INSTRUCTIONS MANUAL FOR THE GAS BOILER

Supermaster

23 E – 28 E
24 SE – 30 SE

Hermann®

ATTENTION

(for SUPERMASTER 24/30 SE)

FOR DIAPHRAGM POSITIONING, CAREFULLY READ THE FLUE SYSTEMS INSTRUCTIONS IN THE "INSTALLATION" CHAPTER.

IMPORTANT

THE FIRST IGNITION OF THE BOILER MUST BE EXECUTED BY AN AUTHORIZED TECHNICIAN ACCORDING TO THE LAW 46/90.

Assigning all the operations for the first ignition to a Hermann Authorized Service Center the particular and exclusive Hermann Conventional Warranty is activated. For further information consult the coupon which you can find in the boiler's documents envelope.

Assigning all the operations for the first ignition to a Hermann Authorized Service Center the particular and exclusive Hermann Conventional Warranty is activated. For further information consult the coupon which you can find in the boiler's documents envelope.

MANUFACTURER DECLARATION

Hermann boilers have obtained the CE certification (DM dtd. April 2nd 1998, Law 10/91, art. 32) and meet minimum efficiency requirements, both at normal and 30% load, provided by DPR 412/93 (according to Law 10/91, art. 4, sub-section 4). They are in conformity with following Directives: Directive on appliances burning gaseous fuels (90/396), Directive on electro-magnetic compatibility (CE 89/336), Efficiency Directive (CE 92/42), Low Voltage Directive (CE 73/23), and relevant modifications.

sections for the user

sections for the technician

DANGER: All warnings preceded by this symbol MUST be carefully respected so as to avoid any accident of mechanical (e.g. wounds or contusions) or general origin.

DANGER: All warnings preceded by this symbol MUST be carefully respected so as to avoid any accident of ELECTRICAL origin (fulguration).

DANGER: All warnings preceded by this symbol MUST be carefully respected so as to avoid any accident of THERMIC origin (scalds).

Attention: All warnings preceded by this symbol MUST be carefully respected so as to avoid any disfunctioning and/or damage to the appliance or other objects.

INTRODUCTION

The instructions manual is an essential and complementary part of the product and it is supplied together with the boiler.

Carefully read the manual, achieving all important information for a safe installation, use and servicing.

— **Carefully keep the manual for any further consultation you may need.**

— **The installation must be carried out by a qualified technician, in accordance with manufacturer instructions and with the relevant requirements of the current issue.**

— **A qualified technician is a person with a specific technical competence in the field of the heating appliances for domestic use and domestic hot water production, as indicated by the Law *[ID of Your National rule, if any, regarding Technicians competence]*.**

— **User can ONLY make those operations that are specifically described in the "USER INSTRUCTIONS" section.**

— **The manufacturer has no contractual and extra-contractual responsibility for any damage arising from wrong installation, wrong use and non-observance of current laws and instructions given by the manufacturer himself.**

— ***Important:*** *this gas boiler is used to heat the water at a temperature lower than the boiling one, at atmospheric pressure; it must be connected to an heating system and/or to a domestic hot water system, in accordance with its features and power.*

— **Packing items (cartons, nails, plastic bags and so on) must not be left within children easy reach, as they are potentially dangerous.**

— **Before any cleaning or servicing operation, switch off the main electrical switch of the heating system and/or any other suitable switch providing electrical disconnection of the gas boiler.**

— **In case of fault and/or bad operation of the appliance, disconnect it immediately and do not try to repair it by yourselves.**

Boiler servicing and repair must be carried out exclusively by ***[HERMANN Authorized Servicing Centres] [qualified technicians]***, which will use original spare parts. Strictly observe the above requirement, avoiding any risk of compromising the appliance safety.

— If the appliance should be definitively disconnected, remove or cut off any potential dangerous item.

— When selling the appliance or leaving it installed after a removal, make always sure that the instructions manual is close to the boiler for the future use of new owners and/or installers.

— This appliance must be used for its clearly recommended utilization only. Any other utilization must be considered dangerous and incorrect.

— It is strictly forbidden to use the appliance for different purposes than the specified ones.

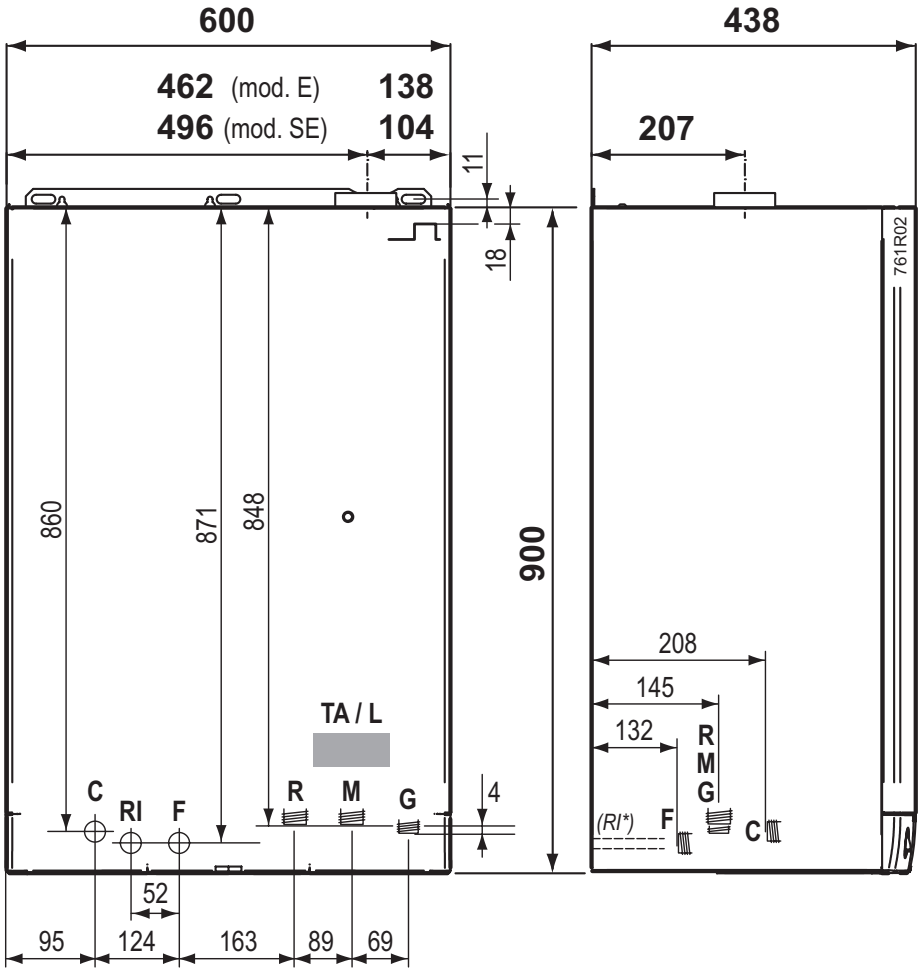
— This appliance must be installed exclusively to wall.

TECHNICAL DATA

TECHNICAL DATA	U.M.	SUPERMASTER 23 E		SUPERMASTER 28 E		SUPERMASTER 24 SE		SUPERMASTER 30 SE	
CE certification	n°	0694 BN 3710		0694 BN 3710		0694 BN 3710		0694 BN 3710	
Class		II2H3+		II2H3+		II2H3+		II2H3+	
Type		B11/BS				B22 - C12 - C32 - C42 - C52 - C62 - C82			
Gas type		G20	G30/ G31	G20	G30/ G31	G20	G30/ G31	G20	G30/ G31
Max heat input (Hi)	kW	25.6	25.6	30.5	30.0	25.6	25.6	32.7	32.2
Min heat input (Hi)	kW	10.5	10.5	13.2	13.2	10.5	10.5	13.2	13.2
Max heat output (Hi)	kW	23.1	23.1	27.5	27.1	23.6	23.6	29.5	29.1
Min heat output (Hi)	kW	9.1	9.1	11.4	11.4	8.9	8.9	11.0	11.0
NO_x Class		2	1	2	1	3	1	3	1
Weighted NO_x	mg/kWh	162	257	172	208	132	242	136	242
CO at nominal input	ppm	39	70	40	53	21	40	33	40
CO_2 at nominal input	%	4.7	5.6	5.1	6.2	6.5	7.6	6.1	7.6
EFFICIENCY									
Nominal efficiency	%	90.8		91.4		92.1		93.4	
Efficiency at 30% load	%	88.1		89.8		87.4		90.3	
HEATING									
Temperatur range of water in heating circuit min÷max standard range (reduced range)	°C	30÷80 (25÷45)		30÷80 (25÷45)		30÷80 (25÷45)		30÷80 (25÷45)	
Expansion vessel (heating)	l	10		10		10		10	
Expansion vessel pressure	bar	1		1		1		1	
Max working pressure	bar	3		3		3		3	
Max system temperature	°C	85		85		85		85	
HOT WATER									
Flow rate at 25°C temperature rise	l/min	13.2		15.8		13.5		16.9	
Flow rate at 30°C temperature rise	l/min	11.0		13.2		11.3		14.1	
Specific flow rate (prEN625)	l/min	13		15.4		13		16.5	
Tank capacity	l	60		60		60		60	
Max supply pressure	bar	6		6		6		6	
Expansion vessel (DHW)	l	2		2		2		2	
Expansion vessel pressure	bar	(charge at the same pressure as the inlet water)							
Temperature range of DHW outlet (min÷max) by manual mixing valve (Supercomfort range)	°C	35÷48		35÷48		35÷48		35÷48	
Electronic allowed regulation range (min÷max) of DHW in the boiler (manual mixing valve on Superboiler position)	°C	55÷65		55÷65		55÷65		55÷65	
ELECTRICAL DATA									
Voltage / frequency	volt/Hz	230/50		230/50		230/50		230/50	
Power consumption (VAP = with high capacity fan)	W	100		130		150 (160 VAP)		180	
Level of protection		IP X4D		IP X4D		IP X4D		IP X4D	
DIMENSIONS									
Width - Height - Depth	mm	*Refer to "DIMENSIONS" diagram*							
Weight (with empty tank)	kg	76		79		80		83	
CONNECTIONS (S=Outlet)									
Heating flow / return	Inch	¾"		¾"		¾"		¾"	
Domestic Water inlet / outlet	Inch	½"		½"		½"		½"	
Gas connection to the boiler	Inch	¾"		¾"		¾"		¾"	
Gas connection to the gas cock of standard connection kit	Inch	½"		½"		½"		½"	
Flue products outlet Ø	mm	130		140					
Coaxial flue products outlet / air inlet Ø	mm					100/60		100/60	
Coaxial flue length (horizontal) min/max	m					0.5÷4		1÷3	
Coaxial flue length (vertical) min/max	m					1÷5		1÷4	
Separate flue products outlet / air inlet Ø	mm					80		80	
Separate flue length min/max	m					2÷30 (max S=20)		2÷16 (max S=10)	
Separate flue length min/max with **high capacity fan**	m					31÷60 (max S=40)			
Separate flue length with pipes-split min/max	m					2÷14 (max S=13)		2÷10 (max S=7)	
GAS SUPPLY PRESSURE									
Gas type		**G20**	**G30/ G31**	**G20**	**G30/ G31**	**G20**	**G30/ G31**	**G20**	**G30/ G31**
Nominal pressure	mbar	20	29/37	20	29/37	20	29/37	20	29/37
Injectors number		13	13	14	14	13	13	14	14
Injectors diameter	Ø 1/100mm	120	75/75	125	76/76	120	75/75	130	78/78
GAS CONSUMPTION									
Qmax	mc/h	2.71		3.22		2.71		3.46	
	kg/h		2.01/ 1.98		2.36/ 2.33		2.01/ 1.98		2.53/ 2.50
Qmin	mc/h	1.11		1.40		1.11		1.40	
	kg/h		0.83/ 0.81		1.04/ 1.02		0.83/ 0.81		1.04/ 1.02

DIMENSIONS

Supermaster E - SE



C Hot water outlet (1/2")

RI Re-circulation Return (1/2") (only if optional kit is installed)

F Cold water inlet (1/2")

R Heating return (3/4")

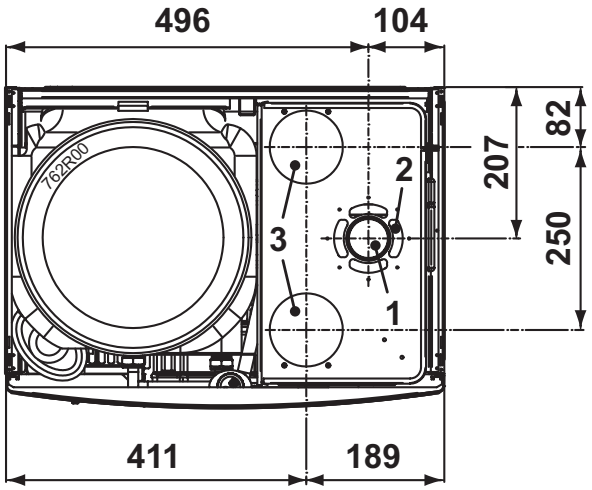
M Heating flow (3/4")

TA/L Zone for electrical power supply and room thermostat connections

G Gas (3/4")

