

R512A - R515A
R520A - R525A

LMV2..
Microprocessor-controlled
gas burners

MANUAL OF INSTALLATION - USE - MAINTENANCE

CIB UNIGAS

BURNERS - BRUCIATORI - BRULERS - BRENNER - QUEMADORES - ГОРЕЛКИ

TABLE OF CONTENTS

WARNINGS	3
PART I: INSTALLATION MANUAL	5
GENERAL FEATURES	5
<i>How to interpret the burner's "Performance curve"</i>	6
BURNERS FEATURES	7
<i>Burner model identification</i>	7
<i>Technical Specifications</i>	7
<i>Country and usefulness gas categories</i>	7
<i>Overall dimensions</i>	8
MOUNTING AND CONNECTING THE BURNER	11
<i>Packing</i>	11
<i>Matching the burner to the boiler</i>	11
<i>Handling the burner</i>	11
<i>Fitting the burner to the boiler</i>	12
GAS TRAIN CONNECTIONS	13
<i>Assembling the gas grain</i>	14
<i>Siemens VGD20.. and VGD40.. gas valves - with SKP2.. (pressure governor)</i>	15
<i>Pressure adjusting range</i>	16
ELECTRICAL CONNECTIONS	17
<i>Rotation of fan motor</i>	17
ADJUSTING AIR AND GAS FLOW RATES	18
<i>Combustion head gas pressure curves depending on the flow rate</i>	18
<i>Measuring the gas pressure in the combustion head</i>	18
<i>Gas Filter</i>	19
<i>User interface</i>	20
<i>Setting menu</i>	21
PHASES LIST	22
<i>Entering the Parameter levels</i>	23
<i>Info level</i>	23
<i>Service level</i>	25
<i>Adjusting air and gas flow rates</i>	26
<i>Adjustments - brief description</i>	27
<i>Adjusting procedure</i>	27
<i>Adjusting the combustion head</i>	28
<i>Calibration of air and gas pressure switches</i>	29
<i>Calibration of air pressure switch</i>	29
<i>Calibration of low gas pressure switch</i>	29
<i>Adjusting the high gas pressure switch (when provided)</i>	29
<i>PGCP Gas leakage pressure switch (with Siemens LDU burner control/Siemens LMV Burner Management System)</i>	29
PART II: OPERATION	30
OPERATION	31
PART III: MAINTENANCE	32
ROUTINE MAINTENANCE	32
<i>Gas filter maintenance</i>	32
<i>Inspection and replacement of the MULTIBLOC DUNGS MBC..SE filter (Threaded valves group)</i>	32
<i>Removing the combustion head</i>	33
<i>Adjusting the electrodes</i>	33
<i>Replacing the ignition electrodes</i>	34
<i>Replacing the detection electrode</i>	34
<i>Replacing the spring in the gas valve group</i>	35
<i>Checking the detection current</i>	35
<i>Extraneous light</i>	35
<i>Seasonal stop</i>	35
SPARE PARTS	36
WIRING DIAGRAMS	37

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 90/396/CEE - Gas Appliances;
- Directive 2006/95/EC on low voltage;
- Directive 2004/108/CEE on electromagnetic compatibility

Harmonised standards :

- 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.

Light oil burners

European directives:

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

Harmonised standards :

- 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

Heavy oil burners

European directives:

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

Harmonised standards :

- CEI EN 60335-1 Household and similar electrical appliances - SafetyPart 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 - Light oil burners

European directives:

- Directive 90/396/CEE Gas Appliances;
- Directive 2006/95/EC on low voltage;
- Directive 2004/108/CEE on electromagnetic compatibility

Harmonised standards :

- 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

Gas - Heavy oil burners

European directives:

- Directive 90/396/CEE - Gas Appliances;
- Directive 2006/95/EC on low voltage;
- Directive 2004/108/CEE on electromagnetic compatibility

Harmonised standards :

- 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

PART I: INSTALLATION MANUAL

GENERAL FEATURES

The control system is made of the Siemens LMV central unit that performs all the burner control functions and of the Siemens AZL local programming unit that interfaces the system with the user.

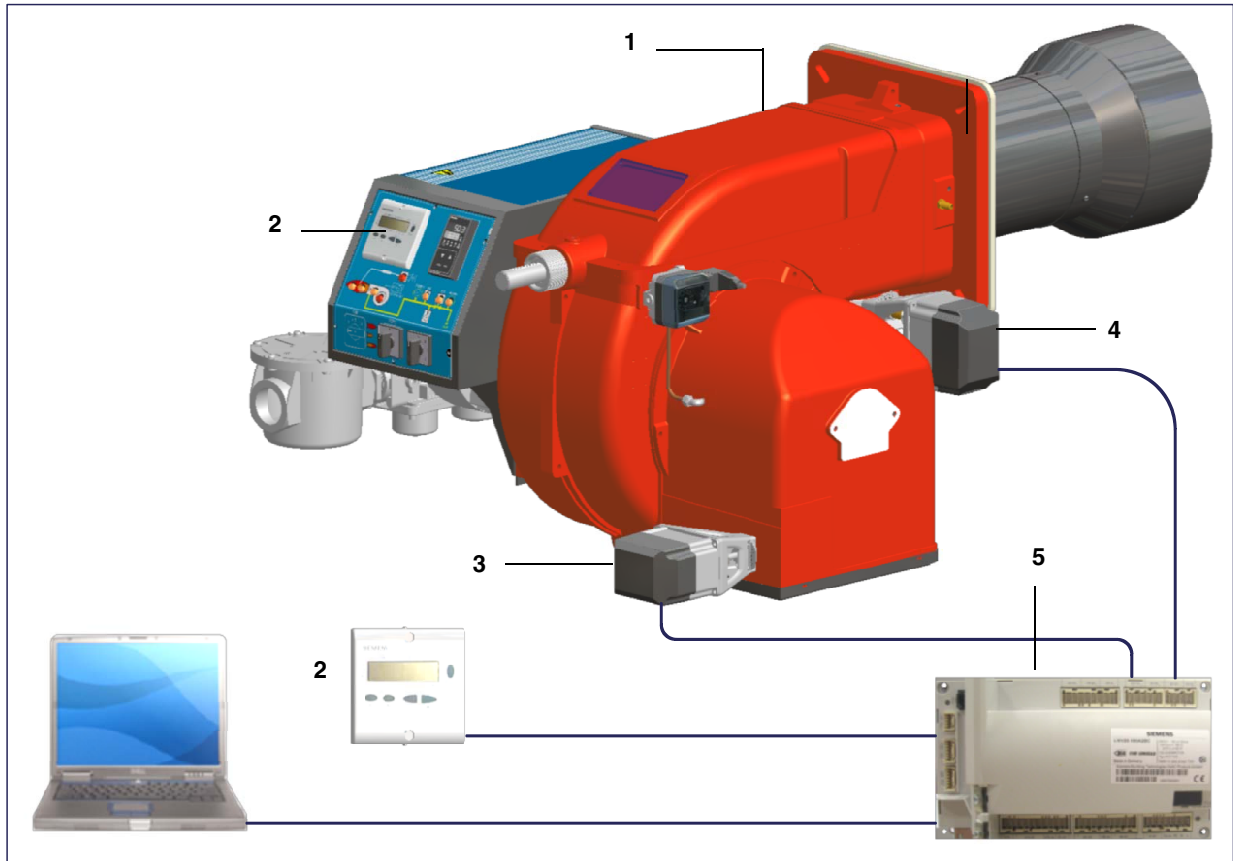


Fig. 1

Keys

- 1 Burner
- 2 AZL2..
- 3 Air actuator
- 4 Fuel actuator
- 5 LMV2..

The gas coming from the supply line, passes through the valves group provided with filter and stabiliser. This one forces the pressure in the utilisation limits. The electric actuator, that moves proportionally the air damper and the gas butterfly valve, uses an adjusting cam with variable shape. This one allows the optimisation of the flue gas values, as to get an efficient combustion. The combustion head positioning determines the burner's output. The combustion head determines the energetic quality and the geometry of the flame. Fuel and comburent are routed into separated ways as far as the zone of flame generation (combustion chamber).

The control panel, placed on the burner's front side, shows each operating stage.

How to interpret the burner's "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 (kW = kcal/h / 860);
- backpressure (data are available on the boiler's ID plate or in the user's manual).

Example:

Furnace input: 600kW

Backpressure: 4mbar

In the "Performance curve" diagram (Fig. 2), 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.

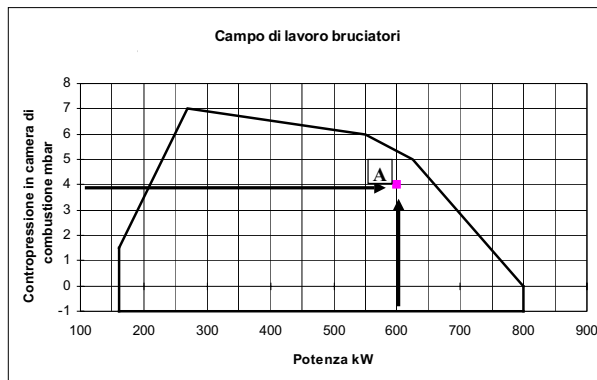


Fig. 2

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

Checking the proper gas train size

To check the proper gas train size, it is necessary to know the available gas pressure value upstream the burner's gas valve. Then subtract the backpressure. The result is called **p_{gas}**. Draw a vertical line matching the furnace input value of the heat generator (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 **p_{gas}** value, calculated before.

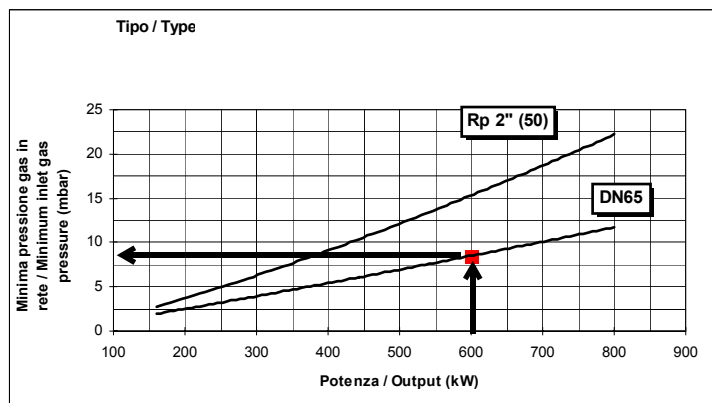


Fig. 3

BURNERS FEATURES

Burner model identification

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

Type (1)	R512A	Model (2)	M-	PR. (3)	S. (4)	* (5)	A. (6)	1. (7)	80 (8)	.EA (9)
(1) BURNER TYPE	R512A - R515A - R520A - R525A									
(2) FUEL	M - Natural gas									
(3) OPERATION	PR - Progressive					MD - Fully modulating				
(4) BLAST TUBE	S - Standard					L - Extended				
(5) DESTINATION COUNTRY	* - see data plate									
(6) BURNER VERSION	A - Standard									
(7) EQUIPMENT	1 = 2 valves + gas proving system 8 = 2 valves + gas proving system + high gas pressure switch									
(8) GAS CONNECTION	50 = Rp2		65 = DN65		80 = DN80		100 = DN100			
(9) MICROPROCESSOR-CONTROLLED REGULATION	EA = Burner equipped with LMV2									

Technical Specifications

BURNER TYPE		R512A	R515A	R520A	R525A M-...1.50	R525 A M-...1.65/80/100
Output	min - max kW	600 - 4500	770 - 5200	1000 - 6400	2000 - 6700	2000 - 8000
Fuel		Natural gas				
Gas category		(see next paragraph)				
Gas rate	min.- max. (Stm ³ /h)	63.5 - 476	81.5 - 550	106 - 677	212 - 709	212 - 847
Pressure	mbar	(see Note 2)				
Power supply		230V 3~ / 400V 3N~ 50Hz			400V 3N~ 50Hz	
Total power consumption	kW	9.7	11.5	15.5	19	19
Electric motor	kW	9.2	11	15	18.5	18.5
Protection		IP40				
Operation		Progressive - Fully modulating				
Gas train 50	ØValves / Connection	50 / Rp 2	50 / Rp 2	50 / Rp 2	50 / Rp 2	-
Gas train 65		65 / DN65	65 / DN65	65 / DN65	---	65 / DN65
Gas train 80		80 / DN80	80 / DN80	80 / DN80	---	80 / DN80
Gas train 100		100 / DN100	100 / DN100	100 / DN100	---	100 / DN100
Operating temperature	°C	-10 ÷ +50				
Storage Temperature	°C	-20 ÷ +60				
Working service*		Intermittent				

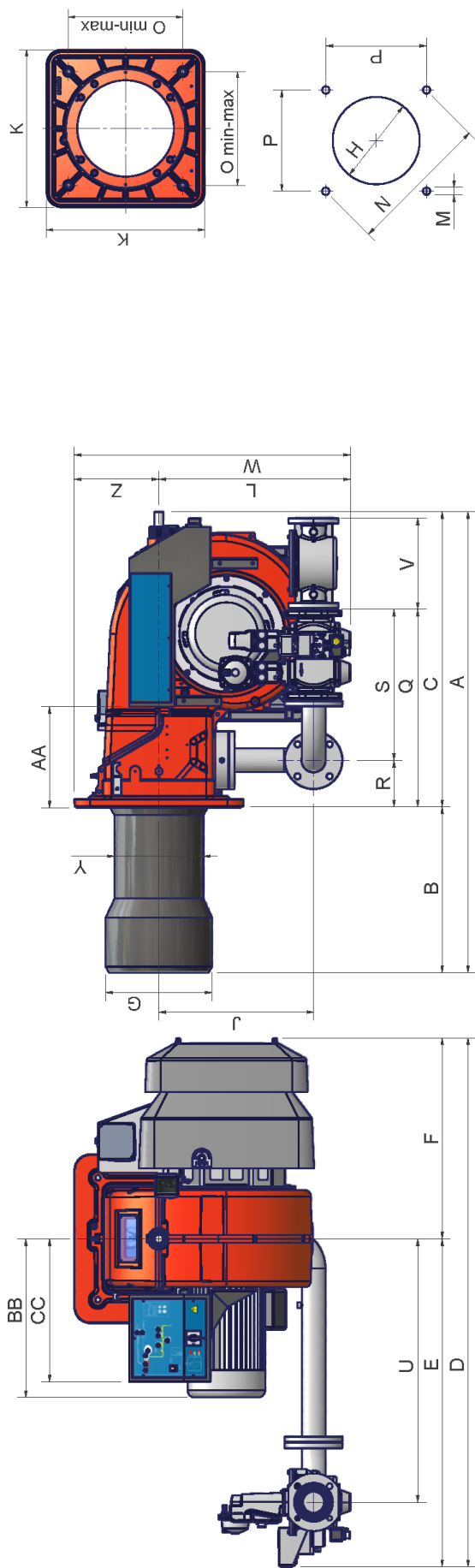
Note1:	all gas flow rates are referred to Stm ³ /h (1013 mbar absolute pressure, 15 °C temperature) and are valid for G20 natural gas (nett calorific value H _i = 34.02 MJ/Stm ³).
Note2:	Maximum gas pressure = 500mbar (with Siemens VGD gas valves / Dungs MBC gas valves). Minimum gas pressure = see gas curves.

* **NOTE ON THE BURNER WORKING SERVICE:** for safety reasons, one controlled shutdown must be performed every 24 hours of continuous operation.

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Overall dimensions (mm)



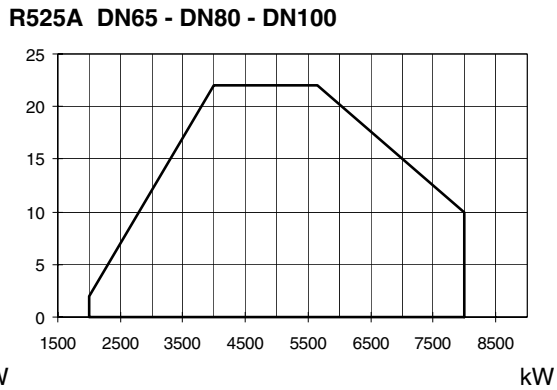
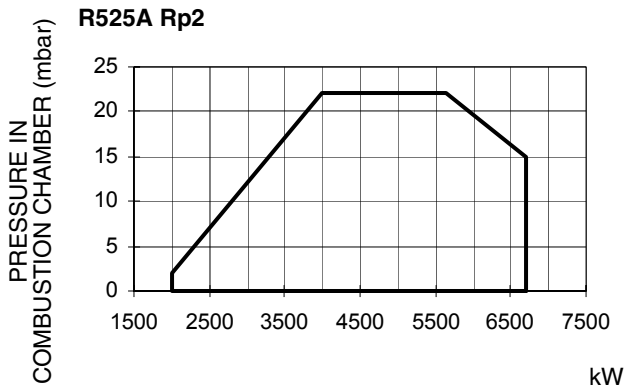
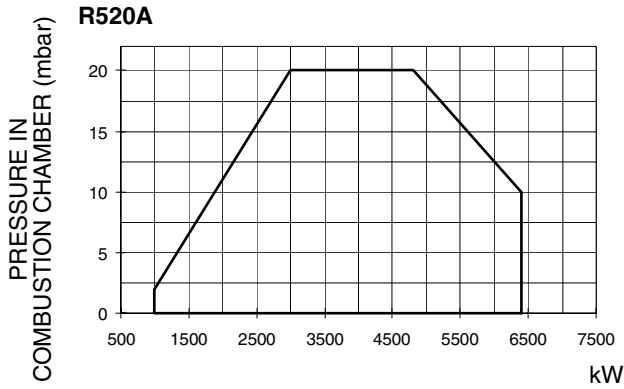
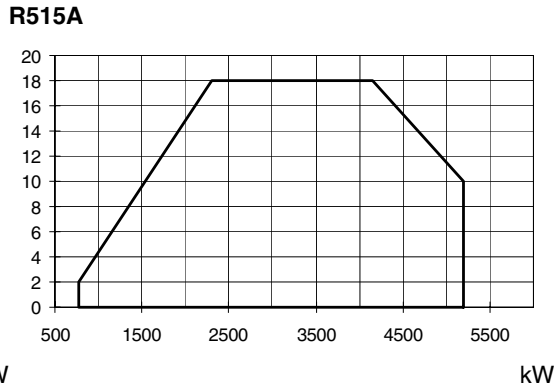
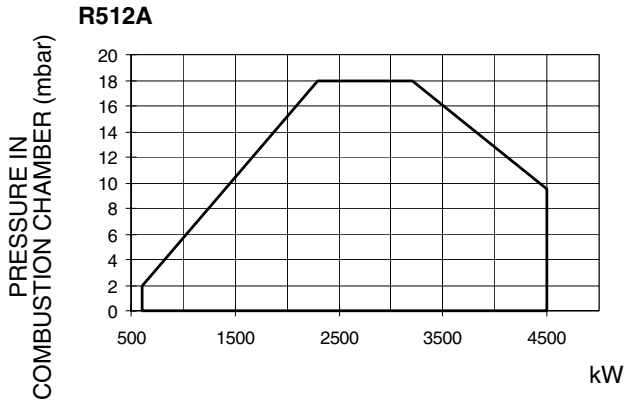
Burner flange and recommended boiler drilling jig

DN*	A	AA	B	BB	C	CC	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	U	V	W	Y	Z
R512A	50	1475	323	530	945	446	1714	1071	643	340	380	494	540	597	M14	552	390	390	755	150	605	843	195	867	328	270
R512A	65	1475	323	530	945	446	1692	1049	643	340	380	494	540	612	M14	552	390	390	633	150	483	843	292	882	328	270
R512A	80	1475	323	530	945	446	1727	1084	643	340	380	494	540	628	M14	552	390	390	685	150	535	875	323	898	328	270
R512A	100	1475	323	530	945	446	1810	1167	643	340	380	494	540	641	M14	552	390	390	792	150	642	942	384	911	328	270
R515A	50	1475	323	530	945	446	1714	1071	643	380	420	494	540	597	M14	552	390	390	755	150	605	843	195	867	328	270
R515A	65	1475	323	530	945	446	1692	1049	643	380	420	494	540	612	M14	552	390	390	633	150	483	843	292	882	328	270
R515A	80	1475	323	530	945	446	1727	1084	643	380	420	494	540	628	M14	552	390	390	685	150	535	875	323	898	328	270
R515A	100	1475	323	530	945	446	1810	1167	643	380	420	494	540	641	M14	552	390	390	792	150	642	942	384	911	328	270
R520A	50	1475	323	530	945	446	1714	1071	643	400	440	494	540	597	M14	552	390	390	755	150	605	843	195	867	328	270
R520A	65	1475	323	530	945	446	1692	1049	643	400	440	494	540	612	M14	552	390	390	633	150	483	843	292	882	328	270
R520A	80	1475	323	530	945	446	1727	1084	643	400	440	494	540	628	M14	552	390	390	685	150	535	875	323	898	328	270
R520A	100	1475	323	530	945	446	1810	1167	643	400	440	494	540	641	M14	552	390	390	792	150	642	942	384	911	328	270
R525A	50	1475	145	530	650	598	1714	1071	643	434	484	494	540	597	M14	552	390	390	755	150	605	843	195	867	328	270
R525A	65	1475	145	530	650	598	1692	1049	643	434	484	494	540	612	M14	552	390	390	633	150	483	843	292	882	328	270
R525A	80	1475	145	530	650	598	1727	1084	643	434	484	494	540	628	M14	552	390	390	685	150	535	875	323	898	328	270
R525A	100	1475	145	530	650	598	1810	1167	643	434	484	494	540	641	M14	552	390	390	792	150	642	942	384	911	328	270

*DN = gas valves size

NOTE: the overall dimensions are referred to burners provided with Siemens VGD valves.

