 = Rp1 _{1/4} 40 = Rp1 _{1/2} 50 = Rp2 65 = DN65 80 = DN80 100 = DN100
9	MICRO-PROCESSOR CONTROL	ES = with no O ₂ trim control, with no VSD control EO = with O ₂ trim control, with no VSD control EI = with no O ₂ trim control, with VSD control EK = with O ₂ trim control, with VSD control

1.2 Technical Specifications

BURNER TYPE	BURNER TYPE	P61 M-...0.40	P61 M-...0.50	P61 M-...0.65	P61 L-...0.40	P61 L-...0.50	P61 L-...0.65
Output	min. - max. kW	160 - 800					
Fuel		Natural gas			L.P.G.		
Category		see next paragraph			3B/P		
Gas flow rate	min.-max. Stm ³ /h	17 - 84.7	17 - 84.7	17 - 84.7	6-30		
Gas pressure	min.-max. mbar	(see Note 2)					
Electric supply		230V 3~ / 400V 3N ~ 50Hz					
Total power consumption	kW	1.6					
Fan motor	kW	1.1					
Protection		IP54					
Operation		Progressive - Fully modulating					
Gas train		40	50	65	40	50	65
Valves size/Gas connection		1" _{1/2} / Rp1 _{1/2}	2" / Rp2	2" _{1/2} / DN65	1" _{1/2} / Rp1 _{1/2}	2" / Rp2	2" _{1/2} / DN65
Operating temperature	°C	-10 ÷ +50					
Storage Temperature	°C	-20 ÷ +60					
Working service		Continuous					

BURNER TYPE	BURNER TYPE	P65 M-...50	P65 M-...65	P65 L-...50	P65 L-...65
Output	min. - max. kW	270 - 970			
Fuel		Natural gas		L.P.G.	
Category		see next paragraph		3B/P	
Gas flow rate	min.-max. Stm ³ /h	28.6 - 103	28.6 - 103	10.4 - 37.3	
Gas pressure	min.-max. mbar	(see Note 2)			
Electric supply		230V 3~ / 400V 3N ~ 50Hz			
Total power consumption	kW	2			
Fan motor	kW	1.5			
Protection		IP54			
Operation		Progressive - Fully modulating			
Gas train		50	65	50	65
Valves size/Gas connection		2" / Rp2	2" _{1/2} / DN65	2" / Rp2	2" _{1/2} / DN65
Operating temperature	°C	-10 ÷ +50			
Storage Temperature	°C	-20 ÷ +60			
Working service		Continuous			

Note1:	All gas flow rates are referred to Stm³/h (1013 mbar absolute pressure, 15 °C temperature) and are valid for G20 gas (net calorific value H_i = 34.02 MJ/Stm³), L.P.G. (net calorific value H_i = 93.5 MJ/Stm³)
Note2:	Maximum gas pressure = 360mbar (with Dungs MBLE/MBC valves) = 500mbar (with Siemens VGD / Dungs MBCvalves) Minimum gas pressure = see gas curves.

BURNER TYPE		P71	P71	P71	P71	P71	P71
		M-...0.50	M-...0.65	M-...0.80	L-...0.50	L-...0.65	L-...0.80
Output	min. - max. kW	300 - 1.200					
Fuel		Natural gas				L.P.G.	
Category		see next paragraph				I _{3B/P}	
Gas flow rate	min.-max. Stm ³ /h	32 - 127				11.2 - 45	
Gas pressure	min.-max. mbar	(see Note 2)					
Electric supply		230V 3~ / 400V 3N ~ 50Hz					
Total power consumption	kW	2.7					
Fan motor	kW	2.2					
Protection		IP40					
Operation		Fully modulating					
Gas train		50	65	80	50	65	80
Valves size/Gas connection		2"/Rp2	2" _{1/2} / DN65	3" / DN80	2"/Rp2	2" _{1/2} / DN65	3" / DN80
Operating temperature	°C	-10 ÷ +50					
Storage Temperature	°C	-20 ÷ +60					
Working service		Continuous					

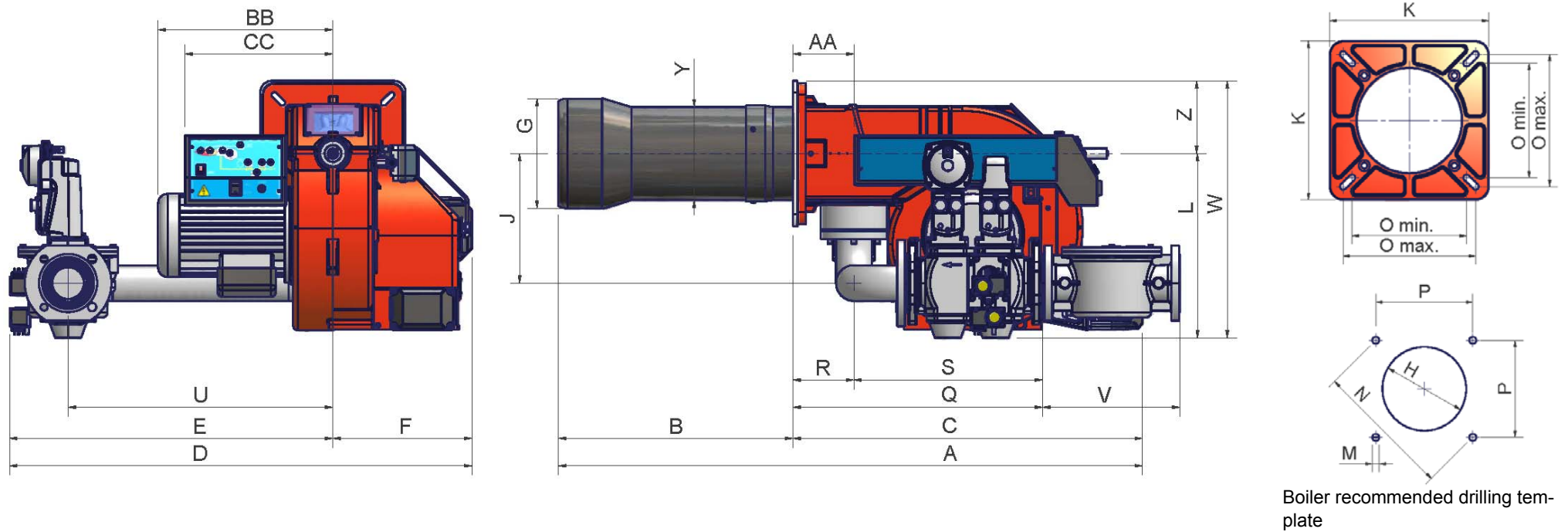
BURNER TYPE		P71	P71	P71	P71	P71	P71
		M-...1.50	M-...1.65	M-...1.80	L-...1.50	L-...1.65	L-...1.80
Output	min. - max. kW	300 - 1.650					
Fuel		Natural gas				L.P.G.	
Category		see next paragraph				I _{3B/P}	
Gas flow rate	min.-max. Stm ³ /h	32 - 175				11.2 - 62	
Gas pressure	min.-max. mbar	(see Note 2)					
Electric supply		230V 3~ / 400V 3N ~ 50Hz					
Total power consumption	kW	2.7					
Fan motor	kW	2.2					
Protection		IP40					
Operation		Fully modulating					
Gas train		50	65	80	50	65	80
Valves size/Gas connection		2"/Rp2	2" _{1/2} / DN65	3" / DN80	2"/Rp2	2" _{1/2} / DN65	3" / DN80
Operating temperature	°C	-10 ÷ +50					
Storage Temperature	°C	-20 ÷ +60					
Working service		Continuous					

Note1:	All gas flow rates are referred to Stm ³ /h (1013 mbar absolute pressure, 15 °C temperature) and are valid for G20 gas (net calorific value H _i = 34.02 MJ/Stm ³), L.P.G. (net calorific value H _i = 93.5 MJ/Stm ³)
Note2:	Maximum gas pressure = 360mbar (with Dungs MBDL/MB valves) = 500mbar (with Siemens VGD / Dungs MBC valves) Minimum gas pressure = see gas curves.

1.3 Country and usefulness gas categories

GAS CATEGORY	COUNTRY																								
	AT	ES	GR	SE	FI	IE	HU	IS	NO	CZ	DK	GB	IT	PT	CY	EE	LV	SI	MT	SK	BG	LT	RO	TR	CH
I _{2H}																									
I _{2E}	LU	PL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I _{2E(R)B}	BE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I _{2L}	NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I _{2ELL}	DE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I _{2Er}	FR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1.4 Overall dimensions (mm)



Boiler recommended drilling template

	DN	A(S*)	A(L*)	AA	B(S*)	B(L*)	BB	C	CC	D	E	F	G	H	J	K	L	M	N	O-min	O-max	P	Q	R	S	U	V	W	Y(S*)	Y(L*)	Z
P61 - 1.40	40	1025	1115	99	343	433	314	682	298	727	473	254	184	204	210	240	344	M10	269	190	190	190	439	112	327	444	x	464	162	162	120
P61 - 1.50	50	1025	1115	99	343	433	314	682	298	727	473	254	184	204	210	240	344	M10	269	190	190	190	447	112	335	444	x	464	162	162	120
P65 - 1.50	50	1071	1161	130	326	416	373	745	316	876	580	296	184	218	208	300	376	M10	330	216	250	233	465	130	335	519	x	531	198	198	155
P71 - 1.50	50	1130	1240	130	385	495	373	745	316	908	612	296	234	264	208	300	376	M10	330	216	250	233	465	130	335	519	x	531	198	212	155
P61 - 1.65	65	1025	1115	99	343	433	314	682	298	912	658	254	184	204	250	240	367	M10	269	190	190	190	549	112	437	533	293	487	162	162	120
P65 - 1.65	65	1071	1161	130	326	416	373	745	316	954	658	296	184	218	275	300	393	M10	330	216	250	233	533	130	403	565	293	548	198	198	155
P71 - 1.65	65	1130	1240	130	385	495	373	745	316	986	690	296	234	264	275	300	393	M10	330	216	250	233	533	130	403	565	293	548	198	212	155
P71 - 1.80	80	1130	1240	130	385	495	373	745	316	988	692	296	234	264	275	300	407	M10	330	216	250	233	574	130	444	565	324	562	198	212	155

*S = measure referred to burner fitted with standard blast tube

*L = measure referred to burner fitted with extended blast tube

1.5 How to interpret the burner “Performance curve”

To check if the burner is suitable for the boiler to which it must be installed, the following parameters are needed:

- furnace input, in kW or kcal/h ($\text{kW} = \text{kcal/h} / 860$);
- backpressure (data are available on the boiler ID plate or in the user’s manual).

Example:

Furnace input: 600kW

Backpressure: 4mbar

In the “Performance curve” diagram (Fig. 4), draw a vertical line matching the furnace input value and an horizontal line matching the backpressure value. The burner is suitable if the intersection point A is inside the performance curve.

Data are referred to standard conditions: atmospheric pressure at 1013mbar, ambient temperature at 15°C.

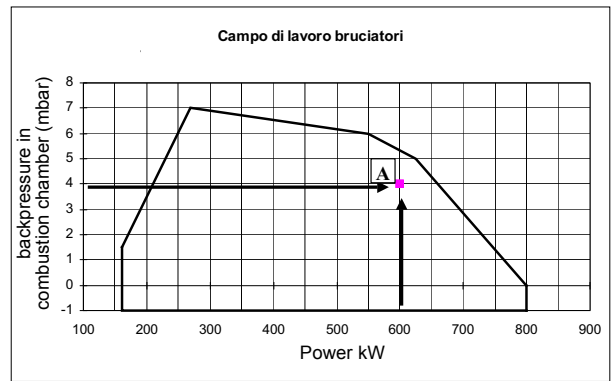


Fig. 4

1.6 Checking the proper gas train size

To check the proper gas train size, it is necessary to the available gas pressure value upstream the burner’s gas valve. Then subtract the backpressure. The result is called **pgas**. Draw a vertical line matching the furnace input value (600kW, in the example), quoted on the x-axis, as far as intercepting the network pressure curve, according to the installed gas train (DN65, in the example). From the interception point, draw an horizontal line as far as matching, on the y-axis, the value of pressure necessary to get the requested furnace input. This value must be lower or equal to the **pgas** value, calculated before.

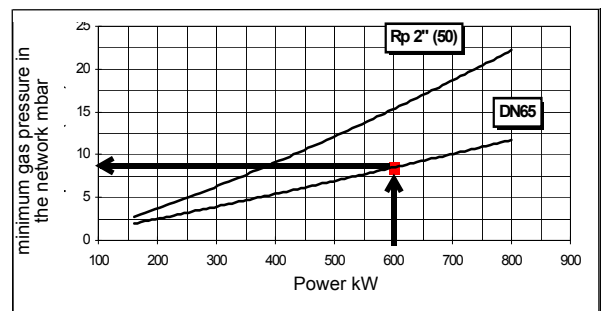
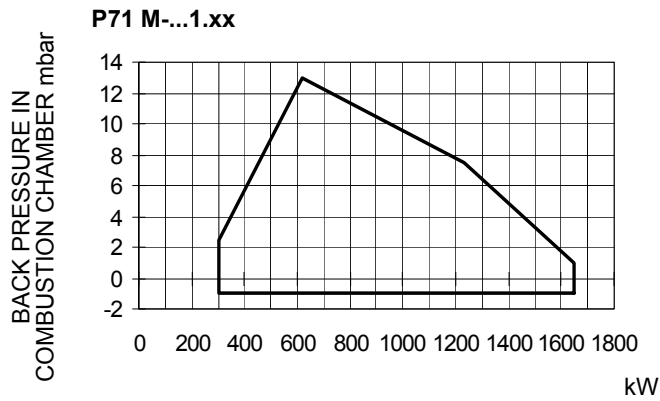
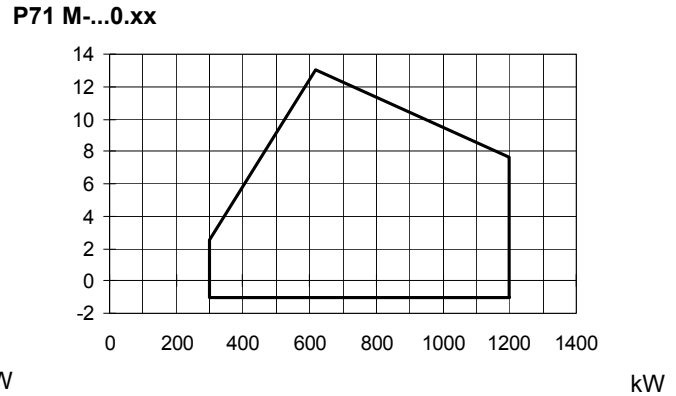
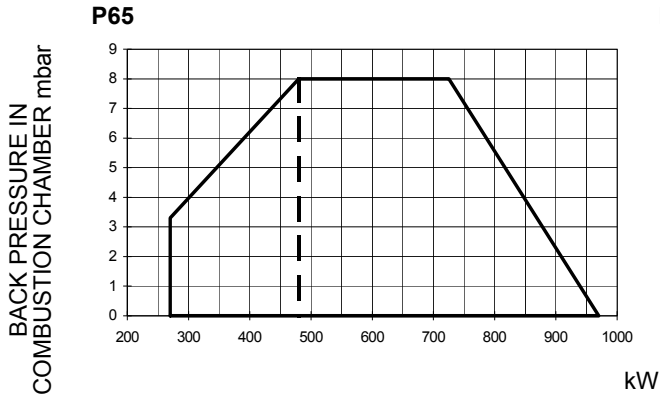
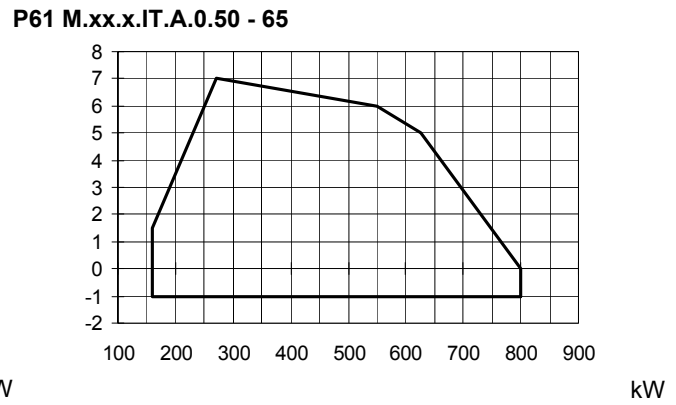
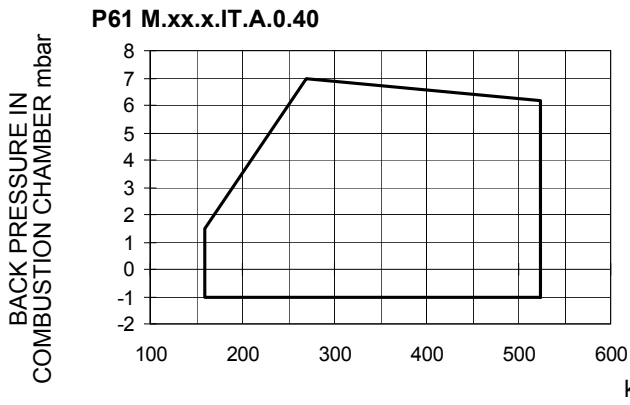


Fig. 5

1.7 Performance Curves



To get the input in kcal/h, multiply value in kW by 860.

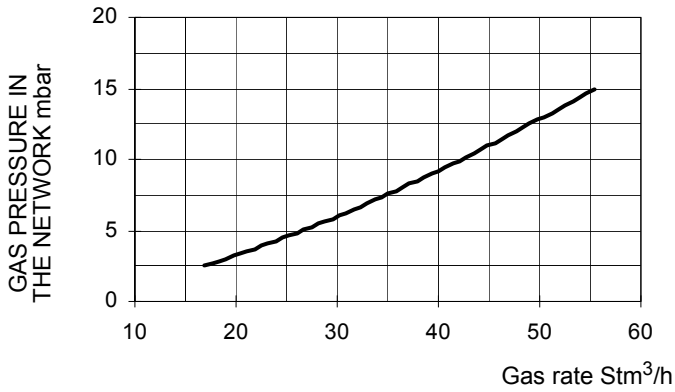
Data are referred to standard conditions: atmospheric pressure at 1013mbar, ambient temperature at 15°C.

NOTE: The performance curve is a diagram that represents the burner performance in the type approval phase or in the laboratory tests, but does not represent the regulation range of the machine. On this diagram the maximum output point is usually reached by adjusting the combustion head to its "MAX" position (see paragraph "Adjusting the combustion head"); the minimum output point is reached setting the combustion head to its "MIN" position. During the first ignition, the combustion head is set in order to find a compromise between the burner output and the generator specifications, that is why the minimum output may be different from the Performance curve minimum.