(RI*) *Optional Re-circulation Kit ends with a simple pipe facing the wall.*

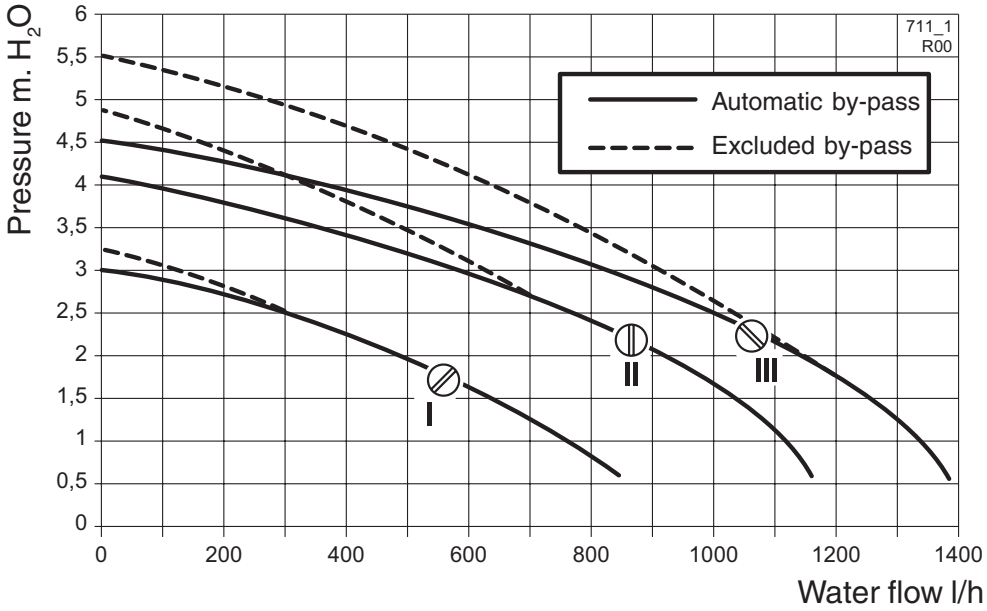
Supermaster 24-30 SE
models only:

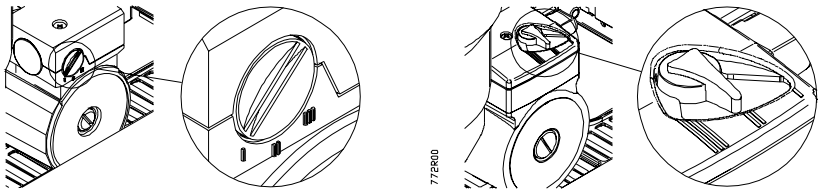


1	Flue products outlet
2	Air inlet for coaxial system
3	Air inlet for separate system

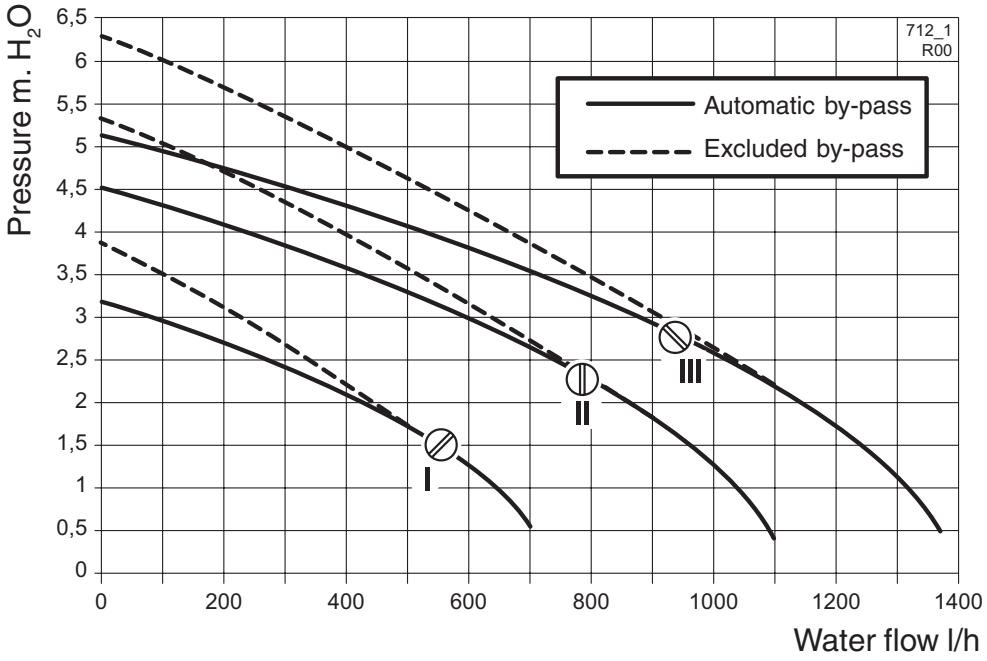
for the technician

AVAILABLE PUMP CAPACITY
Model **SUPERMASTER 23 E / 24 SE**
with selector in speed position I, II, III





AVAILABLE PUMP CAPACITY
Model **SUPERMASTER 28 E / 30 SE**
with selector in speed position I, II, III

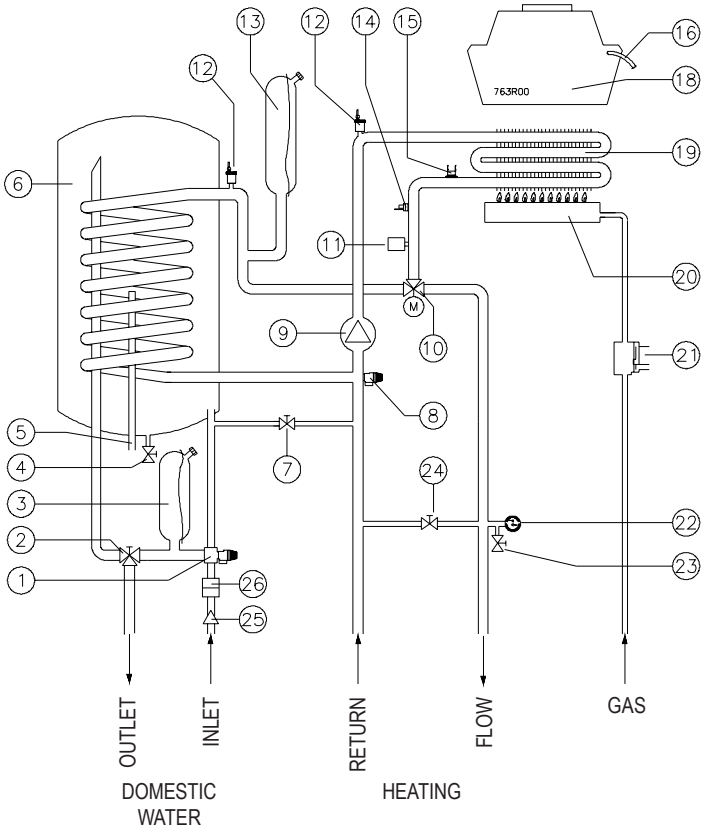


BOILER SCHEMATIC

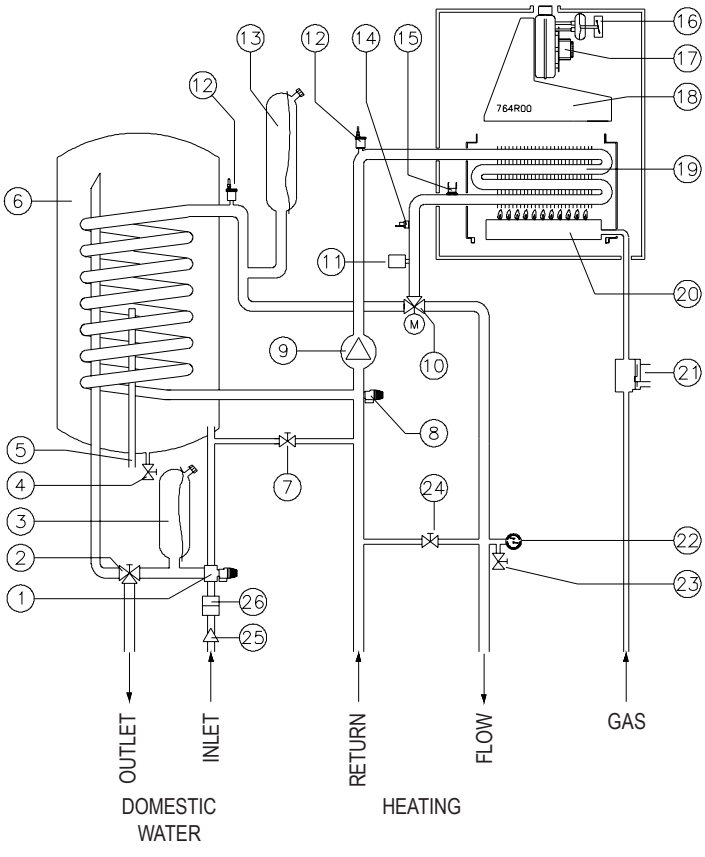
WARNING: This scheme is made for information only. To make boiler hydraulic connection either use fixing jig or the drawing inserted in the section "Installation" or the "Dimensions" drawing.

1 DHW circuit safety valve (8 bar)
2 Manual DHW mixing valve (Knob)
3 DHW expansion vessel
4 Tank drain tap
5 Tank Temperature sensor
6 Tank
7 Heating circuit filling tap
8 Heating circuit safety valve (3 bar)
9 Circulator
10 Motorized 3 way valve
11 Water pressure switch
12 Air outlet valve
13 Heating circuit expansion vessel
14 Heating temperature sensor
15 Safety thermostat
16 Flue thermostat *("E" models)*
Flue pressure switch *("SE" models)*
17 Fan *("SE" models)*
18 Chimney *("E" models)*
Flue Conveyor *("SE" models)*
19 Primary exchanger
20 Burner
21 Gas valve
22 Thermometer + Heating circuit Gauge
23 Heating circuit drain tap
24 System By-pass
25 Filter
26 Litercounter

SUPERMASTER E



SUPERMASTER SE



INSTALLATION

Safety laws and rules referred to technicians assigned to boilers installation

Place here all necessary advices according to national rules about WORK SAFETY

Law number XXXX

"Actuation of 89/391/CEE; 89/655/CEE, 90/296/CEE, 90/934/CEE, 90/679/CEE, (work safety)"

Law number XXXX

"Actuation of 89/686/CEE (21 Dec 1989)"

Other Law number XXXX (if any)

"Other Law title and/or brief description"

Directives

"Directive title and/or brief description"

Always proceed with caution when handling the boiler and carrying out installation/maintenance work as metal parts may cause injuries such as cuts and abrasions. Wear gloves while doing the above mentioned operations.

Laws and rules referred to boilers installation

Place here all necessary advices according to national rules about BOILER INSTALLATION

Law number XXXX

"Law title and/or brief description"

Boiler location

INSTALLATION ROOM

When having an heat ouput lower than 35 kw (about 30000 Kcal/h), particular features for the installation room are not required. Shortly, all installation rules assuring a safe and regular gas boiler operation, must be strictly respected.

Place here all necessary advices according to national rules about:
- Installation room requirements
- Limitations in power and/or number of boilers and other appliances in the same room

Law number XXXX

"Law title and/or brief description"

ROOM VENTILATION (mod. SUPERMASTER 23/28 E – natural draught)

When a natural draught boiler is installed, permanent ventilation of the installation room is mandatory and extremely important. Ventilation must be made and sized in accordance with Laws and Rules in force.

INSTALLATION IN ROOMS WHERE TEMPERATURE CAN DROP DOWN TO 0°C:

When the installation place does not guarantee an adequate repair against atmospheric agents, the gas boiler must be completely protected through an adequate coverage as a safety measure against the above agents.

Thanks to its antifreeze system, inner components could never reach a temperature lower than 5°C. This system is activated when the boiler is connected to the electrical and gas supply lines.

In case of boiler installation in rooms where temperature can drop down to 0°, it is advisable to protect the heating circuit with an antifreeze liquid. See the "System Filling" section.

This appliance is not suitable for outdoor installation.

Boiler hanging

REMARK: A re-utilizable metal jig can be ordered separately, so as to facilitate connections and fixing points positioning (when the standard connection kit is used). If the standard connection kit is not used, refer to the "Dimensions" drawing (Technical Data section) for the position of the connections directly on the boiler.

— Consider gas boiler size and sufficient clearances [E] for servicing/repair. It is recommended: 50 mm left, 150 mm right and 300 mm on lower side;

— To fix the boiler with wallplugs ("stud" type with nut), center the relevant wall holes as regards to [A] points. To hang it with open hooks, place hooks in correspondence with [B] points.