Performance Curves



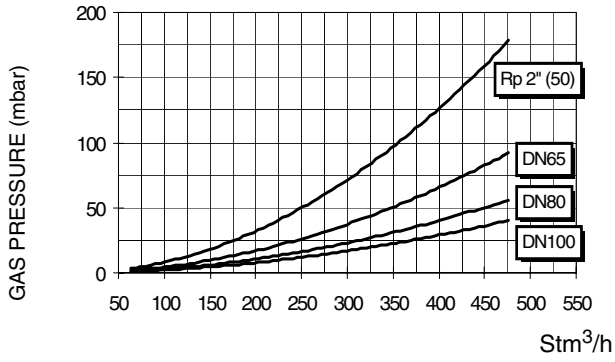
To get the input in kcal/h, multiply value in kW by 860.

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

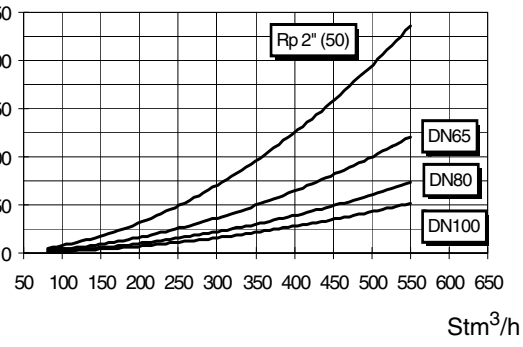
NOTE: The performance curve is a diagram that represents the burner performance in the type approval phase or in the laboratory tests, but does not represent the regulation range of the machine. On this diagram the maximum output point is usually reached by adjusting the combustion head to its "MAX" 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.

Pressure in the Network / gas flow rate curves

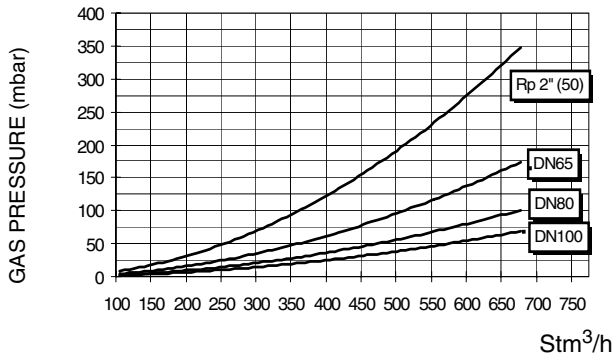
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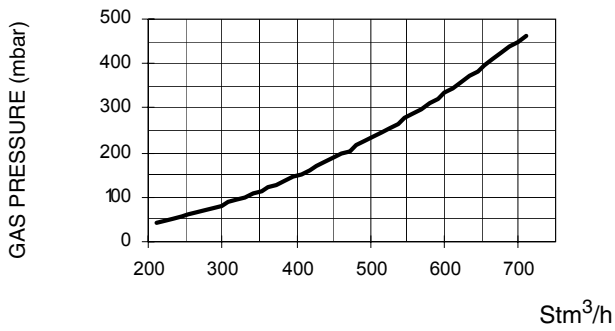
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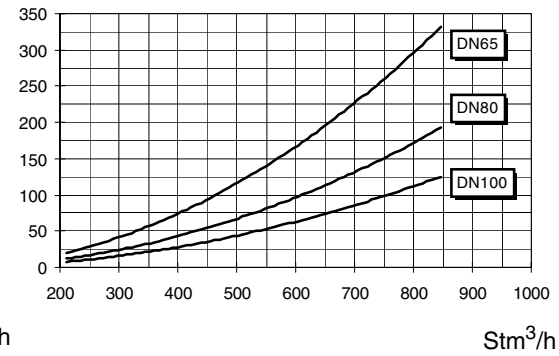
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R525A Rp2



R525A DN65 - DN80 - DN100



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.

MOUNTING AND CONNECTING THE BURNER

Packing

The burners are despatched in wooden crates whose dimensions are:

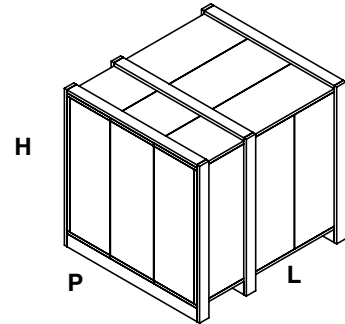
1570mm x 1470mm x 1220mm (L x P x H)

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

The following are placed in each packing case:

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

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

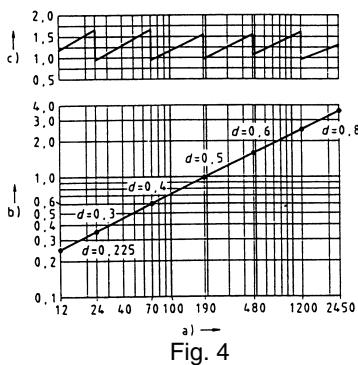


Matching the burner to the boiler

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 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 100 mm into the combustion chamber.
- Pressurised boilers with flame reversal: in this case the blast tube must penetrate at least 50 - 100 mm into combustion chamber in respect to the tube bundle plate.

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

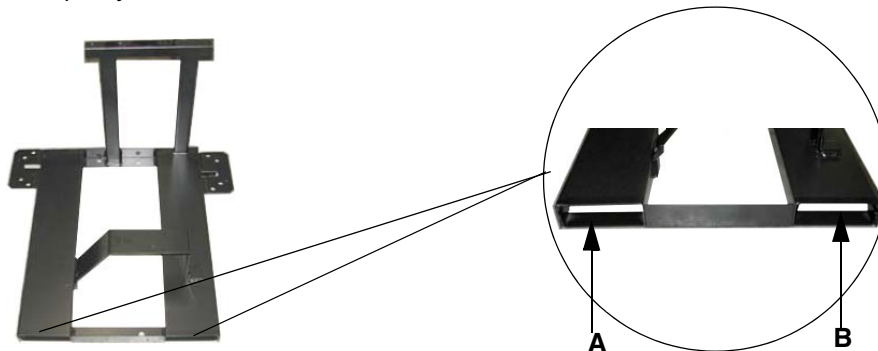
- a) Heat output in kW
- b) Length of the flame tube in meters
- c) Flame tube firing intensity in MW/m³
- d) Combustion chamber diameter (m)

Fig. 4 - Firing intensity, diameter and length of the test flame tube as a function of the heat input in kW.

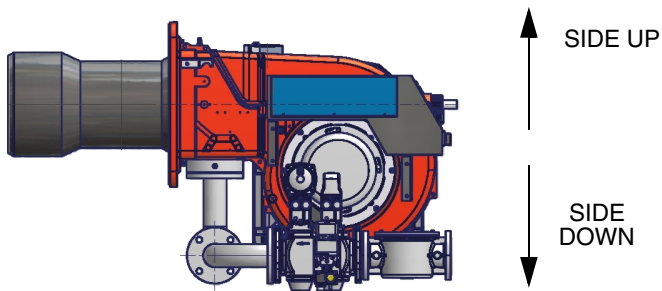
Handling the burner

	ATTENTION! The handling operations must be carried out by specialised and trained personnel. If these operations are not carried out correctly, the residual risk for the burner to overturn and fall down still persists.
	To move the burner, use means suitable to support its weight (see paragraph "Technical specifications").
	The unpacked burner must be lifted and moved only by means of a fork lift truck.

The burner is mounted on a stirrup provided for handling the burner by means of a fork lift truck: the forks must be inserted into the A and B ways. Remove the stirrup only once the burner is installed to the boiler.



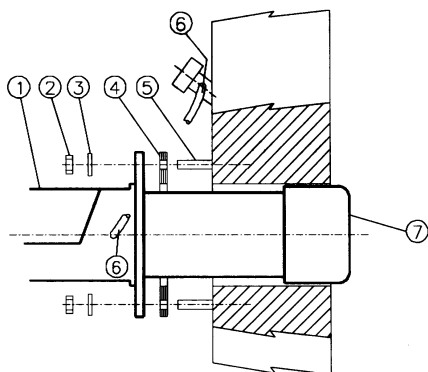
The burner is designed to work positioned according to the picture below. For different installations, please contact the Technical Department.



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) on the hole of the boiler's door, 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 |

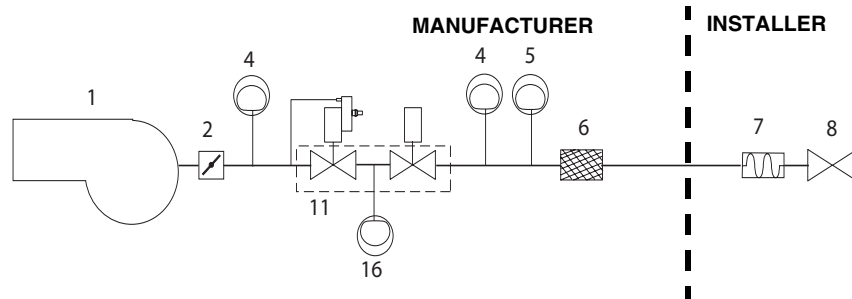
GAS TRAIN CONNECTIONS

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.

	<p>ATTENTION: BEFORE EXECUTING THE CONNECTIONS TO THE GAS PIPE NETWORK, BE SURE THAT THE MANUAL CUTOFF VALVES ARE CLOSED. READ CAREFULLY THE “WARNINGS” CHAPTER AT THE BEGINNING OF THIS MANUAL.</p>
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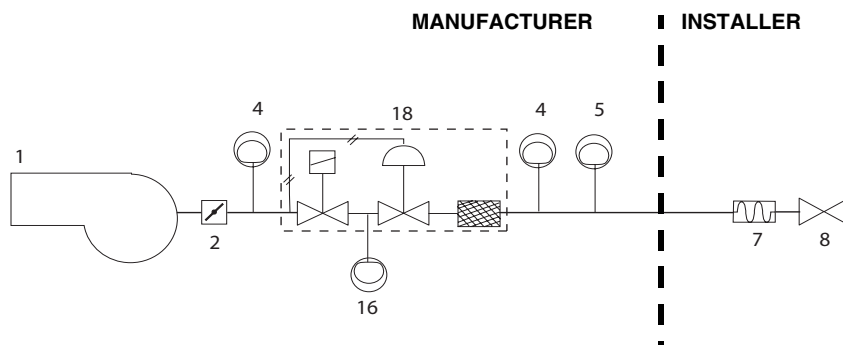
Gas train - 4

Gas train with valves group VGD 20/40.. with built-in gas pressure governor + PGCP gas leakage pressure switch



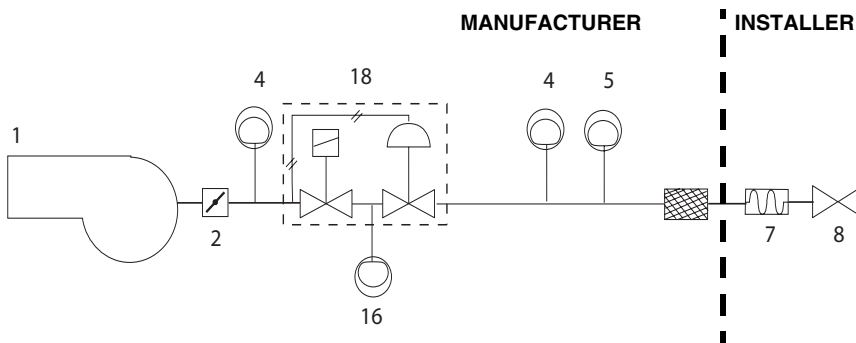
Gas train - 5 (Rp2)

Gas train with valves group MBC 1200SE (2 valves + gas filter + pressure governor) + PGCP gas leakage pressure switch



Gas train - 6 (DN65/80/100)

Gas train with valves group MBC 1900/3100/5000SE (2 valves + gas filter + pressure governor) + PGCP gas leakage pressure switch



Key

- | | |
|---|---|
| 1 Burner | 8 Manual cutoff valve |
| 2 Butterfly valve | 10 VGD Valves group |
| 3 Gas proving system | 16 PGCP gas leakage pressure switch |
| 4 Maximum gas pressure switch (option*) | 18 MBC Valves group (2" with filter provided) |
| 5 Minimum gas pressure switch | 19 MBC Valves group (DN65/80/100) |
| 6 Gas filter | |
| 7 Bellow joint | |

Note: the high gas pressure switch can be mounted either upstream the gas valve or downstream the gas valves but upstream the butterfly gas valve.

Assembling the gas grain

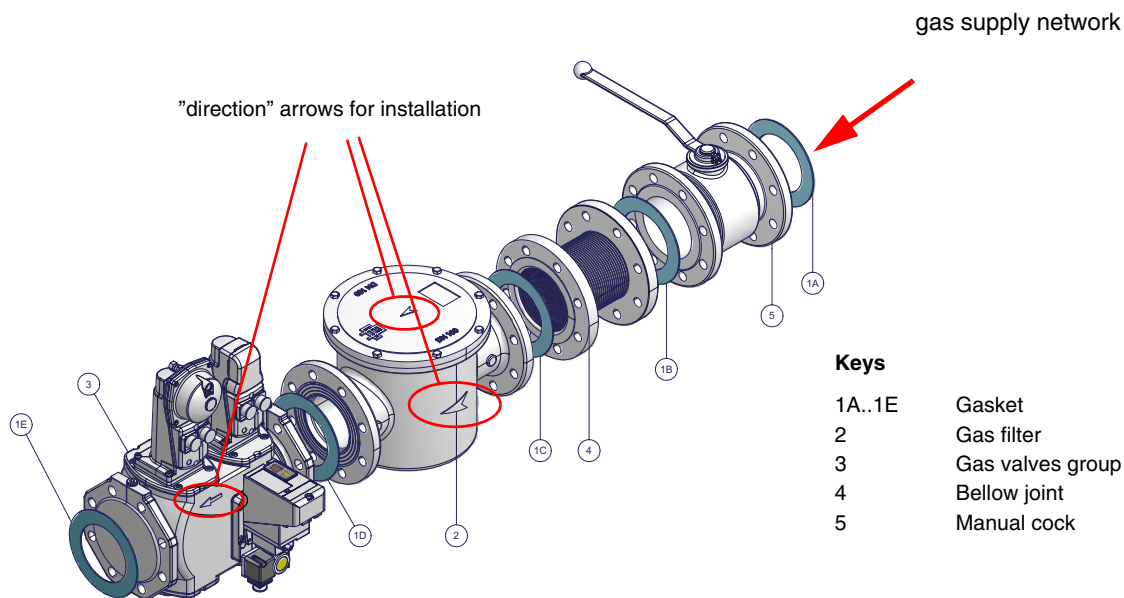


Fig. 5 - Example of gas train

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. 5) 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 bellow joint, 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. 5, 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 Multibloc Dungs MBC..SE 1200 or Siemens VGD20..
- flanged gas trains with Multibloc Dungs MBC..SE 1900-3100-5000 or Siemens VGD40..

MULTIBLOC DUNGS MBC300-700-1200SE (Threaded valves group)

Mounting

1. Mount flange onto tube lines. Use appropriate sealing agent (see Fig. 6)
2. Insert MBC...SE. Note position of O rings (see Fig. 7).
3. Tighten screws A – H
4. After installation, perform leakage and functional test.
5. Disassembly in reverse order

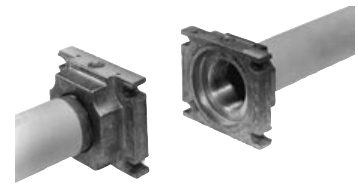


Fig. 6

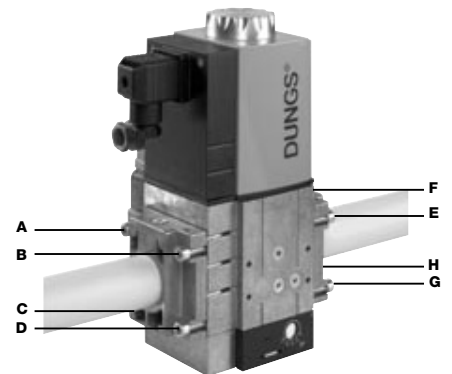
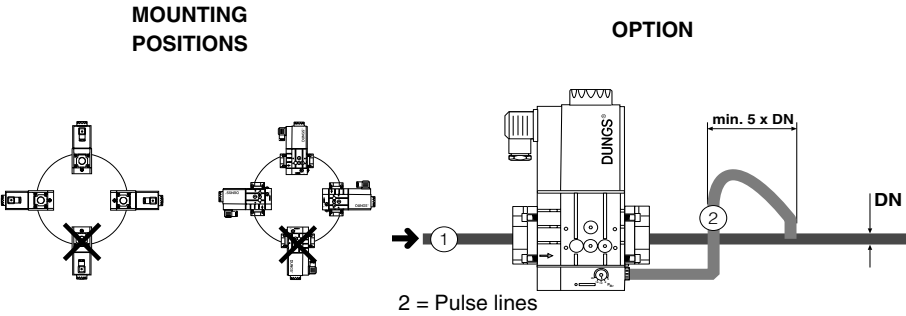


Fig. 7

MULTIBLOC DUNGS MBC1900-3100-5000SE (Flanged valves group)

Mounting

1. Insert setscrews A
 2. Insert seals
 3. Insert setscrews B
 4. Tighten setscrews A + B.
- Ensure correct seating of the seal!
6. After installation, perform leakage and functional test.
 7. Disassembly in reverse order.

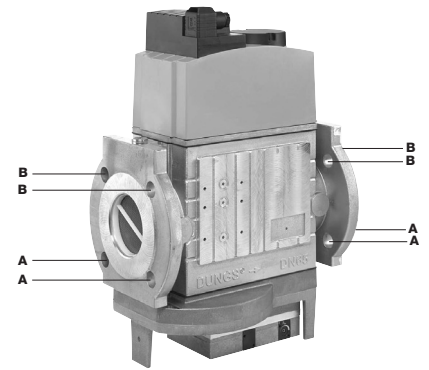
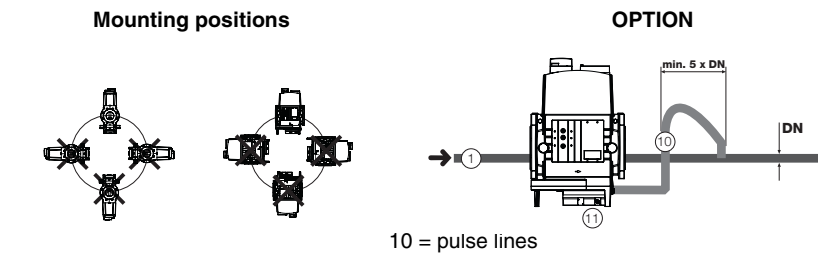


Fig. 8

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), 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.