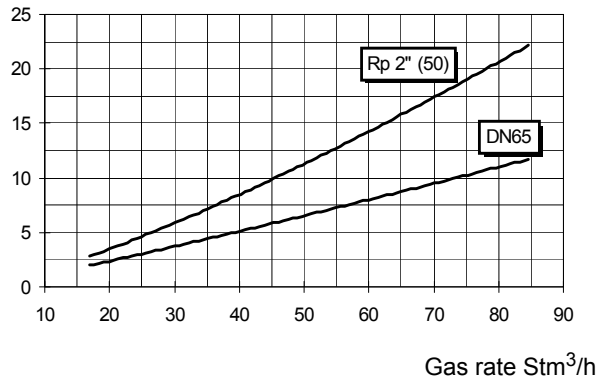
1.8 Pressure in the Network / gas flow rate curves

● Gas burners

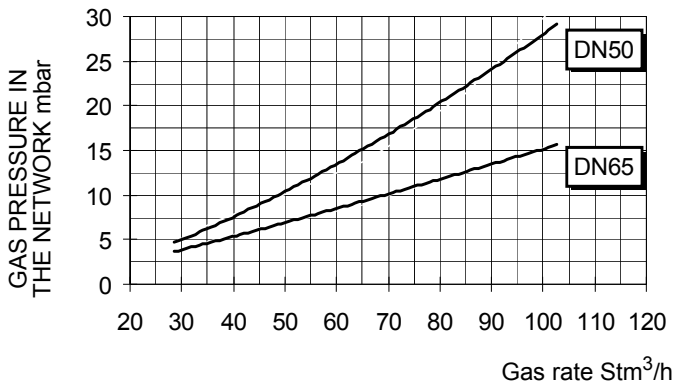
P61 M-...0.40



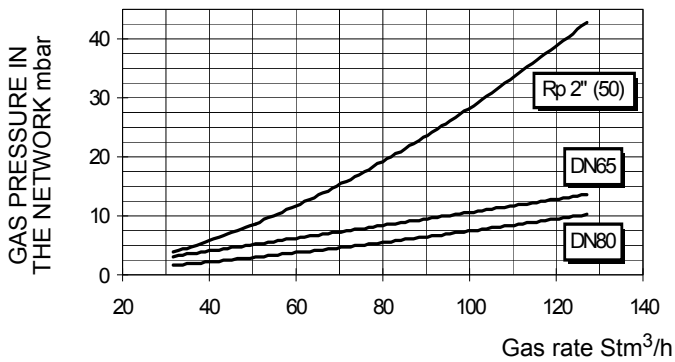
P61 M-0.50 - M-...0.65



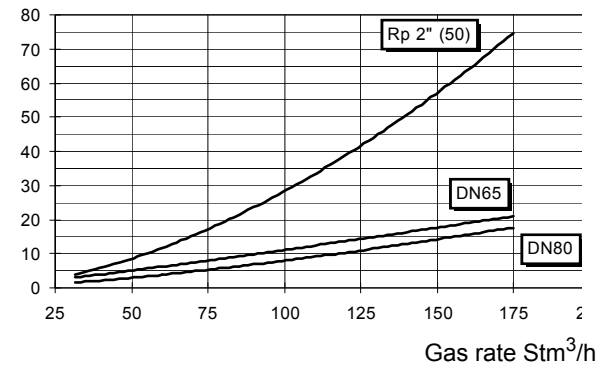
P65 M-...50-65



P71 M-...0.xx



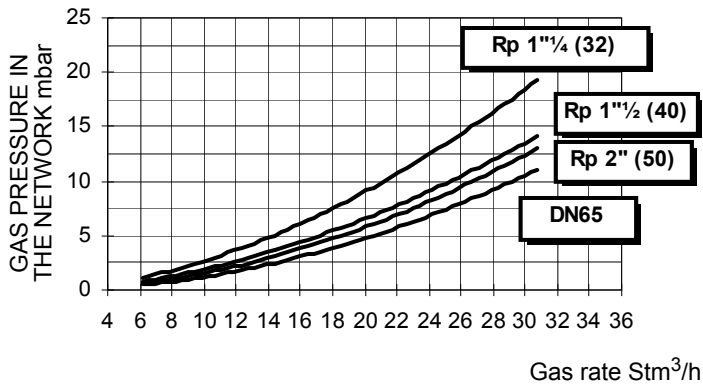
P71 M-...1.xx



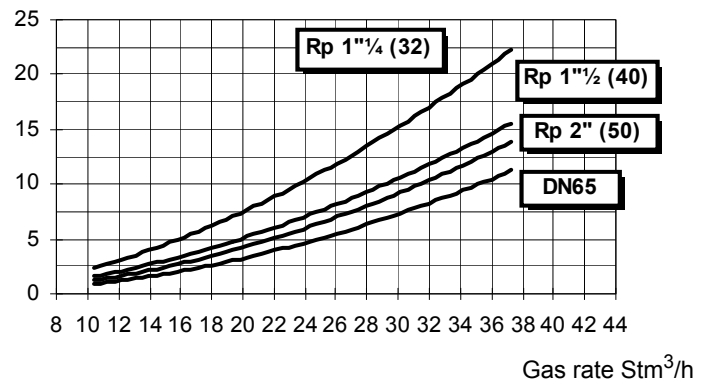
Caution: the gas rate value is quoted on the x-axis, the related network pressure is quoted on the y-axis (pressure value in the combustion chamber is not included). To know the minimum pressure at the gas train inlet, necessary to get the requested gas rate, add the pressure value in the combustion chamber to the value read on the y-axis.

● L.P.G. Burners

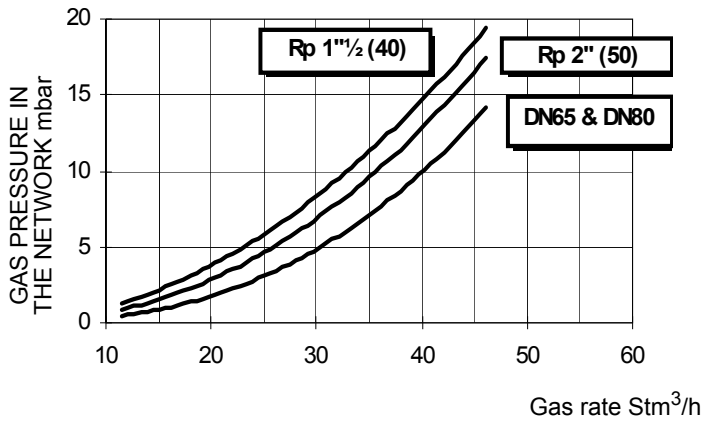
P61



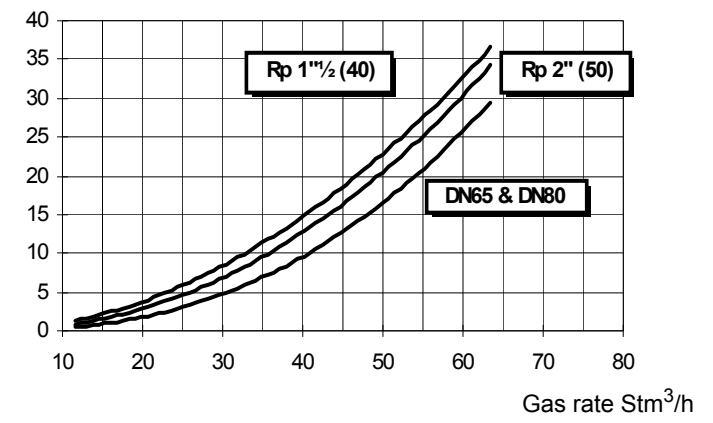
P65



P71 L-...0.xx



P71 L-...1.xx



Caution: the gas rate value is quoted on the x-axis, the related network pressure is quoted on the y-axis (pressure value in the combustion chamber is not included). To know the minimum pressure at the gas train inlet, necessary to get the requested gas rate, add the pressure value in the combustion chamber to the value read on the y-axis.

1.9 Combustion head gas pressure curves depending on the flow rate

The curves referred to the gas pressure in the combustion head, depending on the gas flow rate, are referred to the burner properly adjusted (percentage of residual O_2 in the flues as shown in the "Recommended combustion values" table and CO in the standard limits). During this stage, the combustion head, the gas butterfly valve and the actuator are at the maximum opening. Refer to Fig. 6, showing the correct way to measure the gas pressure, considering the values of pressure in combustion chamber, surveyed by means of the pressure gauge or taken from the boiler's Technical specifications.

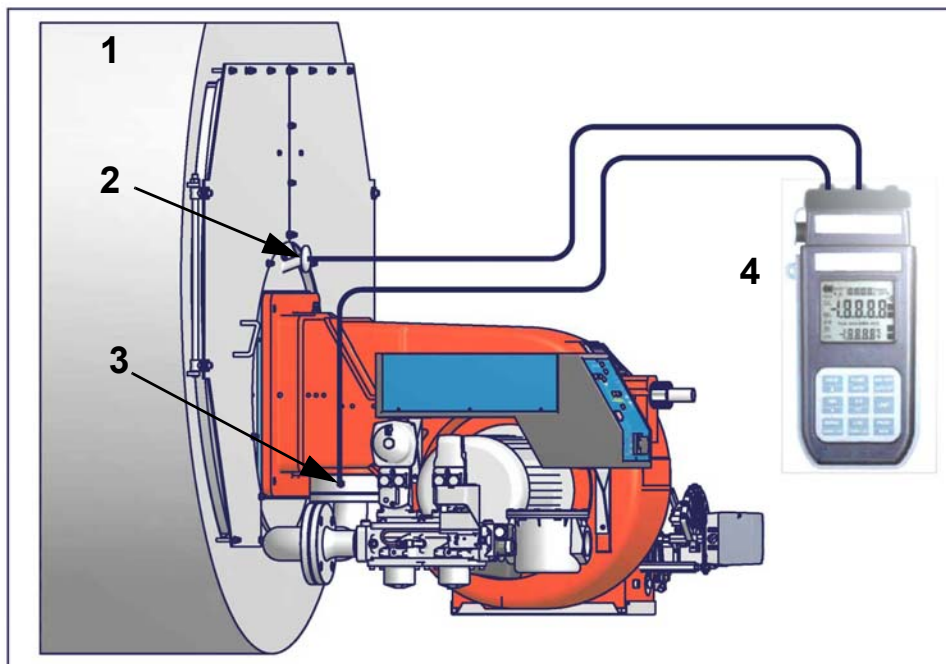


Fig. 6

Note: the figure is indicative only.

Key

- 1 Generator
- 2 Pressure outlet on the combustion chamber
- 3 Gas pressure outlet on the butterfly valve
- 4 Differential pressure gauge

1.10 Measuring the gas pressure in the combustion head

In order to measure the pressure in the combustion head, insert the pressure gauge probes: one into the combustion chamber's pressure outlet to get the pressure in the combustion chamber and the other one into the butterfly valve's pressure outlet of the burner. On the basis of the measured differential pressure, it is possible to get the maximum flow rate: in the pressure - rate curves (showed on the next paragraph), it is easy to find out the burner's output in Stm^3/h (quoted on the x axis) from the pressure measured in the combustion head (quoted on the y axis). The data obtained must be considered when adjusting the gas flow rate.



ATTENTION: THE BURNED GAS RATE MUST BE READ AT THE GAS FLOW METER. WHEN IT IS NOT POSSIBLE, THE USER CAN REFERS TO THE PRESSURE-RATE CURVES AS GENERAL INFORMATION ONLY.

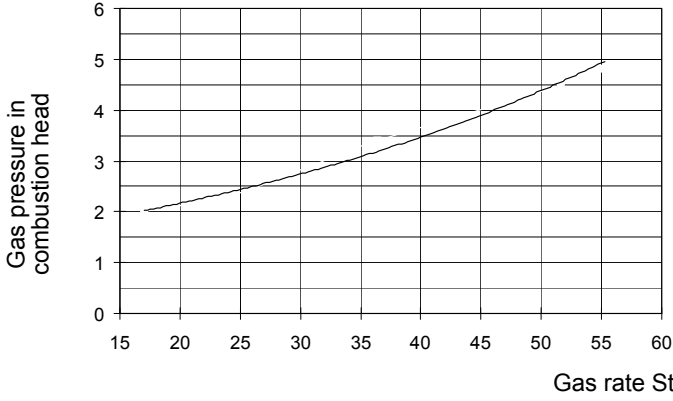
1.11 Pressure - rate in combustion head curves



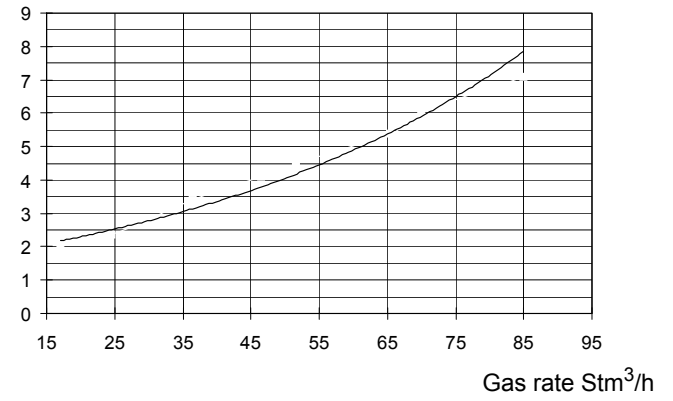
Curves are referred to pressure = 0mbar in the combustion chamber!

● Gas burners

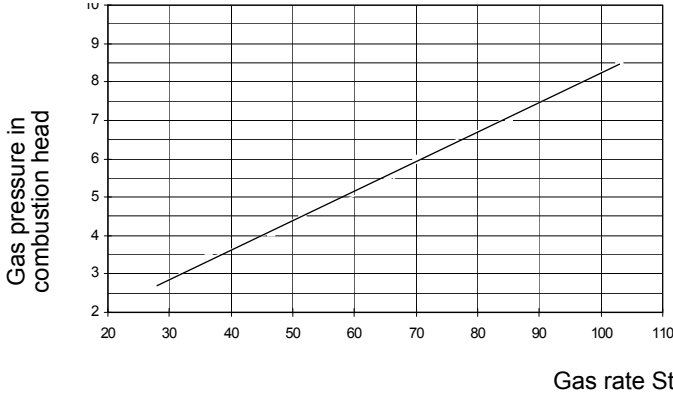
P61 M-...0.40



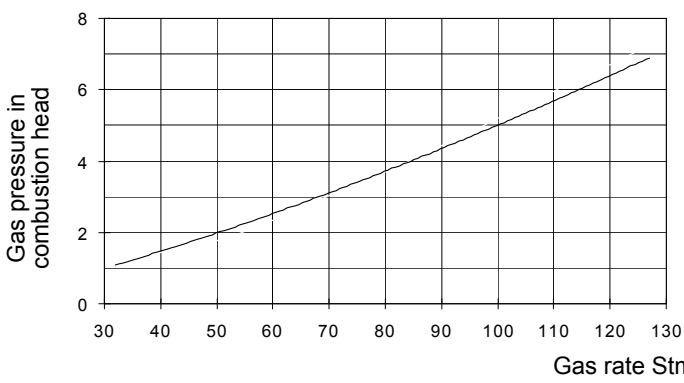
P61 M-0.50 - M-...0.65



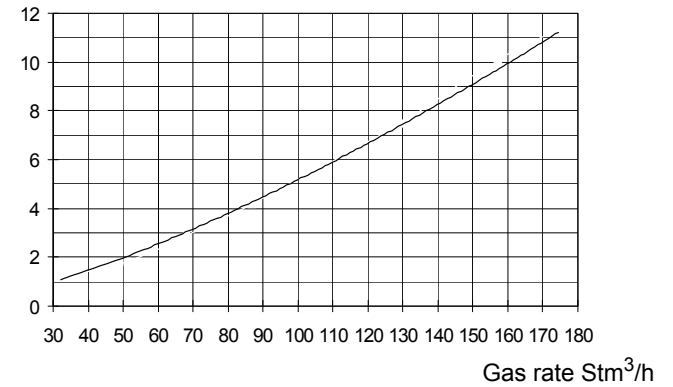
P65



P71 M-...0.xx

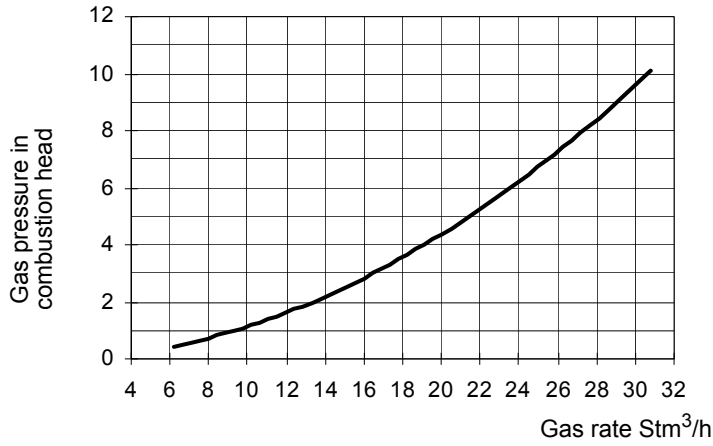


P71 M-...1.xx

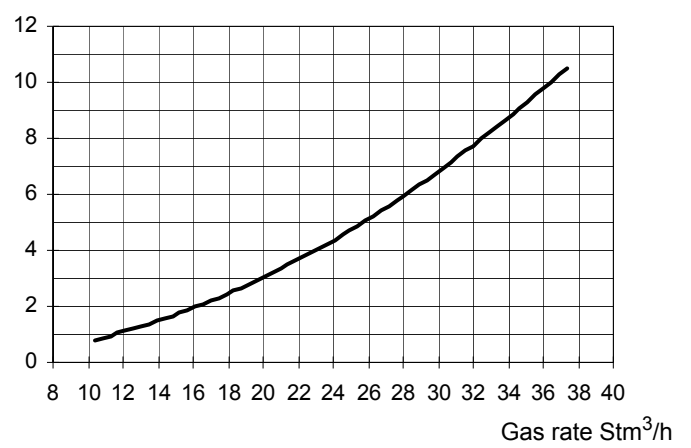


● L.P.G. Burners

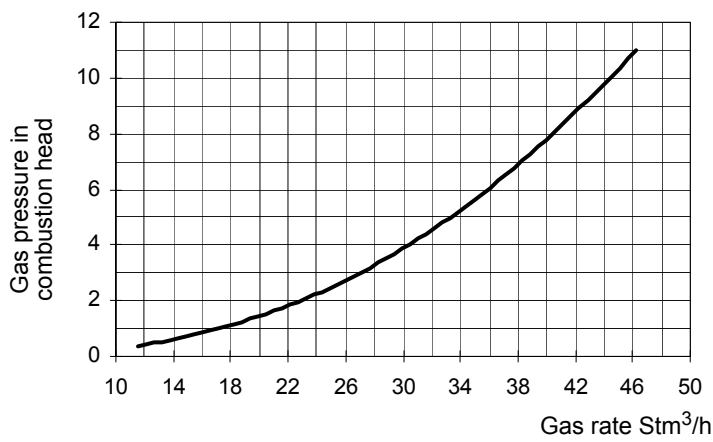
P61



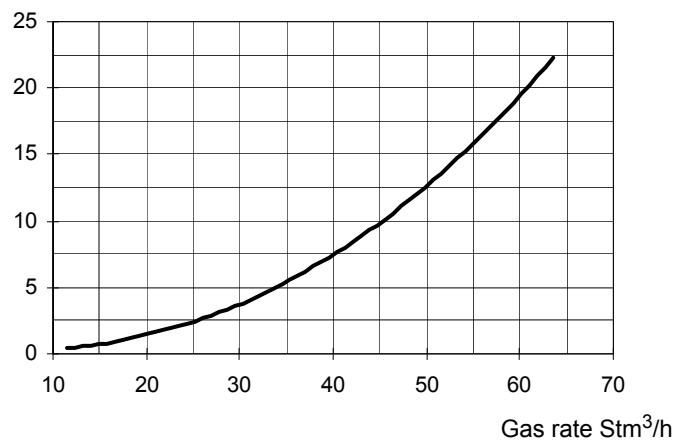
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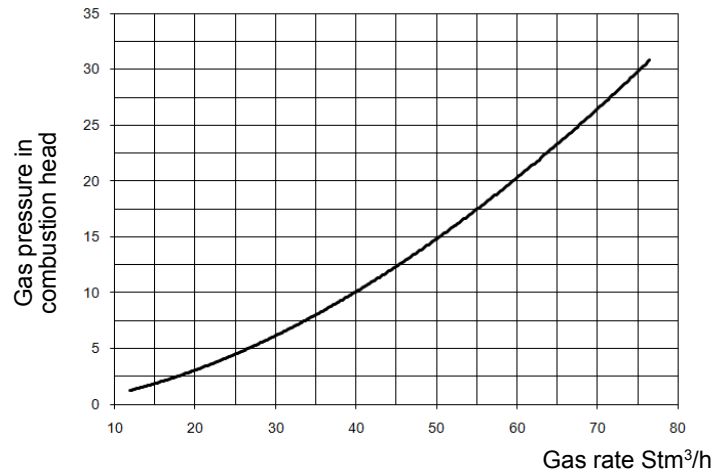
P71 L-...0.xx



P71 L-...1.xx



R75A L-...1.xx



PART II: INSTALLATION

2.0 MOUNTING AND CONNECTING THE BURNER

2.1 Packing

The burners are despatched in wooden crates whose dimensions are:

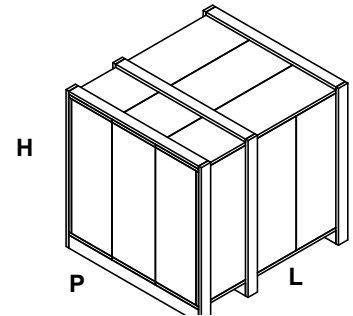
- 1636mm x 1036mm x 1016mm (L x P x H).