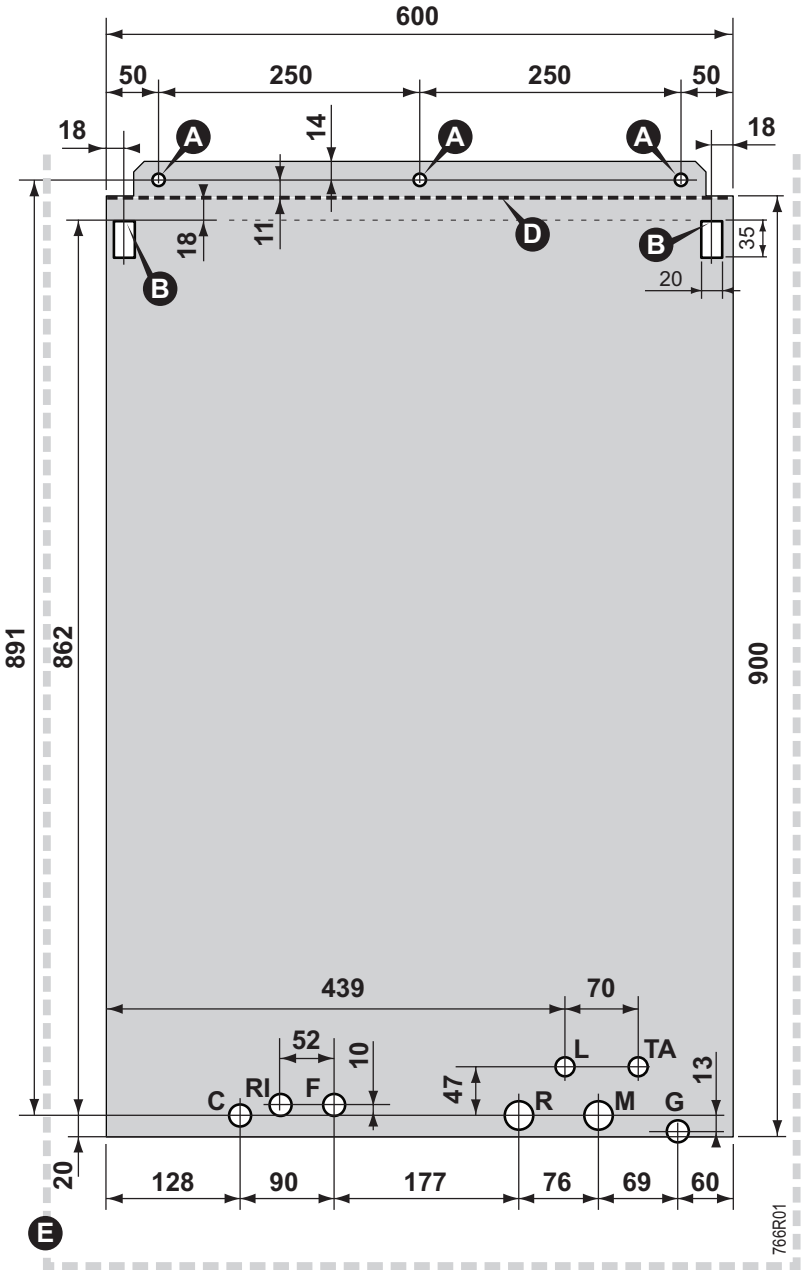
— Using the jig or respecting the measures indicated in the figure, fix up electrical connections and all ducts for heating flow and return, cold water, hot water and gas.

— Hang the boiler to the wallplugs or hooks, using the holes ([A] for the wallplugs and [B] for the open hooks).

— **Remove the plastic caps** from the boiler connections prior to connecting boiler to the pipework.

REMARK: To facilitate boiler connection, it is possible to remove temporarily the lower grid, unscrewing its four screws.

— As far as air inlet and flue outlet ducts are concerned (forced draught models), please refer to "Flue systems" paragraph, where measures are referred to the upper edge of boiler's body [D].



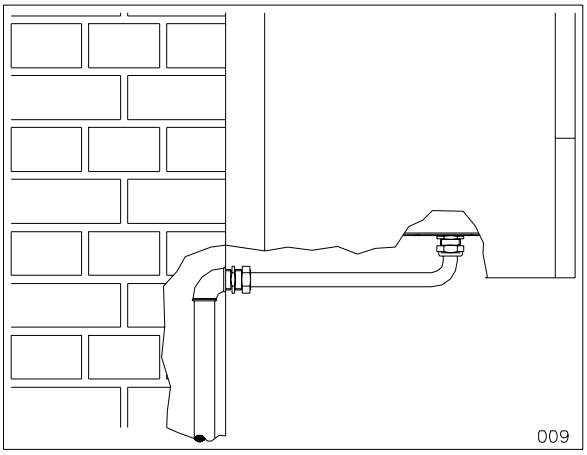
C Hot water outlet (1/2")
RI Re-circulation Return (optional - 1/2")
F Cold water inlet (1/2")
R System Return (3/4")
M System Flow (3/4")
G Gas (1/2")

L Electric Line
TA Room thermostat

for the technician

Hydraulic connections

CONNECTION EXEMPLE



ADVICES AND SUGGESTIONS TO AVOID VIBRATIONS AND NOISES IN THE SYSTEM

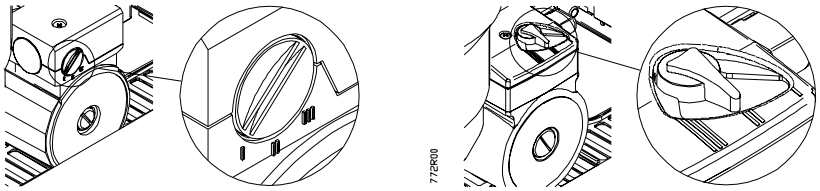
— Do not use pipes with reduced diameters;

— Do not use bends with small radius and reductions of important sections;

— **It is recommended an hot washing of the system** in order to purge the pipes and the radiators from impurities (in particular oils and fats) that **could damage the pump.**

PUMP'S SPEED

The pump has a selector which allows to reduce the speed, so as to reduce the noise produced by the too rapid circulation of the liquids in too small heating systems.



DOMESTIC HOT WATER SUPPLY

The pressure of entrance cold water inlet pressure must be lower than 6 bar. Furthermore, for an optimal boiler functioning, water pressure should be more than 1 bar. A too low inlet pressure could impede the correct restore of the heating system pressure, whereas a too high inlet pressure will cause the opening of the tank safety valve and, for this reason, the water outlet.

In case of stronger pressure it is necessary to install a PRESSURE REDUCER upstream the boiler.

The cleaning frequency of the coil exchanger depends on the water supply hardness. Besides, the presence of solid residuals or impurities in the water (for example in case of new systems) could compromise the correct functioning of the boiler.

However, it is possible to install suitable water treatment device, depending on the water features.

HEATING SYSTEM

— Verify that the hydraulic pressure measured after the reduction valve is not greater than the maximum hydraulic pressure indicated on the appliance data plate.

— Considering that during boiler operation, the water inside the heating system increases its pressure, make sure that its maximum value does not exceed the maximum hydraulic pressure indicated on the technical data.

— Connect the boiler's safety valves outlets to an evacuation funnel. If safety valves are not connected to an evacuation device, their intervention could flood the room. Hermann cannot be held responsible for any damage arising from that situation.

Make sure that the hydraulic and heating systems ducts are not used as earth connections of the electrical system. They are absolutely NOT SUITABLE for such a use.

System filling

In case of installation of the boiler in areas where the room temperature can decrease under 0° C, we suggest to fill the heating system with an anti freezing liquid and to execute the filling of the tank in a second time, in the process of first ignition of the boiler.

Once all system connections have been carried out, proceed with filling of the water heater tank and of the heating system. This operation should be made with caution, respecting the following steps:

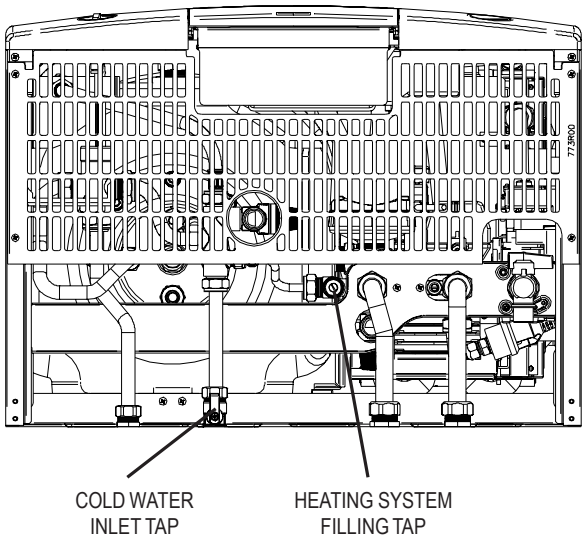
1) Tank filling:

- open a hot water tap;
- slowly open the boiler's cold water inlet tap (ref. figure beside);
- when only water flows out of the hot water tap, close it.

2) Heating system filling (with water):

- open the radiators venting devices;
- gradually open the heating system filling tap (ref. figure beside), checking the correct functioning of automatic venting devices, eventually installed;
- close the radiators venting devices as soon as water flows;
- Make sure that pressure gauge reaches the optimal value of 1÷1.5 bar (minimum: 0.5 bar);
- close the water supply valve and bleed each radiator.

BOILER BOTTOM VIEW



for the technician

Gas connection

Boiler installation must be carried out from a qualified technician, [as indicated by the Law XXXXX] because an incorrect installation can cause damages to people, animals or things, for which the manufacturer cannot be held responsible.

Verify what follows:

a) cleaning of all system gas pipes in order to avoid the presence of residual combustion products that could compromise the correct boiler functioning;

b) gas line and ramp conformity with laws and rules actually in force (Laws UNI-CIG 7129/01 and 7131/99 – DM 12/04/96);

c) internal and external tightness of the gas system and connections;

d) supply pipe must have a section greater than or equal to the boiler one;

e) supply gas must correspond to the one for which the boiler has been regulated; otherwise, call [an HERMANN Servicing Centre] [a qualified technician] for gas conversion;

f) an interception valve must be installed upstream the appliance;

Open the meter valve and purge the air that is inside the system pipes (including all the appliances).

While connecting gas inlet pipe of the boiler to the pipe coming from gas network, it is MANDATORY to insert a TIGHT GASKET, whose dimensions and material must be adequate. Connection is NOT suitable for hemp, teflon strip or similar materials.

Using LPG, it is absolutely necessary to install a pressure reducer upstream the boiler.

Due to various installation possibilities, the gas cock supplied with Standard Connections Kit for SUPERMASTER boilers has a simple male Ø ½" connection, facing the rear of the boiler. No gas pipes are supplied.

Electrical connections

The link of the room thermostat works with a **safety extra low voltage (SELV);** connect it to the **voltage free terminals** of the room thermostat/cronothermostat. **On NO account must any electrical voltage be applied to these terminals.**

The boiler must be connected to an electrical line of 230V-50Hz, respecting the polarities L-N (Live-Neutral) and the earth connection.

PLACE UPSTREAM THE BOILER A DOUBLE POLE SWITCH.

The double pole switch must have a minimum contact separation of 3 mm on each pole. For the general electrical supply of the appliance, the use of adaptors, multiple taps and extensions is not allowed.

If the supply cable must be replaced, use one of the following wire types: H05VVF or H05-VVH2-F. **It is mandatory the earth connection in accordance with the rules actually in force.** To replace the cable, release the cable fastener placed on the frame of the hydraulic connections, open the back cover of the control panel and disconnect it from the terminals. Install the new cable working in the reverse way. It's IMPORTANT to lock tha cable in the cable fastener placed on the frame of the hydraulic connections.

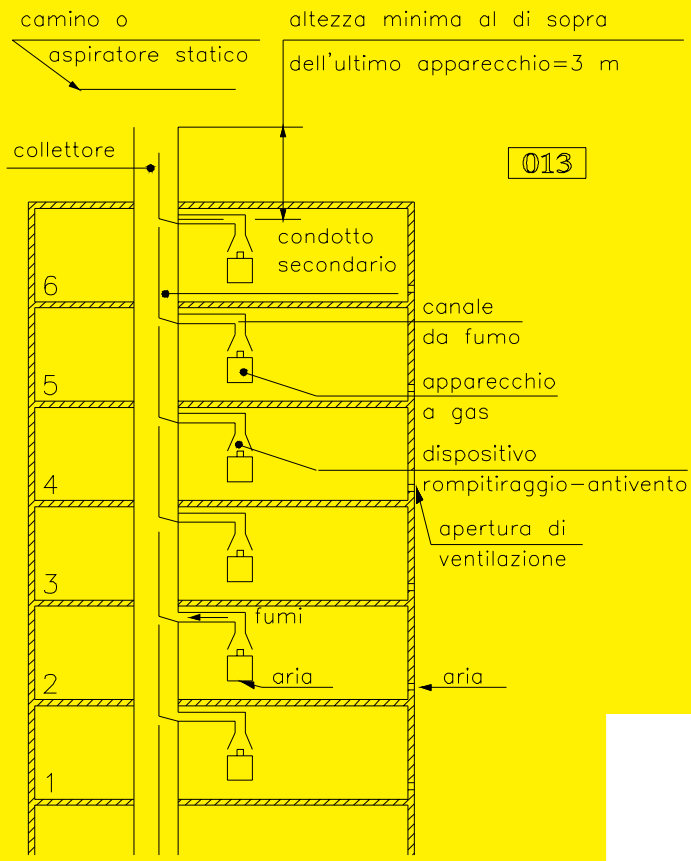
Electrical safety of the appliance is only achieved when it is well connected to an efficient earthing system, executed as indicated by the safety rules actually in force.

A qualified technician must check that the electrical system is in line with the maximum power allowed by the boiler, indicated on the data plate, with particular attention to the cables section.

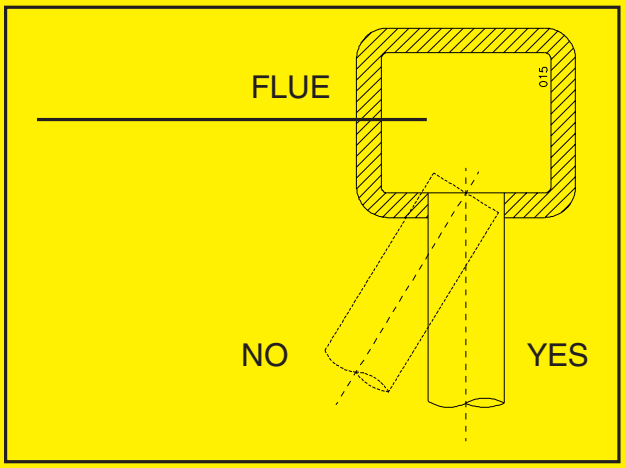
Remark: HERMANN Ltd. declines any responsibility for damages to persons, animals or things caused by the non-connection of the boiler earthing and by failure to comply with the rules.