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

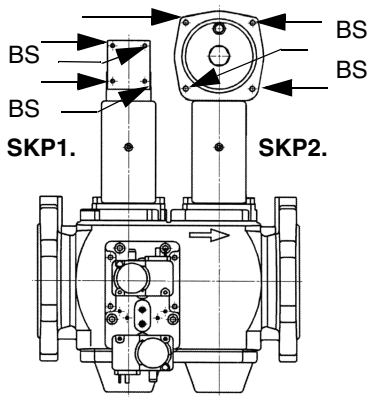


Fig. 9

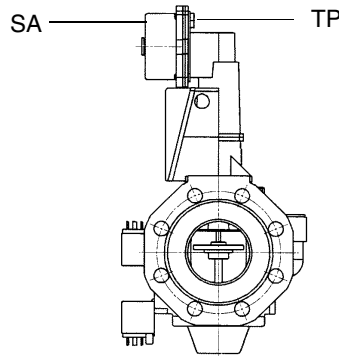


Fig. 10

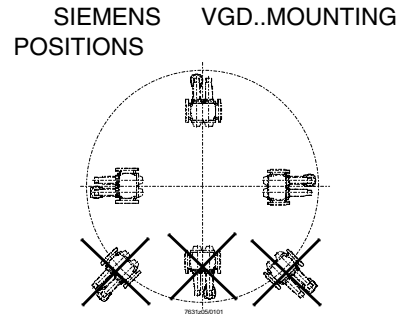
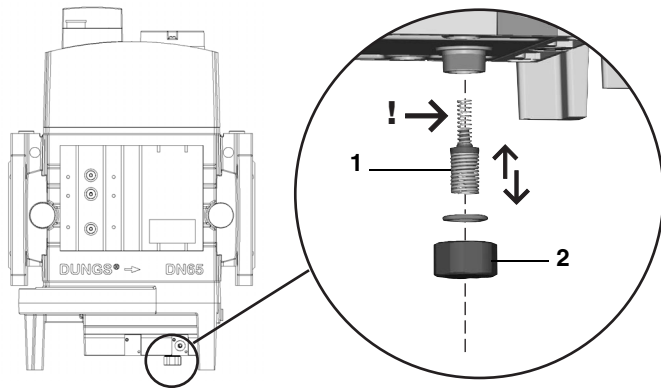


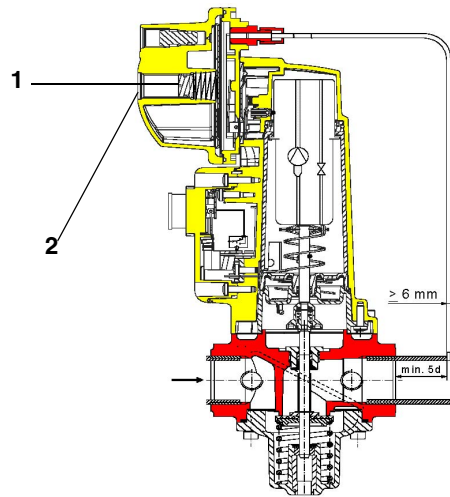
Fig. 11

Pressure adjusting range

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



DUNGS MBC..SE



Siemens SKP actuator

Keys

- 1 spring
- 2 cap

DUNGS MBC valves:

Performance range (mbar)	4 - 20	20 - 40	40 - 80	80 - 150
Spring colour	-	red	black	green


Siemens VGD valves with SKP actuator:


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


Once the train is installed, connect electrically all its elements: gas valves group, pressure switches, gas proving system.

⚠ ATTENTION: once the gas train is mounted according to the diagram on Fig. 5, the gas proving test must be performed, according to the procedure set by the laws in force.

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.

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

	CAUTION: adjust the thermal cut-out according to the motor rated current value.
---	--

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 following diagrams,
- 3 check the direction of the fan motor (see next paragraph)
- 4 refit the panel cover

Rotation of fan motor

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

NOTE: (except for R525A): burners are supplied for three-phase 400V supply, and in the case of three-phase 230V supply it is necessary to modify the electrical connections into the terminal box of the electric motor and replace the overload tripped relay.

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 LME2... control box, between the terminal 2 on the board and the earth terminal, an RC Siemens RC466890660 filter must be inserted.

Key

- C - Capacitor (22nF/250V)
- LME - Siemens control box
- R - Resistor (1Mohm)
- RC466890660 - RC Siemens filter

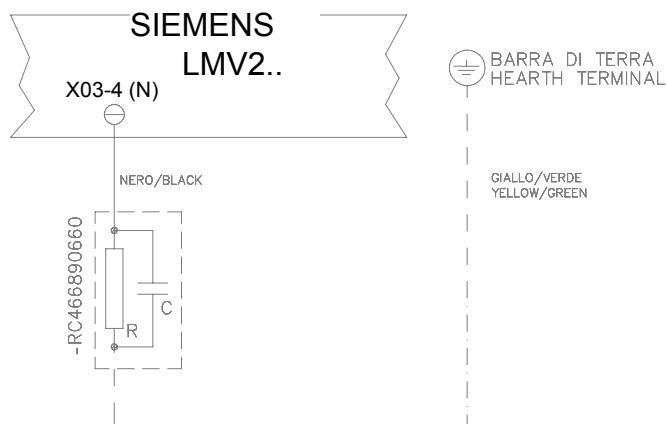


Fig. 12

ADJUSTING AIR AND GAS FLOW RATES

Combustion head gas pressure curves depending on the flow rate

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

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 servocontrol are at the maximum opening. Refer to Fig. 13, 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.

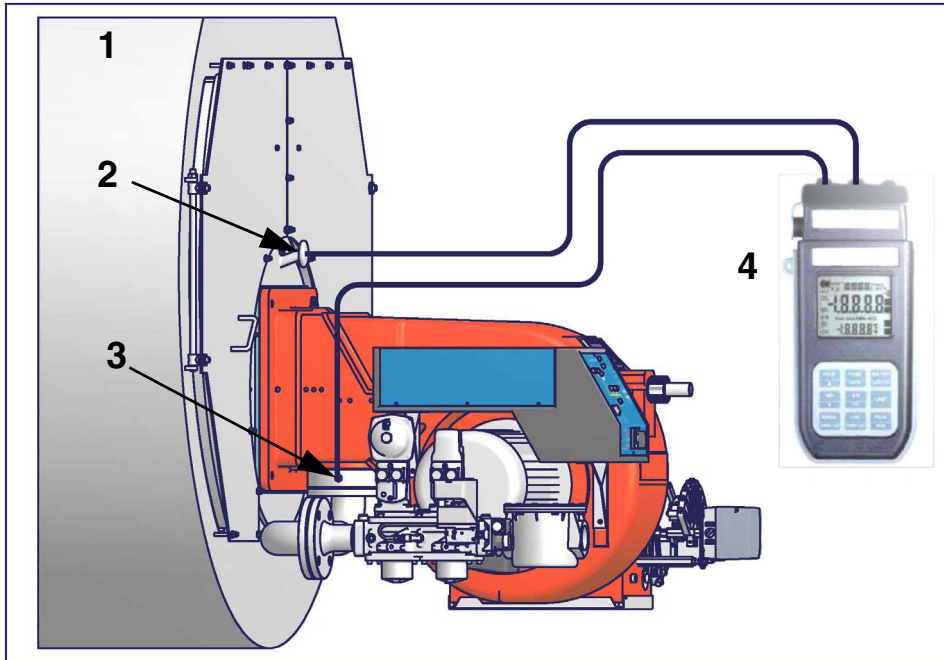


Fig. 13

Key

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

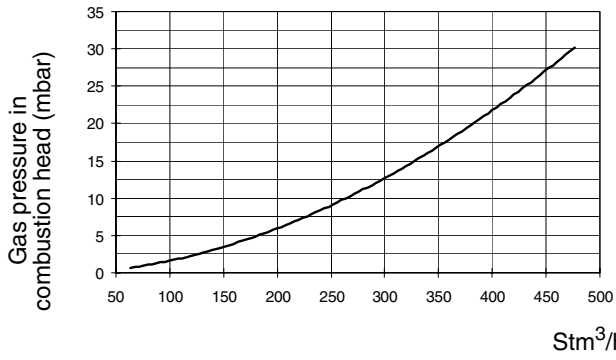
Measuring the gas pressure in the combustion head

In order to measure the pressure in the combustion head, insert the pressure gauge probes: one into the combustion chamber's pressure outlet (Fig. 13-2) to get the pressure in the combustion chamber and the other one into the butterfly valve's pressure outlet of the burner (Fig. 13-3). 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.

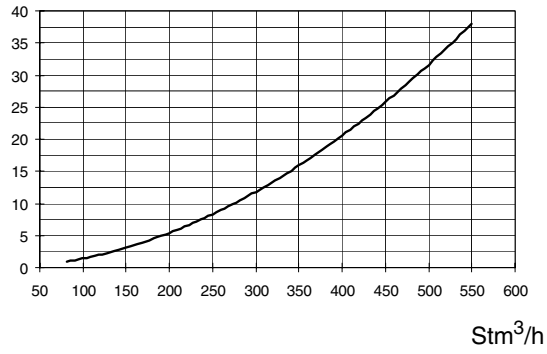
NOTE: THE PRESSURE-RATE CURVES ARE GIVEN AS INFORMATION ONLY; FOR A PROPER SETTING OF THE GAS RATE, PLEASE REFER TO THE GAS METER READING.

Pressure in combustion head - gas flow rate curves

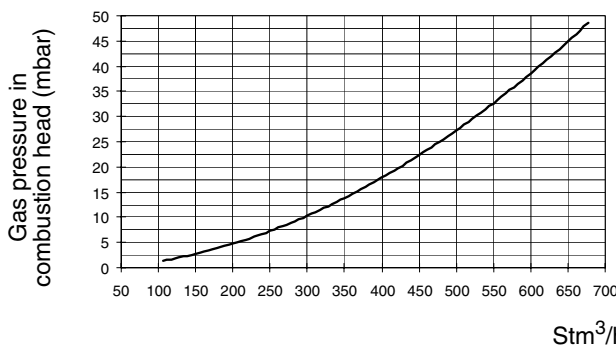
R512A



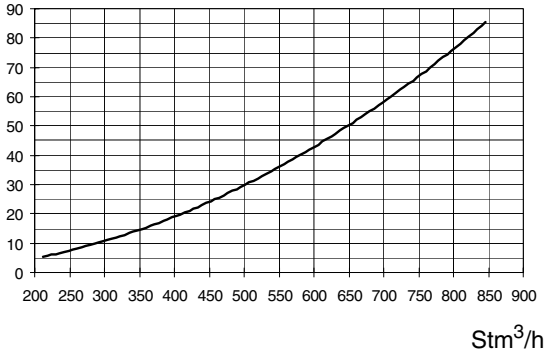
R515A



R520A



R525A

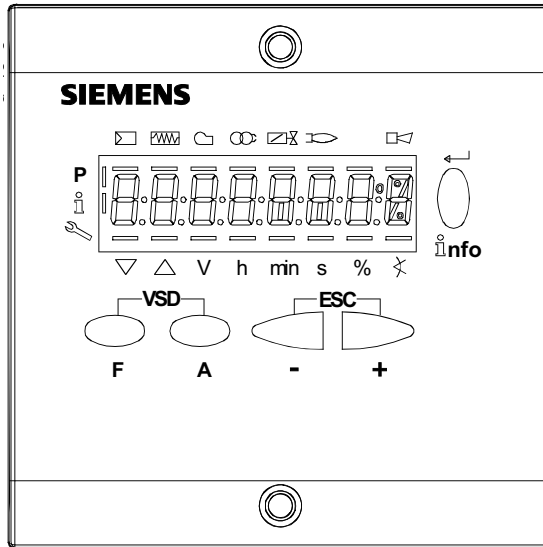


Gas Filter

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

User interface

The AZL2x.. display is shown below:



The keys functions are the following:



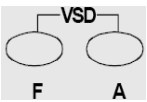
Key F

Used to adjust the “fuel” actuator position (**Fuel**): :
While pressing the **F** key, the “fuel” actuator position can be changed by means of the + and - keys.



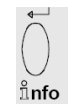
Key A

Used to adjust the “air” actuator position (**Air**):
While pressing the **A** key, the “air” actuator position can be changed by means of the + and - keys.



Key F + A

While pressing the two keys contemporarily, the **code** message will appear: by entering the proper password it is possible to access the **Service** mode.



Info and Enter keys

Used for **Info** and **Service** menues
Used as **Enter** key in the setting modes
Used as **Reset** key in the burner operation mode
Used to enter a lower level menu



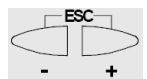
Key -

Used to decrease a a value
Used to enter Info and Service during the curve adjustments



Key +

Used to increase a a value
Used to enter Info and Service during the curve adjustments

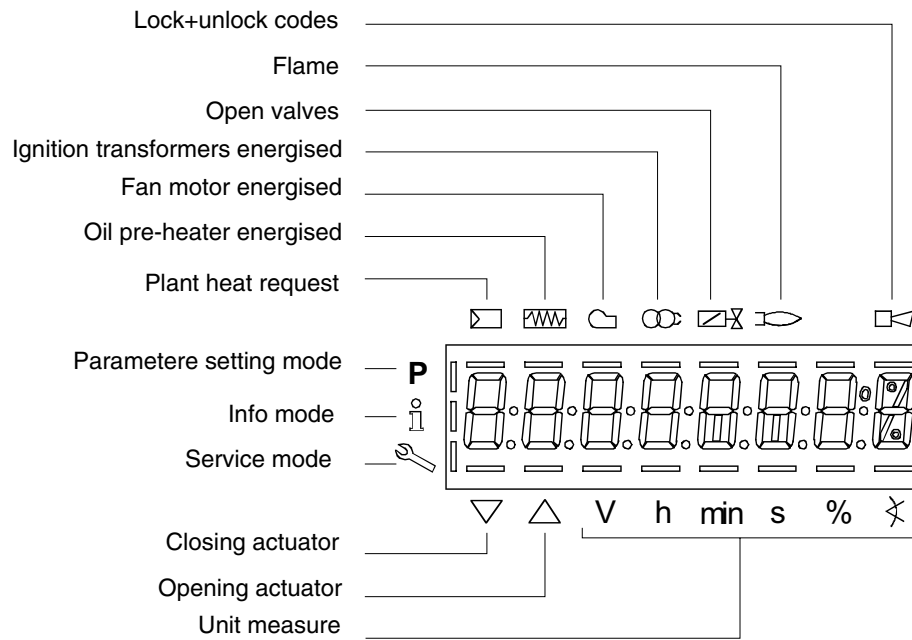


Keys (+ & -) = ESC

By pressing + and - at the same time, the ESCAPE function is performed:

to erase a entered value
to enter a lower level menu

The display will show these data: The display will show these data:



Setting menu

The setting menu is divided into different blocks:

Block	Descrizione	Description	Password
100	Informazioni generali	General	OEM / Service / Info
200	Controllo bruciatore	Burner control	OEM / Service
400	Curve rapporto	Ratio curves	OEM / Service
500	Controllo rapporto	Ratio control	OEM / Service
600	Servocomandi	Actuators	OEM / Service
700	Storico errori	Error history	OEM / Service / Info
900	Dati di processo	Process data	OEM / Service / Info

The accesses to the various blocks are allowed by passwords. Passwords are divided into three levels:

- User level (info): no password needed
- Service level (Service)
- Manufacturer level (OEM)

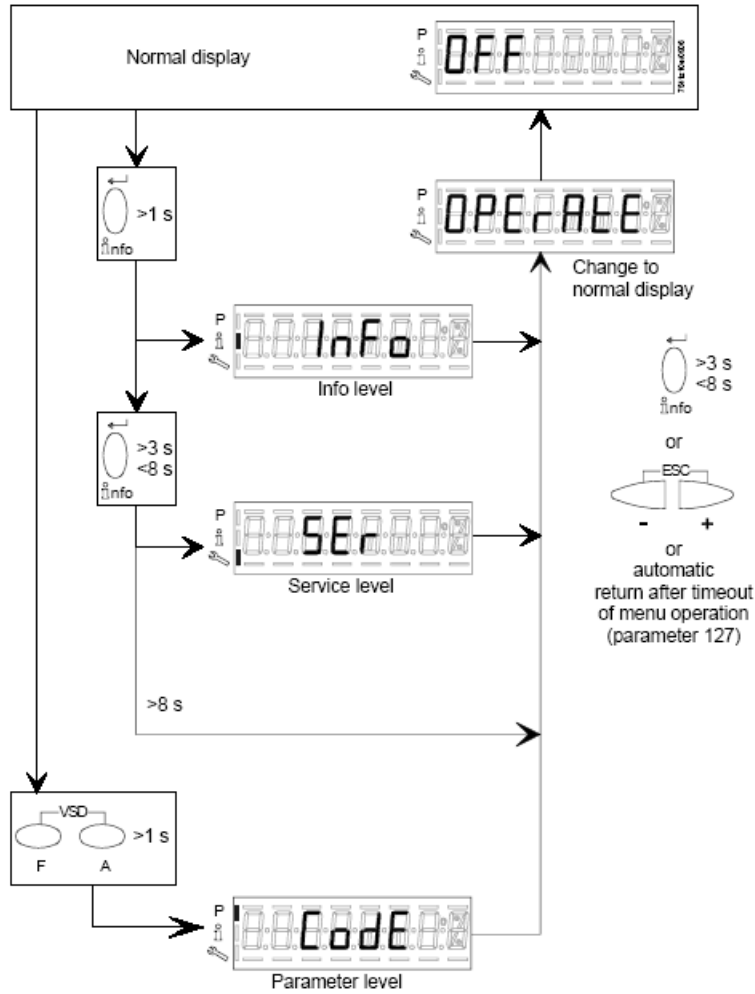
PHASES LIST

During operation, the following program phases are shown. The meaning for each phase is quoted in the table below.

Phase	Funzione	Function
Ph00	Fase blocco	Lockout phase
Ph01	Fase di sicurezza	Safety phase
Ph10	t10 = tempo raggiungimento posizione riposo	t10 = home run
Ph12	Pausa	Standby (stationary)
Ph22	t22 = tempo di salita ventilatore (motore ventilatore = ON, valvola intercettazione di sicurezza = ON)	t22 = fan ramp up time (fan motor = ON, safety shutoff valve = ON)
Ph24	Verso posizione preventilazione	Traveling to the prepurge position
Ph30	t1 = tempo preventilazione	t1 = prepurge time
Ph36	Verso posizione accensione	Traveling to the ignition position
Ph38	t3 = tempo preaccensione	t3 = preignition time
Ph40	TSA1 = primo tempo sicurezza (trasformatore accensione ON)	TSA1= 1st safety time (ignition transformer ON)
Ph42	TSA1 = primo tempo sicurezza (trasformatore accensione OFF)	TSA1 = 1st safety time (ignition transformer OFF), t42 = preignition time OFF
Ph44	t44 = intervallo 1	t44 = interval 1
Ph50	TSA2 = secondo tempo sicurezza	TSA2 = 2nd safety time
Ph52	t52 = intervallo2	t52 = interval 2
Ph60	Funzionamento 1 (stazionario)	Operation 1 (stationary)
Ph62	t62 = massimo tempo bassa fiamma (funzionamento 2, in preparazione per spegnimento, verso bassa fiamma)	t62 = max. time low-fire (operation 2, preparing for shutdown, traveling to low-fire)
Ph70	t13 = tempo postcombustione	t13 = afterburn time
Ph72	Verso posizione postcombustione	Traveling to the postpurge position
Ph74	t8 = tempo postventilazione	t8 = postpurge time
Ph80	t80 = tempo evacuazione controllo tenuta valvole	t80 = valve proving test evacuation time
Ph81	t80 = tempo perdita pressione atmosferica, prova atmosferica	t81 = leakage time test time atmospheric pressure, atmospheric test
Ph82	t82 = test perdita, test riempimento	t82 = leakage test filling test, filling
Ph83	t80 = tempo perdita pressione gas, test pressione	t83 = leakage test time gas pressure, pressure test
Ph90	Tempo attesa "mancanza gas"	Gas shortage waiting time

Entering the Parameter levels

By means of a proper use of the keys, it is possible to enter the various level parameters, as shown in the following flow chart:

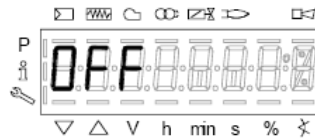


The burner and consequently the LMV2x.. are factory set; the air and fuel curves as set as well.