Packing cases of this type are affected by humidity and are not suitable for stacking.

The following are placed in each packing case:

- burner with gas train;
- ceramic fibre plait to be inserted between the burner and the boiler;
- envelope containing this manual.

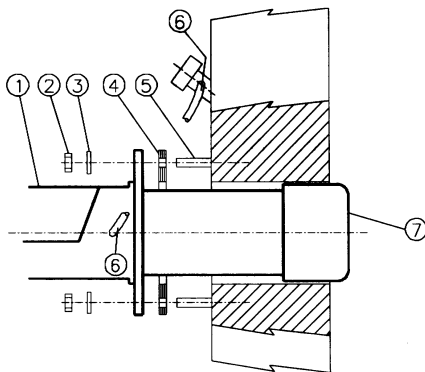
To get rid of the burner's packing, follow the procedures laid down by current laws on disposal of materials.



2.2 Fitting the burner to the boiler

To install the burner into the boiler, proceed as follows:

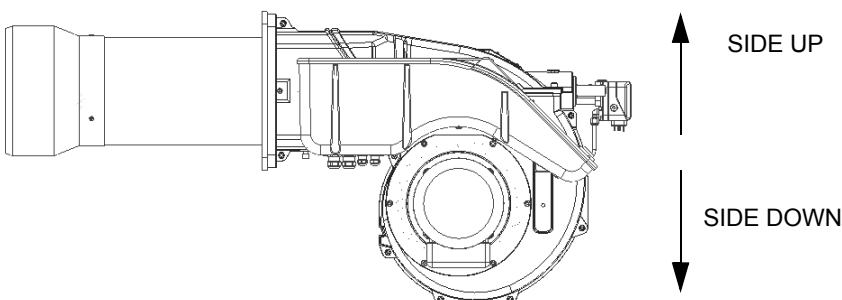
- 1 make a hole on the closing door of the combustion chamber as described on paragraph "Overall dimensions")
- 2 place the burner to the boiler: lift it up and handle it according to the procedure described on paragraph "Handling the burner";
- 3 place the 4 stud bolts (5), according to the burner's drilling plate described on paragraph "Overall dimensions";
- 4 fasten the 4 stud bolts;
- 5 place the ceramic fibre plait on the burner flange;
- 6 install the burner into the boiler;
- 7 fix the burner to the stud bolts, by means of the fixing nuts, according to the next picture.
- 8 After fitting the burner to the boiler, ensure that the gap between the blast tube and the refractory lining is sealed with appropriate insulating material (ceramic fibre cord or refractory cement).



Keys

- | | |
|---|---------------------|
| 1 | Burner |
| 2 | Fixing nut |
| 3 | Washer |
| 4 | Ceramic fibre plait |
| 5 | Stud bolt |
| 7 | Blast tube |

The burner is designed to work positioned according to the picture below. For different installations, please contact the Technical Department.

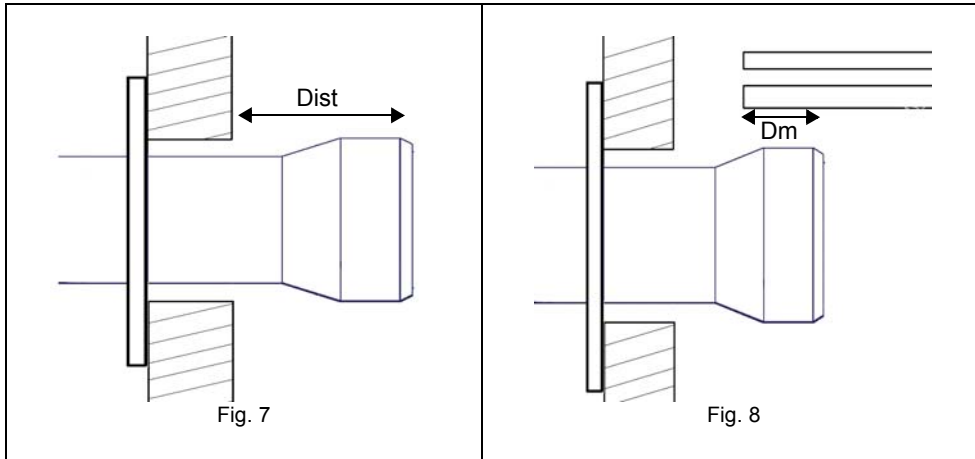


Note: the figure is indicative only.

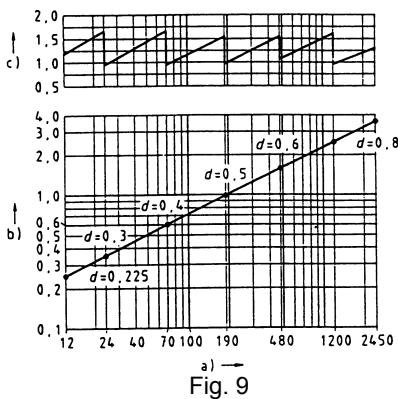
2.3 Matching the burner to the boiler

The burners described in this manual have been tested with combustion chambers that comply with EN676 regulation and whose dimensions are described in the diagram. In case the burner must be coupled with boilers with a combustion chamber smaller in diameter or shorter than those described in the diagram, please contact the supplier, to verify that a correct matching is possible, with respect of the application involved. To correctly match the burner to the boiler verify the type of the blast tube (type 1 or type 2). Verify the necessary input and the pressure in combustion chamber are included in the burner performance curve; otherwise the choice of the burner must be revised consulting the burner manufacturer. To choose the blast tube length follow the instructions of the boiler manufacturer. In absence of these consider the following:

- Cast-iron boilers, three pass flue boilers (with the first pass in the rear part): the blast tube must protrude no more than **Dist** = 100 mm into the combustion chamber. (Fig. 7)
- Pressurised boilers with flame reversal: in this case the blast tube must penetrate **Dm** 50 ÷ 100 mm into combustion chamber in respect to the tube bundle plate.(Fig. 8)



The length of the blast tubes does not always allow this requirement to be met, and thus it may be necessary to use a suitably-sized spacer to move the burner backwards or to design a blast tube that suits the utilisation (please, contact the manufacturer).



Key

- a) Heat output in kW
- b) Length of the flame tube in meters
- c) Flame tube firing intensity in MW/m³
- d) Combustion chamber diameter (m)

Fig. 9 - Firing intensity, diameter and length of the test flame tube as a function of the heat input in kW.

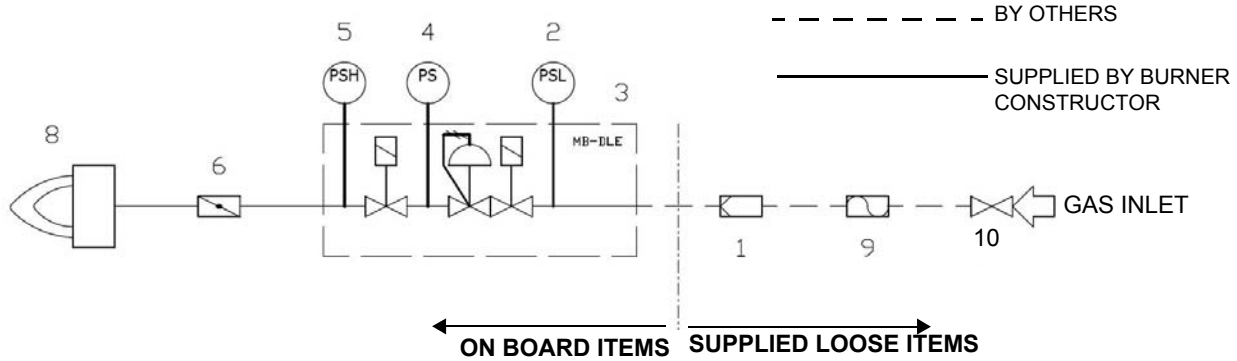
3.0 GAS TRAIN CONNECTIONS

The diagrams show the components of the gas train included in the delivery and which must be fitted by the installer. The diagrams are in compliance with the current laws.

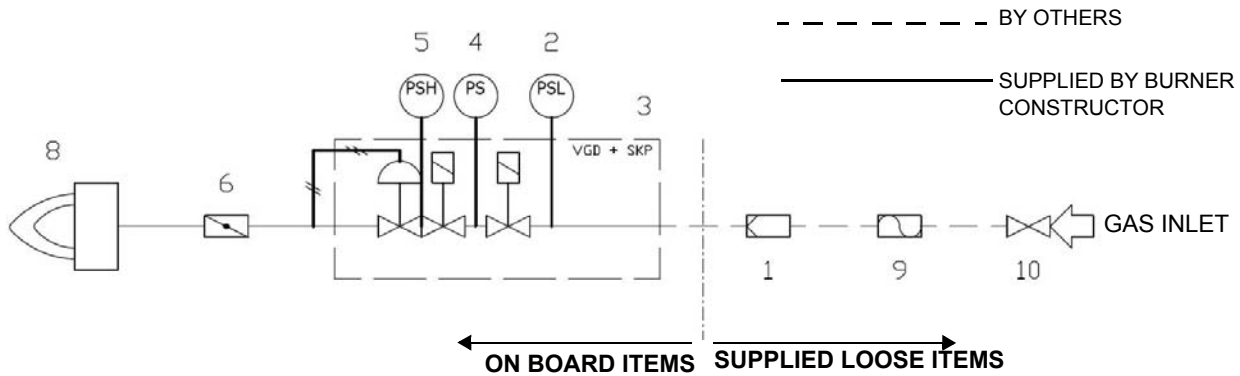


ATTENTION: BEFORE EXECUTING THE CONNECTIONS TO THE GAS PIPE NETWORK, BE SURE THAT THE MANUAL CUTOFF VALVES ARE CLOSED.

Gas train with valves group MB-DLE with built-in gas pressure governor + gas leakage pressure switch (PGCP)



Gas train with valves group VGD with built-in gas pressure governor + gas leakage pressure switch (PGCP)



Key

MAIN GAS TRAIN	
1	Filter
2	Pressure switch - PGMIN
3	Safety valve with built in gas governor
4	Proving system pressure switch (if present) - PGCP
5	Pressure switch - PGMAX(*optional)
6	Butterfly valve
8	Main burner
9	Bellows unit(*optional)
10	Manual valve(*optional)

3.1 Assembling the gas grain

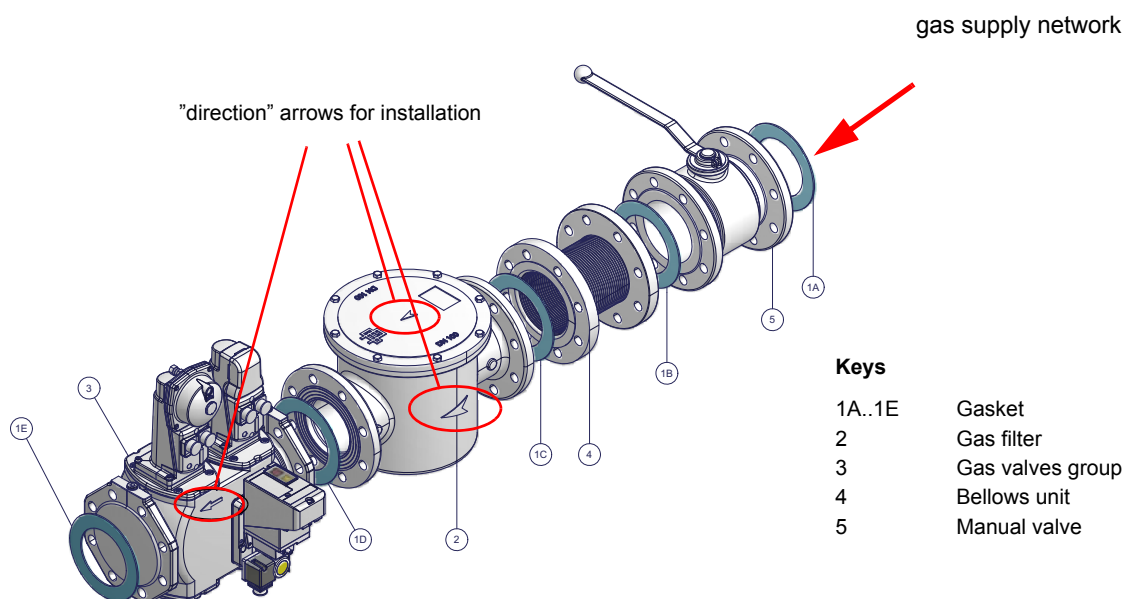


Fig. 10 - Example of gas train

To mount the gas train, proceed as follows:

1-a) in case of threaded joints: use proper seals according to the gas used;

1-b) in case of flanged joints: place a gasket (no. 1A..1E - Fig. 10) between the elements

2) fasten all the items by means of screws, according to the diagrams showed, observing the mounting direction for each item;

NOTE: the bellows unit, the manual cutoff valve and the gaskets are not part of the standard supply.



ATTENTION: once the gas train is mounted according to the diagram on Fig. 10, the gas proving test must be performed, according to the procedure set by the laws in force.



ATTENTION: it is recommended to mount filter and gas valves to avoid that extraneous material drops inside the valves, during maintenance and cleaning operation of the filters (both the filters outside the valves group and the ones built-in the gas valves).

The procedures of installation for the gas valves are shown in the next paragraphs, according to the gas train used:

- threaded gas trains with Siemens VGD20.. / Multibloc Dungs MB-DLE
- flanged gas trains with Siemens VGD40..

3.2 MULTIBLOC DUNGS MB-DLE 405..412

Mounting

1. Mount flange onto tube lines: use appropriate sealing agent (see Fig. 13);
2. insert MB-DLE: note position of O rings (see Fig. 13);
3. tighten screws A, B, C and D (Fig. 11 - Fig. 12), according to the mounting positions (Fig. 14);
4. after installation, perform leakage and functional test;
5. disassembly in reverse order.

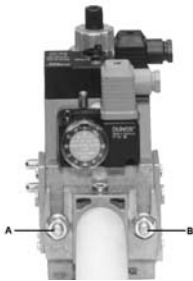


Fig. 11

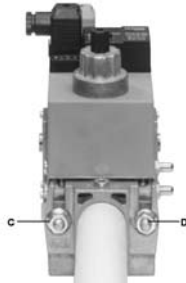


Fig. 12



Fig. 13

MOUNTING POSITIONS

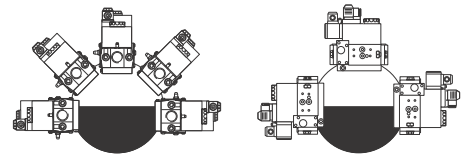


Fig. 14

3.3 MULTIBLOC DUNGS MB-DLE 415..420

Mounting

1. Loosen screws A and B **do not** unscrew (Fig. 15 - Fig. 16).
2. unscrew screws C and D (Fig. 15 - Fig. 16).
3. Remove MultiBloc between the threaded flanges (Fig. 16).
4. After mounting, perform leakage and functional tests.

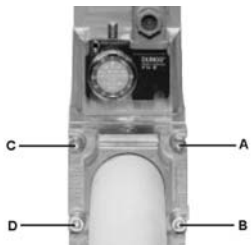


Fig. 15

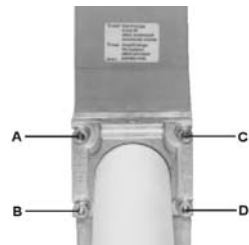


Fig. 16



Fig. 17

MOUNTING POSITIONS

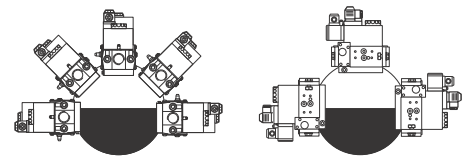


Fig. 18

3.4 Siemens VGD20.. and VGD40.. gas valves - with SKP2.. (pressure governor)

Mounting

- When mounting the VGD.. double gas valve, two flanges are required (as for VGD20.. model, the flanges are threaded); to prevent cuttings from falling inside the valve, first fit the flanges to the piping and then clean the associated parts;
- install the valve;
- the direction of gas flow must be in accordance with the direction of the arrow on the valve body;
- ensure that the bolts on the flanges are properly tightened;
- ensure that the connections with all components are tight;
- make certain that the O-rings and gaskets between the flanges and the double gas valve are fitted.
- Connect the reference gas pipe (**TP** in figure; 8mm-external size pipe supplied loose), to the gas pressure nipples placed on the gas pipe, downstream the gas valves: gas pressure must be measured at a distance that must be at least 5 times the pipe size.

Leave the blowhole free (**SA** in figure). Should the spring fitted not permit satisfactory regulation, ask one of our service centres for a suitable replacement.

⚠ Caution: the SKP2 diaphragm D must be vertical (see Fig. 21).

⚠ WARNING: removing the four screws BS causes the device to be unserviceable!