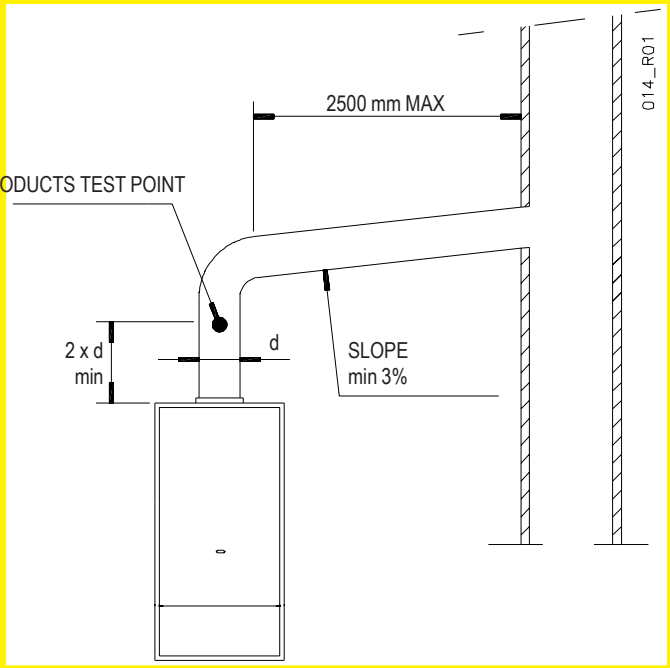
Chimney connections
***SUPERMASTER E** (natural draught)*

Place here all necessary advices according to national rules about CHIMNEY CONNECTIONS of OPEN chamber boilers



These diagrams are to explain the most important ITALIAN laws concerning chimney connections (for EXEMPLE purpose only)



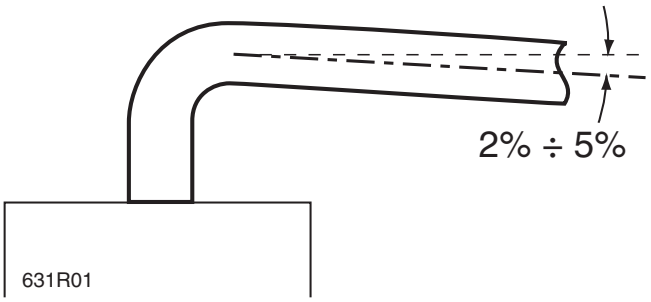


for the technician

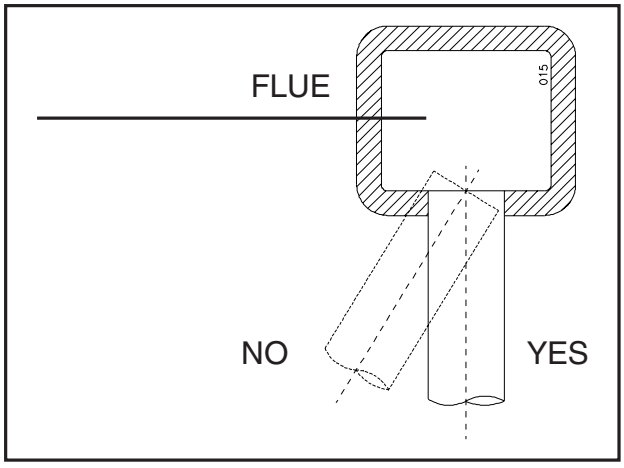
Chimney connections
***SUPERMASTER SE** (forced draught)*

NOTE ON FLUE INSTALLATION

When fitting air inlet and flue outlet horizontal ducts, it is necessary to make sure there is a slope of 2÷5% downwards from the boiler to the outside (see diagram). This is essential to guarantee correct boiler operation and reliability. Air inlet and flue outlet terminals should be protected by suitable approved flue accessories, to avoid environmental elements penetration.



Place here all necessary advices according to national rules about CHIMNEY CONNECTIONS of sealed chamber boilers



for the technician

In case of evacuation to wall, the positions indicated in the following drawing and table must be respected:

Positioning of flue terminals for forced draught boilers, depending on their heat input

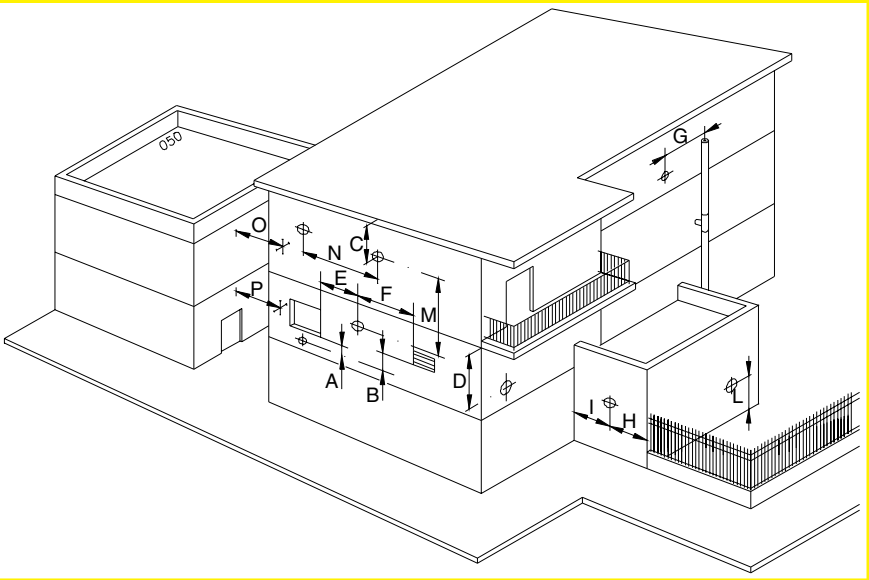
Terminal positioning	Distances	Appliances		
		from 4 kW * to 7 kW mm min.	from 7 kW to 16 kW mm min.	from 16 kW to 35 kW mm min.
Under a window	A	300	500	600
Under an air vent	B	300	500	600
Under a gutter	C	300	300	300
Under a balcony **	D	300	300	300
From an adjacent window	E	400	400	400
From an adjacent air vent	F	600	600	600
From vertical or horizontal evacuation pipes***	G	300	300	300
From a corner of the building	H	300	300	300
From a recess of the building	I	300	300	300
From the ground or from another floor	L	400 ◆	1500 ◆	2500
Between two terminals vertically	M	500	1000	1500
Between two terminals horizontally	N	500	800	1000
From a surface facing another surface, having no openings or terminals within a distance of 3 mts. from the evacuation hole	O	1500	1800	2000
As above, but with openings or terminals within a distance of 3 mts. from the evacuation hole	P	2500	2800	3000

* *Appliances with an heat input lower than 4 Kw are not subjected to any limitation for the terminals positioning, except for the points O and P.*

** *The terminals under a practicable balcony must be positioned in such a way that the total flue run, from the terminal outlet to its own outlet from the external balcony perimeter, included the height of the eventual protection banisters, is no lower than 2000 mm.*

*** *In the terminal positioning, it will be necessary to keep distances not inferior to 500 mm. in case of close proximity to materials sensible to the combustion products action (e.g., plastic gutters and downpipes, wood projections and so on), unless adequate measures of protection have been adopted.*

◆ *The terminals must be designed in such a way that the combustion products flow is as much as possible ascensional and protected from the temperature effects.*



High capacity fan
SUPERMASTER 24 SE

For **SUPERMASTER 24 SE** (forced draught) it is possible to install, on request, an “high capacity fan”, allowing an higher length of separate flue systems (see table):

Separate flue products outlet / air inlet Ø	mm	80
Separate flue length	m	30 (max 20 outlet)
Separate flue length with high capacity fan	m	60 (max 40 outlet)

ASSEMBLING INSTRUCTIONS

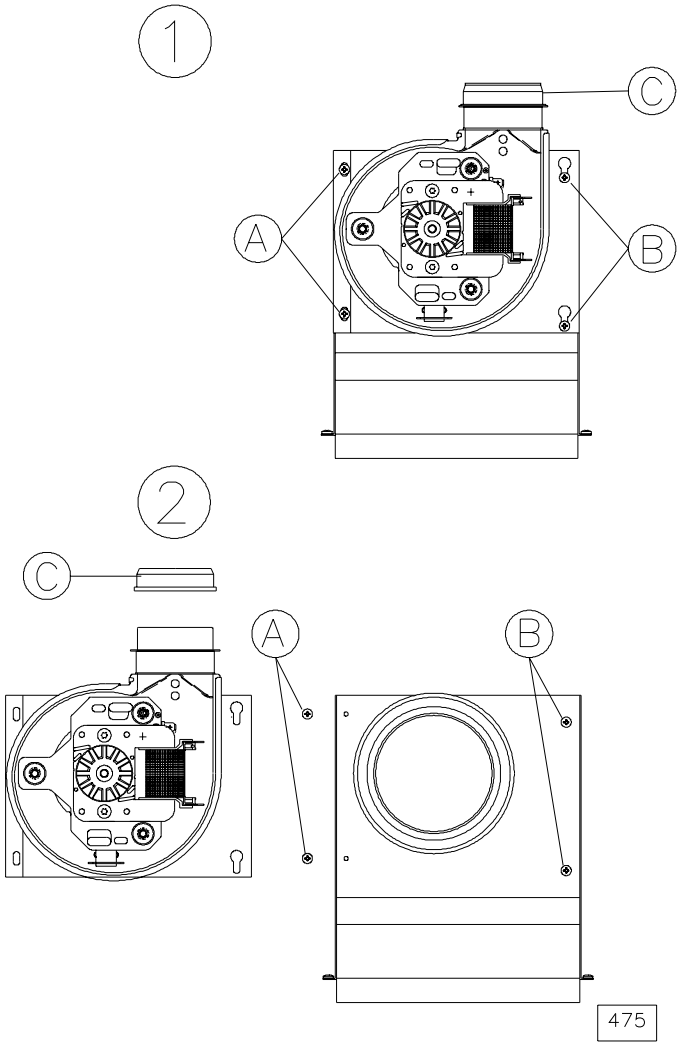
It is advisable to install the high capacity fan, before flue kit, avoiding any possible hindrance during assembling operations.

Provide electrical disconnection of the gas boiler and remove the sealed chamber closing;

1. Take off screws A, loosen screws B (it is not necessary to take off screws B, being the fan bracket provided with button-holes) and remove the standard fan, disconnecting its cables for electrical supply; remove the flue pressure sensor.
2. Remove gasket C from standard fan and insert it on high capacity fan; install the flue pressure sensor, respecting its previous position.

Install the high capacity fan, connect the cables for electrical supply, tighten screws B and reinsert screws A.

Reassemble the sealed chamber closing.

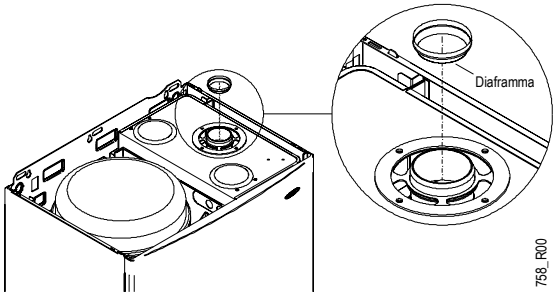


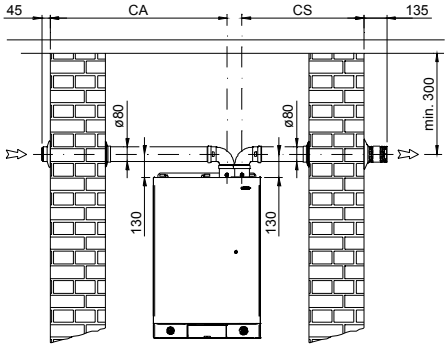
for the technician

Flue systems
SUPERMASTER SE

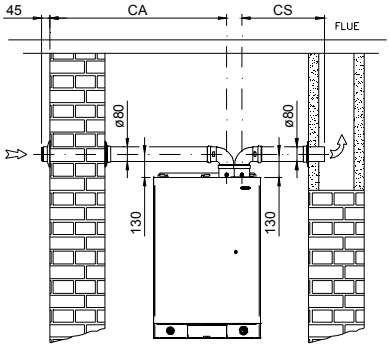
AIR INLET AND PRODUCTS OUTLET THROUGH SEPARATE PIPES

Attention: see table and, if required, install the diaphragm supplied with the gas boiler, as indicated in the figure besides (any additional 90° bend = 0.5 linear meters, 45° bend = 0.25 meters).