Info level

To enter the **Info** level, proceed as follows:

- 1 in any menu position, press keys + and - at the same time, then the program will start again: the display will show **OFF**.



- 2 until the display will show **InFo**, Press the **enter (InFo)** key

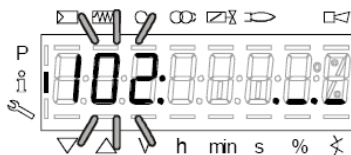


- 3 then it will show the first code (167) flashing, on the right side it will show the data entered. By pressing + or - it is possible to scroll (up or down) the parameter list.
- 4 If a dot-line is shown on the right, there is not enough room for complete visualisation: press **enter** again the data will be completely shown for 1 to 3 seconds. By pressing **enter** or + and- at the same time, the system will exit the parameter visualisation and go back to the flashing number.

The **Info** level shows some basic parameters as:

Parameter	Description
167	Cubic meters of fule (resettable)
162	Operating hours (resettable)
163	Device operating hours
164	Burners start-ups (resettable)
166	Total number of start-ups
113	Burner number (i.e. serial number)
107	Software version
102	Software date
103	Device serial number
104	Parameter set preassignment: Customer code
105	Parameter set preassignment: Version
143	Free

5 Example: choose parameter 102 to show the date



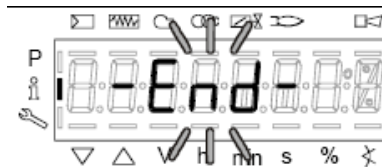
the display shows parameter **102** flashing on the left and characters **. _ . _** on the right.



6 press **InFo** for 1-3 seconds: the date will appear

7 press **InFo** to go back to parameter "102"

8 by pressing **+ / -**, it is possible to scroll up/down the parameter list (see table above), or, by pressing **ESC** or **InFo** for more seconds, the display will show

9 Once the last parameter is accessed (143) by pressing **+**, the **End** message will flash.



10 Press **InFo**  for more than three seconds or  for more than three seconds orto return to the normal display.

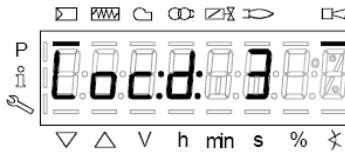


If a message like the one below is shown during operation,



it means that the burner is locked out and the Errore code is shown (in the example "error code:4"); this message is alternating with

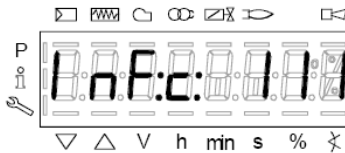
another message



Diagnostic code (in the example “diagnostic code:3”). Record the codes and find out the fault in the Error table. To perform the reset, press InFo for one second:



The unit displays an event which does not lead to shutdown. The display shows current error code **c**: alternating with diagnostic code **d**:



Press **InFo** to return to the display of phases. Example: Error code **111** / diagnostic code **0**



To reset, press InFo for a second. Record the codes and check the Error List to find the type of faults.

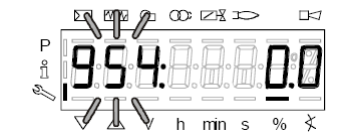
Service level

To enter the Service mode, press InFo until the display will show:



The service level shows all the information about flame intensity, actuators position, number and lock codes:

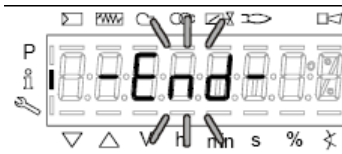
Parameter	Description
954	Flame intensity
121	% output, if set = automatic operation
922	Actuators position, 00=combustibile; 01= aria
161	Lock-outs number
701..725	Lock-outs History (see chapter 23 in the LMV2x manual)





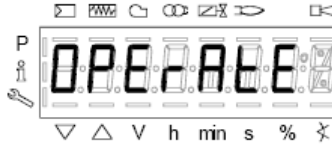
1 the first parameter will be “954”: the percentage of flame is shown on the right. By pressing + or - it is possible to scroll up/down the

parameter list.


- Once the last parameter is accessed (143) by pressing + , the **End** message will blink.




- Press **InFo**  for more than three seconds or  for more than three seconds or to return to the normal display.



Adjusting air and gas flow rates

	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!

	IMPORTANT! the combustion air excess must be adjusted according to the in the following chart:
---	---

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

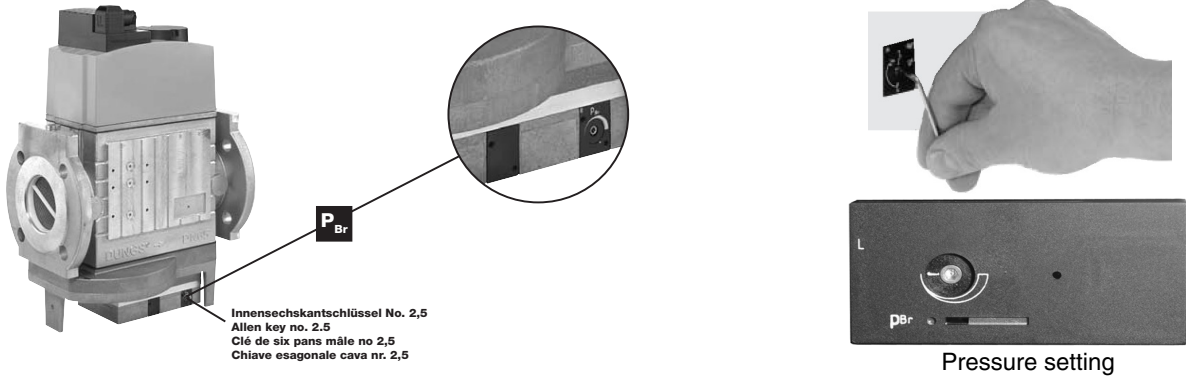
Adjustments - brief description

The air and fuel rates adjustments must be performed at the maximum output first (“high flame”): see the LMV2.. 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” on page 18.
- Then, adjust the combustion values by setting the “air/gas ratio” curvepoints (see the LMV2.. related manual).
- Set, now, the low flame output, 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.

Adjusting procedure

If the burner is provided with the DUNGS MBC..SE gas valves group, set the pressure regulator to 1/3 of its stroke, using a 2.5 allen key.

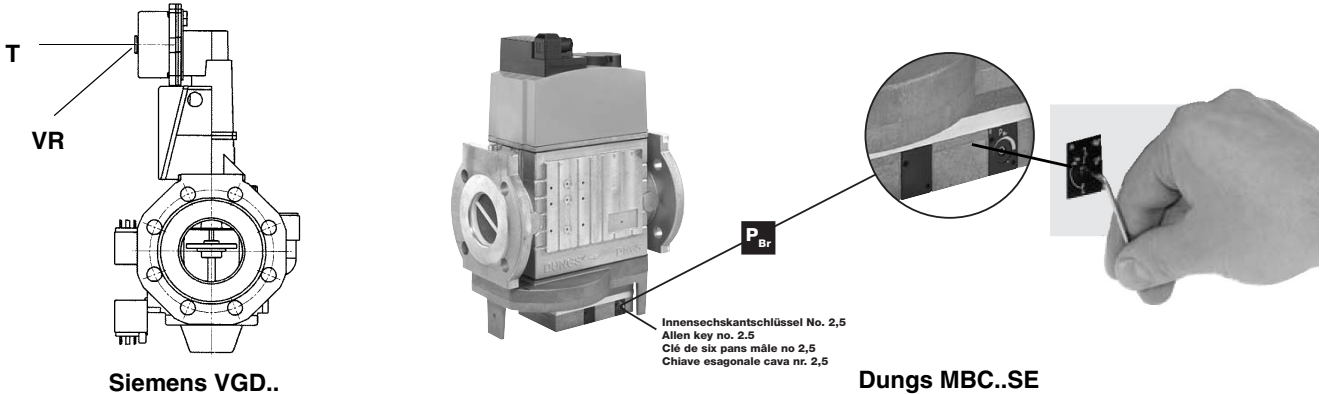


- go on adjusting the burner, observing the procedure on the LMV2.. related manual.

By following the “air/gas ratio” curvepoints setting procedure on the LMV2.. manual, adjusting the air and gas flow rates: check, continuously, the flue gas analysys, as to avoid combustion with little air; dose the air according to the gas flow rate change following the steps quoted below.

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:

- **Siemens VGD valves group:** remove cap **T** and act on the **VR** adjusting screw to increase or decrease the pressure and consequently the gas rate; screwind **VR** the rate increases, unscrewing it decreases (see next figure).
- **Dungs MBC..SE valves group:** act on its pressure governor to increase or decrease the pressure and consequently the gas rate.



Now adjust the pressure switches (see next par.).

Fully modulating burners

To adjust the fully-modulating burners, use the **CMF** switch on the burner control panel (see Fig. 14), instead of the **TAB** thermostat as described on the previous paragraphs about the progressive burners. Go on adjusting the burner as described before, paying attention to use the CMF switch instead of **TAB**.

The **CMF** position sets the operating stages: to drive the burner to the high-flame stage, set CMF=1; to drive it to the low-flame stage, set CMF=2. To move the adjusting cam set CMF=1 or 2 and then CMF=0.

CMF = 0 stop at the current position

CMF = 1 high flame operation

CMF = 2 low flame operation

CMF = 3 automatic operation

As far as fully-modulating burners, see the Siemens RWF40.. manual.

Adjusting the combustion head

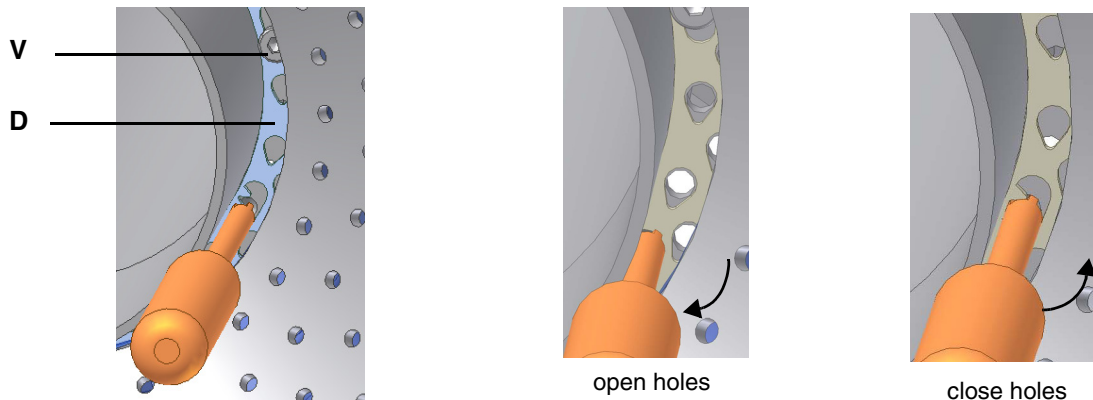


CAUTION: perform these adjustments once the burner is turned off and cooled.

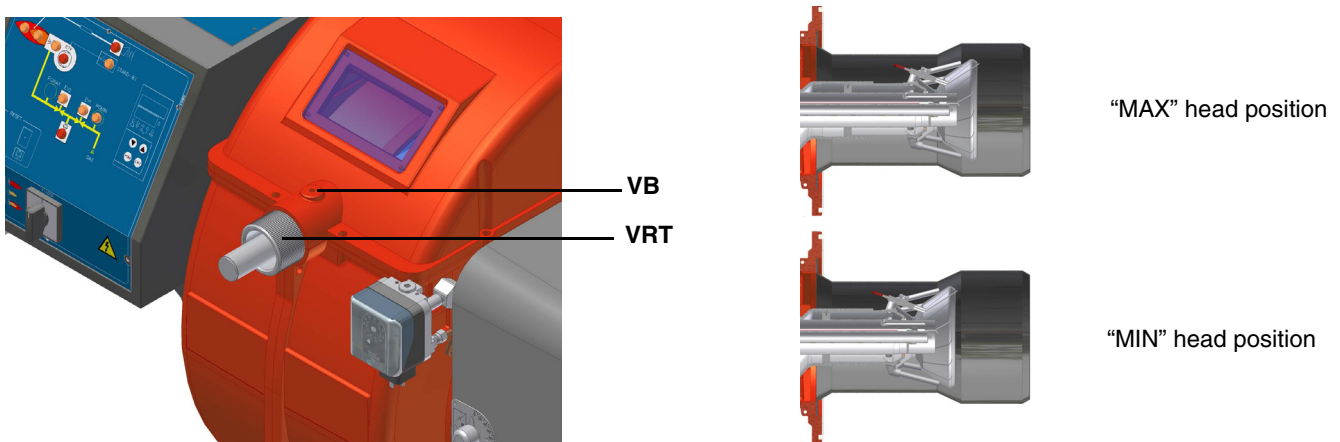
The burner is factory-set with the **D** adjusting plate holes fully open, and the combustion head at its MAX position, so it is fit to work at the maximum output.

To adjust the gas flow, partially close the holes, as follows:

- 1 loosen the three **V** screws that fix the adjusting plate **D**;
- 2 insert a screwdriver on the adjusting plate notches and let it move CW/CCW as to open/close the holes;
- 3 once the adjustment is performed, fasten the **V** screws.



To let the burner operate at a lower output, loose the **VB** screw and move progressively back the combustion head towards the MIN position, by turning clockwise the **VRT** ring nut. Fasten **VB** screw when the adjustment is accomplished.



Attention! Change the combustion head position only if necessary. If so, repeat the air and gas adjustments described above. Now, adjust the burner according to the actuator model provided.

Calibration of 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.



Calibration of air pressure switch

To calibrate the air pressure switch, proceed as follows:

- Remove the transparent plastic cap.
- Once air and gas 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 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.

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.

Adjusting the high gas pressure switch (when provided)

To calibrate the high 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 on step 2, 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.

PGCP Gas leakage pressure switch (with Siemens LDU burner control/Siemens LMV Burner Management System)

- remove the pressure switch plastic cover;
- adjust the PGCP pressure switch to the same value set for the minimum gas pressure switch;
- replace the plastic cover.

PART II: OPERATION

LIMITATIONS OF USE

THE BURNER IS AN APPLIANCE DESIGNED AND CONSTRUCTED TO OPERATE ONLY AFTER BEING CORRECTLY CONNECTED TO A HEAT GENERATOR (E.G. BOILER, HOT AIR GENERATOR, FURNACE, ETC.), ANY OTHER USE IS TO BE CONSIDERED IMPROPER AND THEREFORE DANGEROUS.

THE USER MUST GUARANTEE THE CORRECT FITTING OF THE APPLIANCE, ENTRUSTING THE INSTALLATION OF IT TO QUALIFIED PERSONNEL AND HAVING THE FIRST COMMISSIONING OF IT CARRIED OUT BY A SERVICE CENTRE AUTHORIZED BY THE COMPANY MANUFACTURING THE BURNER.

A FUNDAMENTAL FACTOR IN THIS RESPECT IS THE ELECTRICAL CONNECTION TO THE GENERATOR'S CONTROL AND SAFETY UNITS (CONTROL THERMOSTAT, SAFETY, ETC.) WHICH GUARANTEES CORRECT AND SAFE FUNCTIONING OF THE BURNER.

THEREFORE, ANY OPERATION OF THE APPLIANCE MUST BE PREVENTED WHICH DEPARTS FROM THE INSTALLATION OPERATIONS OR WHICH HAPPENS AFTER TOTAL OR PARTIAL TAMPERING WITH THESE (E.G. DISCONNECTION, EVEN PARTIAL, OF THE ELECTRICAL LEADS, OPENING THE GENERATOR DOOR, DISMANTLING OF PART OF THE BURNER).

NEVER OPEN OR DISMANTLE ANY COMPONENT OF THE MACHINE.

OPERATE ONLY THE MAIN SWITCH, WHICH THROUGH ITS EASY ACCESSIBILITY AND RAPIDITY OF OPERATION ALSO FUNCTIONS AS AN EMERGENCY SWITCH, AND ON THE RESET BUTTON.

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.

WARNING: DURING NORMAL OPERATION THE PARTS OF THE BURNER NEAREST TO THE GENERATOR (COUPLING FLANGE) CAN BECOME VERY HOT, AVOID TOUCHING THEM SO AS NOT TO GET BURNT.

OPERATION

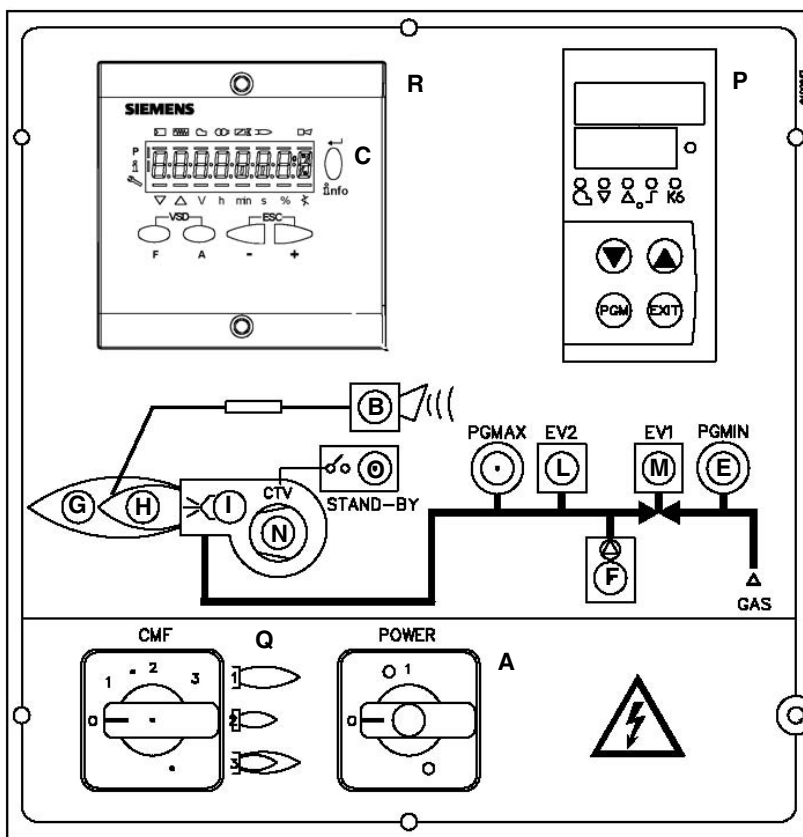


ATTENTION: BEFORE STARTING THE BURNER UP, BE SURE THAT THE MANUAL CUTOFF VALVES ARE OPEN AND CHECK THAT THE PRESSURE VALUE UPSTREAM THE GAS TRAIN MATCHES THE VALUE ON PARAGRAPH "TECHNICAL SPECIFICATIONS"). CHECK THAT THE MAINS SWITCH IS CLOSED. CAREF

- Set to "on" the B switch on the burner control panel.
- Check that the contrl box is not in the lockout position (light **B** on); in case unlock it by pressing the **Enter/InFo** key (for further information on the LMV2.., see the related manual).
- Check that the pressure switches/thermostats series enables the burner operation.
- Check that the gas pressure is sufficient (signalled by an error code on the AZL2.. display).
- At the beginning of the startup cycle, the actuator drives the air damper to the maximum opening position, then the fan motor starts up: the prepurge phase begins. During the prepurge phase, the air damper complete opening si signalled by the light **F** on (see front panel).
- At the end of the prepurge, the air damper is driven to the ignition position, the ignition transformer is energised (signalled by the light **H** on the front panel) then, few seconds later, the EV1 and EV2 gas valves are energised (light **L** and **I** on the front panel).
- Few seconds after the gas valves opening, the ignition transformer is de-energised and light **H** turns to off.