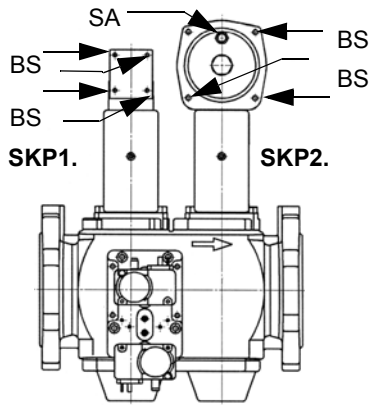


Fig. 19

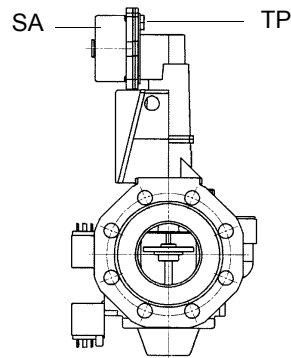


Fig. 20

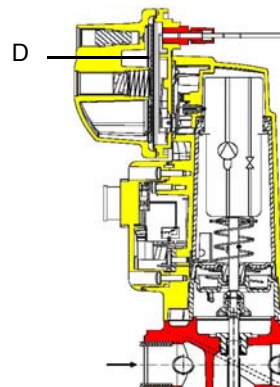


Fig. 21

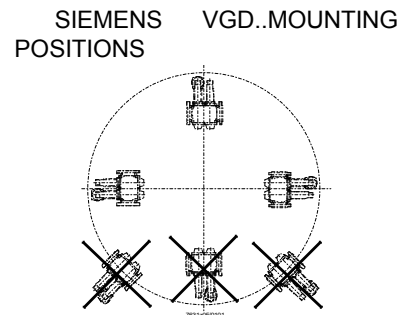


Fig. 22

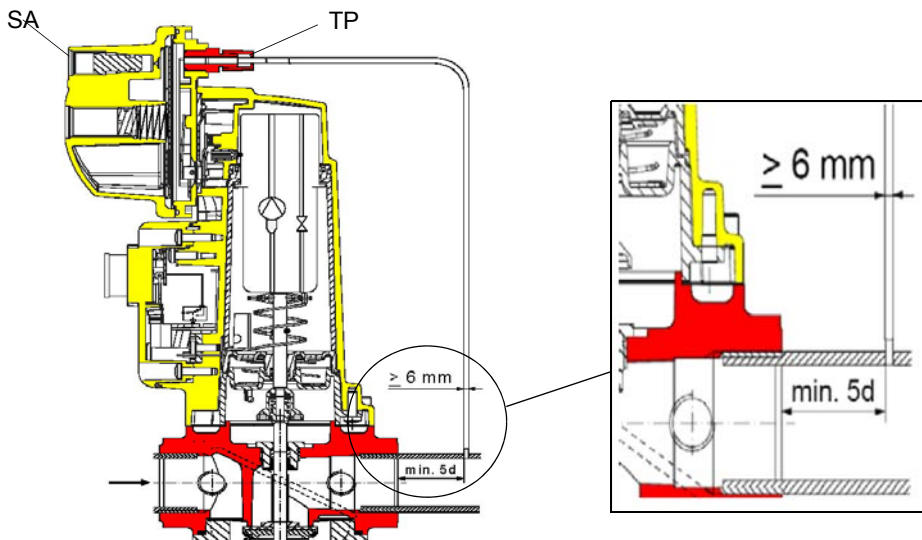
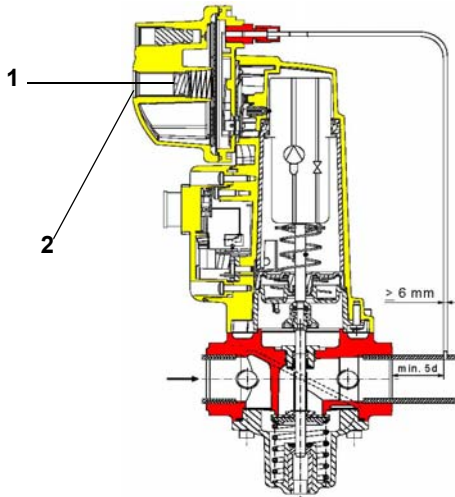


Fig. 23

3.5 Pressure adjusting range

The pressure adjusting range, downstream the gas valves group, changes according to the spring provided with the valve group.



Siemens SKP actuator

Keys

- 1 spring
- 2 cap

Siemens VGD valves with SKP actuator :

Performance range (mbar)	0 - 22	15 - 120	100 - 250
Spring colour	neutral	yellow	red

Once the gas train is installed, execute the electrical connections for all its items (gas valves group, gas proving system, pressure switches).

3.6 Gas Filter (if provided)

The gas filters remove the dust particles that are present in the gas, and prevent the elements at risk (e.g.: burner valves, counters and regulators) from becoming rapidly blocked. The filter is normally installed upstream from all the control and on-off devices.



ATTENTION: it is recommended to install the filter with gas flow parallel to the floor in order to prevent dust fall on the safety valve during maintenance operation.

4.0 ELECTRICAL CONNECTIONS

Respect the basic safety rules. make sure of the connection to the earthing system. do not reverse the phase and neutral connections. fit a differential thermal magnet switch adequate for connection to the mains.



ATTENTION: before executing the electrical connections, pay attention to turn the plant's switch to OFF and be sure that the burner's main switch is in 0 position (OFF) too. Read carefully the chapter "WARNINGS", and the "Electrical connections" section.

IMPORTANT: Connecting electrical supply wires to the burner terminal block MA, be sure that the ground wire is longer than phase and neutral ones.

To execute the electrical connections, proceed as follows:

- 1 remove the cover from the electrical board, unscrewing the fixing screws;
- 2 execute the electrical connections to the supply terminal board as shown in the attached wiring diagrams;
- 3 check the direction of the fan motor (see next paragraph);
- 4 refit the panel cover.



WARNING: (only for double stage and progressive burners) The burner is provided with an electrical bridge between terminals 6 and 7; when connecting the high/low flame thermostat, remove this bridge before connecting the thermostat.

4.1 Rotation of electric motor

Once the electrical connection of the burner is executed, remember to check the rotation of the electric motor. The motor should rotate according to the "arrow" symbol on the body. In the event of wrong rotation, reverse the three-phase supply and check again the rotation of the motor.



CAUTION: check the motor thermal cut-out adjustment

NOTE: the burners are supplied for three-phase 380 V or 400 V supply, and in the case of three-phase 220 V or 230 V supply it is necessary to modify the electrical connections into the terminal box of the electric motor and replace the overload tripped relay.

4.2 Note on electrical supply

If the power supply to the burner is 230V three-phase or 230V phase-phase (without a neutral), with the Siemens control box, between the terminal 2 (terminal X3-04-4 in case of LMV2x, LMV3x, LMV5x, LME7x) on the board and the earth terminal, an RC Siemens RC466890660 filter must be inserted.

Key

- C - Capacitor (22nF/250V)
- LME / LMV - Siemens control box
- R - Resistor (1Mohm)
- M - Resistor (1Mohm)
- M - Terminal 2 (LGB,LMC,LME), terminal X3-04-4 (LMV2x, LMV3x, LMV5, LME7x)
- RC466890660 - RC Siemens filter

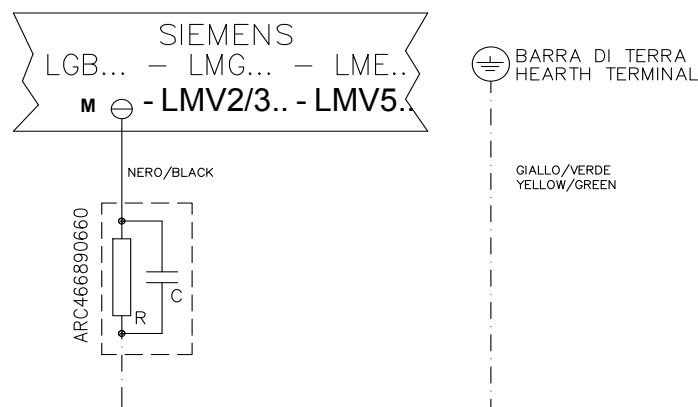


Fig. 24

PART III: OPERATION

LIMITATIONS OF USE: PLEASE REFER TO THE CHAPTER “WARNINGS” AT THE BEGINNING OF THIS MANUAL.



ATTENTION: before starting the burner up, be sure that the manual cutoff valves are open and check that the pressure upstream the gas train complies the value quoted on paragraph “Technical specifications”. Be sure that the mains switch is closed.

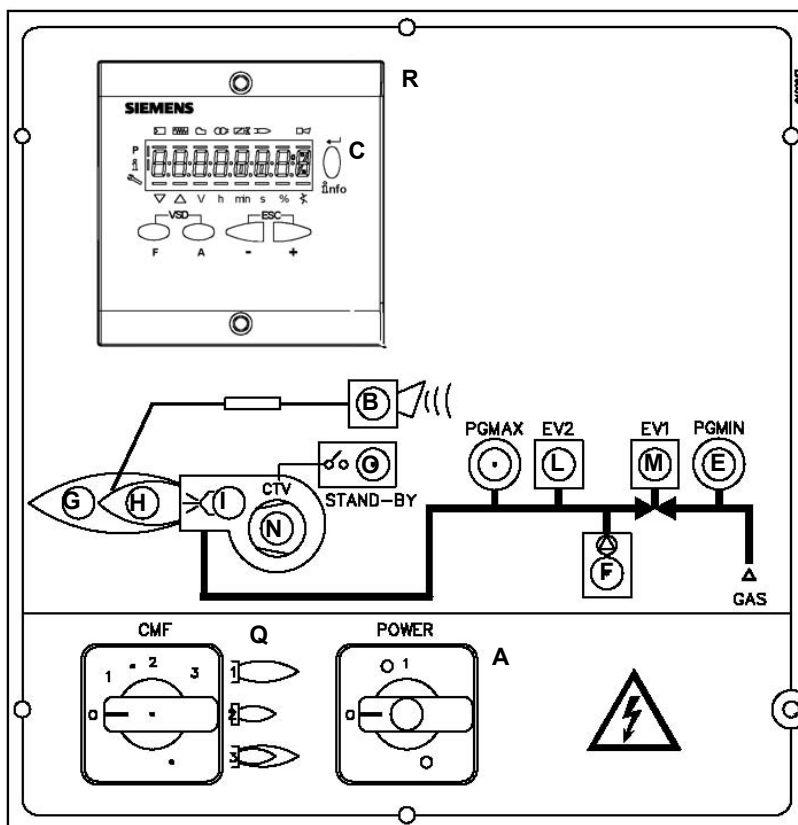
ATTENTION: During commissioning operations, do not let the burner operate with insufficient air flow (danger of formation of carbon monoxide); if this should happen, make the gas decrease slowly until the normal combustion values are achieved.

WARNING: NEVER LOOSE THE SEALED SCREWS! OTHERWISE, THE DEVICE WARRANTY WILL BE IMMEDIATELY INVALIDATE!

Turn to the ON position the mains switch A on the burner front panel.

- Check the LMV2 is not in lockout stage (LED B on) if so, unlock by pressing the Enter/InFo key (see LMV.. manual);
- Check that the control thermostats or pressure switches enable the burner to operate.
- Check the gas supply pressure is sufficient (signalled by an error code on the AZL..display), if necessary, adjust the pressure switches.
- The startup cycle begins, the actuator drives the air damper to the maximum opening position, the fan motor starts and the pre-purge phase begins. During the pre-purge phase, the complete opening of the air damper is signalled by the lamp F on the frontal panel of the electrical board.
- At the end of the pre-purge phase, the air damper goes to the ignition position, the ignition transformer turns on (signalled by the lamp H) and few seconds later the solenoid valves EV1 and EV2 are energized (lights I and L on the front panel).
- Few seconds after the opening of the valves, the ignition transformer turns off and the lamp H turns off subsequently:

Progressive and fully modulating burners - few seconds after the gas valve opening, the ignition transformer is de-energized. The burner is in low flame operation and some seconds later, the two-stages operation begins; the burner increases or decreases its output, directly driven by the external thermostat (progressive version) or by the modulator (P in the picture below, fully modulating burners only).



Key

- A Main switch
- B Lock-out light
- C Reset pushbutton for control box
- D Reset pushbutton for gas proving system (only for burners provided with Siemens LDU11)
- E Gas pressure switch consent
- F Lock-out light for gas proving system
- G Hi-flame operation light
- H Lo-flame operation light
- I Ignition transformer operation light
- L EV2 opening light
- M EV1 opening light
- N Fan motor overload tripped light
- O Burner in stand-by light
- P Burner Modulator (only on fully modulating burners)
- R AZL user interface

Fig. 25. - Burner control panel

5.0 ADJUSTING AIR AND GAS FLOW RATES



ATTENTION: During commissioning operations, do not let the burner operate with insufficient air flow (danger of formation of carbon monoxide); if this should happen, make the fuel decrease slowly until the normal combustion values are achieved.



IMPORTANT! the combustion air excess must be adjusted according to the values in the following chart.

Recommended combustion parameters		
Fuel	Recommended (%) CO ₂	Recommended (%) O ₂
Natural gas	9 ÷ 10	3 ÷ 4.8

5.1 Adjustments - brief description

The air and fuel rates adjustments must be performed at the maximum output first ("high flame"): see the LMV related manual..

- Check that the combustion parameters are in the suggested limits.
- Check the flow rate measuring it on the counter or, if it was not possible, verifying the combustion head pressure by means of a differential pressure gauge, as described on par. "Measuring the gas pressure in the combustion head".
- Then, adjust the combustion values by setting the "gas/air" ratio" curvepoints (see the LMV related manual).
- Set, now, the low flame output (according to the procedure described on the "Siemens LMV manual") in order to avoid the low flame output increasing too much or that the flues temperature gets too low to cause condensation in the chimney.

5.2 Adjusting procedure

Go on adjusting the burner.

Users can set only the LMV parameters that can be accessed without password: (see "Adjusting the temperature set-point").

The Siemens AZL User Interface allows programming the Siemens LMV system and monitoring the system data.



The user interface is made of:

1. display: it shows menus and parameters
2. ESC key (previous level): it goes back to the previous level menu or exits the programming mode without changing data.
3. ENTER key (next level): it confirms the data changing and jumps to the next menu/parameter.
4. SELECT keys: they select a menu item and change the parameter values.

As far as the settings, see the LMV5 related manual.

By following the "air/gas ratio" curvepoints setting procedure on the LMV5.. manual, adjusting the air and gas flow rates: check, continuously, the flue gas analysis, as to avoid combustion with little air; dose the air according to the gas flow rate change following the steps quoted below.

Once the throttle valve is completely opened, acting on the pressure stabiliser of the valves group, adjust the **gas flow rate in the high flame stage** as to meet the values requested by the boiler/utilisation:

5.3 Start-up procedure

- 1 Turn the burner on.
- 2 the LMV control box starts the system test cycle: the AZL display shows the **System Test** message; at the end of the test, it shows the main page and the system stops (the safety chain is open) waiting for the startup enabling signal (standby - Program phase no. 12)

Setpoint	80°C
Act.value	78°C
Fuel	GAS
Standby	12

Main page

- 3 check the fan motor rotation (see related paragraph).
- 4 make the safety chain enabling the system to start up
- 5 the combustion cycle starts: the system will show the operating stages
 - **Prepurging** (program phase no.30)
 - **Driving to ignition position** (program phase no.36)
 - **Ignition position** (program phase no.38)
 - **Fuel** (the fuel solenoid valves open)
 - **Flame** (the flame lights up)
 - **Driving to low flame** (the actuator drives to low flame).

NOTE: the **C** and **A**, on the .

Once the ignition cycle ends, the main page is shown:

Setpoint	80°C
Act.value	78°C
Load	24%
Flame	60%

Main page

Set point: temperature set-point

Act value: actual temperature value

Load: load percentage (burner output)

Flame: percentage of flame detection current.

By pressing the ENTER key the display shows the second page:

Fuel	0.0	Air	1.8
Ax1		VSD	0.0
Ax2		O2	
Ax3		Ld.	0.0

Second page

Fuel: it shows (in degrees) the fuel actuator position.

Air: it shows (in degrees) the air actuator position.

Ax1..3: auxiliaries.

VSD: % value on the inverter maximum frequency

O2: oxygen percentage

Ld: load percentage (burner output).

Press the ENTER key to go back to the main page.

To access the **main menu**, from the main page, press the ESC key twice:

OperationalStat
Operation
ManualOperation
Params & Display.

Main menu

By pressing the ESC key once, the **Operational Status** (first item in the main menu) menu is directly shown:

Normal operation
Status/Reset
Fault History
Lockout History

the **Operational Status** menu provides the following items:

Normal operation: by selecting this item and pressing the ENTER key, the main page is showed; press ESC to go back to the main menu.

Status/Reset: it shows system errors or faults occurring / it represents the lockout reset function.

Fault History: by selecting this item and pressing the ENTER key, the Lockout History will be showed about the last 21 faults occurred.

Lockout History: by selecting this item and pressing the ENTER key, the Lockout History will be showed about the last 9 lockouts occurred, and the related date and hour.

Alarm act/deact: enable/disable the horn in case of alarm.

Fault History

To visualise the **Fault History**, select it and press the ENTER key. The message will be as:

1 Class:			05Gas
code	BF	Phase:	10
Diag.:	00	Lod:	0.0
Start No.			88

alternating by an error message as:

O2 control and limiter automat deactivated
--

To see the other Fault History pages, press the arrow keys.

To exit the Fault History pages, press ESC.

Lockout History

To visualise the **Lockout History**, choose the related item and press ENTER. The message will be:

1	10.08.07		13.47
C:71	D:00	F:	12
Start No.			88
Load	0.0		Gas

alternating by an error message as:k

No flame at end of safety time

To see the other Lockout History pages, press the arrow keys.
To exit the Lockout History pages, press ESC.

Setting the temperature set-point value

To set the temperature set-point value, that is the generator operating temperature; proceed as follows.

From the main page, enter the main menu by pressing the ESC key twice:

OperationalStat
Operation
ManualOperation
Params & Display.

by means of the arrow keys, select “Params&Display”, press ENTER: the system will ask you to enter the proper password

Access w-out PW
Access Serv
Access OEM
Access LS

by means of the arrow keys, select “Access w-out pass” (access without password - user level), confirm by pressing ENTER.
The other levels require password reserved to the Technical Service, to the Manufacturer, etc.
The menu shown accessing without password is the following:

BurnerControl
RatioControl
O2Contr./Guard.
LoadController

Choose “LoadController” and press ENTER: the following menu is shown:

ControllerParam
Configuration
Adaption
SW Version

Choose “ControllerParam” and press ENTER: the following menu is shown:

ContrIParamList
MinActuatorStep
SW_FilterTmeCon
SetPointW1

Choose “SetPointW1” and press ENTER:

SetpointW1	
Curr:	90°
New:	90°

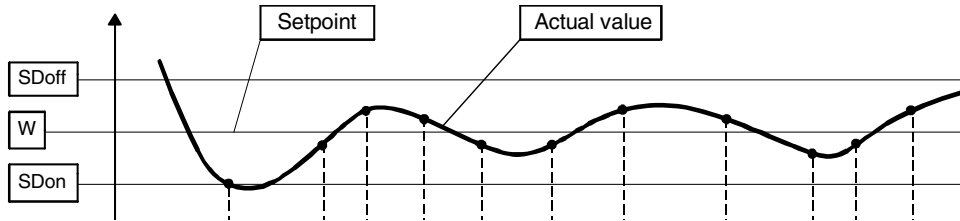
Curr: it shows the current set-point; use the arrows keys to change.

NOTE: the availabel range for this parameter depends on the probe provided; the unit measure of the detected value and its limits are bound up with parameters set at the “Service” level.

Once the new set-point is set, confirm by pressing ENTER, otherwise exit without changings by pressing ESC.

Press ESC to exit the set-point programming mode.