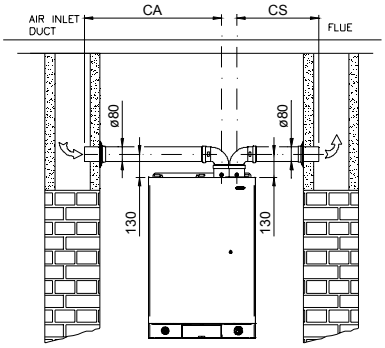




AIR INLET AND FLUE PRODUCTS OUTLET THROUGH WALL

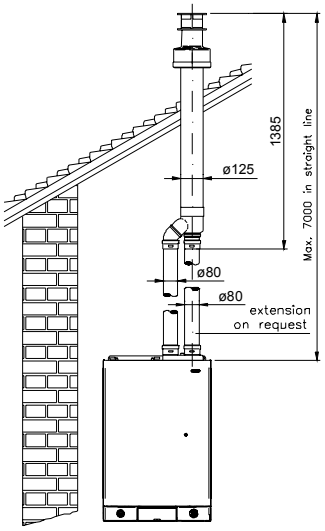


AIR INLET THROUGH WALL AND PRODUCTS OUTLET TO FLUE

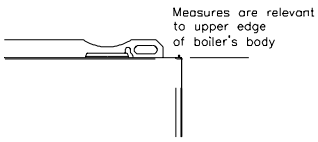


AIR INLET THROUGH DUCT PRODUCTS OUTLET TO FLUE

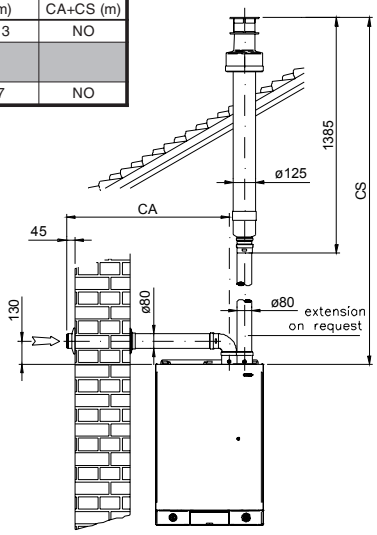
Model	Separated ducts			With Pipes Splitter on coaxial connection.		
	CA+CS min÷max (m)	CS max (m)	Diaphragm up to CA+CS (m)	CA+CS min÷max (m)	CS max (m)	Diaphragm up to CA+CS (m)
SUPERMASTER 24 SE	2÷30	20	8	2÷14	13	NO
SUPERMASTER 24 SE with high capacity fan	31÷60	40	NO			
SUPERMASTER 30 SE	2÷16	10	ALWAYS	2÷10	7	NO



SEPARATE PIPES WITH PIPES–SPLIT VERTICAL OUTLET/INLET



759_1_R00



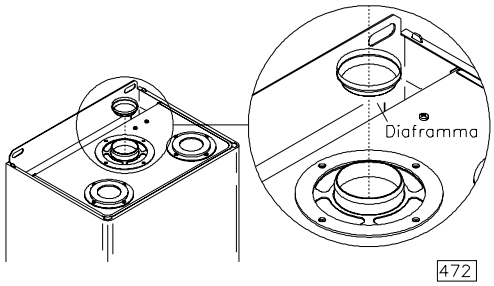
SEPARATE PIPES VERTICAL OUTLET

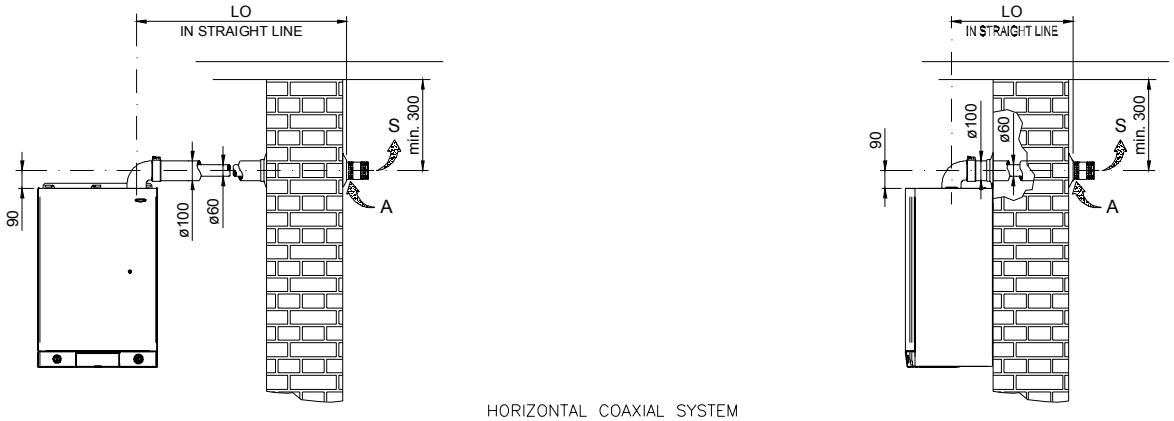
ATTENTION (FOR SUPERMASTER 24 SE ONLY)
IF CA+CS < 3m DIAPHRAGM+PIPES–SPLIT

Flue sistems
SUPERMASTER SE

AIR INLET AND PRODUCTS OUTLET THROUGH COAXIAL SYSTEM

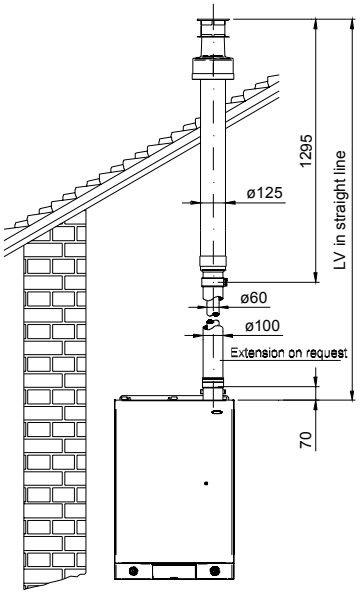
Attention: see table and, if required, install the diaphragm supplied with the gas boiler, as indicated in the figure besides (any additional 90° bend = 1 linear meter, 45° bend = 0.5 meters).



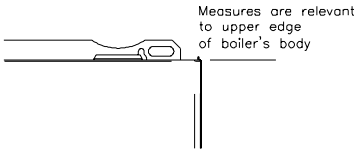


HORIZONTAL COAXIAL SYSTEM

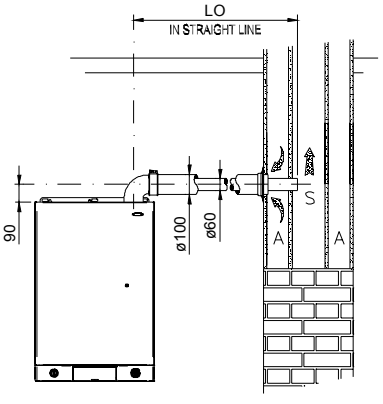
Model	LO min÷max (m)	LV min÷max (m)	Diaphragm to a LO or LV (m)
SUPERMASTER 24 SE	0,5÷4	1÷5	2
SUPERMASTER 30 SE	1÷3	1÷4	1



COAXIAL VERTICAL SYSTEM



760_1_R00



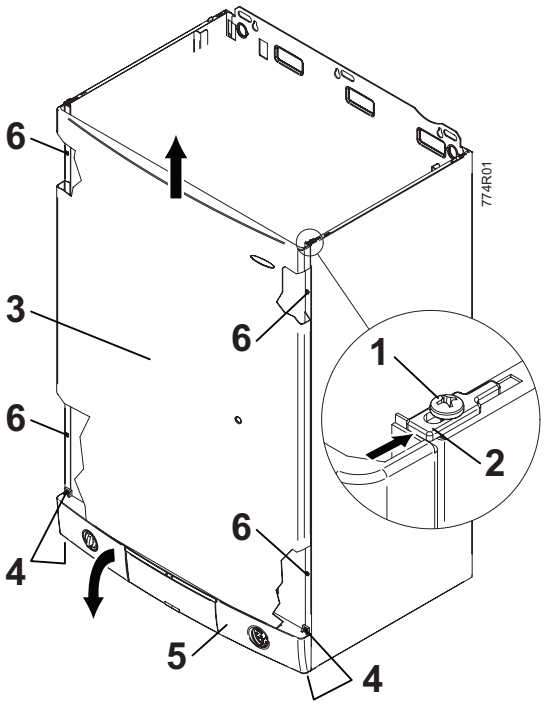
COAXIAL HORIZONTAL SYSTEM
AIR INLET AND PRODUCTS OUTLET
THROUGH COAXIAL DUCT/FLUE

for the technician

INSTRUCTIONS FOR FIRST IGNITION, REGULATION AND MAINTENANCE

ATTENTION: the operations described below must be carried out only by qualified personnel [authorized by HERMANN].

When regulation/measuring is over, remember to tighten pressure tapping point screws and check for gas leaks!



Access to the regulation devices

1. Unscrew the screws [1] and let the catches slide [2] in order to release the front casing [3];
2. Push the front casing [3] upwards and remove it;
3. Unscrew the screws [4] and overturn downwards the control panel [5];
4. After the regulations, close the boiler repeating everything in the other sense, paying attention to insert the flexible shaft of the DHW temperature knob in its clutch on manual mixing valve. Hook the frontal casing to the heads of the four screws [6] (which must not be released) and remember to stop it through the catches [2] and through the screws [1].

Opening of the sealed chamber

In order to execute all the operations for the cleaning and maintenance of the boiler it is necessary to put the closing of the sealed chamber down, making the following actions:

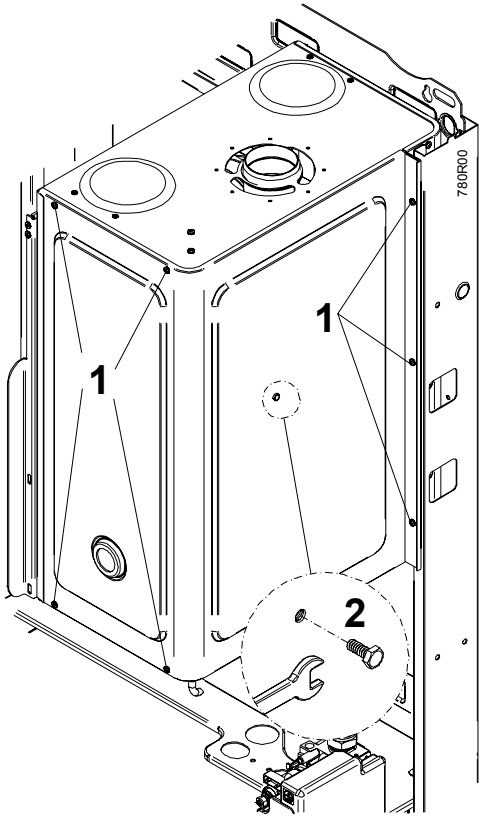
— Release the screws [1]

— Release the screw with hexagonal head [2] (only model 30 SE)

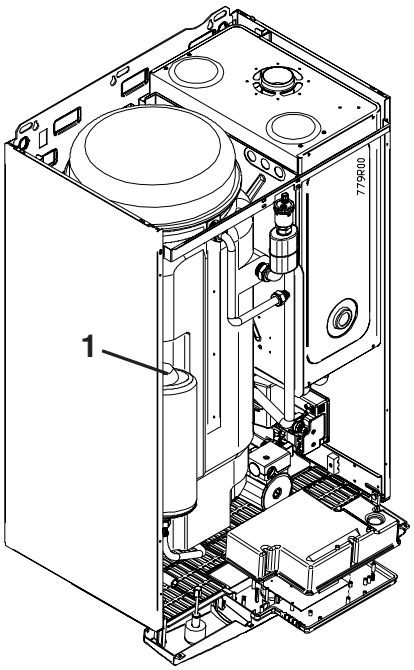
— Pull out the closing of the sealed chamber.

When all the operations have been done, put the closing of the sealed chamber up making the previous actions in the opposite order.

ATTENTION: it is important to put up ALL the screws for the fixing of the closing in order to ensure the seal of the sealed chamber and avoid eventual vibrations and noise.



Prefilling of the DHW expansion vessel



— Measure the well pressure or get informed about its value;

— Close the tap installed on the boiler cold water inlet;

— Open the hot water tap in order to unload the remaining pressure, and close it;

— Release the protection tap [1] of the expansion vessel's loading inlet and load the vessel with air with the same pressure of the water network;

— Reopen gradually the installed tap on the boiler cold water inlet.

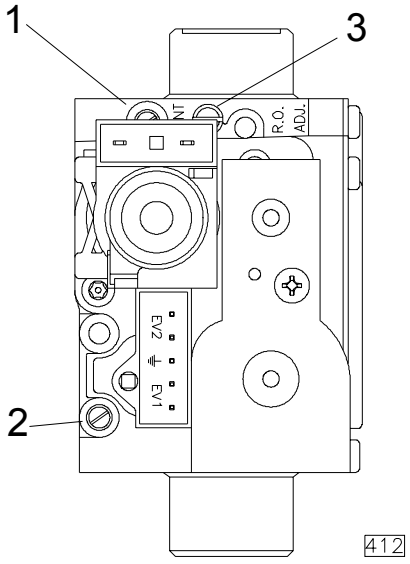
Preliminary GAS checkings

All boilers are tested and factory set during manufacture; however, it is advisable to check that the gas type and the burner pressures are correct. On the contrary, follow the procedures described in this section.

To make burner pressures checking, insert pressure gauge sensors in the gas valve pressure tapping points (see figure).

Remark: In order to check that pressure and gas input are enough to guarantee the correct functioning of the appliance , make measurements while burner is on.