The burner operates in the low flame stage; few seconds later the two-stages operation begins and the burner output increases or decreases, driven by the external thermostats (progressive burners) or by the modulator (**P** in Fig. 14, fully-modulating burners).

Fig. 14 - Burner control panel



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)

PART III: 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..

ROUTINE MAINTENANCE

- Clean and examine the gas filter cartridge, if necessary replace it (see next paragraphs).
- Remove, examine and clean the combustion head (see Fig. 16)
- Check the ignition electrode, clean, adjust and, if necessary, replace it (see page 33)
- Check the detection electrode, clean, adjust and, if necessary, replace it; in case of doubt, check the detection circuit following the diagram in Fig. 18, after turning the burner back into operation.
- 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.

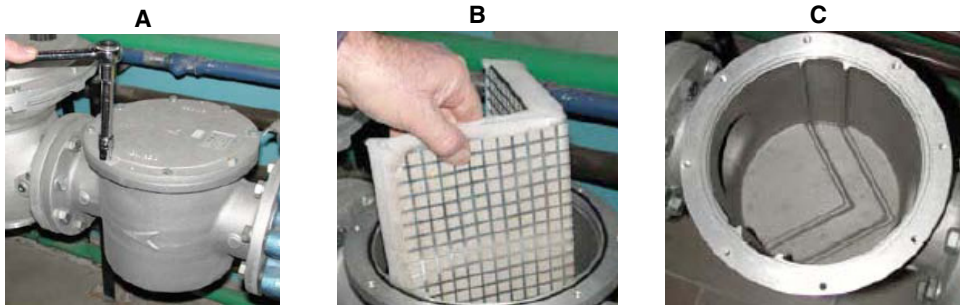
Gas filter maintenance



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).



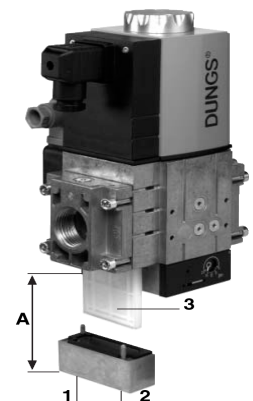
Inspection and replacement of the MULTIBLOC DUNGS MBC..SE filter (Threaded valves group)

Inspect the filter at least once a year.

- Change the filter, if pressure value between pressure connections 1 and 2 is greater than 10 mbar.
- Change the filter, if pressure value between pressure connections 1 and 2 is twice as high compared to the last inspection.

1. Interrupt gas supply: close ball valve
 2. Remove screws 1-2
 3. Replace the filter insert 3
 4. Screw in screws 1-2 without use force to fasten.
 5. Perform leakage and function test.
 6. Pay attention that dirt does not fall inside the valve.
- Space requirements for fitting filter, A: from 150 to 230 mm.

Fig.15



Removing the combustion head

- Remove the cover **C**.
- remove the electrodes cables;
- unscrew the 3 screws **V** which hold in position the gas manifold **G** and pull out the complete group as shown in the picture below.
- Clean the combustion head by a compressed air blow or, in case of scale, scrape it off by a scratchbrush.

Note: to replace the combustion head reverse the procedure described above having care to place correctly the O ring (**OR**) between burner and gas manifold.

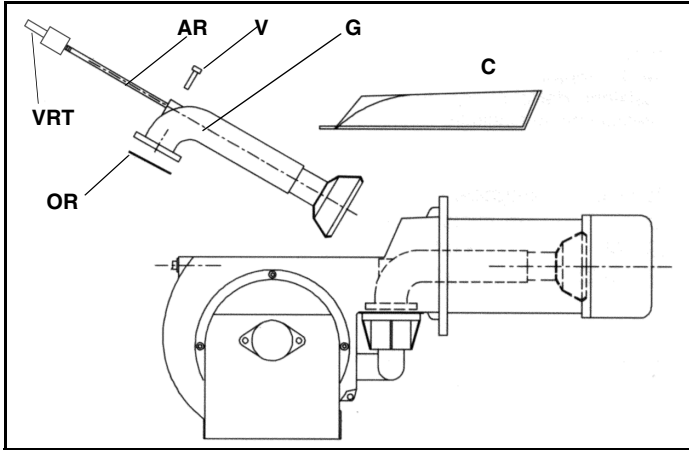
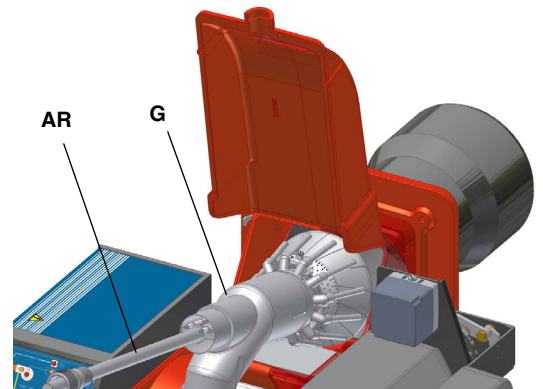
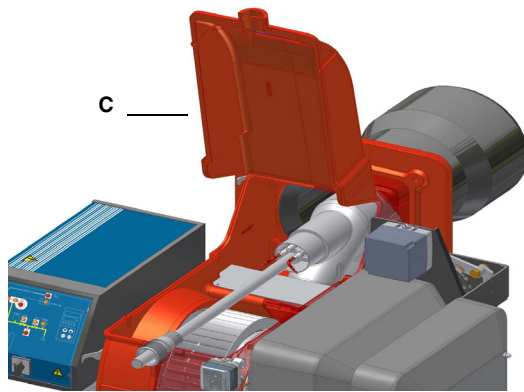


Fig. 16

- Key**
- VRT Head adjusting screw
 - AR Threaded rod
 - V Fixing screw
 - G Gas manifold
 - OR "O" ring
 - C Cover



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's operation would be compromised. Check the electrodes position after any intervention on the combustion head.

The gap between the ignition electrodes must be **4mm** (see picture below).

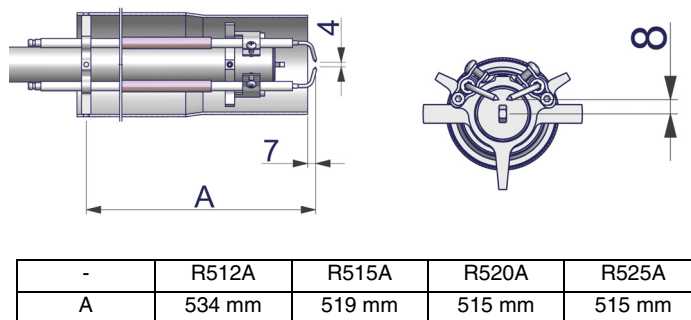


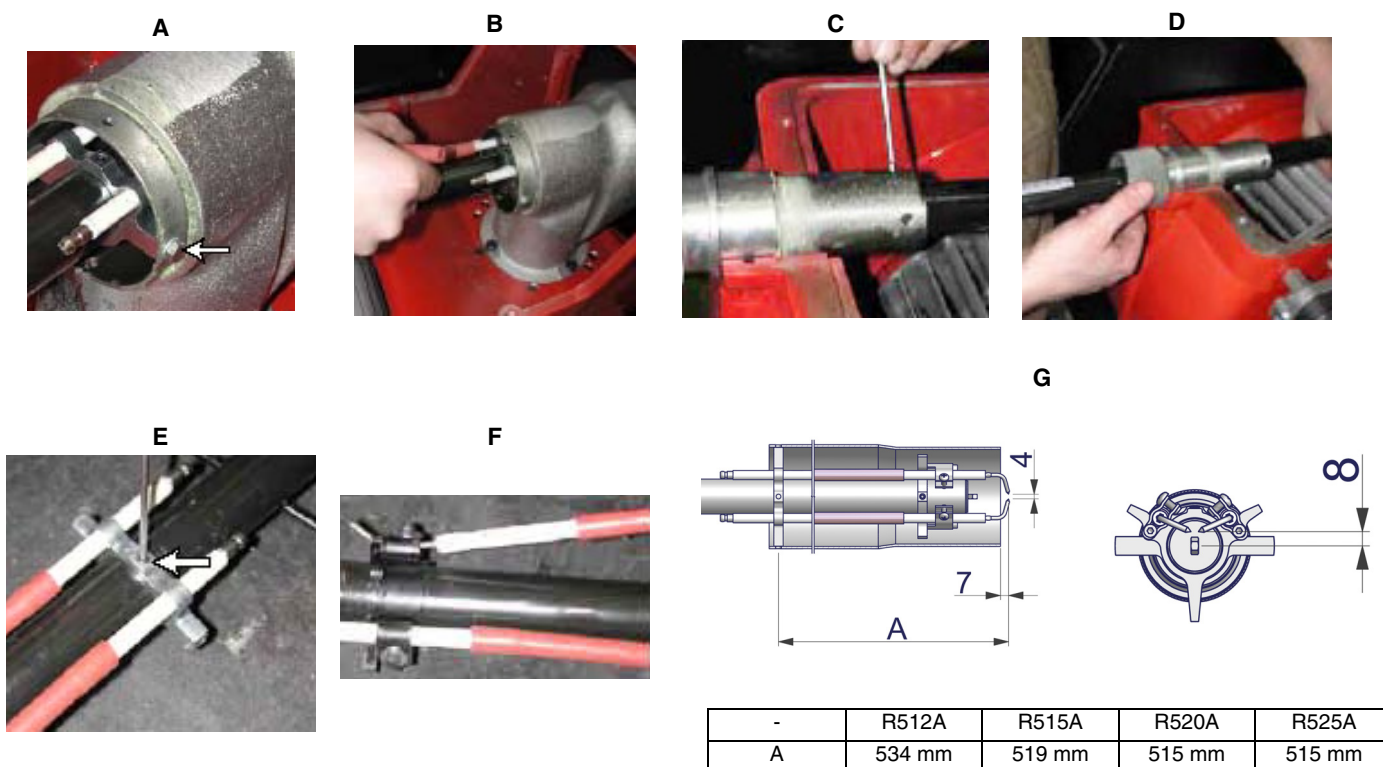
Fig. 17

Replacing the ignition 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 ignition electrodes, proceed as follows:

- 1 remove the burner cover
- 2 loose the nuts that fasten;the electrodes group to the combustion head (A);
- 3 disconnect the electrodes cables (B);
- 4 loose the security dowses of the adjusting ring nut (C);
- 5 shift the electrodes group back to the outside and remove the combustion head (D),
- 6 loose the screw of th eignition electrodes support (E);
- 7 remove the electrodes and replace them paying attention to the measures showed in figure (F-G).
- 8 reassemble the burner by following the procedure in the reversed order.

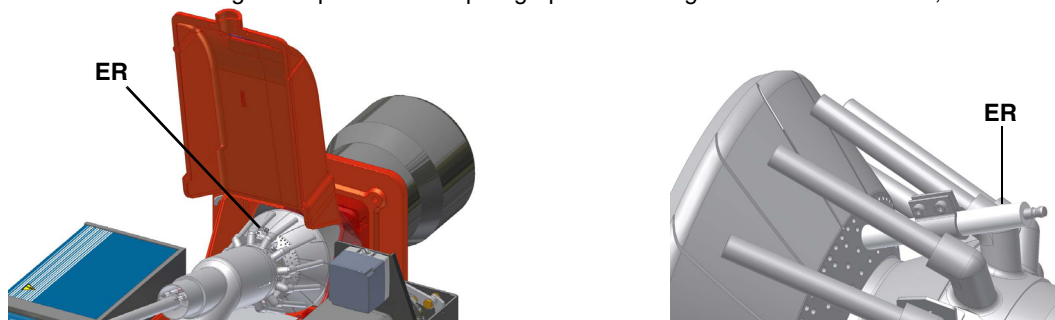


Replacing the detection electrode

	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 detection electrode, proceed as follows:

- 1 remove the combustion head according to the procedure on paragraph "Removing the combustion head";

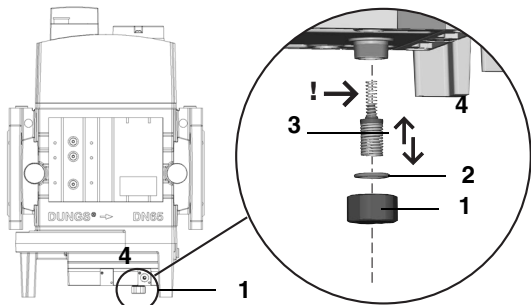


- 2 by means of an allen key, loose the fixing screws of the detection electrode **ER** and replace it;
- 3 replace the combustion head.

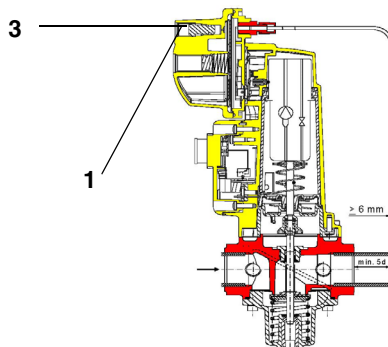
Replacing the spring in the gas valve group

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

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



DUNGS MBC..SE



SKP Siemens actuator

Checking the detection current

To check the detection signal follow the scheme in Fig. 18. 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.

⚠ NOTE: there is no linear relation between the flame percentage shown on display (parameter no. 954) and the detection signal values.

Device	Minimum detection signal
Siemens LMV2	4 µA (values on display: 30%)

Error code	Diagnostic code	Actions
93	3	Sensor short-circuit

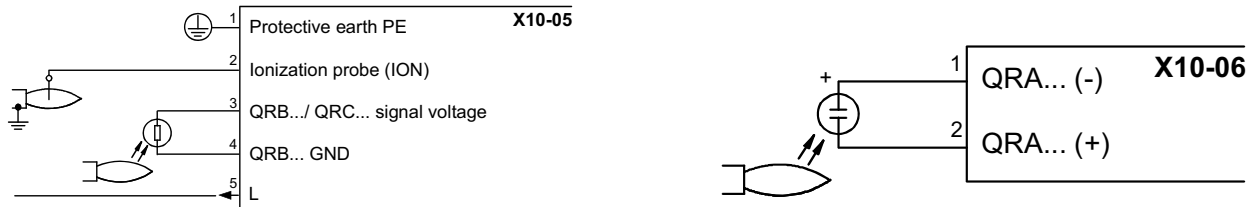


Fig. 18

CAUTION: Permissible length of flame detector cable (laid separately): 3 m (core-earth 100 pF / m).

Extraneous light

Extraneous light during standby (phase 12) leads to start prevention, followed by a restart.

Extraneous light during the prepurge phase leads to immediate lockout.

If extraneous light occurs during the shutdown phase, the system switches to the safety phase.

One repetition is permitted. This means that if the error occurs again the next time the system is shut down, the unit initiates lockout.

Seasonal stop

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

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

Burner disposal

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

SPARE PARTS

Description	Code			
	R512A	R515A	R520A	R525A
BURNER CONTROLLER - SIEMENS LMV20	2020474	2020474	2020474	2020474
IGNITION ELECTRODE	2080266	2080266	2080266	2080266
DETECTION ELECTRODE	2080118	2080118	2080118	2080118
GAS FILTER - Rp 2"	2090119	2090119	2090119	2090119
GAS FILTER - DN65	2090117	2090117	2090117	2090117
GAS FILTER - DN80	2090112	2090112	2090112	2090112
GAS FILTER - DN100	2090113	2090113	2090113	2090113
FAN WHEEL	2150010	2150030	2150029	2150029
AIR PRESSURE SWITCH	2160065	2160065	2160065	2160065
GAS PRESSURE SWITCH- DUNGS GW50 A5	2160076	2160076	2160076	2160076
GAS PRESSURE SWITCH- DUNGS GW150 A5	2160077	2160077	2160077	2160077
GAS PRESSURE SWITCH- DUNGS GW500 A6	2160087	2160087	2160087	2160087
GAS PRESSURE SWITCH- DUNGS GW500 A5	2160089	2160089	2160089	2160089
IGNITION TRANSFORMER	2170302	2170302	2170302	2170302
MOTOR	2180298	2180209	2180278	2180289
GAS VALVE GROUP - Rp2" - Siemens VGD20..	2190171	2190171	2190171	2190171
GAS VALVE GROUP - DN65 - Siemens VGD40..	2190172	2190172	2190172	2190172
GAS VALVE GROUP - DN80 - Siemens VGD40..	2190169	2190169	2190169	2190169
GAS VALVE GROUP - DN100 - Siemens VGD40..	2190174	2190174	2190174	2190174
GAS VALVE ACTUATOR SKP15	2190181	2190181	2190181	2190181
GAS VALVE ACTUATOR SKP25	2190183	2190183	2190183	2190183
GAS VALVE GROUP - Rp2" - Dungs MBC1200SE	21903M5	21903M5	21903M5	21903M5
GAS VALVE GROUP - DN65 - Dungs MBC1900SE	21903M6	21903M6	21903M6	21903M6
GAS VALVE GROUP - DN80 - Dungs MBC3100SE	21903M7	21903M7	21903M7	21903M7
GAS VALVE GROUP - DN100 - Dungs MBC5000SE	21903M8	21903M8	21903M8	21903M8
BUTTERFLY VALVE ACTUATOR - SIEMENS SQM33.410A9-1.2NM	2480092	2480092	2480092	2480092
AIR DAMPER ACTUATOR - SIEMENS SQM33.510A9-3NM	2480094	2480094	2480094	2480094
BURNER MODULATOR	2570112	2570112	2570112	2570112
COMBUSTION HEAD	30600R4	30600R5	30600R6	30600R6
BLAST TUBE	30910R1	30910R2	30910R3	30910R4
IGNITION CABLE	6050108	6050108	6050108	6050108
DETECTION CABLE	6050215	6050215	6050215	6050215

WIRING DIAGRAMS

ATTENTION:

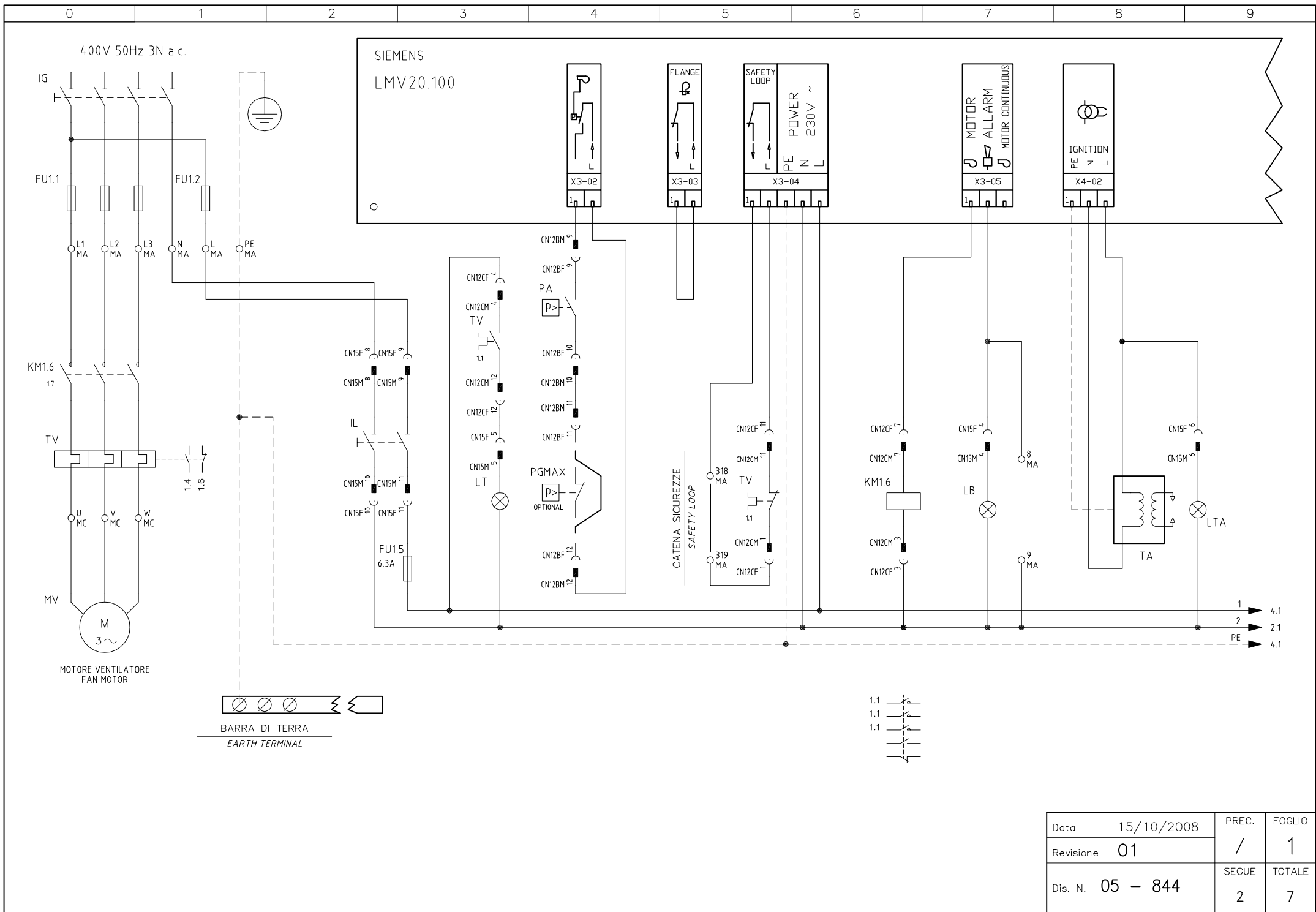
1 - Power supply: 400V 50Hz 3N a.c. and 230V 50Hz 1N a.c.