Once the temperature set-point W1 is imposed, set the Switch-on (SDon) and the Switch-off (SDoff) point of the 2-position controller:



To set these values, select the item SD_ModOn (SDOn), by scrolling down the “Load controller” menu with the arrow keys and press ENTER:

```

SetpointW1
SetpointW2
SD_ModOn
SD_ModOff
    
```

the display will show:

```

SD_ModOn
Curr::                1.0%
New:                  1.0%
    
```

The default value for this parameter is 1% that is, the burner will light again at a temperature 1% lower than the set-point. Change value, if needed, by means of the arrow keys; press ENTER to confirm and the press ESC to exit. Press only ESC to exit without changing. Now choose SD_ModOff always scrolling down the Load Controller menu, by means of the arrow keys, and press ENTER.

```

SetpointW1
SetpointW2
SD_ModOn
SD_ModOff
    
```

the display will show:

```

SD_ModOff
Curr::                10.0%
New:                  10.0%
    
```

The default value for this parameter is 10% that is, the burner will turn off at a temperature 1% higher than the set-point. Change value, if needed, by means of the arrow keys; press ENTER to confirm and the press ESC to exit. Press only ESC to exit without changing. Press the ESC key until the following menu is shown:

```

BurnerControl
RatioControl
O2Contr./Guard.
LoadController
    
```

scroll this menu down until the item “AZL” is reached

```

LoadController
AZL
Actuators
VSD Module
    
```

confirm by pressing ENTER:

Times
Languages
DateFormat
PhysicalUnits

Times: it sets the "Summer (SUM) Time / Winter (WIN) Time" operation and the continent (EU - Europe; US - United States)

Sum/Winter Time
Time EU/US

choose the Summertime/Wintertime mode desired and confirm by pressing ENTER; press ESC to exit. Set the time zone (Time EU/US) in the same way.

Languages: it allows setting the current language

Language	
Curr::	Italiano
New:	English

choose the desired language and confirm by pressing ENTER; press ESC to exit.

DateFormat: it allows setting the date format as DD-MM-YY (day-month-year) or MM-DD-YY (month-day-year)

DateFormat	
Curr::	DD-MM-YY
New:	MM-DD-YY

choose the desired format and confirm by pressing ENTER; press ESC to exit.

PhysicalUnits: it allows setting the measuring units for temperature and pressure

UnitTemperature
UnitPressure

Settable temperature units: °C or °F

Settable pressure units: bar or psi.

- choose the desired unit and confirm by pressing ENTER; press ESC to exit.
- choose the temperature and pressure unit and confirm by pressing ENTER; press ESC to exit.

System lockout

If the system locks out, the following message will appear:

1	10.08.07	13.47
C:71	D:00	F: 12
Start No.		88
Load	0.0	Gas

call the Technical Service and tell the message data.

Cold start thermal shock (CSTP)

If the generator cannot suffer thermal shocks, the CSTP (Cold Start Thermal Schock) function can be enabled. This function is already set by the Technical service (access by reserved password).

if this function is enabled, when the burner starts upthe "Thermal shock protection activated" message will be showed.

If this function is not enabled, after startup, the burner will rapidly increase the load according to the requested value and, if necessary, to the maximum output.

Manual mode

To by-pass the thermal protection or not to let the buner operate in high flame stage (maximum output) after ignition, the manual mode is provided.

To choose the manual mode (Manual Operation), use the SELECT arrow keys

OperationalStat
Operation
ManualOperation
Params & Display.

Items to be set are the following:

SetLoad
Autom/Manual/Off

SetLoad: to set the required load percentage

SetLoad
Curr:: 0.0%
New: 20.0%

set the required percentage and confirm by pressing ENTER; press ESC to exit.

choose "Autom/Manual/Off:

SetLoad
Autom/Manual/Off

Autom/Manual/Off
Curr:: Automatic
New: Burner On


three modes are provided:

Automatic: automatic operation

Burner on: manual operation

Burner off: burner in stand-by

If the BurnerOn mode is chosen, the burner does not follow the modulator and probe settings, but operates at the set load.

	Caution: if BurnerOff mode is selected, the burner stays in stand-by.
	Caution: in the BurnerOn mode, the safety thresholds are set by the Technical Service.

For further details, see the LMV5x annexed manuals.

5.4 Adjusting the gas valves group

Multibloc MB-DLE

The multibloc unit is a compact unit consisting of two valves, gas pressure switch, pressure stabilizer and gas filter.

The valve is adjusted by means of the **RP** regulator after slackening the locking screw **VB** by a number of turns. By unscrewing the regulator **RP** the valve opens, screwing the valve closes. To set the fast opening remove cover **T**, reverse it upside down and use it as a tool to rotate screw **VR**. Clockwise rotation reduces start flow rate, anticlockwise rotation increases it.

Do not use a screwdriver on the screw **VR**!

The pressure stabilizer is adjusted by operating the screw **VS** located under the cover **C**. By screwing down the pressure is increased and by unscrewing it is reduced.

Note: the screw **VSB** must be removed only in case of replacement of the coil.

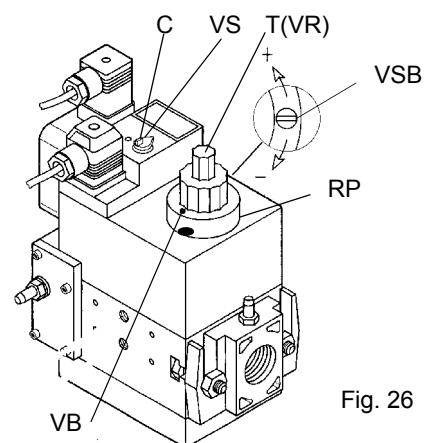


Fig. 26

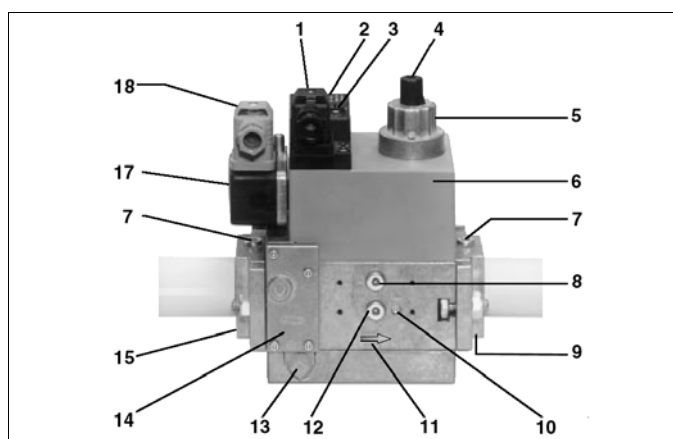


Fig. 27

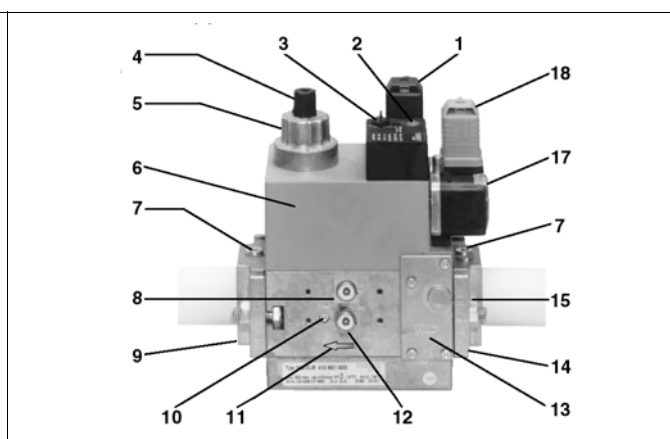


Fig. 28

Key

- | | |
|--|---|
| 1 Electrical connection for valves | 9 Output flange |
| 2 Operation display (optional) | 10 Test point connection M4 downstream of valve 2 |
| 3 Pressure governor closing tap | 11 Gas flow direction |
| 4 Start setting cap | 12 Test connection G 1/8 downstream of valve 1, on both sides |
| 5 Hydraulic brake and rate regulator | 13 Vent nozzle pressure regulator |
| 6 Coil | 14 Filter (below cover) |
| 7 Test point connection G 1/8 | 15 Input flange |
| 8 Test point connection G 1/8 downstream of valve 1, on both sides | 17 Pressure switch |
| | 18 Pressure switch electric connection |

5.5 Gas valves Siemens VGD - Version with SKP2. (provided with pressure stabilizer).

- To increase or decrease gas pressure, and therefore gas flow rate, remove the cap **T** and use a screwdriver to adjust the regulating screw **VR**. Turn clockwise to increase the flow rate, counterclockwise to reduce it.

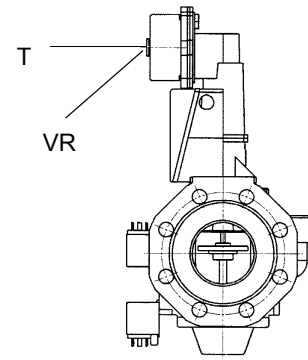


Fig. 29

5.6 Adjusting the combustion head



CAUTION: perform these adjustments once the burner is turned off and cooled.

The burner is factory-adjusted with the combustion head in the "MAX" position, accordingly to the maximum power. To operate the burner at a lower power, progressively shift back the combustion head, towards the "MIN" position, screwing the screw **VRT**. The ID index shows how much the combustion head moved.

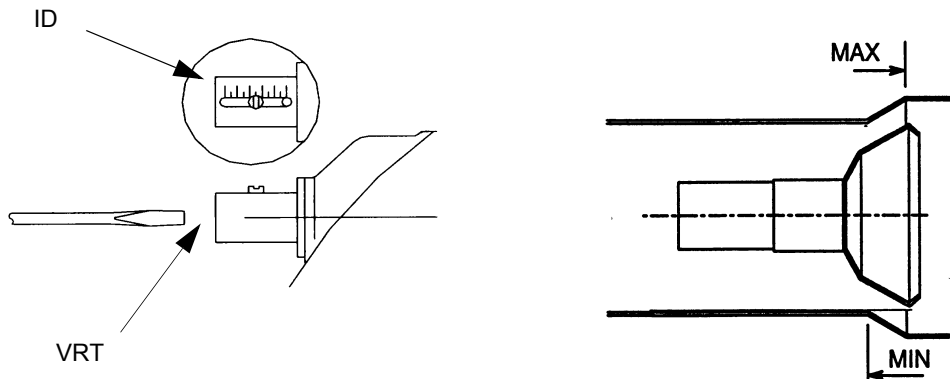


Fig. 30

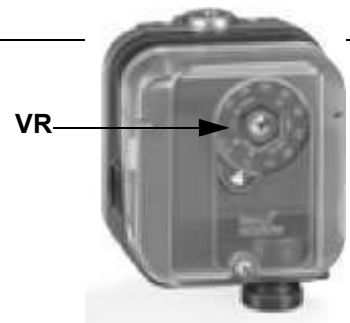


Attention! if it is necessary to change the head position, repeat the air and gas adjustments described above.

5.7 Setting air and gas pressure switches

The **air pressure switch** locks the control box if the air pressure is not the one requested. If it happens, unlock the burner by means of the control box unlock pushbutton, placed on the burner control panel.

The **gas pressure switches** check the pressure to avoid the burner operate when the pressure value is not in the requested pressure range.



5.8 Adjusting the maximum gas pressure switch (when provided)

To calibrate the maximum pressure switch, proceed as follows according to its mounting position:

- remove the pressure switch plastic cover;
- if the maximum pressure switch is mounted upstream the gas valves: measure the gas pressure in the network, when flame is off; by means of the adjusting ring nut **VR**, set the value read, increased by the 30%.
- if the maximum pressure switch is mounted downstream the "gas governor-gas valves" group and upstream the butterfly valve:

light the burner, adjust it according to the procedure in the previous paragraph. Then, measure the gas pressure at the operating flow rate, downstream the “gas governor-gas valves” group and upstream the butterfly valve; by means of the adjusting ring nut **VR**, set the value read on step 2, increased by the 30%;

- 4 replace the plastic cover.

5.9 Calibration of air pressure switch

To calibrate the air pressure switch, proceed as follows:

- Remove the transparent plastic cap.
- Once air and fuel setting have been accomplished, startup the burner.
- During the pre-purge phase of the operation, turn slowly the adjusting ring nut **VR** in the clockwise direction (to increase the adjusting pressure) until the burner lockout, then read the value on the pressure switch scale and set it to a value reduced by 15%.
- Repeat the ignition cycle of the burner and check it runs properly.
- Refit the transparent plastic cover on the pressure switch.

5.10 Calibration of low gas pressure switch

As for the gas pressure switch calibration, proceed as follows:

- Be sure that the filter is clean.
- Remove the transparent plastic cap.
- While the burner is operating at the maximum output, test the gas pressure on the pressure port of the minimum gas pressure switch.
- Slowly close the manual cutoff valve (placed upstream the pressure switch, see gas train installation diagram), until the detected pressure is reduced by 50%. Pay attention that the CO value in the flue gas does not increase: if the CO values are higher than the limits laid down by law, slowly open the cutoff valve as to get values lower than these limits.
- Check that the burner is operating correctly.
- Clockwise turn the pressure switch adjusting ring nut (as to increase the pressure value) until the burner stops.
- Slowly fully open the manual cutoff valve.
- Refit the transparent plastic cover on the pressure switch.

5.11 Adjusting the maximum gas pressure switch (when provided)

To calibrate the maximum pressure switch, proceed as follows according to its mounting position:

- 1 remove the pressure switch plastic cover;
- 2 if the maximum pressure switch is mounted upstream the gas valves: measure the gas pressure in the network, when flame is off; by means of the adjusting ring nut **VR**, set the value read, increased by the 30%.
- 3 if the maximum pressure switch is mounted downstream the “gas governor-gas valves” group and upstream the butterfly valve: light the burner, adjust it according to the procedure in the previous paragraph. Then, measure the gas pressure at the operating flow rate, downstream the “gas governor-gas valves” group and upstream the butterfly valve; by means of the adjusting ring nut **VR**, set the value read on step 2, increased by the 30%;
- 4 replace the plastic cover.

PART IV: MAINTENANCE

At least once a year carry out the maintenance operations listed below. In the case of seasonal servicing, it is recommended to carry out the maintenance at the end of each heating season; in the case of continuous operation the maintenance is carried out every 6 months.



WARNING: ALL OPERATIONS ON THE BURNER MUST BE CARRIED OUT WITH THE MAINS DISCONNECTED AND THE FUEL MANUAL CUTOFF VALVES CLOSED!

ATTENTION: READ CAREFULLY THE "WARNINGS" CHAPTER AT THE BEGINNING OF THIS MANUAL..

6.0 ROUTINE MAINTENANCE

- Clean and examine the gas filter cartridge and replace it if necessary;
- Remove and clean the combustion head;
- Examine and clean the ignition electrodes, adjust and replace them if necessary;
- Examine and clean the detection electrode/photoelement (according to the burner models), replace it if necessary, in case of doubt, check the detection circuit, after the burner start-up;

Clean and grease leverages and rotating parts.



ATTENTION: when servicing, if it was necessary to disassemble the gas train parts, remember to execute the gas proving test, once the gas train is reassembled, according to the procedure imposed by the law in force.

6.1 Removing the filter in the MULTIBLOC DUNGS MB-DLE 405..412

- Check the filter at least once a year!
- Change the filter if the pressure difference between pressure connection 1 and 3 (Fig. 31-Fig. 32) is $\Delta p > 10$ mbar.
- Change the filter if the pressure difference between pressure connection 1 and 3 (Fig. 31-Fig. 32) is twice as high compared to the last check.

You can change the filter without removing the fitting.

- 1 Interrupt the gas supply closing the on-off valve.
- 2 Remove screws 1 ÷ 4 using the Allen key n. 3 and remove filter cover 5 in Fig. 33.
- 3 Remove the filter 6 and replace with a new one.
- 4 Replace filter cover 5 and tighten screws 1 ÷ 4 without using any force and fasten.
- 5 Perform leakage and functional test, $p_{max.} = 360$ mbar.
- 6 Pay attention that dirt does not fall inside the valve.

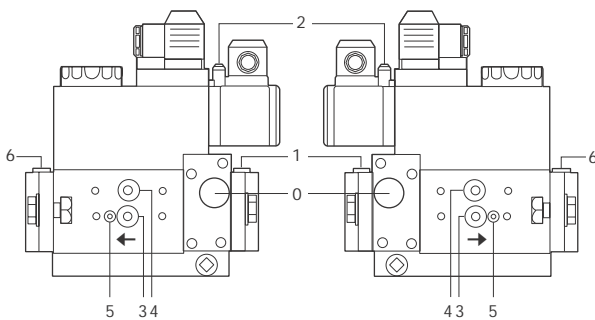


Fig. 31

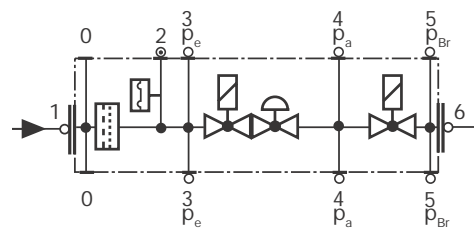


Fig. 32

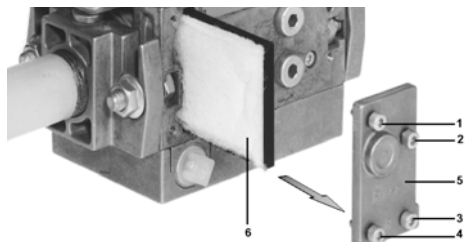


Fig. 33

6.2 Removing the filter in the MULTIBLOC DUNGS MB-DLE 415 - 420 B01 1" 1/2 - 2"

- Check the filter at least once a year!
- Change the filter if the pressure difference between pressure connection 1 and 2 (Fig. 34-Fig. 35) $\Delta p > 10$ mbar.
- Change the filter if the pressure difference between pressure connection 1 and 2 (Fig. 34-Fig. 35) is twice as high compared to the last check.

You can change the filter without removing the fitting.

- 1 Interrupt the gas supply closing the on-off valve.
- 2 Remove screws 1 ÷ 6 (Fig. 36).
- 3 Change filter insert.
- 4 Re-insert filter housing, screw in screws 1 ÷ 6 without using any force and fasten.
- 5 Perform leakage and functional test, $p_{max.} = 360$ mbar.
- 6 Pay attention that dirt does not fall inside the valve.

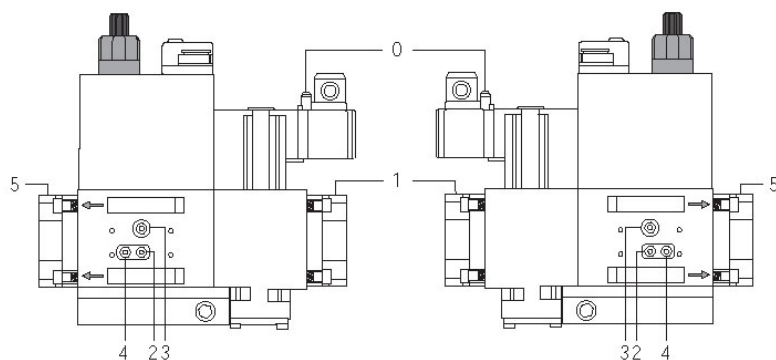


Fig. 34

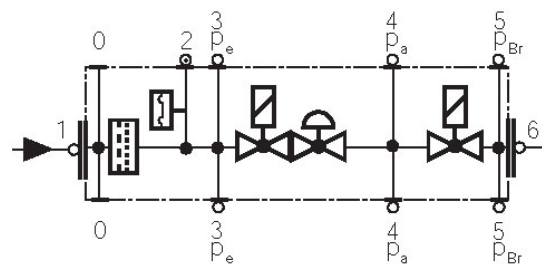


Fig. 35

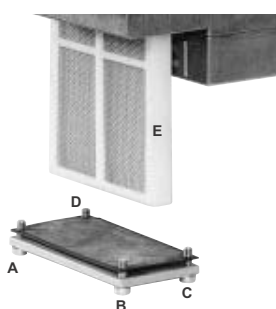
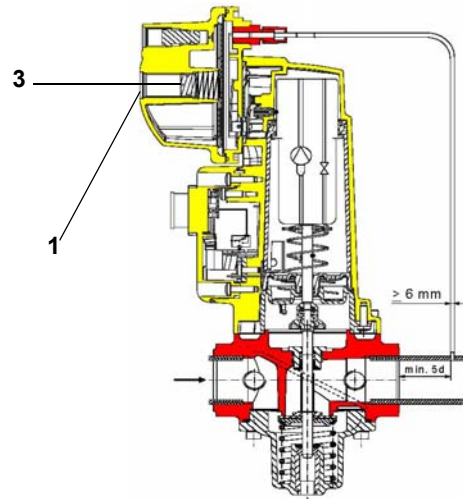


Fig. 36

6.3 Replacing the spring in the gas valve group

To replace the spring in the gas valve group, proceed as follows:

- 1 Carefully twist the protection cap 1 and the O-ring 2.
- 2 remove the "set value" spring 3 from housing 4.
- 3 Replace spring 3.
- 4 Carefully insert the new "set value" spring. Pay attention to mount properly. First insert the spring part with smaller diameter in the housing.
- 5 Place O-ring 2 in protective cap 1. Screw in the protective cap with the O-ring in it.
- 6 Stick the adhesive label for spring identification on the type plate.