GAS VALVE SIT 845



1 = Pressure tapping point for gas outlet

2 = Pressure tapping point for gas inlet

3 = Vent (mod. SE)

for the technician

Gas valve pressure regulation (MAX-MIN)

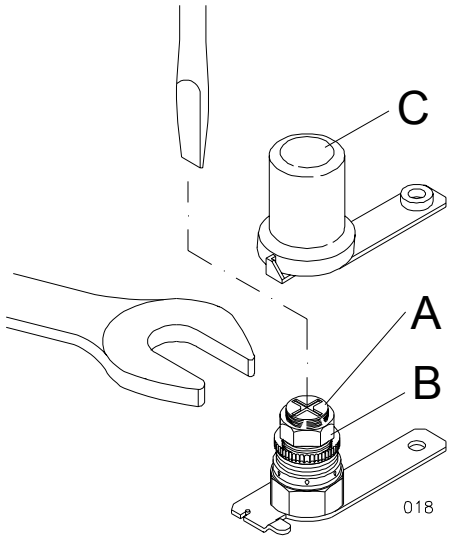
— Check that the inlet pressure is correct for the type of gas supplied;

Bring and keep the Summer/Winter Selector in the position Chimneysweeper for at least 3 seconds, then let the selector return in the position Summer . The green lamp flashes rapidly and the burner ignites at the maximum outlet, for a period sufficient to make the checks and the measurements. The produced heat is carried off by the heating system;

Wait for at least 10 seconds and check that the pressure corresponds to the highest value indicated in the “Power Pressure” table of the specific model. If it is necessary a correction of the regulation, (referring to the figure), make the following actions:

- make sure that the modulation coil is energised;
- remove protection cap “C”. On “SE” models, take off the silicon tube from the “VENT” on the gas valve (item 3 in the figure);
- adjust maximum pressure by turning knob “B”, with a 10 mm. spanner. Clockwise to increase, counterclockwise to decrease;
- remove electrical connector on modulation coil;
- keeping knob “B” locked, adjust minimum pressure unscrewing screw “A” very slowly, using a 4 mm screwdriver;
- refit electrical connector of the modulator and check settings;

MODULATOR DETAILS

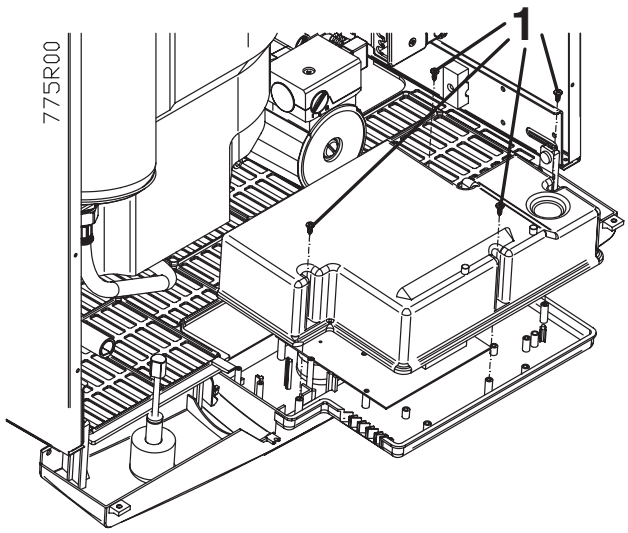


- turn off the burner turning the selector Summer/Winter in the central position. The green lamp flashes slowly.
- On “SE” models, refit silicon tube in the “VENT” on the gas valve (item 3 in the figure). ATTENTION: after this operation, the value indicated by pressure gauge could decrease due to pressure compensation. This is normal and does not require any adjustment.

Important: lock the adjustment device after any setting operation.

for the technician

Slow opening regulation



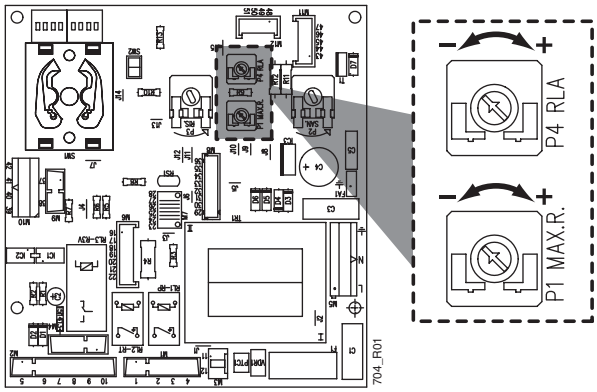
To adjust the slow opening, proceed as follows:

— switch off the boiler;

— release the screws [1] (see figure) and remove the back closing of the control panel;

*REMARK: you will have 8 seconds for the regulation of the slow opening pressure, and after these 8 seconds the pressure of the burner increases to the highest value. To increase this period of time to 30 seconds, turn the trimmer **P1 MAX.R.** completely in anticlockwise sense (it will be necessary to regulate consequently the Max Heating Power).*

— turn on the boiler and open a cold water tap, the burner will turn on allowing to check the pressure of slow opening. In case the values are different from:



Nat. gas: mod. 23 E: 3,5 mbar (36 mm w.g.)
mod. 28 E: 5 mbar (51 mm w.g.)
mod. 24 SE: 7 mbar (71 mm w.g.)
mod. 30 SE: 5 mbar (51 mm w.g.)

L.P.G.: mod. 23 E: 8 mbar (82 mm w.g.)
mod. 28 E: 8 mbar (82 mm w.g.)
mod. 24 SE: 14 mbar (143 mm w.g.)
mod. 30 SE: 14 mbar (143 mm w.g.)

turn the trimmer **P4 RLA** (in clockwise sense to increase the pressure and in anticlockwise sense to decrease the pressure) till the achievement of the correct value.

Regulation of MAX heating power

The maximum heating output must be set in accordance with the system requirements (stated in the project). The gas pressure values related to the different outputs are indicated in the table "BURNER PRESSURES". To adjust the burner pressure proceed as follows referring to the figure:

— Remove the back closing of the control panel releasing the screws [1] (see figure).

— Set Summer/Winter selector to Winter position and adjust the eventual room thermostat to a temperature value higher than the present one.

— When the burner is turned on (wait the end of the climbing ramp which lasts about 1 minute) check the value of the maximum gas pressure through the pressure gauge.

— Adjust pressure turning round the potentiometer **P1 MAX. R.** until reaching the required value.

— Close the control panel.

BURNER PRESSURES for SUPERMASTER 23 E

HEAT OUTPUT		NATURAL GAS G20		BUTHANE G30		PROPANE G31	
kW	kcal/h	mbar	mmH_2O	mbar	mmH_2O	mbar	mmH_2O
MIN. 9.1	7780	2.2	22	4.8	49	4.8	49
10	8600	2.7	27	5.8	59	5.9	60
11	9460	3.2	32	7.0	71	7.2	74
12	10320	3.7	38	8.2	84	8.7	88
13	11180	4.4	44	9.6	97	10.2	104
14	12040	5.0	51	11.0	112	12.0	122
15	12900	5.7	58	12.5	127	13.9	141
16	13760	6.4	65	14.1	144	15.9	162
17	14620	7.1	73	15.8	161	18.1	185
18	15480	7.9	81	17.5	179	20.5	209
19	16340	8.7	89	19.3	197	23.0	235
20	17200	9.6	98	21.2	217	25.7	263
21	18060	10.4	107	23.2	237	28.6	292
22	18920	11.3	116	25.2	257	31.7	323
MAX. 23.1	19860	12.3	125	27.4	279	35.0	357

BURNER PRESSURES for SUPERMASTER 28 E

HEAT OUTPUT		NATURAL GAS G20		BUTHANE G30		PROPANE G31	
kW	kcal/h	mbar	mmH_2O	mbar	mmH_2O	mbar	mmH_2O
MIN. 11.4	9800	2.8	29	5.5	56	5.5	56
12	10320	3.1	31	6.1	62	6.2	63
13	11180	3.5	36	7.1	72	7.3	74
14	12040	4.0	41	8.1	83	8.5	87
15	12900	4.6	47	9.3	95	9.9	101
16	13760	5.1	52	10.5	107	11.4	116
17	14620	5.7	58	11.7	120	12.9	132
18	15480	6.3	64	13.1	133	14.6	149
19	16340	6.9	70	14.5	148	16.5	168
20	17200	7.5	77	15.9	162	18.4	188
21	18060	8.2	83	17.4	178	20.5	209
22	18920	8.8	90	19.0	194	22.7	231
23	19780	9.5	97	20.6	210	25.0	255
24	20640	10.2	104	22.3	228	27.5	280
25	21500	10.9	111	24.0	245	30.1	307
26	22360	11.6	119	25.8	263	32.8	335
MAX. 27.1	23300			27.7	283	35.8	365
MAX. 27.5	23690	12.8	131				

BURNER PRESSURES for SUPERMASTER 24 SE

HEAT OUTPUT		NATURAL GAS G20		BUTHANE G30		PROPANE G31	
kW	kcal/h	mbar	mmH_2O	mbar	mmH_2O	mbar	mmH_2O
MIN. 8.9	7680	2.2	22	4.9	50	4.9	50
10	8600	2.7	28	6.1	62	6.2	63
11	9460	3.2	33	7.2	74	7.5	76
12	10320	3.8	39	8.4	86	8.9	91
13	11180	4.4	45	9.8	100	10.4	107
14	12040	5.0	51	11.1	114	12.1	124
15	12900	5.7	58	12.6	128	13.9	142
16	13760	6.4	65	14.1	144	15.9	162
17	14620	7.1	72	15.7	160	18.0	183
18	15480	7.8	80	17.3	177	20.2	206
19	16340	8.6	87	19.0	194	22.5	230
20	17200	9.4	96	20.7	212	25.0	255
21	18060	10.2	104	22.5	230	27.6	282
22	18920	11.0	112	24.3	248	30.4	310
MAX. 23.6	20260	12.3	125	27.2	277	34.5	352

BURNER PRESSURES for SUPERMASTER 30 SE

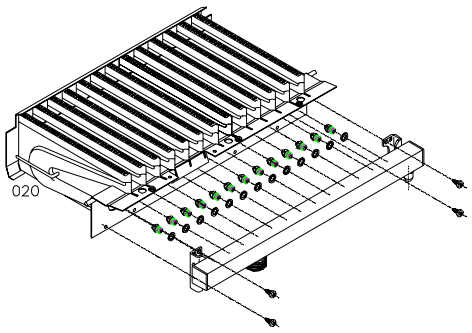
HEAT OUTPUT		NATURAL GAS G20		BUTHANE G30		PROPANE G31	
kW	kcal/h	mbar	mmH_2O	mbar	mmH_2O	mbar	mmH_2O
MIN. 11.0	9450	2.1	21	4.4	45	4.4	45
12	10320	2.5	25	5.2	53	5.3	54
13	11180	2.9	30	6.1	62	6.3	64
14	12040	3.3	34	7.0	72	7.3	75
15	12900	3.8	39	8.0	82	8.5	87
16	13760	4.3	44	9.1	93	9.7	99
17	14620	4.8	49	10.2	104	11.1	113
18	15480	5.3	54	11.4	116	12.5	128
19	16340	5.9	60	12.6	129	14.1	144
20	17200	6.5	66	13.9	142	15.8	161
21	18060	7.1	72	15.2	155	17.5	179
22	18920	7.7	79	16.6	170	19.4	198
23	19780	8.4	86	18.1	184	21.4	218
24	20640	9.1	92	19.6	200	23.5	240
25	21500	9.8	100	21.1	216	25.7	263
26	22360	10.5	107	22.8	232	28.1	287
27	23220	11.2	114	24.4	249	30.6	312
28	24080	12.0	122	26.1	266	33.2	338
MAX. 29.1	25000			27.8	284	35.8	365
MAX. 29.5	25400	13.1	134				

Changing Gas type

ATTENTION: the operations described below must be carried out only by qualified personnel [authorized from HERMANN Ltd].

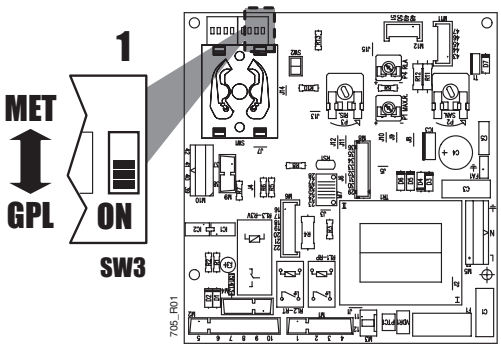
For gas conversion, use the nozzles supplied by boiler manufacturer only.

BURNER



CONVERSION FROM NATURAL GAS TO L.P.G.

Using LPG, it is absolutely necessary to install a pressure reducer upstream the boiler.



1. Disconnect the boiler from the electrical supply.
2. On “SE” models, open sealed combustion chamber.
3. Remove pipe between gas valve and injectors bar.
4. Remove injectors bar and replace injectors with the ones suitable for L.P.G., using a 7 mm. spanner (see figure “BURNER”). Reassemble injectors bar and pipe, replacing gaskets. On “SE” models, close sealed combustion chamber;
5. Remove the cover of the control panel and move the **first** microswitch of **SW3** (on the right) in the position ON, indicated in the figure with **“GPL”**.
6. check that pressure upstream the boiler is: Buthane = min.25 - max.35 mbar or Propane = min.25 -max.37 mbar.; check for gas leaks;
7. repeat following regulations: Domestic Water Output (max. and min.), Slow Opening Pressure and Heating Output, carefully reading the instructions given in the previous pages.

CONVERSION FROM L.P.G. TO NATURAL GAS

1. Disconnect the boiler from the electrical supply.
2. On “SE” models, open sealed combustion chamber.
3. Remove pipe between gas valve and injectors bar.
4. Remove injectors bar and replace injectors with the ones suitable for Natural Gas, using a 7 mm. spanner (see figure “BURNER”). Reassemble injectors bar and pipe, replacing gaskets. On “SE” models, close sealed combustion chamber;
5. Remove the cover of the control panel and move the **first** microswitch of **SW3** (on the right) in the position OFF, indicated in the figure with **“MET”**.