2 - Don't reverse phase and neutral

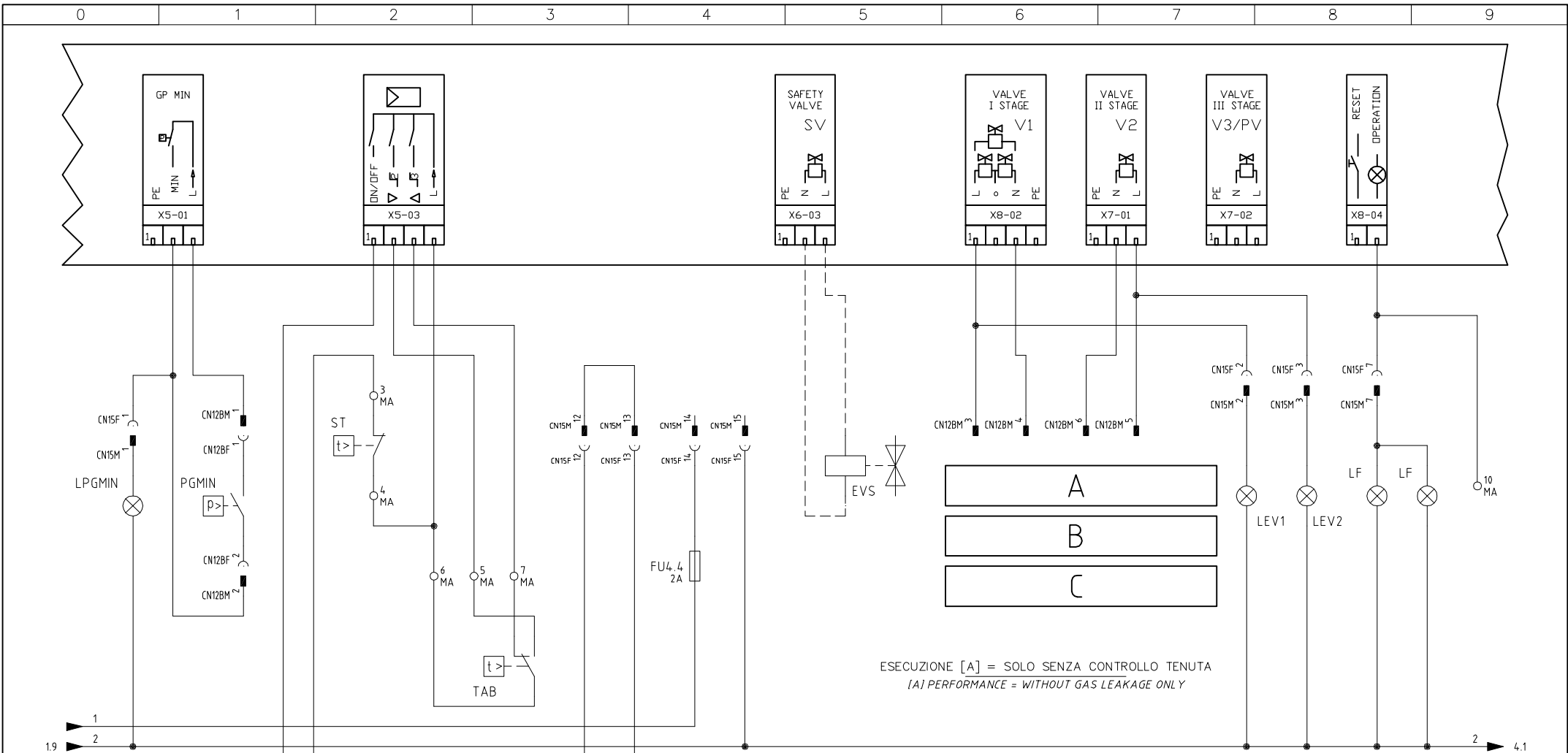
3 - Ensure the burner is properly earthed

SE05-844: PROGRESSIVE BURNERS

SE05-848: FULLY-MODULATING BURNERS



Data	15/10/2008	PREC.	FOGLIO
Revisione	01	/	1
Dis. N.	05 - 844	SEGUE	TOTALE
		2	7

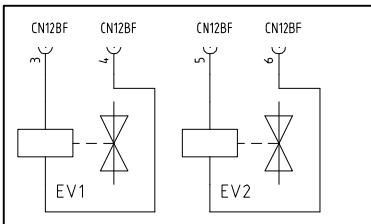
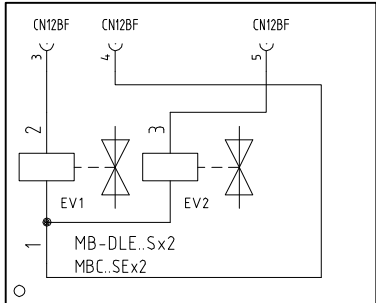
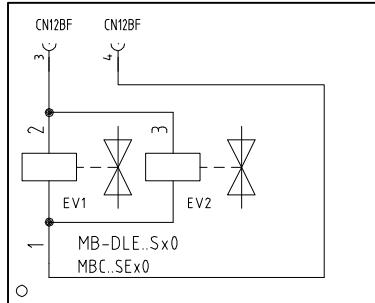


ESECUZIONE [A] = SOLO SENZA CONTROLLO TENUTA
 [A] PERFORMANCE = WITHOUT GAS LEAKAGE ONLY

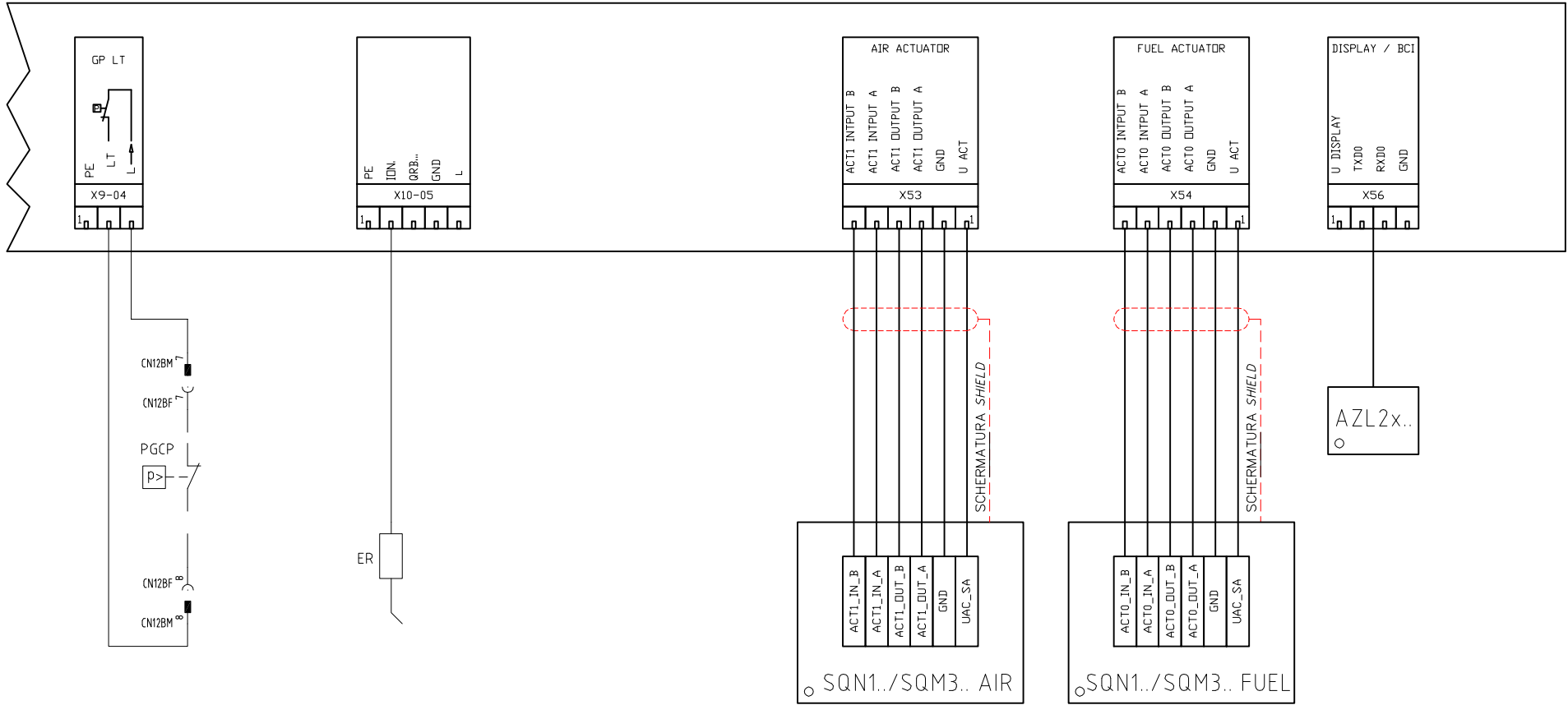
A

B

C



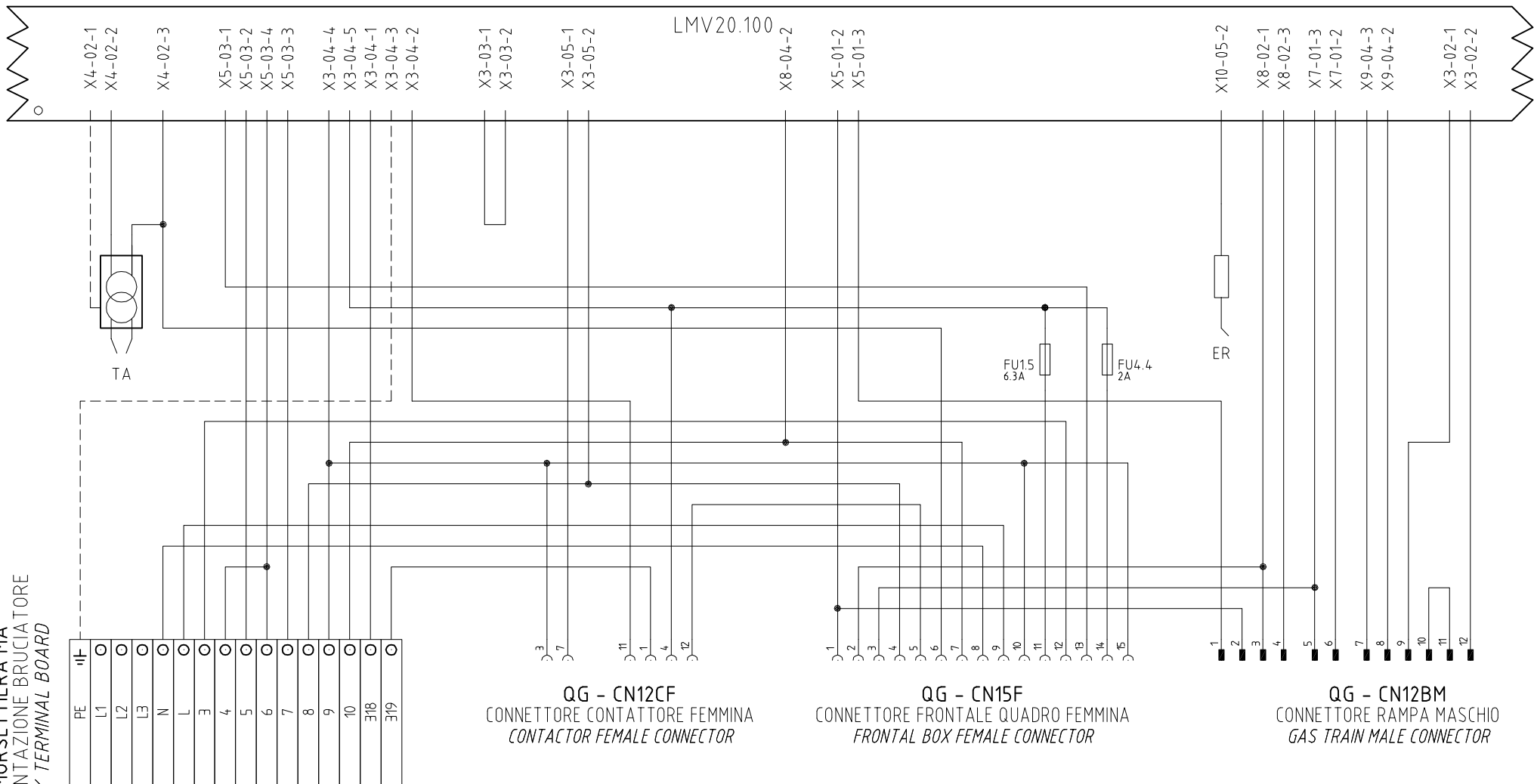
Data	15/10/2008	PREC.	FOGLIO
Revisione	01	1	2
Dis. N.	05 - 844	SEGUE	TOTALE
		3	7



NON USATO PER VERSIONI SENZA CONTROLLO TENUTA
 NOT USED FOR VERSION WITHOUT GAS LEAKAGE

Data	15/10/2008	PREC.	FOGLIO
Revisione	01	2	3
Dis. N.	05 - 844	SEGUE	TOTALE
		4	7

QUADRO QG - MORSETTIERA MA
MORSETTIERA ALIMENTAZIONE BRUCIA TORE
BURNER SUPPLY TERMINAL BOARD



QG - CN12CF
CONNETTORE CONTATTORE FEMMINA
CONTACTOR FEMALE CONNECTOR

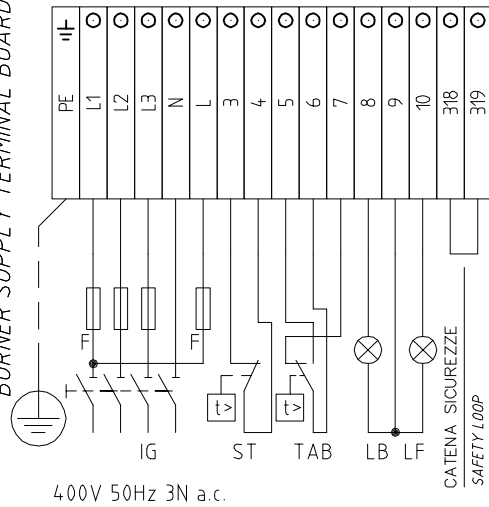
QG - CN15F
CONNETTORE FRONTALE QUADRO FEMMINA
FRONTAL BOX FEMALE CONNECTOR

QG - CN12BM
CONNETTORE RAMPA MASCHIO
GAS TRAIN MALE CONNECTOR

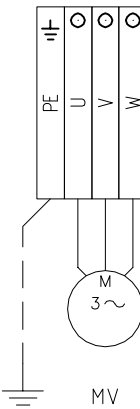
INTERFACCIA CONNETTORI / LMV20.100
CONNECTORS / LMV2x INTERFACE

Data	15/10/2008	PREC.	FOGLIO
Revisione	01	3	4
Dis. N.	05 - 844	SEQUE	TOTALE
		5	7

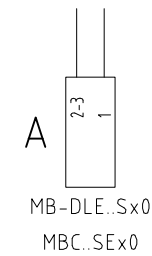
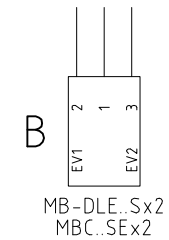
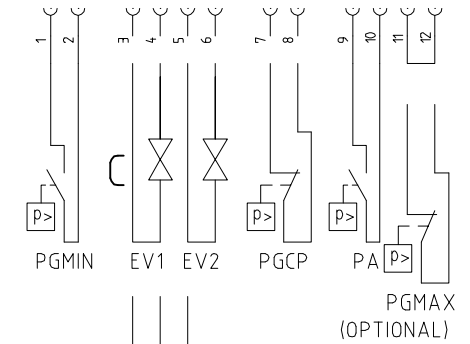
QUADRO QG - MORSETTIERA MA
MORSETTIERA ALIMENTAZIONE BRUCIATORE
BURNER SUPPLY TERMINAL BOARD



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

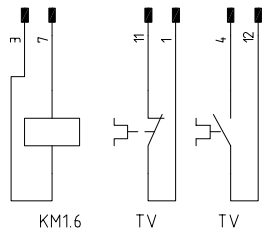


QG - CN12BF
CONNETTORE RAMPA FEMMINA
GAS TRAIN FEMALE CONNECTOR

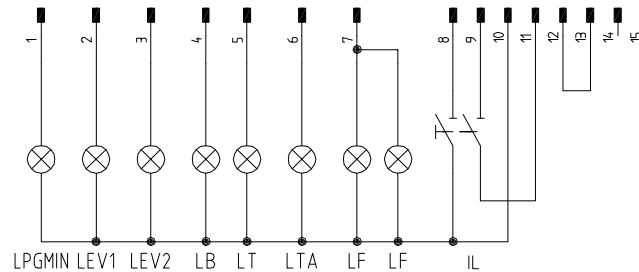


ESECUZIONE [A] = SOLO SENZA CONTROLLO TENUTA
 [A] PERFORMANCE = WITHOUT GAS LEAKAGE ONLY

QG - CN12CM
CONNETTORE CONTATTORE MASCHIO
CONTACTOR MALE CONNECTOR



QG - CN15M
CONNETTORE FRONTALE QUADRO MASCHIO
FRONTAL BOX MALE CONNECTOR



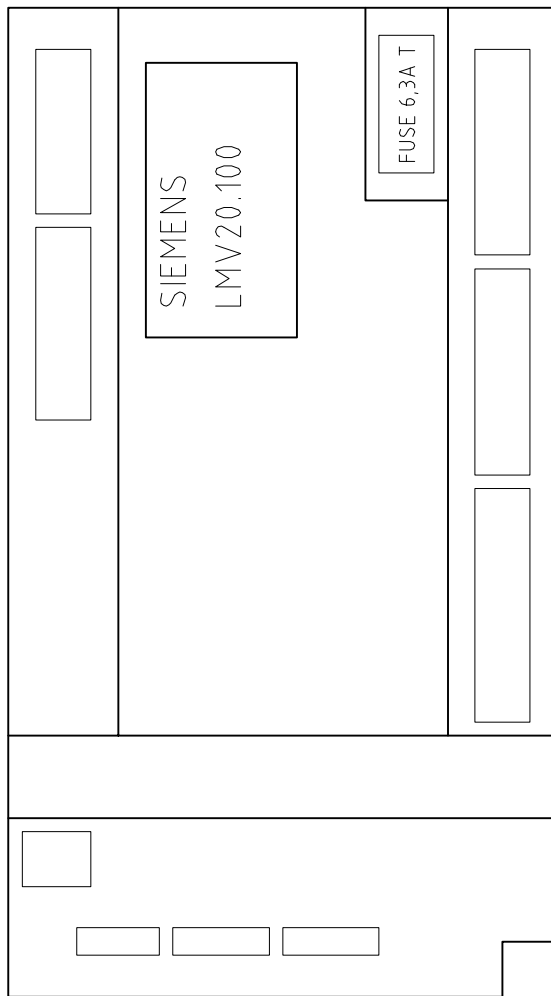
Data	15/10/2008	PREC.	FOGLIO
Revisione	01	4	5
Dis. N.	05 - 844	SEGUE	TOTALE
		6	7