SKP Siemens actuator

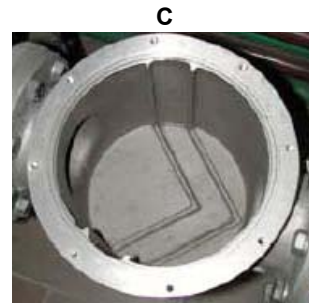
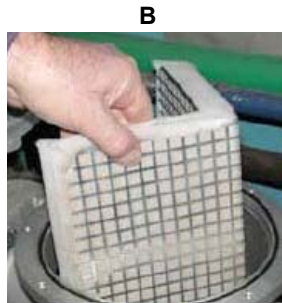
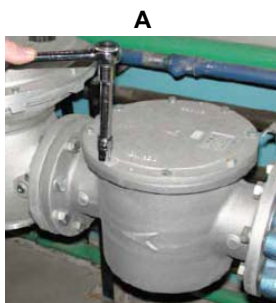
6.4 Gas filter maintenance



ATTENTION: Before opening the filter, close the manual cutoff valve downstream the filter and bleed the gas; check that inside the filter there is no pressurised gas.

To clean or remove the filter, proceed as follows:

- 1 remove the cap unscrewing the fixing screws (A);
- 2 remove the filtering cartridge (B), clean it using water and soap, blow it with compressed air (or replace it, if necessary)
- 3 replace the cartridge in its proper position taking care to place it in between the guides as not to hamper the cap replacement;
- 4 be sure to replace the "O" ring into its place (C) and replace the cover fastening by the proper screws (A).



6.5 Removing the combustion head

- Remove the lid C.
- Unscrew the screws V holding in position the manifold G and pull out the complete group as shown in figure.

Note: for the subsequent assembly carry out the above described operations in the reverse order, checking the correct position of the OR ring.

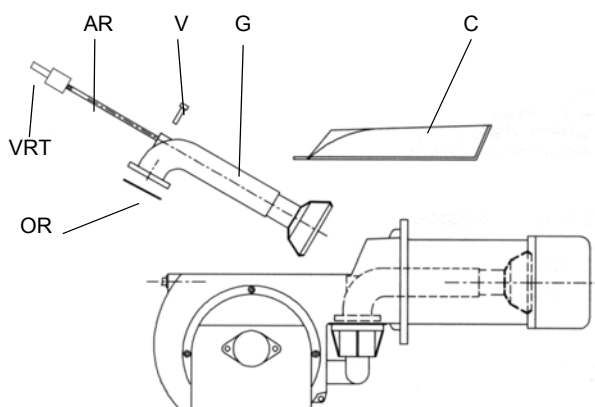


Fig. 37

To remove the combustion head, pull it out. Once removed, check that the air and gas holes are not obstructed. Clean the combustion head by means of compressed air or scrape off the scale using a metallic brush

6.6 Adjusting the electrodes

Important Note: Check the ignition and detection electrodes after removing/adjusting the combustion head.



ATTENTION: avoid the ignition and detection electrodes to contact metallic parts (blast tube, head, etc.), otherwise the boiler operation would be compromised. Check the electrodes position after any intervention on the combustion head.

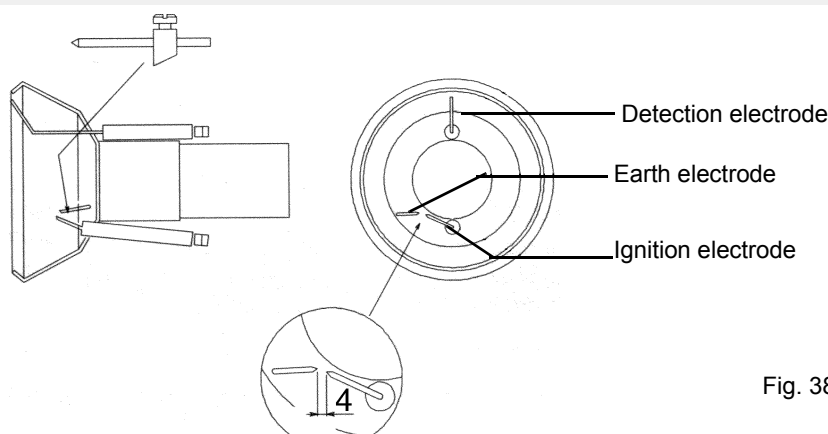


Fig. 38

6.7 Replacing the electrodes



ATTENTION: avoid the ignition and detection electrodes to contact metallic parts (blast tube, head, etc.), otherwise the boiler's operation would be compromised. Check the electrodes position after any intervention on the combustion head.

To replace the electrodes:

- Remove the cover
- Disconnect the electrode cables
- Loose the **VB** screws
- Remove and replace the electrodes, observing the electrodes position (see previous paragraph).

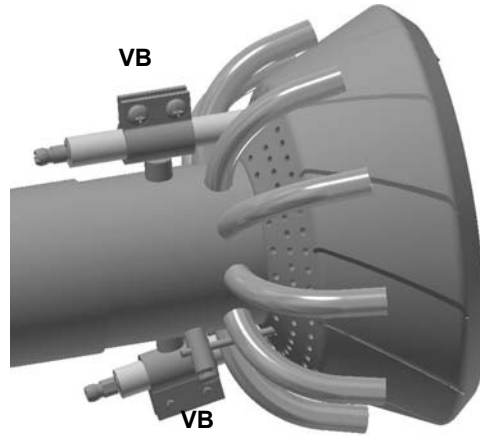


Fig. 39

6.8 Checking the detection current

To check the detection signal follow the scheme in the picture below. If the signal is less than the value indicated, check the position of the detection electrode or detector, the electrical contacts and, if necessary, replace the electrode or the detector.

Minimum detection signal: 3.5Vdc

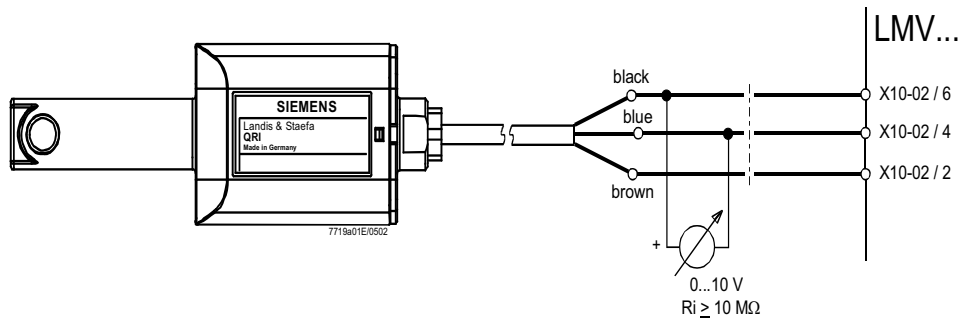


Fig. 40 Detection with detector QRI...

6.9 Seasonal stop

To stop the burner in the seasonal stop, proceed as follows:

- 1 turn the burner main switch to 0 (Off position)
- 2 disconnect the power mains
- 3 close the fuel valve of the supply line

6.10 Burner disposal

In case of disposal, follow the instructions according to the laws in force in your country about the "Disposal of materials".

7.0 WIRING DIAGRAMS

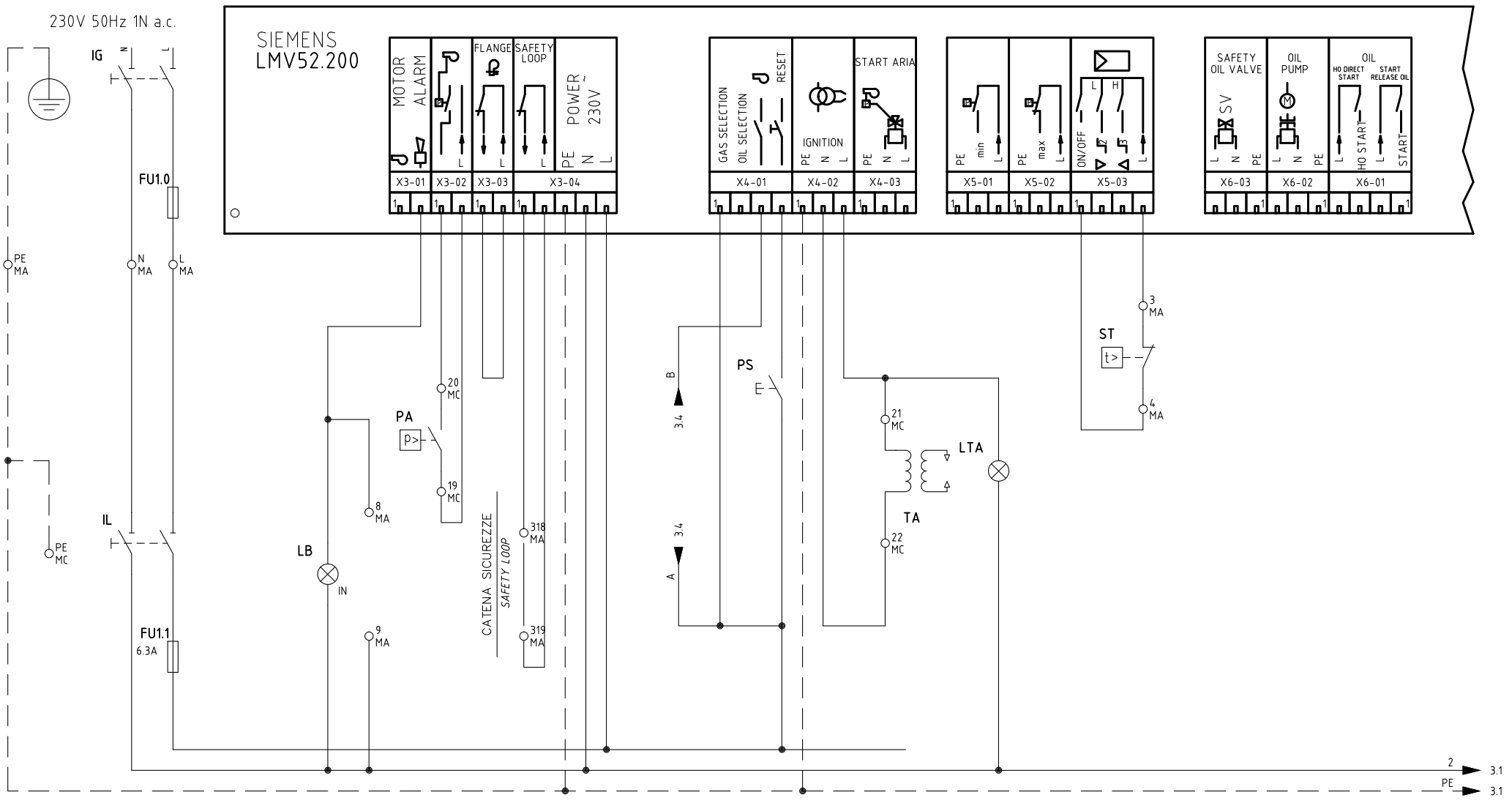
Refer to the attached wiring diagrams.

WARNING

- 1 - Electrical supply 230V 50Hz 1 a.c./400V 50Hz 3N a.c.
- 2 - Do not reverse phase with neutral
- 3 - Ensure burner is properly earthed
- 4 - Refer to the attached document "RECOMMENDATIONS FOR LMV5x CONNECTIONS"

8.0 TROUBLESHOOTING

CAUSE	TROUBLE										
	THE BURNER DOESN'T START	CONTINUE WITH PRE-PURGE	DOESN'T START AND LOCK-OUT	DOESN'T START AND REPEATS THE CYCLE	STARTS AND REPEATS THE CYCLE	STARTS AND LOCK-OUT	THE FLAME MONITOR DEVICE DOESN'T GIVE CONSENT TO START	DOESN'T SWITCH TO HIGH FLAME	DOESN'T RETURN IN LOW FLAME	LOCK-OUT DURING OPERATION	TTURNS OF AND REPEATS CYCLE DURING OPERATION
MAIN SWITCH OPEN	●										
LACK OF GAS	●			●							
MAXIMUM GAS PRESSURE SWITCH DEFECTIVE	●		●								
THERMOSTATS/PRESSURE SWITCHES DEFECTIVES	●			●							●
OVERLOAD TRIPPED INTERVENTION	●										
AUXILIARIES FUSE INTERRUPTED	●										
DEFECTIVE CONTROL BOX	●	●	●			●				●	
DEFECTIVE ACTUATOR	●	●	●								
AIR PRESSURE SWITCH FAULT OR BAD SETTING	●					●	●			●	
MINIMUM GAS PRESSURE SWITCH DEFECTIVE OR GAS FILTER DIRTY	●			●	●		●				●
IGNITION TRANSFORMER FAULT			●								
IGNITION ELECTRODES BAD POSITION			●								
BUTTERFLY VALVE BAD SETTING			●			●					
DEFECTIVE GAS GOVERNOR			●	●	●						●
GAS VALVE DEFECTIVE			●								
BAD CONNECTION OR DEFECTIVE HIGH/LOW FLAME THERMOSTAT OR PRESSURE SWITCH							●	●			
ACTUATOR CAM WRONG SETTING						●	●	●			
UV PROBE DIRTY OR DEFECTIVE			●			●			●		



01	NEW TYPES AND "FCC" CONTACT ADDED	24/06/14	U. PINTON
REV.	MODIFICA	DATA	FIRME

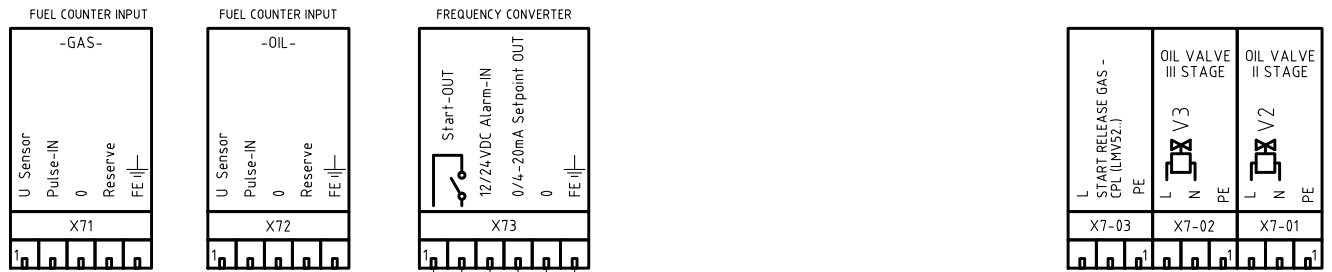


Impianto
 TIPI/TYPES P61 ÷ P71 / R75A ÷ R525A / RX90 ÷ RX510
 MODELLO x-.MD.x.xx.Y.1.xx.EI/EK

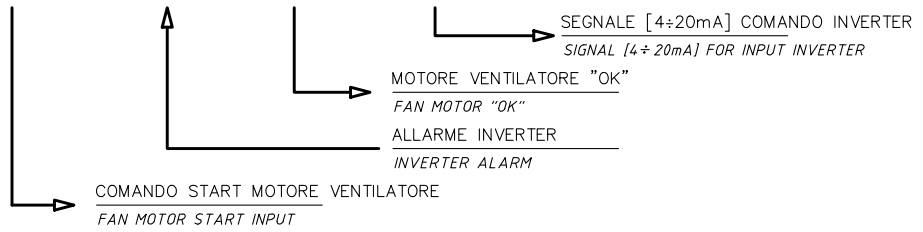
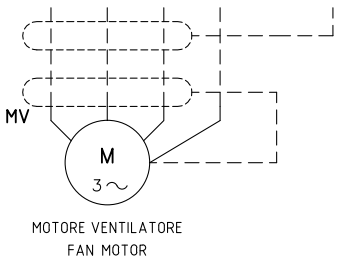
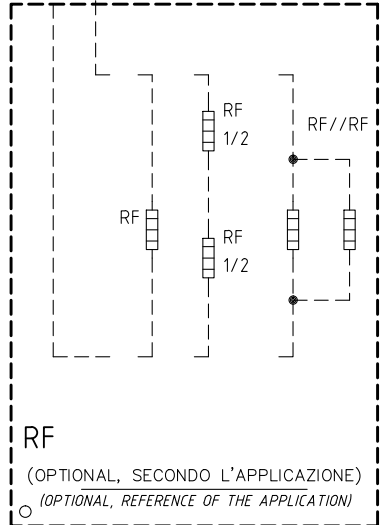
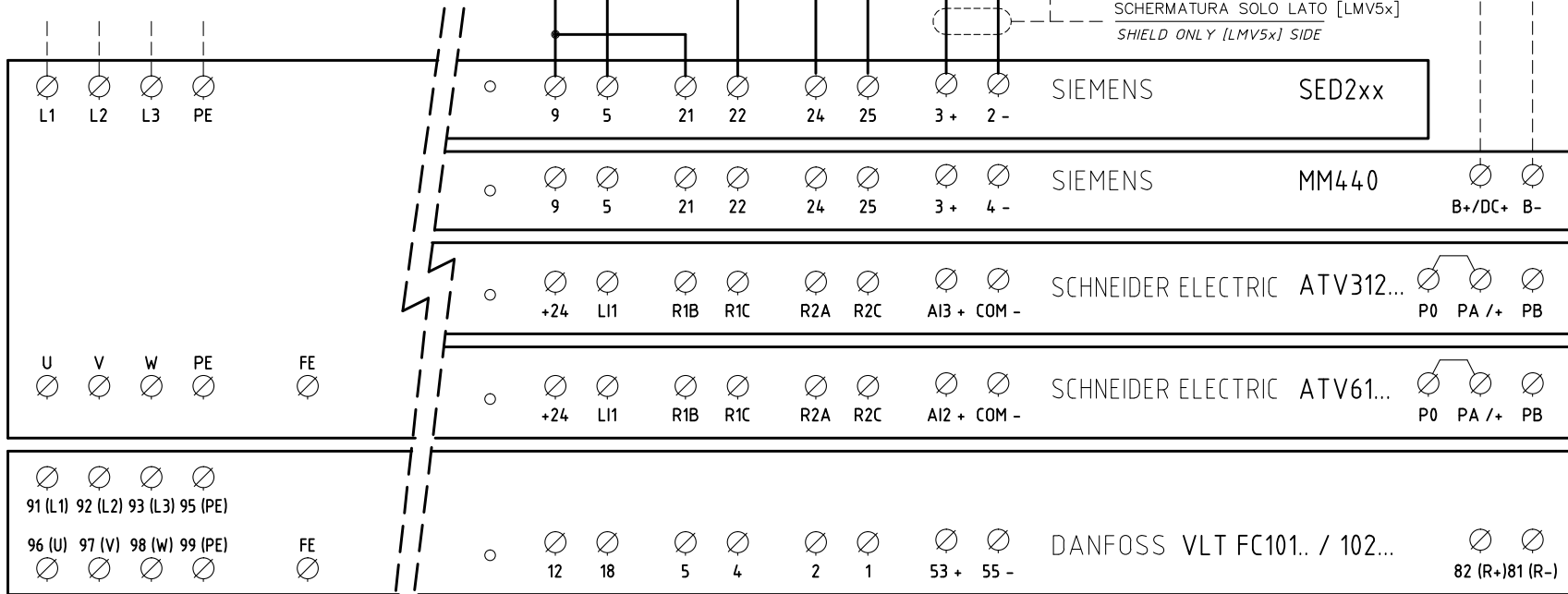
Descrizione
**CON SIEMENS LMV52.200
 WITH SIEMENS LMV52.200**