MODEL	Number of nozzles	Nozzles Ø for NATURAL GAS G20 (1/100mm)	Nozzles Ø for L.P.G. G30/G31 (1/100mm)
SUPERMASTER 23 E	13	120	75
SUPERMASTER 28 E	14	125	76
SUPERMASTER 24 SE	13	120	75
SUPERMASTER 30 SE	14	130	78

6. check that pressure upstream the boiler is: Natural Gas min.17-max. 25 mbar; check for gas leaks;

7. repeat following regulations: Domestic Water Output (max. and min.), Slow Opening Pressure and Heating Output, carefully reading the instructions given in the previous pages.

Combustion check

The boiler has a “CHIMNEYSWEEPER” function which draws the ignition of the burner to the highest power (not modulated) without working on the room thermostat.

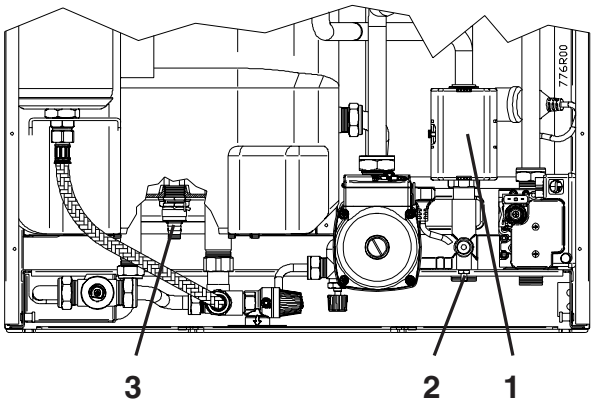
— Arrange the instruments for the combustion check;

— bring and keep the selector Summer/Winter in the “Chimneysweeper” Position for at least 3 seconds, then let the selector return in the Summer Position. The green lamp flashes rapidly and the burner ignites at the maximum output, for a period sufficient to make the cheking and the measurements. The produced heat is carried off by the heating system;

— to turn off the burner, turn the selector Summer/Winter in the central (0) position. The green lamp flashes slowly.

REMARK: the burner will turn off automatically at the achievement of the system highest temperature and, however, after 15 minutes.

Draining heating system and tank serpentine

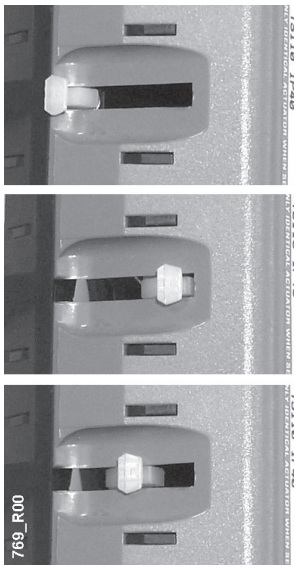


— To correctly unload both the heating system and the tank’s serpentine, the boiler must be switched off and it is necessary to manually set three-way valve in middle position as described here below:

  - three way valve (item 1 in figure) must be initially in “sanitary” mode (manual control spindle in position “S”). If it were in “R” position turn the Summer/Winter selector in Summer position and wait until the lever moves on S position;
  - switch boiler off and turn off its electrical power supply;
  - manually push spindle towards middle position, where it can be blocked pushing towards inside (position “C”).

— Connect a rubber pipe to the heating system draining tap terminal (item 2 in figure);

— put the other end of the pipe in a suitable drain or sink;



for the technician

— open draining tap by turning its hexagonal nut anticlockwise;

— when water pressure is COMPLETELY drained, you can open radiators air vents, to allow air inlet and complete plant draining;

— when everything is over, close the draining tap and ait vents.

Draining the tank

— Close the tap installed on the boiler cold water inlet;

— insert a rubber pipe on the tank outlet tap;

— connect the other side of the rubber pipe to a suitable outlet;

— open the tap turning in anticlockwise order the grained ring;

— when this operation is finished close the outlet tap turning the ring in clockwise order.

Check and replacement of the magnesium anode

To protect the tank from the corrosion attacks it is necessary to check every 6 months the magnesium anode and replace it if it's damaged.

— Unload the tank completely (see previous paragraph);

— release the hexagonal head of the anode which is placed in the middle of the inferior flange of the tank. Take it out, check it and if it is necessary replace it;

— install the anode, fill and put in pressure the tank (see paragraph "System Filling") and verify the lack of water losses.

Hydraulic section

STORAGE TEMPERATURE REGULATION

The boiler supplies hot water with constant temperature thanks to a mixing system between the hot water coming from the cold water heater. The normal temperature regulation of the outlet water must be made through the knob on the control panel.

There is also a secondary regulation which changes the temperature of only the heater.

This regulation is made in the firm for the best functioning of the boiler and it should not be modified. A too low regulation doesn't guarantee the correct hot water temperature control, whether a too high temperature could bring to big scale formations if the water is very strong and, consequently to the need of frequent cleaning of the exchange serpentine.

So, it is suggested to intervene with big caution on this regulation and to intervene only in the cases of very strong types of water.

Remark: it is possible to set this regulation on minimum to make the boiler work in "room anti-freeze" mode during an inactivity period, in the case that is installed a common room thermostat or chronothermostat featuring this possibility (see also "Boiler inactivity"). With this setting on minimum, the boiler will anyway check the temperature of the stored water, keeping it above the freezing temperature. Remember to put this setting back to the original position at the end of the inactivity period.

— Open the wicket of the control panel and take the protection plug on the right side of the knob , without turning it, grasping the small tongue with the nippers;

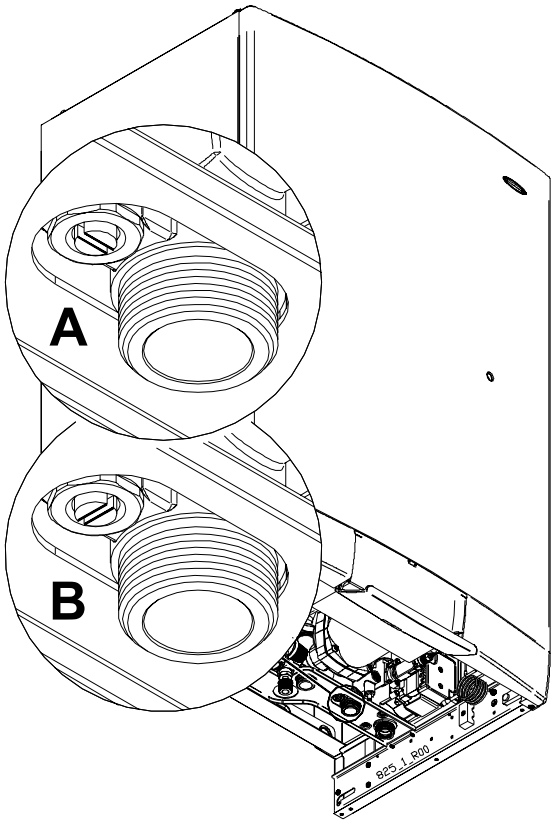
— turn the staff in clockwise sense to increase the storage temperature and anticlockwise to decrease it. In every case do not overcome the limit MIN and MAX. **The best firm set up corresponds to the middle position between the limits MIN and MAX.**

EXCLUSION OF AUTOMATIC BY-PASS

The boiler is factory equipped with an automatic By-pass valve. When it's completely open it guarantees a flow that's enough for boiler's normal work, without causing the intervention of safety devices. It's possible, anyway, to exclude it as follows:

1. Turn off the boiler by turning the Summer/Winter selector on central (0) position.
2. Turn the screw on the By-pass (see picture) until it's in the position shown in "B".

To turn the By-pass back in the original, automatic working mode, turn the screw until it's in the position shown in "A".



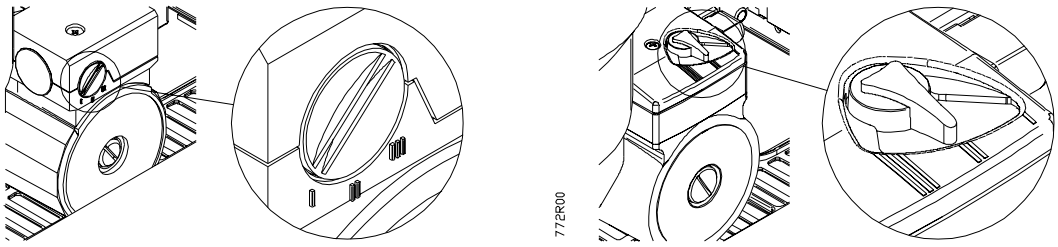
PUMP'S SPEED

The pump has a selector which allows to reduce the speed, so as to reduce the noise produced by the too rapid circulation of the liquids in too small heating systems.

III = **Maximum** Speed (Firm Set up)

II = **Medium** Speed

I = **Minimum** Speed



Electronical regulation

POSSIBLE REGULATIONS ON THE MAIN P.C.B.

The SUPERMASTER models are equipped with a Microprocessor P.C.B., with a sequence of 8 microswitches (SW3 / 1:8) which allow to make personalizing actions for the boiler's functioning. The firm arrangements are underlined.

Disconnect the power supply before approaching the microswitches. Restore the power supply only after you have closed the back cover of the control panel.

Moreover, the changes of the microswitches haven't effect until the boiler is electrically connected.

SW3 / 1 – **Natural gas** Functioning = **OFF**. **LPG** Functioning = **ON**. The firm arrangement depends on the gas type arranged for the boiler. For the GAS TYPE Changing it is necessary to follow the complete instructions described in the previous paragraph "Changing Gas type".

SW3 / 2 – Heating Flow Temperature Range: **OFF = normal** (+30°C/+80°C); **ON = reduced** (+25°C/+45°C). The reduced arrangement is thought for low temperature systems, but the best results with this type of system are gained with the normal arrangement, using the suitable optional Low Temperature Kit.

SW3 / 3 – It determines the delay of 3 Minutes, before the new ignition after the overcoming of the heating set temperature. **OFF = Delay ON** (for normal systems or radiators); **ON = Delay OFF** (for fan coil systems).

SW3 / 4 – In SUPERMASTER Boilers it must be **OFF**.

SW3 / 5 and 6 – Pump Functioning Way in Heating System:

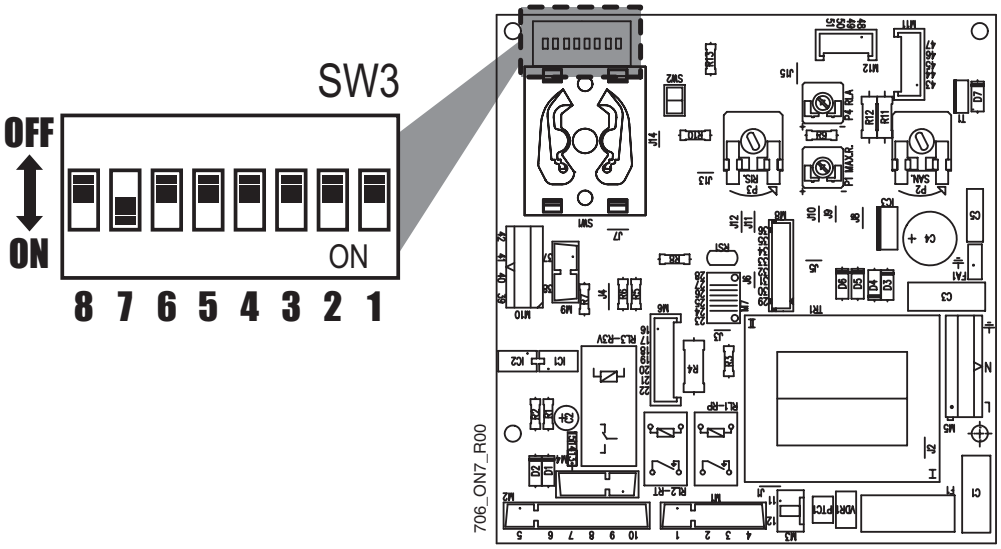
5 OFF – 6 OFF: intermittent for normal applications (with or without delay, see SW3/3)

5 OFF – 6 ON: always turned off (with outside circulators)

5 ON – 6 Unimportant (OFF or ON): always on (for high thermic Inertia systems)

SW3 / 7 – In SUPERMASTER Boilers it must be **ON**.

SW3 / 8 – In SUPERMASTER Boilers it must be **OFF**.



for the technician

Warnings for servicing

All servicing operations and gas conversions MUST BE CARRIED OUT BY QUALIFIED TECHNICIANS, in accordance with the Law n°46 dtd. 05/03/1990 and with the rules UNI-CIG 7129/92 and 7131/99 and revisions. Moreover, in accordance with art.11 section 4 D.P.R. 412/93 , SERVICING operations must be carried out, at least once a year, by HERMANN AUTHORIZED SERVICING CENTRES, and must be written in the appliance booklet, as indicated by the laws UNI and CEI presently in force.

At the end of each heating period, it is necessary to call a qualified technician to check the boiler, in order to keep the system perfectly efficient.

A careful servicing is always a guarantee of safety and saving.

Normally, it will be necessary to execute the following operations:

— Remove any possible oxidization from burners and electrodes;

— Scale exchangers;

— Check boiler ignition, switching off and operation;

— Check water and gas connections tightness;

— Check gas consumption at the minimum and maximum output;

— Verify that safety devices are correctly working;

— Verify correct functioning of control and adjusting devices;

— Verify periodically good working and efficiency of the combustion product evacuation ducts and/or devices;

— Check (every 6 months) and when necessary the substitution of the magnesium anode;

— In case of works or servicing of the structures placed near above mentioned ducts and /or devices and their accessories, switch off the boiler;

— Do not leave any inflammable tanks and/or substances in the installation room;

— Do not clean the room where boiler is installed, while it is working.