SIGLA/ITEM	FOGLIO/SHEET	FUNZIONE	FUNCTION
AZL2x..	3	INTERFACCIA UTENTE	USER INTERFACE
ER	3	ELETTRODO RILEVAZIONE FIAMMA	FLAME DETECTION ELECTRODE
EV1	2	ELETTROVALVOLA GAS LATO RETE	UPSTREAM GAS SOLENOID VALVE
EV2	2	ELETTROVALVOLA GAS LATO BRUCIATORE	DOWNSTREAM GAS SOLENOID VALVE
EVS	2	ELETTROVALVOLA GAS DI SICUREZZA (OPTIONAL)	SAFETY GAS SOLENOID VALVE (OPTIONAL)
FU1.1	1	FUSIBILI DI LINEA	LINE FUSES
FU1.2	1	FUSIBILE LINEA AUSILIARI	AUXILIARY LINE FUSE
FU1.5	1	FUSIBILE LINEA AUSILIARI	AUXILIARY LINE FUSE
FU4.4	2	FUSIBILE	FUSE
IG	1	INTERRUTTORE GENERALE	MAINS SWITCH
IL	1	INTERRUTTORE LINEA AUSILIARI	AUXILIARY LINE SWITCH
KM1.6	1	CONTATTORE MOTORE VENTILATORE	FAN MOTOR CONTACTOR
LB	1	LAMPADA SEGNALAZIONE BLOCCO BRUCIATORE	INDICATOR LIGHT FOR BURNER LOCK-OUT
LEV1	2	LAMPADA SEGNALAZIONE APERTURA [EV1]	INDICATOR LIGHT FOR OPENING OF ELECTRO-VALVE [EV1]
LEV2	2	LAMPADA SEGNALAZIONE APERTURA [EV2]	INDICATOR LIGHT FOR OPENING OF ELECTRO-VALVE [EV2]
LF	2	LAMPADA SEGNALAZIONE FUNZIONAMENTO BRUCIATORE	INDICATOR LIGHT BURNER OPERATION
LF	2	LAMPADA SEGNALAZIONE FUNZIONAMENTO BRUCIATORE	INDICATOR LIGHT BURNER OPERATION
LMV20.100	1	APPARECCHIATURA DI COMANDO	CONTROL SCHEME
LPGMIN	2	LAMPADA SEGNALAZIONE PRESENZA GAS IN RETE	INDICATOR LIGHT FOR PRESENCE OF GAS IN THE NETWORK
LT	1	LAMPADA SEGNALAZIONE BLOCCO TERMICO MOTORE VENTILATORE	INDICATOR LIGHT FOR FAN OVERLOAD TRIPPED
LTA	1	LAMPADA SEGNALAZIONE TRASFORMATORE DI ACCENSIONE	IGNITION TRANSFORMER INDICATOR LIGHT
MB-DLE..Sx0	2	GRUPPO VALVOLE GAS	GAS VALVES GROUP
MB-DLE..Sx2	2	GRUPPO VALVOLE GAS	GAS VALVES GROUP
MBC..SEx0	2	GRUPPO VALVOLE GAS (ALTERNATIVO)	GAS VALVES GROUP (ALTERNATIVE)
MBC..SEx2	2	GRUPPO VALVOLE GAS (ALTERNATIVO)	GAS VALVES GROUP (ALTERNATIVE)
MV	1	MOTORE VENTILATORE	FAN MOTOR
PA	1	PRESSOSTATO ARIA	AIR PRESSURE SWITCH
PGCP	3	PRESSOSTATO GAS CONTROLLO PERDITE (OPTIONAL)	GAS LEAKAGE PRESSURE SWITCH (OPTIONAL)
PGMAX	1	PRESSOSTATO GAS DI MASSIMA PRESSIONE (OPTIONAL)	MAXIMUM PRESSURE GAS SWITCH (OPTIONAL)
PGMIN	2	PRESSOSTATO GAS DI MINIMA PRESSIONE	MINIMUM GAS PRESSURE SWITCH
SQN1../SQM3.. AIR	3	SERVOCOMANDO SERRANDA ARIA	AIR DAMPER ACTUATOR
SQN1../SQM3.. FUEL	3	SERVOCOMANDO COMBUSTIBILE	FUEL ACTUATOR
ST	2	SERIE TERMOSTATI/PRESSOSTATI	SERIES OF THERMOSTATS OR PRESSURE SWITCHES
TA	1	TRASFORMATORE DI ACCENSIONE	IGNITION TRANSFORMER
TAB	2	TERMOSTATO/PRESSOSTATO ALTA-BASSA FIAMMA	HIGH-LOW THERMOSTAT/PRESSURE SWITCHES
TV	1	TERMICO MOTORE VENTILATORE	FAN MOTOR THERMAL

Data	15/10/2008	PREC.	FOGLIO
Revisione	01	5	6
Dis. N.	05 - 844	SEGUE	TOTALE
		7	7

X03-03
 X03-05
 X06-03
 X04-02
 FREE
 X09-04
 X05-01

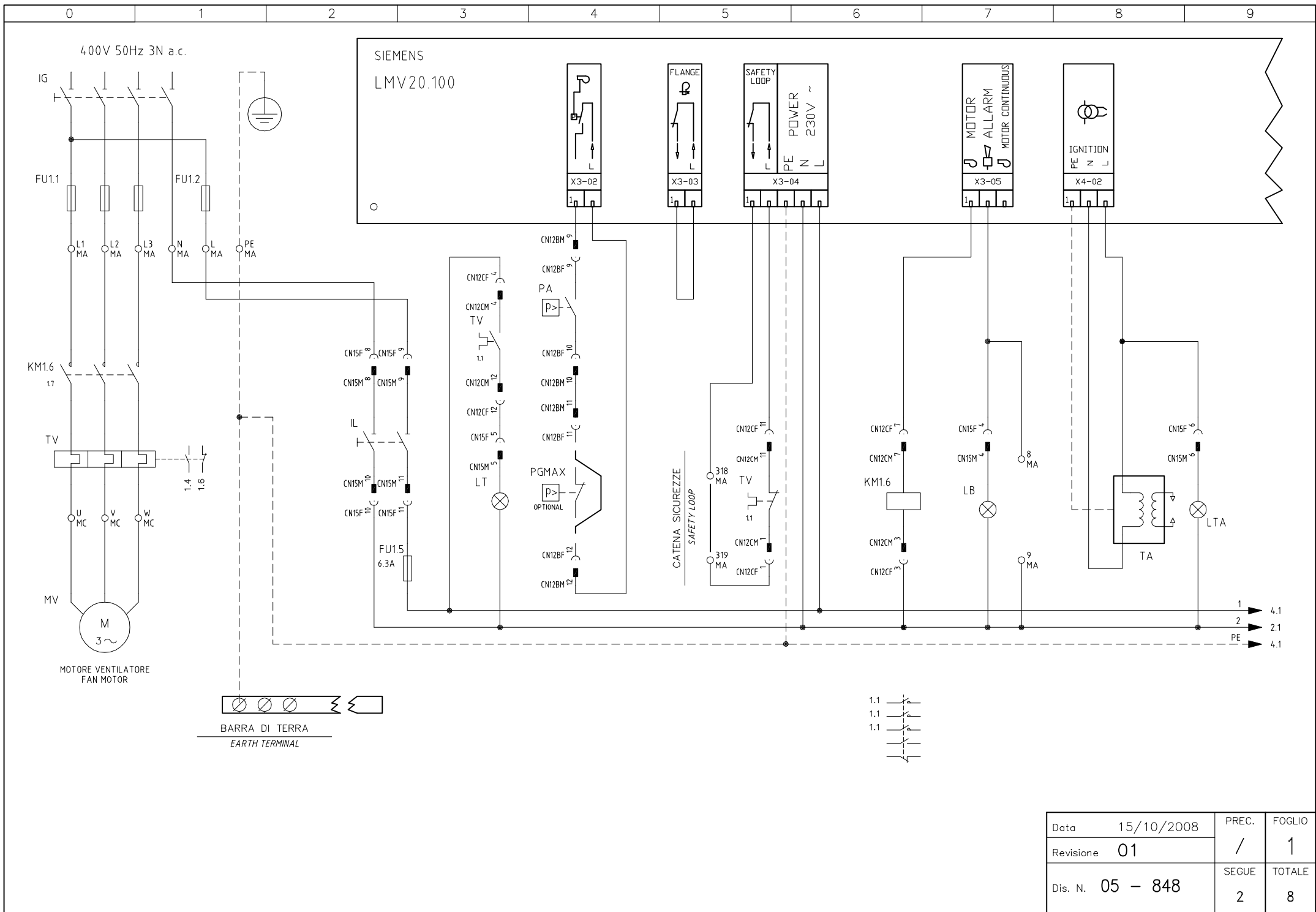
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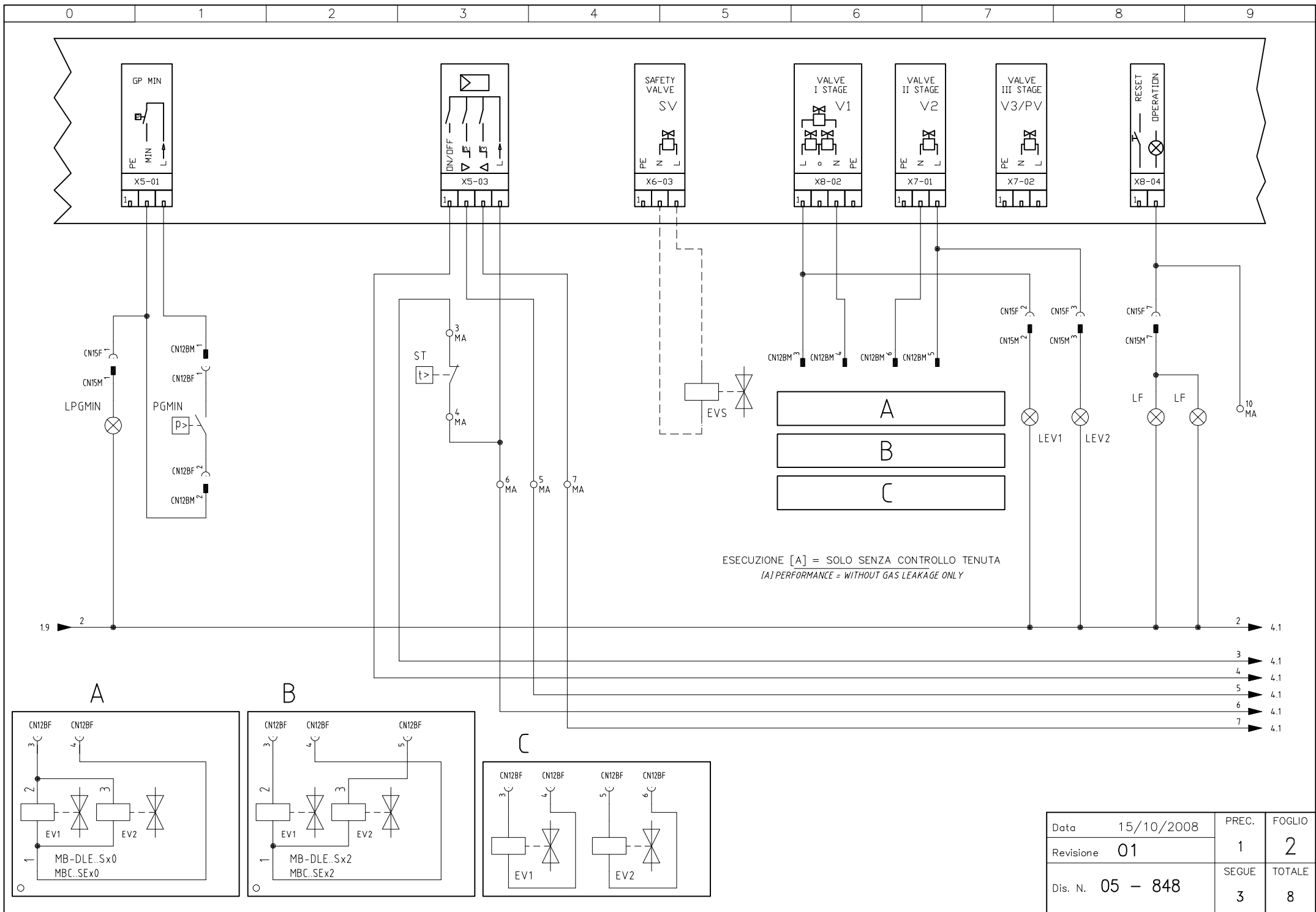
X03-04
 X07-01
 X08-02
 X08-04
 X05-03
 X03-02
 X10-06
 X10-05
 FREE

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COM X92 RESERVE				X54						X53					

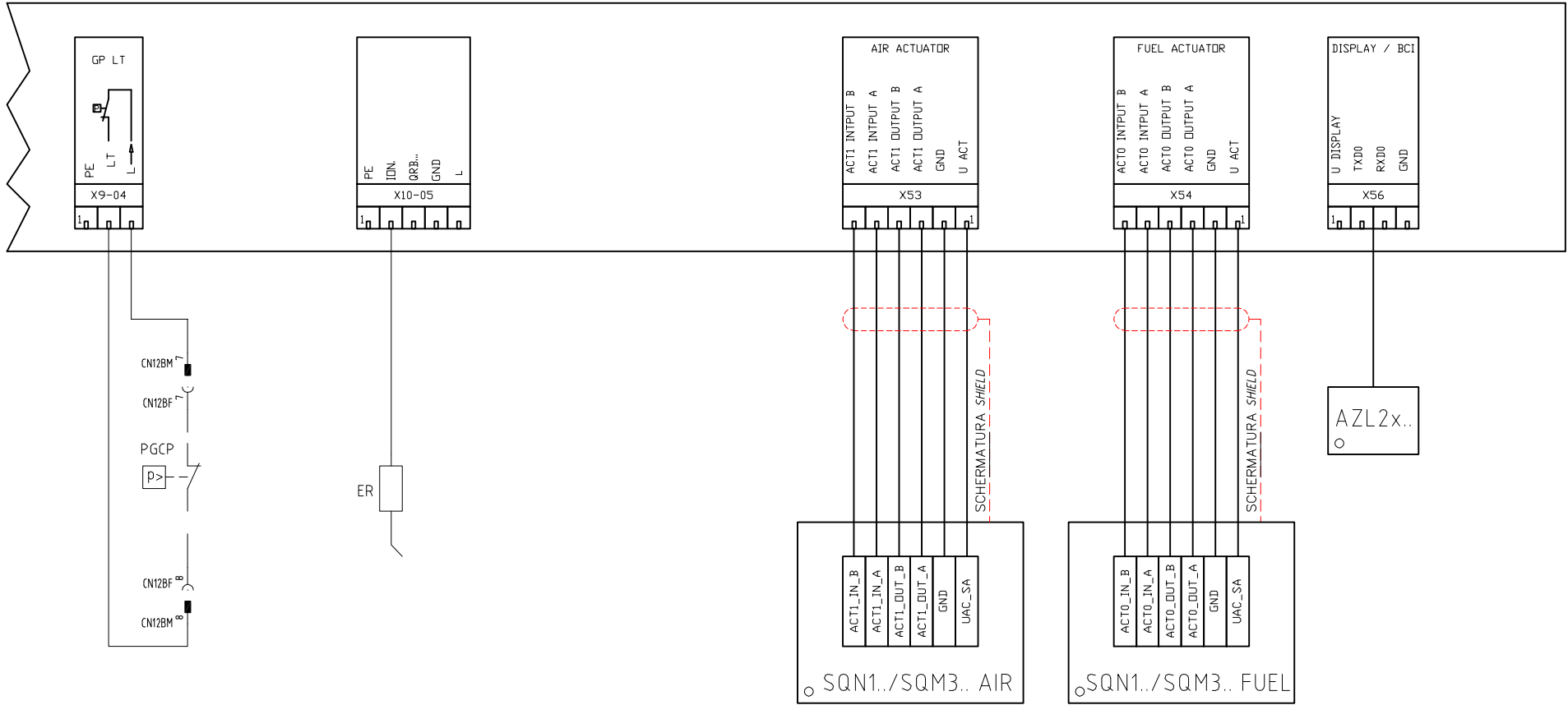
Data	15/10/2008	PREC.	FOGLIO
Revisione	01	6	7
Dis. N.	05 - 844	SEGUE	TOTALE
		1	7



Data	15/10/2008	PREC.	FOGLIO
Revisione	01	/	1
Dis. N.	05 - 848	SEGUE	TOTALE
		2	8

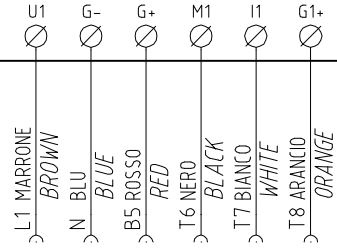
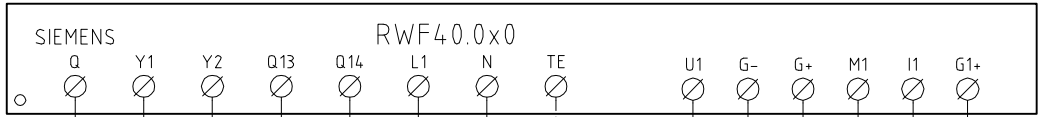


Data	15/10/2008	PREC.	FOGLIO
Revisione	01	1	2
Dis. N.	05 - 848	SEGUE	TOTALE
		3	8