Ordine	
Commessa	Data Controllato 24/06/2014
Esecutore U. PINTON	Controllato E. CAVALLI

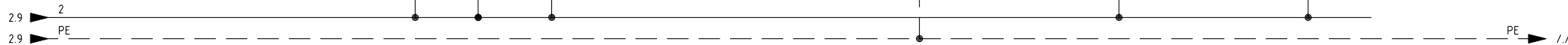
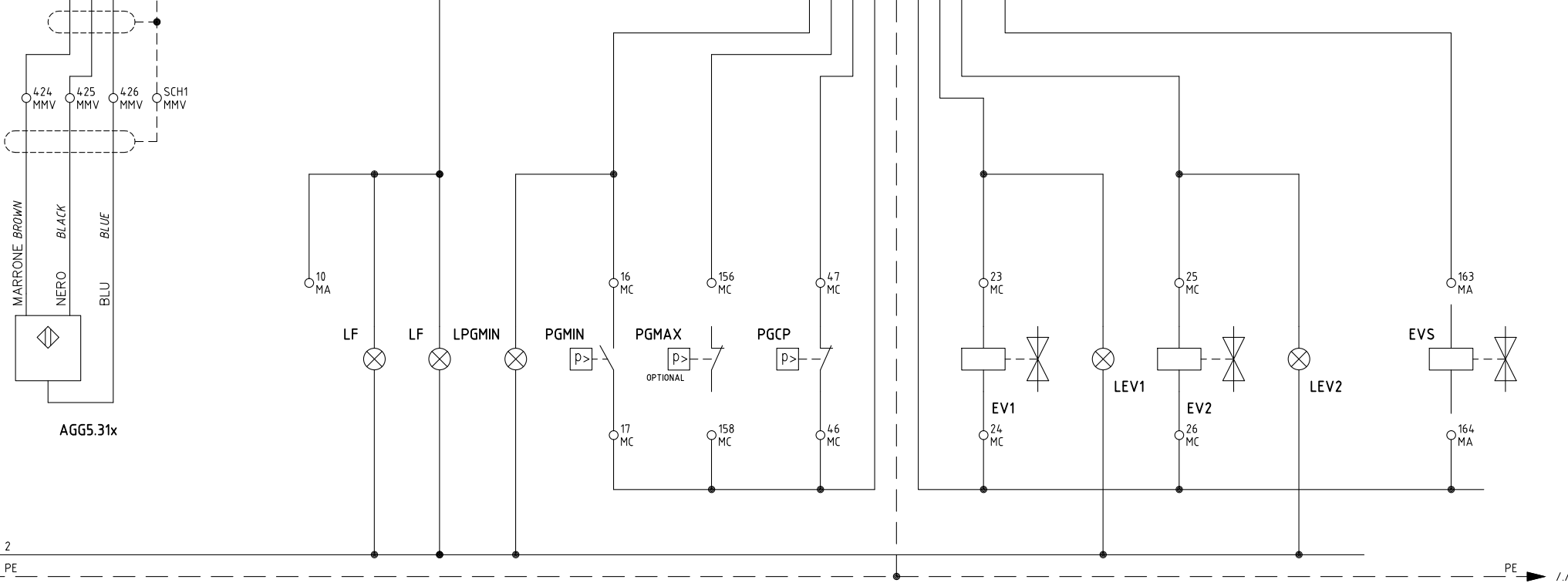
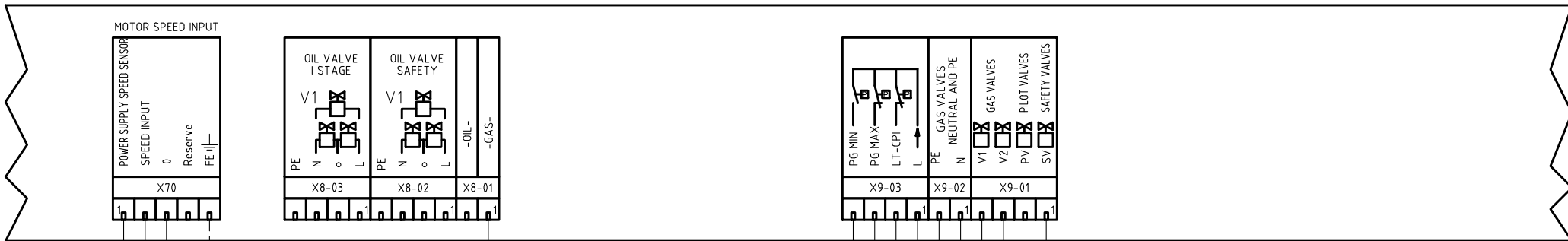
Data	06/08/2013	PREC.	FOGLIO
Revisione	01	/	1
Dis. N.	09 - 0401	SEGUE	TOTALE
		2	7



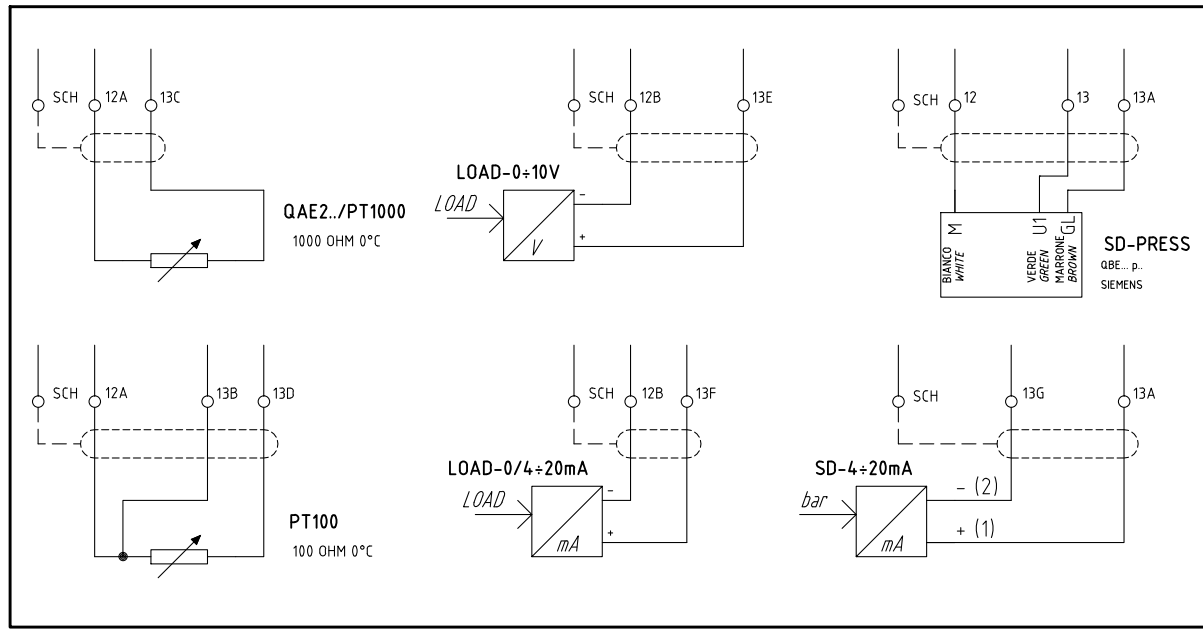
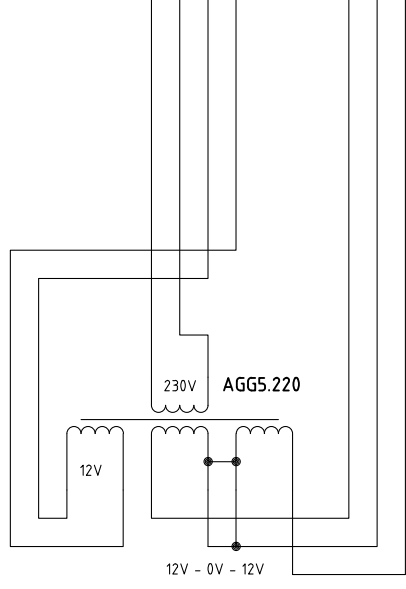
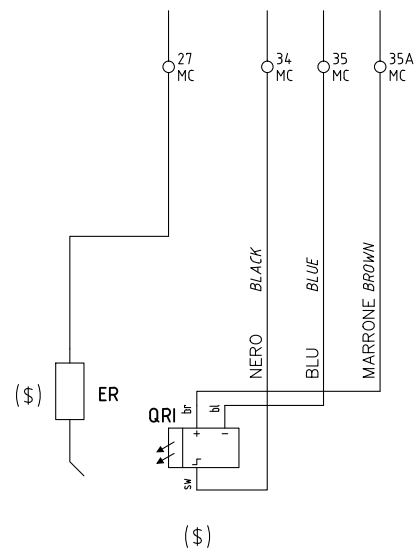
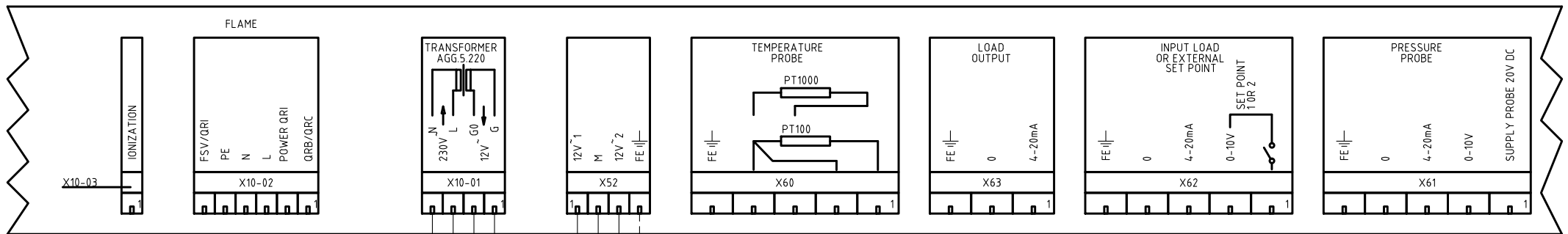
ALIMENTAZIONE [400V 3a.c.]
POWER SUPPLY [400V 3a.c.]



Data	06/08/2013	PREC.	FOGLIO
Revisione	01	1	2
Dis. N.	09 - 0401	3	TOTALE 7



Data	06/08/2013	PREC.	FOGLIO
Revisione	01	2	3
Dis. N.	09 - 0401	SEGUE	TOTALE
		4	7



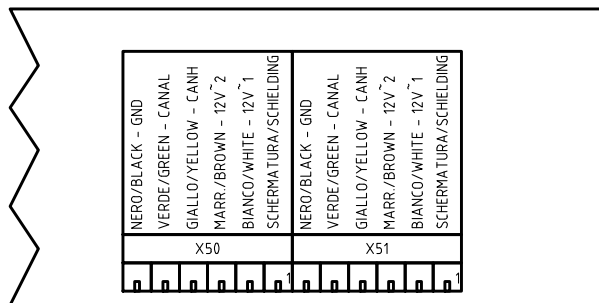
(xx)
ATTENZIONE COLLEGAMENTO SONDE
WARNING PROBE CONNECTION

(\$)
SONDA "QRI" IN ALTERNATIVA A ELETTRODO "ER"
"QRI" PROBE ALTERNATIVE TO "ER"

COLLEGAMENTO ELETTRICO PIU' CORTO POSSIBILE (~10cm)
DIRETTAMENTE SU PIASTRA QUADRO ELETTRICO
ELECTRICAL CONNECTION AS SHORT AS POSSIBLE (~10cm)
DIRECTLY ELECTRIC BOX PLATE

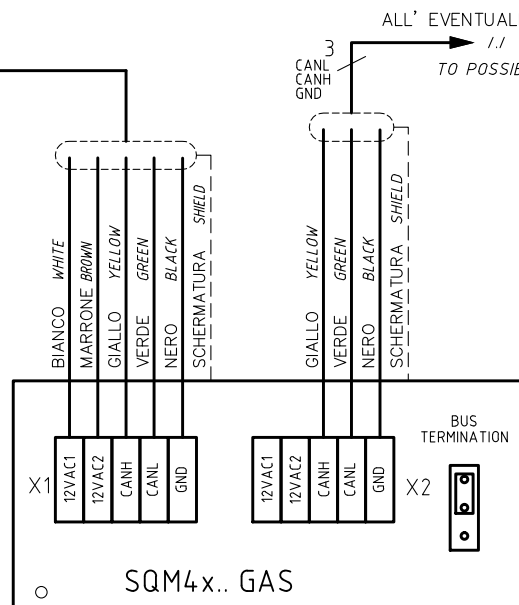
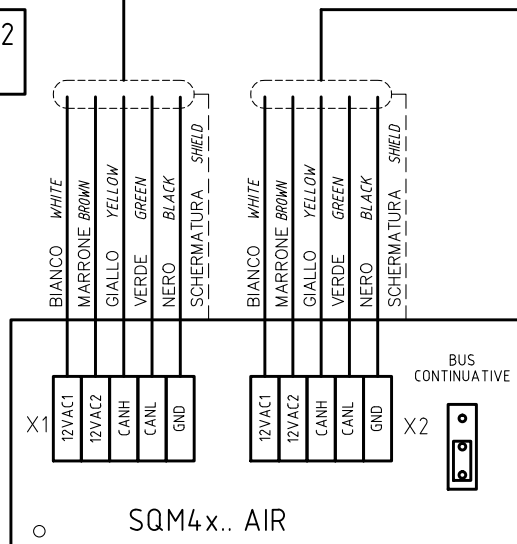
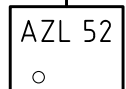
Data	06/08/2013	PREC.	FOGLIO
Revisione	01	3	4
Dis. N.	09 - 0401	SEGUE	TOTALE
		5	7

ESECUZIONE DELLA CONNESSIONE TRA LMV5x E SERVOCOMANDI < 20 METRI
 CONNECTIONS BETWEEN LMV5x AN ACTUATOR < 20 METERS



AGG5.635

CAVO DI SEGNALE E ALIMENTAZIONE ELETTRICA
 SIGNAL AND ELECTRIC SUPPLY CABLE

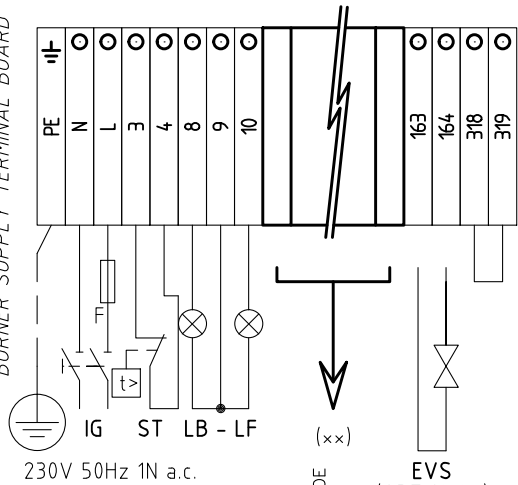


ALL' EVENTUALE MODULO PLL52., SOLO CON [LMV52.200 - S.E.00-154]
 // O ALTRO SERVOCOMANDO, CON [LMV5x..]
 TO POSSIBLE PLL52. MODULE, ONLY WITH [LMV52.200 - S.E.00-154]
 OR OTHER SERVOMOTOR, WITH [LMV5x..]