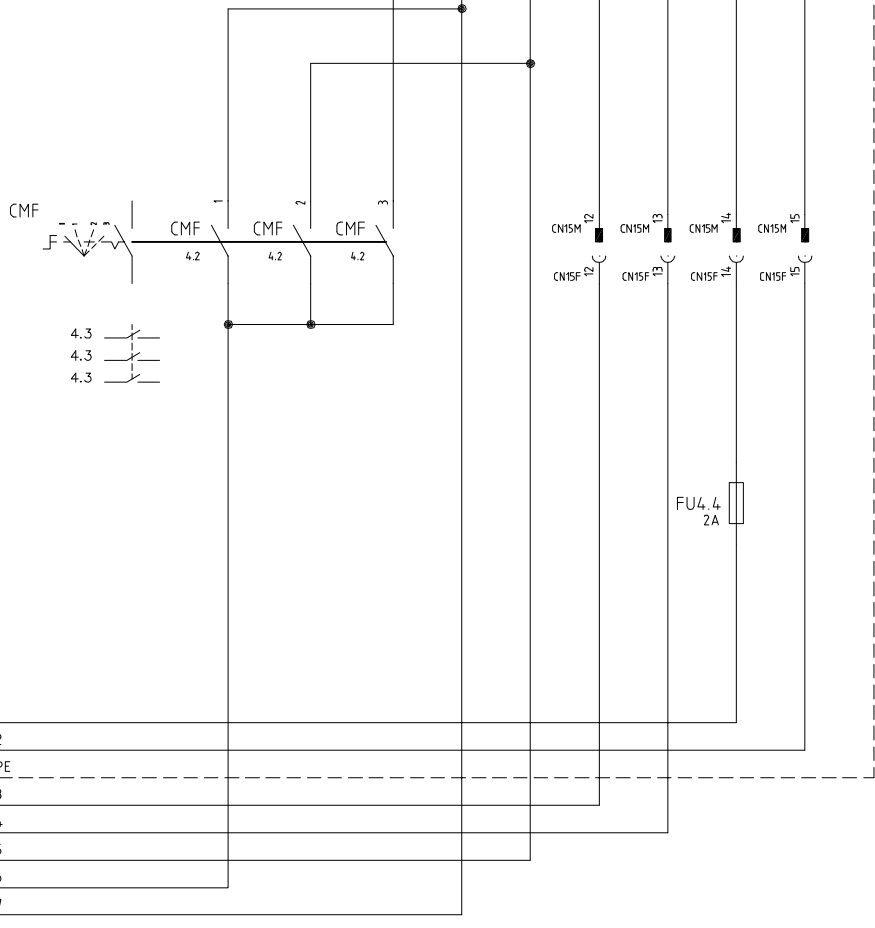
NON USATO PER VERSIONI SENZA CONTROLLO TENUTA
 NOT USED FOR VERSION WITHOUT GAS LEAKAGE

Data	15/10/2008	PREC.	FOGLIO
Revisione	01	2	3
Dis. N.	05 - 848	SEGUE	TOTALE
		4	8



CAVO 7x0,75mmq
CABLE 7x0,75mmq

CONN. 7 PINS



(xx)

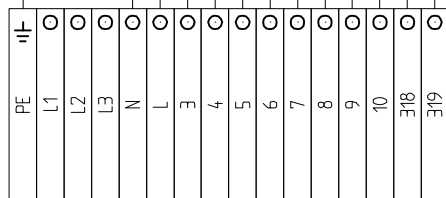
- 1.9 1
- 2.9 2
- 1.9 PE
- 2.9 3
- 2.9 4
- 2.9 5
- 2.9 6
- 2.9 7

(xx)
ATTENZIONE COLLEGAMENTO SONDE CON CONNETTORE 7 POLI
WARNING PROBE CONNECTION WITH 7 PINS CONNECTOR

	<p>SD-TEMP. SD-TEMP. SIEMENS QAE2./QAC2./QAM2.. PT1000 1000 OHM 0°C</p>
	<p>PT100 100 OHM 0°C</p>
	<p>TC</p>
	<p>COLLEGAMENTO SOLO PER TRASDUTTORI PASSIVI TRASDUCER PASSIVE CONNECTION ONLY SD - 4±20mA</p>
	<p>SD - 0±10V</p>
	<p>COLLEGAMENTO SOLO PER TRASDUTTORI PASSIVI TRASDUCER PASSIVE CONNECTION ONLY SD-PRESS SIEMENS GBE...</p>

Data	15/10/2008	PREC.	FOGLIO
Revisione	01	3	4
Dis. N.	05 - 848	SEQUE	TOTALE
		5	8

QUADRO QG - MORSETTIERA MA
MORSETTIERA ALIMENTAZIONE BRUCIA TORE
BURNER SUPPLY TERMINAL BOARD

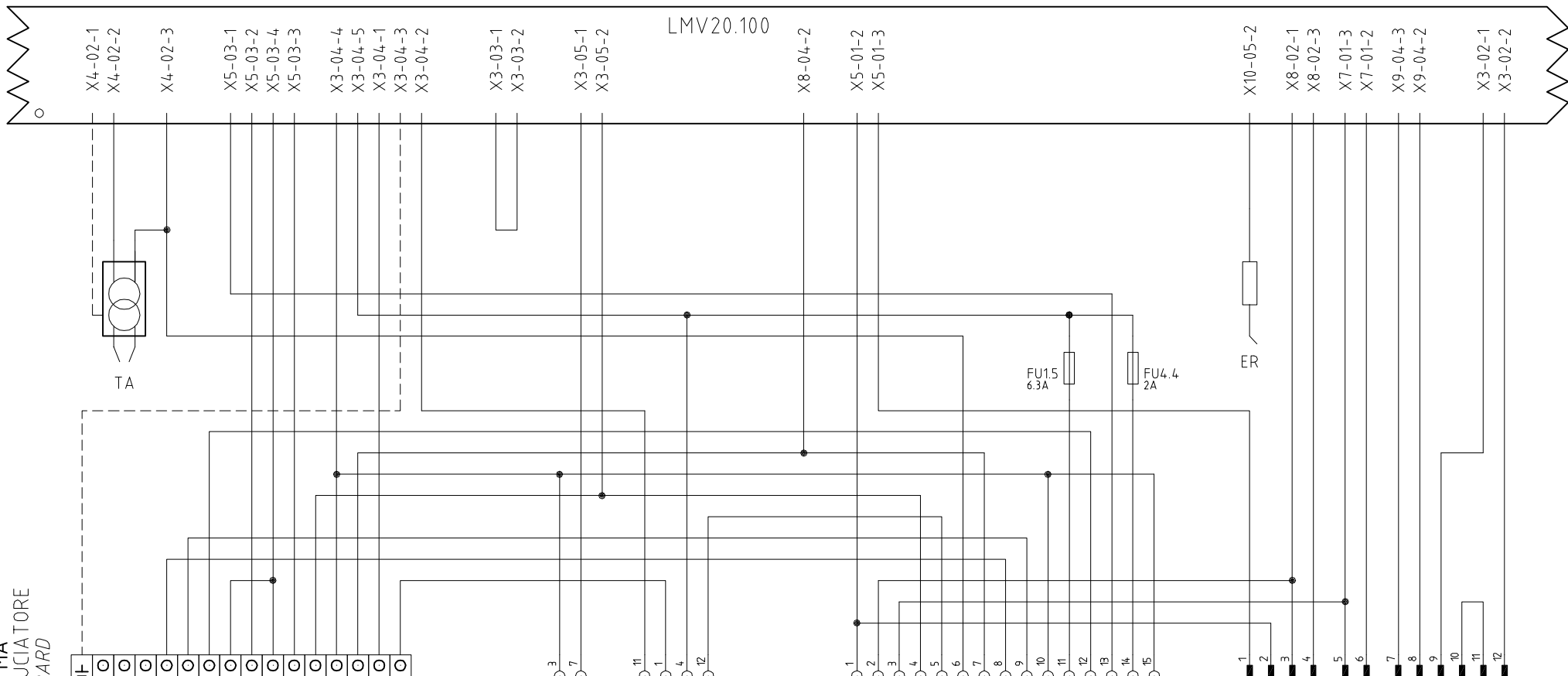


QG - CN12CF
CONNETTORE CONTATTORE FEMMINA
CONTACTOR FEMALE CONNECTOR

QG - CN15F
CONNETTORE FRONTALE QUADRO FEMMINA
FRONTAL BOX FEMALE CONNECTOR

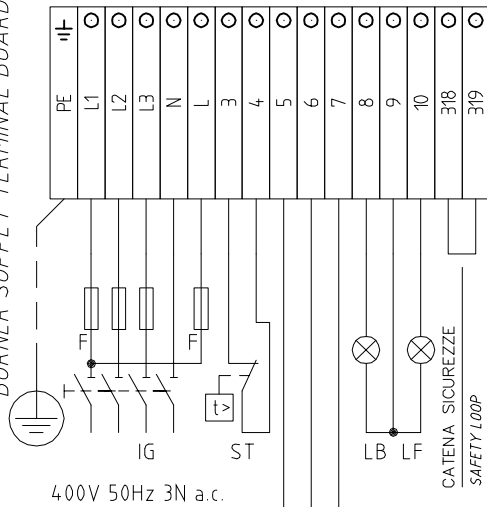
QG - CN12BM
CONNETTORE RAMPA MASCHIO
GAS TRAIN MALE CONNECTOR

INTERFACCIA CONNETTORI / LMV20.100
CONNECTORS / LMV2x INTERFACE

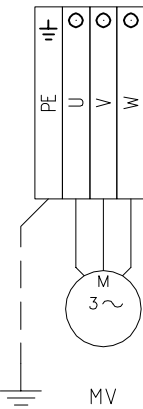


Data	15/10/2008	PREC.	FOGLIO
Revisione	01	4	5
Dis. N.	05 - 848	SEGUE	TOTALE
		6	8

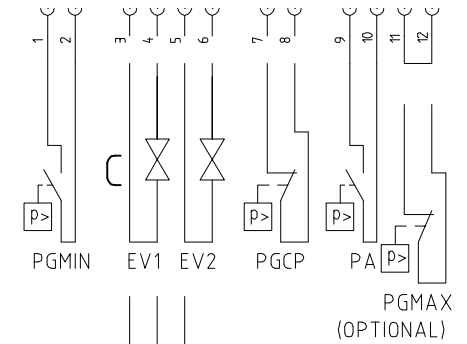
QUADRO QG - MORSETTIERA MA
MORSETTIERA ALIMENTAZIONE BRUCIATORE
BURNER SUPPLY TERMINAL BOARD



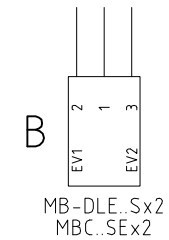
QUADRO QG - MORSETTIERA MC
MORSETTIERA COMPONENTI BRUCIATORE
BURNER COMPONENT TERMINAL BOARD



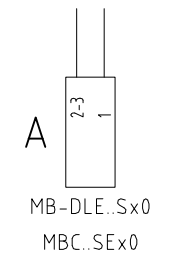
QG - CN12BF
CONNETTORE RAMPA FEMMINA
GAS TRAIN FEMALE CONNECTOR



PGMIN EV1 EV2 PGCP PA PGMAX (OPTIONAL)



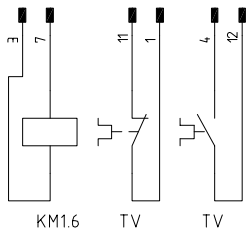
MB-DLE..Sx2
MBC..SEx2



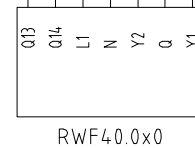
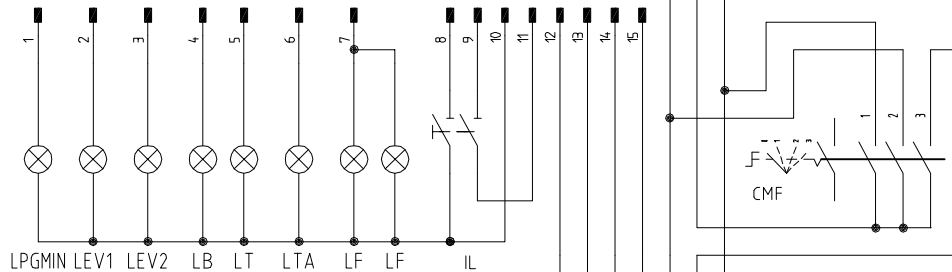
MB-DLE..Sx0
MBC..SEx0

ESECUZIONE [A] = SOLO SENZA CONTROLLO TENUTA
 (A) PERFORMANCE = WITHOUT GAS LEAKAGE ONLY

QG - CN12CM
CONNETTORE CONTATTORE MASCHIO
CONTACTOR MALE CONNECTOR



QG - CN15M
CONNETTORE FRONTALE QUADRO MASCHIO
FRONTAL BOX MALE CONNECTOR



RWF40.0x0

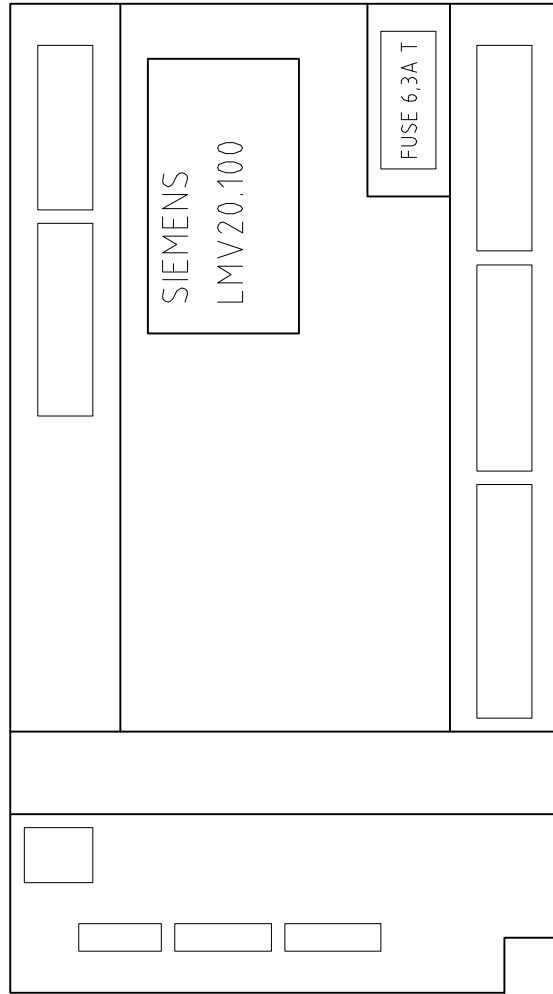
Data	15/10/2008	PREC.	FOGLIO
Revisione	01	5	6
Dis. N.	05 - 848	SEGUE	TOTALE
		7	8

SIGLA/ITEM	FOGLIO/SHEET	FUNZIONE	FUNCTION
AZL2x..	3	INTERFACCIA UTENTE	USER INTERFACE
CMF	4	COMMUT. MANUALE FUNZ. 0)FERMO 1)ALTA FIAMMA 2)BASSA FIAMMA 3)AUTOMATICO	MANUAL SWITCH 0)OFF 1)HIGH FLAME 2)LOW FLAME 3)AUTOMATIC
ER	3	ELETTRODO RILEVAZIONE FIAMMA	FLAME DETECTION ELECTRODE
EV1	2	ELETTROVALVOLA GAS LATO RETE	UPSTREAM GAS SOLENOID VALVE
EV2	2	ELETTROVALVOLA GAS LATO BRUCIATORE	DOWNSTREAM GAS SOLENOID VALVE
EVS	2	ELETTROVALVOLA GAS DI SICUREZZA (OPTIONAL)	SAFETY GAS SOLENOID VALVE (OPTIONAL)
FU1.1	1	FUSIBILI DI LINEA	LINE FUSES
FU1.2	1	FUSIBILE LINEA AUSILIARI	AUXILIARY LINE FUSE
FU1.5	1	FUSIBILE LINEA AUSILIARI	AUXILIARY LINE FUSE
FU4.4	4	FUSIBILE	FUSE
IG	1	INTERRUTTORE GENERALE	MAINS SWITCH
IL	1	INTERRUTTORE LINEA AUSILIARI	AUXILIARY LINE SWITCH
KM1.6	1	CONTATTORE MOTORE VENTILATORE	FAN MOTOR CONTACTOR
LB	1	LAMPADA SEGNALAZIONE BLOCCO BRUCIATORE	INDICATOR LIGHT FOR BURNER LOCK-OUT
LEV1	2	LAMPADA SEGNALAZIONE APERTURA [EV1]	INDICATOR LIGHT FOR OPENING OF ELECTRO-VALVE [EV1]
LEV2	2	LAMPADA SEGNALAZIONE APERTURA [EV2]	INDICATOR LIGHT FOR OPENING OF ELECTRO-VALVE [EV2]
LF	2	LAMPADA SEGNALAZIONE FUNZIONAMENTO BRUCIATORE	INDICATOR LIGHT BURNER OPERATION
LF	2	LAMPADA SEGNALAZIONE FUNZIONAMENTO BRUCIATORE	INDICATOR LIGHT BURNER OPERATION
LMV20.100	1	APPARECCHIATURA DI COMANDO	CONTROL SCHEME
LPGMIN	2	LAMPADA SEGNALAZIONE PRESENZA GAS IN RETE	INDICATOR LIGHT FOR PRESENCE OF GAS IN THE NETWORK
LT	1	LAMPADA SEGNALAZIONE BLOCCO TERMICO MOTORE VENTILATORE	INDICATOR LIGHT FOR FAN OVERLOAD TRIPPED
LTA	1	LAMPADA SEGNALAZIONE TRASFORMATORE DI ACCENSIONE	IGNITION TRANSFORMER INDICATOR LIGHT
MB-DLE..Sx0	2	GRUPPO VALVOLE GAS	GAS VALVES GROUP
MB-DLE..Sx2	2	GRUPPO VALVOLE GAS	GAS VALVES GROUP
MBC..SEx0	2	GRUPPO VALVOLE GAS (ALTERNATIVO)	GAS VALVES GROUP (ALTERNATIVE)
MBC..SEx2	2	GRUPPO VALVOLE GAS (ALTERNATIVO)	GAS VALVES GROUP (ALTERNATIVE)
MV	1	MOTORE VENTILATORE	FAN MOTOR
PA	1	PRESSOSTATO ARIA	AIR PRESSURE SWITCH
PGCP	3	PRESSOSTATO GAS CONTROLLO PERDITE (OPTIONAL)	GAS LEAKAGE PRESSURE SWITCH (OPTIONAL)
PGMAX	1	PRESSOSTATO GAS DI MASSIMA PRESSIONE (OPTIONAL)	MAXIMUM PRESSURE GAS SWITCH (OPTIONAL)
PGMIN	2	PRESSOSTATO GAS DI MINIMA PRESSIONE	MINIMUM GAS PRESSURE SWITCH
PT100	4	SONDA DI TEMPERATURA	TEMPERATURE PROBE
RWF40.0x0	4	REGOLATORE MODULANTE	BURNER MODULATOR
SD-PRESS	4	SONDA DI PRESSIONE	PRESSURE PROBE
SD-TEMP.	4	SONDA DI TEMPERATURA	TEMPERATURE PROBE
SD - 0÷10V	4	TRASDUTTORE USCITA IN TENSIONE	TRANSDUCER VOLTAGE OUTPUT
SD - 4÷20mA	4	TRASDUTTORE USCITA IN CORRENTE	TRANSDUCER CURRENT OUTPUT
SQN1../SQM3.. AIR	3	SERVOCOMANDO SERRANDA ARIA	AIR DAMPER ACTUATOR
SQN1../SQM3.. FUEL	3	SERVOCOMANDO COMBUSTIBILE	FUEL ACTUATOR
ST	2	SERIE TERMOSTATI/PRESSOSTATI	SERIES OF THERMOSTATS OR PRESSURE SWITCHES
TA	1	TRASFORMATORE DI ACCENSIONE	IGNITION TRANSFORMER
TC	4	TERMOCOPPIA	THERMOCOUPLE
TV	1	TERMICO MOTORE VENTILATORE	FAN MOTOR THERMAL

Data	15/10/2008	PREC.	FOGLIO
Revisione	01	6	7
Dis. N.	05 - 848	SEQUE	TOTALE
		8	8

X03-03
 X03-05
 X06-03
 X04-02
 FREE
 X09-04
 X05-01

X56



X03-04
 X07-01
 X08-02
 X08-04
 X05-03
 X03-02
 X10-06
 X10-05
 FREE

4	3	2	1	6	5	4	3	2	1	6	5	4	3	2	1
COM X92 RESERVE				X54						X53					

Data	15/10/2008	PREC.	FOGLIO
Revisione	01	7	8
Dis. N.	05 - 848	SEGUE	TOTALE
		/	8



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web site: www.cibunigas.it - e-mail: cibunigas@cibunigas.it

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