LA SEQUENZA DEI SERVOCOMANDI PUO' ESSERE DIVERSA;
 E' IMPORTANTE PERO' CHE L'ULTIMO SIA LA SCHEDA "PLL52."
 THE CONNECTIONS OF ACTUATORS TO LMV CAN BE DIFFERENT;
 THE LAST SERVOMOTOR MUST HAVE THE "PLL52." CIRCUIT

Data	06/08/2013	PREC.	FOGLIO
Revisione	01	4	5
Dis. N.	09 - 0401	SEGUE	TOTALE
		6	7

QUADRO QG - MORSETTIERA MA
 MORSETTIERA ALIMENTAZIONE BRUCIATORE
 BURNER SUPPLY TERMINAL BOARD

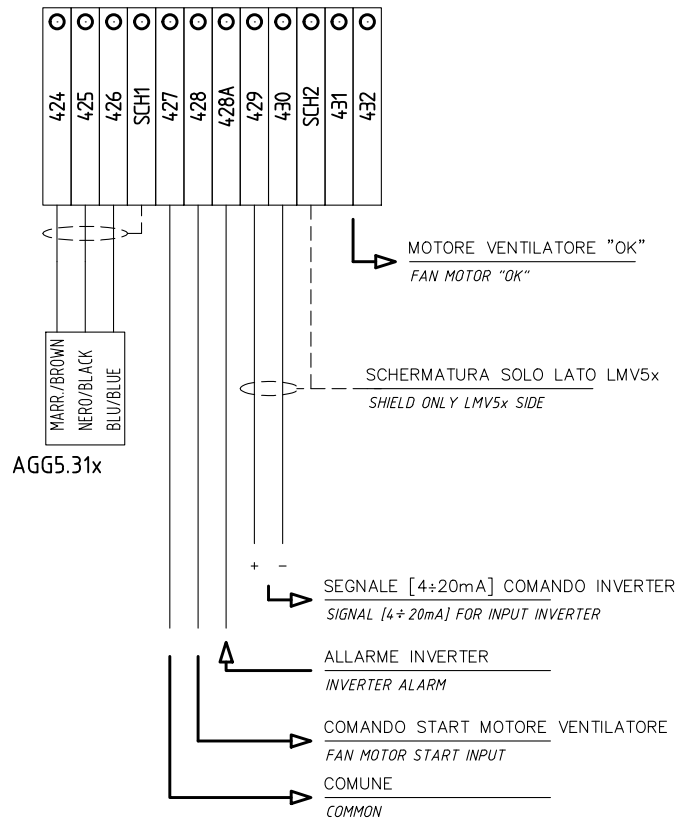


ATTENZIONE COLLEGAMENTO SONDE
 WARNING PROBE CONNECTION

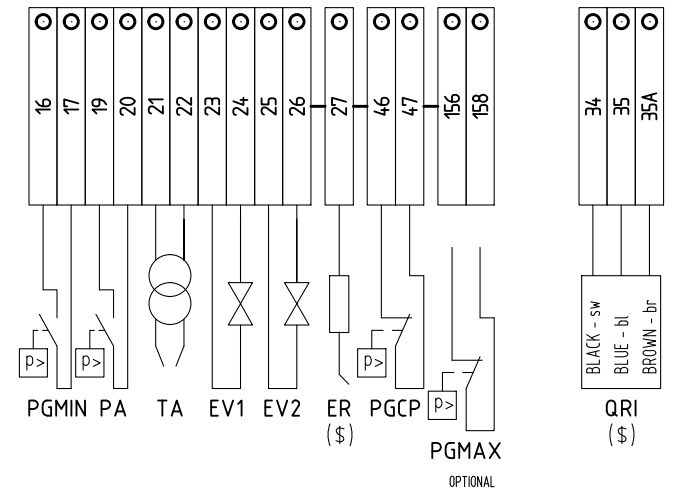
EVS
 (OPTIONAL)
 (OPTIONAL)

CATENA SICUREZZE
 SAFETY LOOP

QUADRO QG - MORSETTIERA MMV
 MORSETTIERA MOTORE VENTILATORE
 FAN MOTOR TERMINAL BOARD



QUADRO QG - MORSETTIERA MC
 MORSETTIERA COMPONENTI BRUCIATORE
 BURNER COMPONENT TERMINAL BOARD

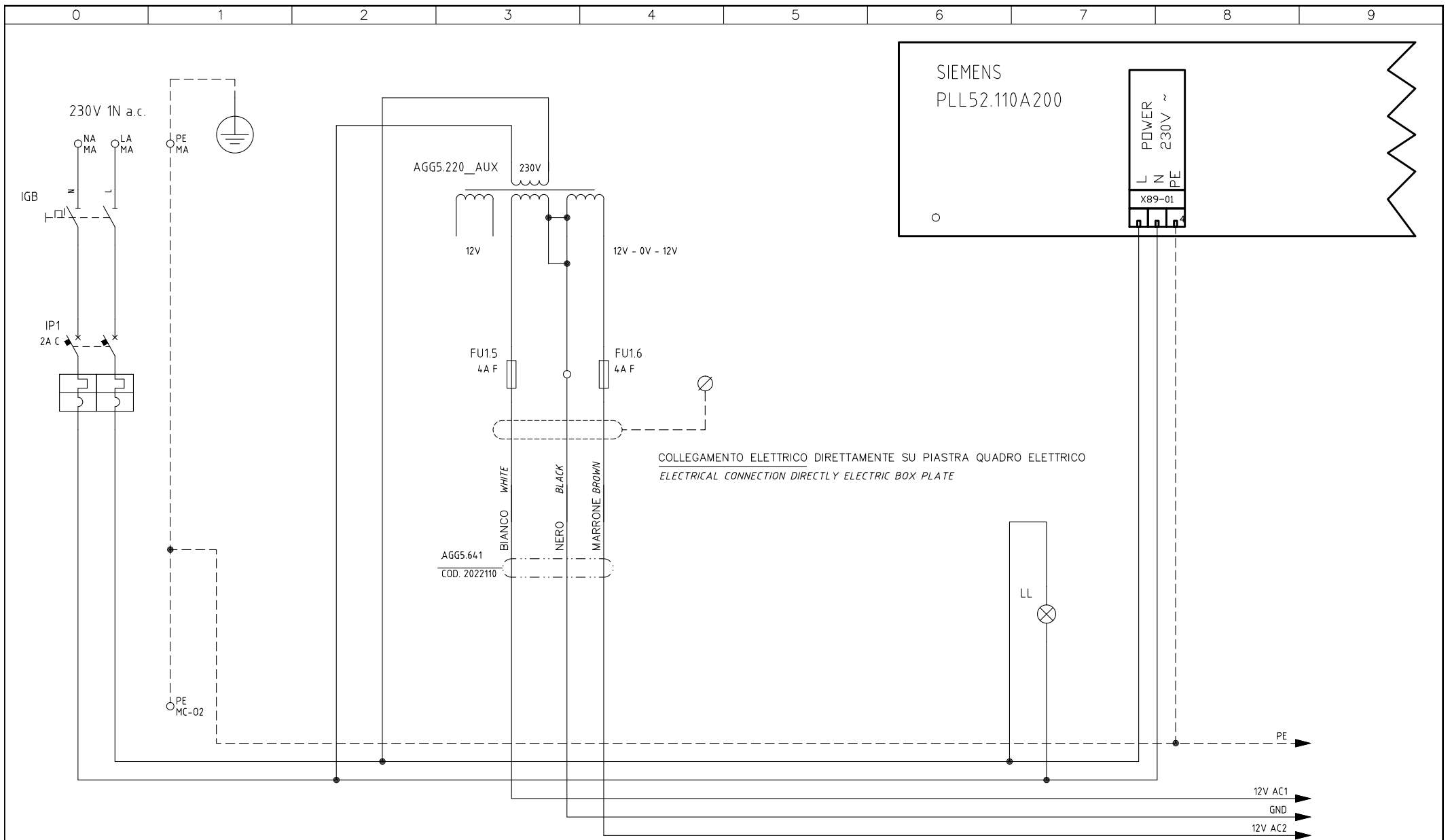



($\$$)
 SONDA "QRI" IN ALTERNATIVA A ELETTRODO "ER"
 "QRI" PROBE ALTERNATIVE TO "ER"

Data	06/08/2013	PREC.	FOGLIO
Revisione	01	5	6
Dis. N.	09 - 0401	SEGUE	TOTALE
		7	7

Sigla/Item	Foglio/Sheet	Funzione	Function
AGG5.220	4	TRASFORMATORE AUSILIARIO	AUXILIARY TRANSFORMER
AGG5.31x	3	SENSORE GIRI MOTORE	SPEED SENSOR
ATV61...	2	INVERTER VENTILATORE	FAN START-UP
ATV312...	2	INVERTER VENTILATORE	FAN START-UP
AZL 52	5	INTERFACCIA UTENTE	USER INTERFACE
ER	4	ELETTRODO RILEVAZIONE FIAMMA	FLAME DETECTION ELECTRODE
EV1	3	ELETTROVALVOLA GAS LATO RETE	UPSTREAM GAS SOLENOID VALVE
EV2	3	ELETTROVALVOLA GAS LATO BRUCIATORE	DOWNSTREAM GAS SOLENOID VALVE
EVS	3	ELETTROVALVOLA GAS DI SICUREZZA (OPTIONAL)	SAFETY GAS SOLENOID VALVE (OPTIONAL)
FU1.0	1	FUSIBILE LINEA AUSILIARI	AUXILIARY LINE FUSE
FU1.1	1	FUSIBILE LINEA AUSILIARI	AUXILIARY LINE FUSE
IG	1	INTERRUTTORE GENERALE	MAINS SWITCH
IL	1	INTERRUTTORE LINEA AUSILIARI	AUXILIARY LINE SWITCH
LB	1	LAMPADA SEGNALAZIONE BLOCCO BRUCIATORE	INDICATOR LIGHT FOR BURNER LOCK-OUT
LEV1	3	LAMPADA SEGNALAZIONE APERTURA [EV1]	INDICATOR LIGHT FOR OPENING OF ELECTRO-VALVE [EV1]
LEV2	3	LAMPADA SEGNALAZIONE APERTURA [EV2]	INDICATOR LIGHT FOR OPENING OF ELECTRO-VALVE [EV2]
LF	3	LAMPADA SEGNALAZIONE FUNZIONAMENTO BRUCIATORE	INDICATOR LIGHT BURNER OPERATION
LF	3	LAMPADA SEGNALAZIONE FUNZIONAMENTO BRUCIATORE	INDICATOR LIGHT BURNER OPERATION
LMV52.200	1	APPARECCHIATURA DI COMANDO	CONTROL SCHEME
LOAD-0/4±20mA	4	SEGNALE IN CORRENTE PER % CARICO	CURRENT SIGNAL FOR % LOAD
LOAD-0±10V	4	SEGNALE IN TENSIONE PER % CARICO	VOLTAGE SIGNAL FOR % LOAD
LPGMIN	3	LAMPADA SEGNALAZIONE PRESENZA GAS IN RETE	INDICATOR LIGHT FOR PRESENCE OF GAS IN THE NETWORK
LTA	1	LAMPADA SEGNALAZIONE TRASFORMATORE DI ACCENSIONE	IGNITION TRANSFORMER INDICATOR LIGHT
MM440	2	INVERTER VENTILATORE	FAN START-UP
MV	2	MOTORE VENTILATORE	FAN MOTOR
PA	1	PRESSOSTATO ARIA	AIR PRESSURE SWITCH
PGCP	3	PRESSOSTATO GAS CONTROLLO PERDITE	GAS LEAKAGE PRESSURE SWITCH
PGMAX	3	PRESSOSTATO GAS DI MASSIMA PRESSIONE (OPTIONAL)	MAXIMUM PRESSURE GAS SWITCH (OPTIONAL)
PGMIN	3	PRESSOSTATO GAS DI MINIMA PRESSIONE	MINIMUM GAS PRESSURE SWITCH
PS	1	PULSANTE SBLOCCO FIAMMA	FLAME UNLOCK BUTTON
PT100	4	SONDA DI TEMPERATURA	TEMPERATURE PROBE
QAE2../PT1000	4	SONDA DI TEMPERATURA	TEMPERATURE PROBE
QRI	4	SONDA UV RILEVAZIONE FIAMMA	UV FLAME DETECTOR
RF	2	RESISTENZA DI FRENATURA	BRAKING RESISTOR
SD-4±20mA	4	SEGNALE IN CORRENTE	CURRENT SIGNAL
SD-PRESS	4	SONDA DI PRESSIONE	PRESSURE PROBE
SED2xx	2	INVERTER VENTILATORE	FAN START-UP
SQM4x.. AIR	5	SERVOCOMANDO SERRANDA ARIA	AIR DAMPER ACTUATOR
SQM4x.. GAS	5	SERVOCOMANDO FARFALLA GAS	GAS THROTTLE VALVE ACTUATOR
ST	1	SERIE TERMOSTATI/PRESSOSTATI	SERIES OF THERMOSTATS OR PRESSURE SWITCHES
TA	1	TRASFORMATORE DI ACCENSIONE	IGNITION TRANSFORMER
VLT FC101.. / 102...	2	INVERTER VENTILATORE	FAN START-UP

Data	06/08/2013	PREC.	FOGLIO
Revisione	01	6	7
Dis. N.	09 - 0401	SEGUE	TOTALE
		/	7



	Impianto	QUADRO ELETTRICO PLL52... PER SONDA QGO20.000		Ordine		Data	14/12/2012	PREC.	FOGLIO
	Descrizione	PLL52.. ELECTRIC BOX FOR PROBE QGO20.000		Commessa	Data Controllato	Revisione	00	/	1
				Esecutore	Controllato	Dis. N.	00-154	SEGUE	TOTALE
				U. PINTON	S. MARCHETTI			2	4

SIEMENS PLL52.110A200

QG020
SUPPLY

Q4 06D (L)
Q5 06D (N)
PE

X89-02

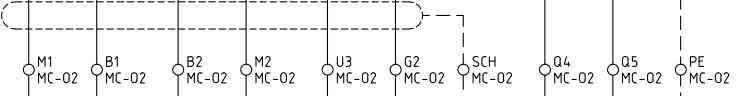
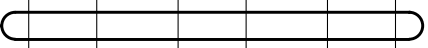
SCHERMATURA/SCHIELDING
(U3) SIGNAL TEMP. COMP.
(G2) SUPPLY TEMP. COMP.
(M) GND
(B2) THERMOELEMENT
(M) GND
(B1)

X81

SIEMENS QG020.000

M B1 B2 M U3 G2 Q4 Q5 PE

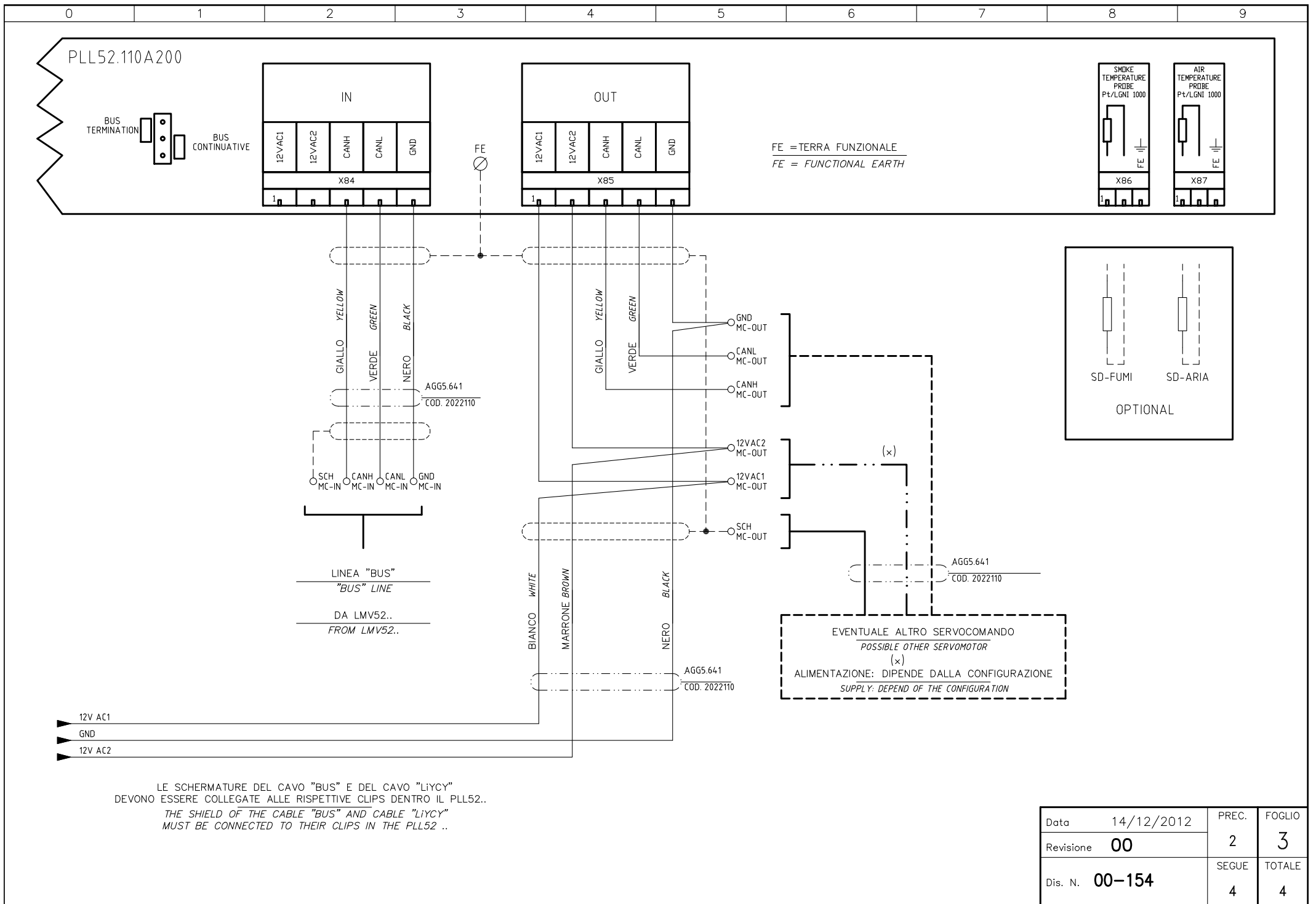
CAVO 3 COPPE TWISTATE + SCHERMATURA (MAX 10m)
LiYCY 6x2x0.2/22 0 LiYCY 6x2x0.2
3 PAIRS TWISTED + SHIELDING CABLE (MAX 10m)
LiYCY 6x2x0.2/22 OR LiYCY 6x2x0.2



19 PE

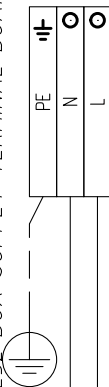
LE SCHERMATURE DEL CAVO "BUS" E DEL CAVO "LiYCY"
DEVONO ESSERE COLLEGATE ALLE RISPETTIVE CLIPS DENTRO IL PLL52..
THE SHIELD OF THE CABLE "BUS" AND CABLE "LiYCY"
MUST BE CONNECTED TO THEIR CLIPS IN THE PLL52 ..

Data	14/12/2012	PREC.	FOGLIO
Revisione	00	1	2
Dis. N.	00-154	SEGUE	TOTALE
		3	4



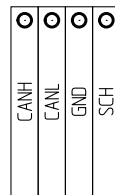
Data	14/12/2012	PREC.	FOGLIO
Revisione	00	2	3
Dis. N.	00-154	SEGUE	TOTALE
		4	4

QG - MA
 MORSETTIERA ALIMENTAZIONE QUADRO PLL52
 PLL52 BOX SUPPLY TERMINAL BOARD

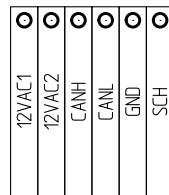


230V 1N a.c.

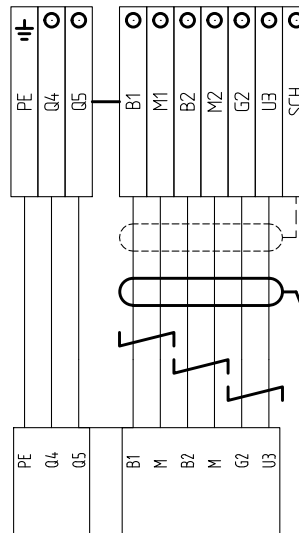
QG - MC-IN



QG - MC-OUT



QG - MC-02



QG020.000

CAVO 3 COPPE TWISTATE + SCHERMATURA (MAX 10m)
 LiYCY 6x2x0.2/22 0 LiYCY 6x2x0.2
 3 PAIRS TWISTED + SHIELDING CABLE (MAX 10m)
 LiYCY 6x2x0.2/22 OR LiYCY 6x2x0.2



SIGLA/ITEM	FOGLIO/SHEET	Funzione	FUNCTION
AGG5.220_AUX	1	TRASFORMATORE AUSILIARIO	AUXILIARY TRANSFORMER
FU1.5	1	FUSIBILE AUSILIARIO	AUXILIARY FUSE
FU1.6	1	FUSIBILE AUSILIARIO	AUXILIARY FUSE
IGB	1	INTERRUTTORE LINEA SONDA OSSIGENO	OXIGEN PROBE LINE SWITCH
IP1	1	MAGNETOTERMICO PROTEZIONE LINEA AUSILIARI	AUXILIARY SUPPLY PROTECTION MAGNETOTHERMIC
LL	1	LAMPADA SEGNALAZIONE TENSIONE QUADRO	INDICATOR LIGHT FOR ELECTRIC BOX SUPPLY
PLL52.110A200	1	MODULO PER SONDA OSSIGENO	OXYGEN PROBE MODULE
SD-ARIA	2	SONDA TEMPERATURA ARIA (OPTIONAL)	AIR TEMPERATURE PROBE (OPTIONAL)
SD-FUMI	2	SONDA TEMERATURA FUMI (OPTIONAL)	SMOKE TEMPERATURE PROBE (OPTIONAL)
SIEMENS QG020.000	2	SONDA OSSIGENO	OXYGEN PROBE

Data	14/12/2012	PREC.	FOGLIO
Revisione	00	3	4
Dis. N.	00-154	SEGUE	TOTALE
		/	4



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Note: Specifications and data subject to change. Errors and omissions excepted.