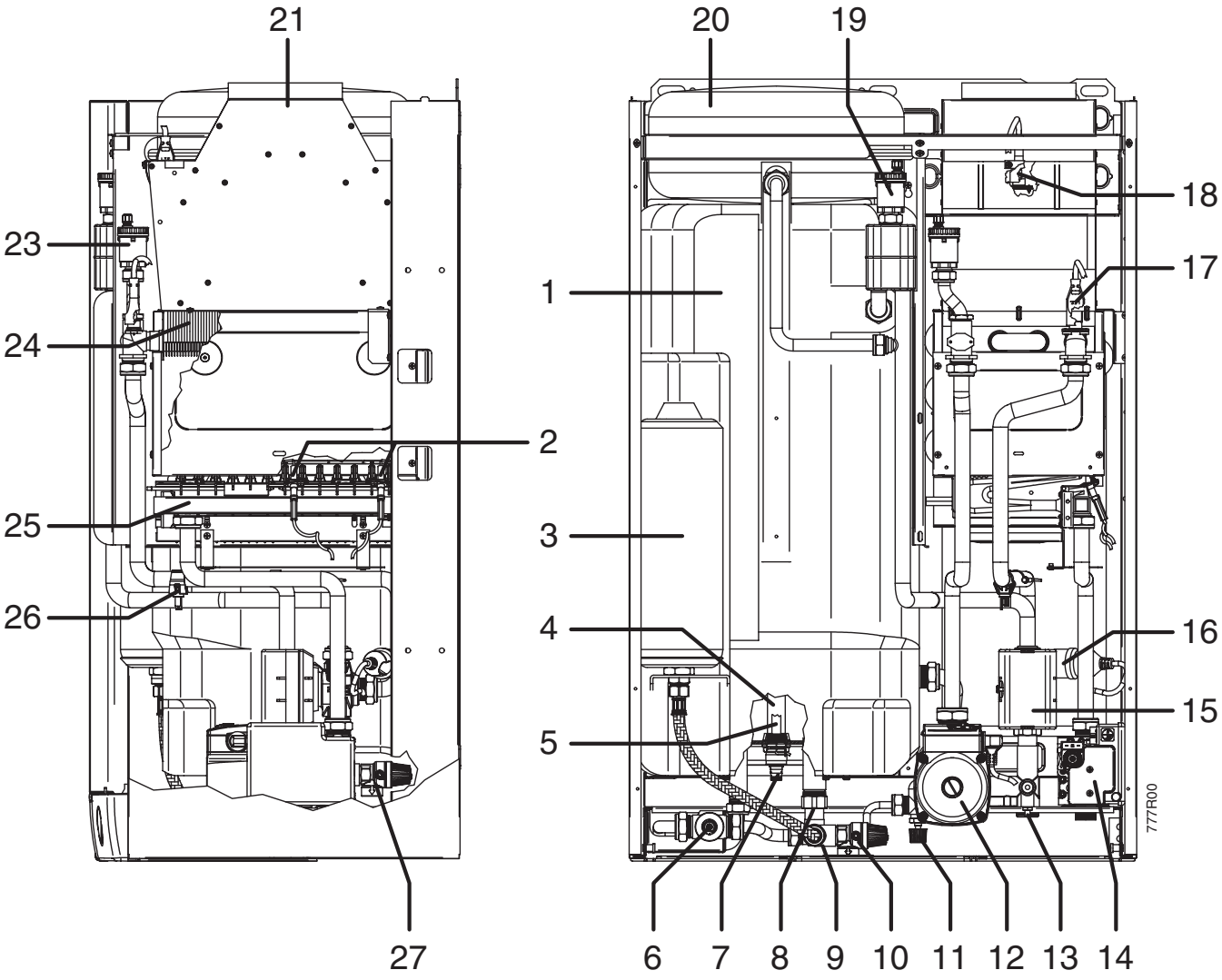
— Clean casing with soapy water only. Do not clean casing, other painted or plastic surfaces with thinner.

— In any case of parts replacement, it is mandatory to use HERMANN original spare parts.

HERMANN declines any responsibility in case of non-original spare parts utilization.

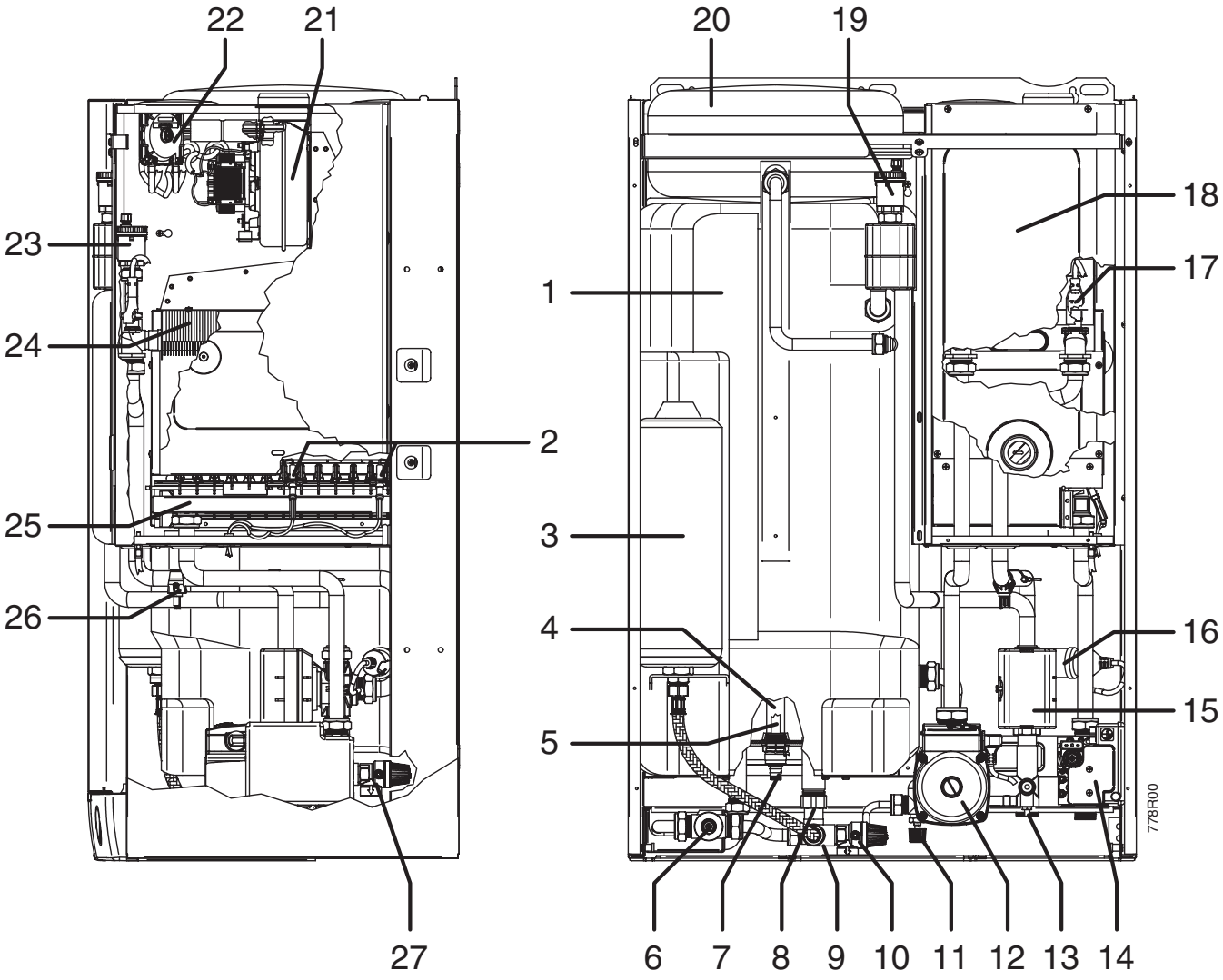
Once all servicing operations have been carried out, it is mandatory to write a report for the user, that should indicate state of the appliance, servicing interventions and eventual advices and prescriptions.

Components of the gas boiler SUPERMASTER 23 E - 28 E



1 Water heater tank
2 Ignition and flame control electrodes
3 DHW expansion vessel
4 Magnesium anode
5 Water heater tank temperature sensor
6 DHW manual mixing valve
7 Water heater tank outlet tap
8 Litercounter
9 DHW filter
10 DHW Safety valve (8 bar)
11 System filling tap
12 Pump
13 Heating circuit drain tap
14 Gas valve
15 Motorized 3 way valve
16 Loss of water pressure switch
17 Safety thermostat
18 Flue thermostat
19 Automatic air outlet valve (DHW tank)
20 Heating circuit expansion vessel
21 Flue hood
23 Automatic air outlet valve (heating circuit)
24 Primary exchanger
25 Burner
26 Heating system flow temperature sensor
27 Heating circuit safety valve (3 Bar)

Components of the gas boiler SUPERMASTER 24 SE - 30 SE

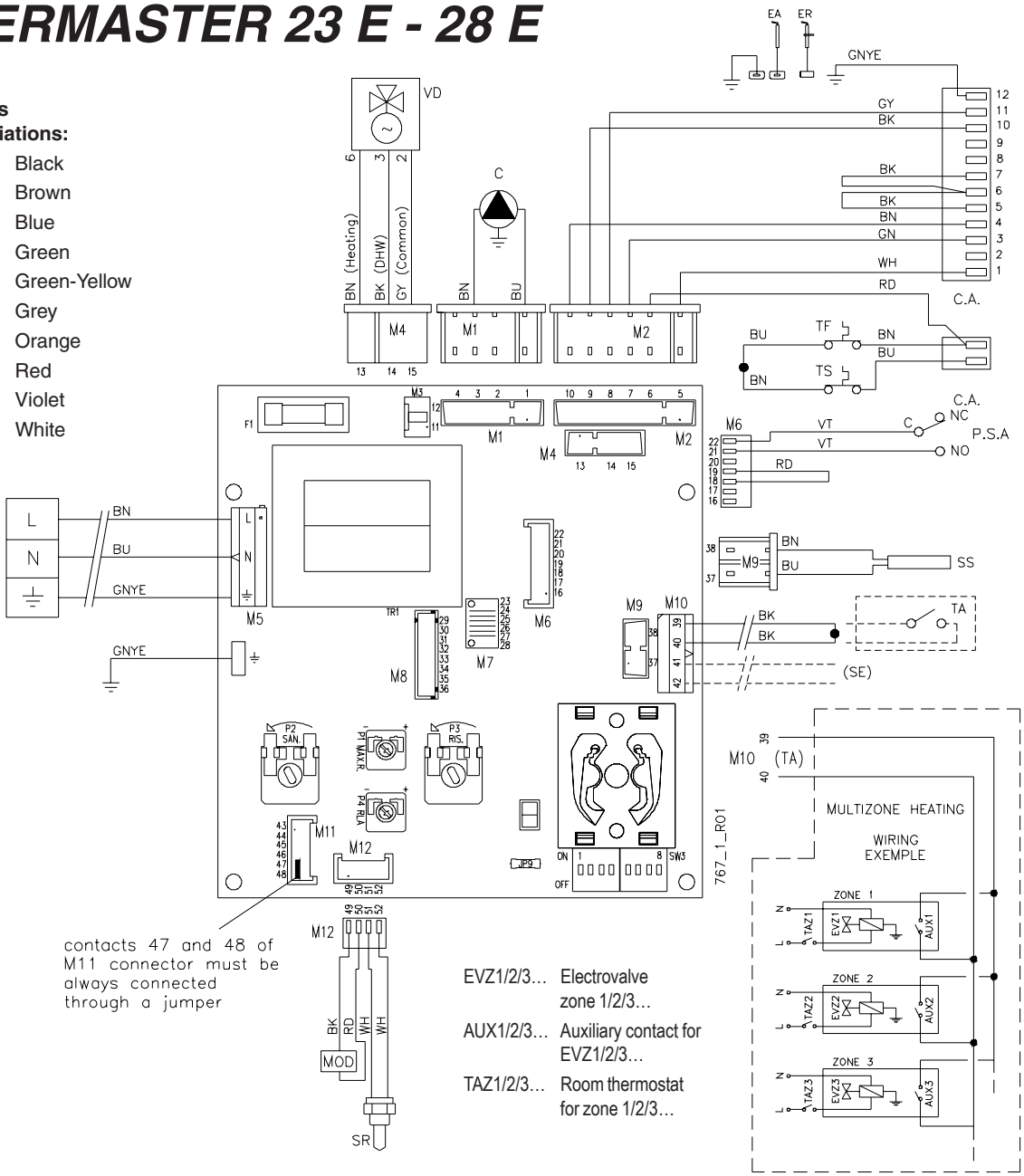


1 Water heater tank
2 Ignition and flame control electrodes
3 DHW expansion vessel
4 Magnesium anode
5 Water heater tank temperature sensor
6 DHW manual mixing valve
7 Water heater tank outlet tap
8 Litercounter
9 DHW filter
10 DHW Safety valve (8 bar)
11 System filling tap
12 Pump
13 Heating circuit drain tap
14 Gas valve
15 Motorized 3 way valve
16 Loss of water pressure switch
17 Safety thermostat
18 Sealed chamber
19 Automatic air outlet valve (DHW tank)
20 Heating circuit expansion vessel
21 Fan
22 Flue pressure switch
23 Automatic air outlet valve (heating circuit)
24 Primary exchanger
25 Burner
26 Heating system flow temperature sensor
27 Heating circuit safety valve (3 Bar)

Electric diagram for SUPERMASTER 23 E - 28 E

Colours abbreviations:

BK	Black
BN	Brown
BU	Blue
GN	Green
GNYE	Green-Yellow
GY	Grey
OG	Orange
RD	Red
VT	Violet
WH	White

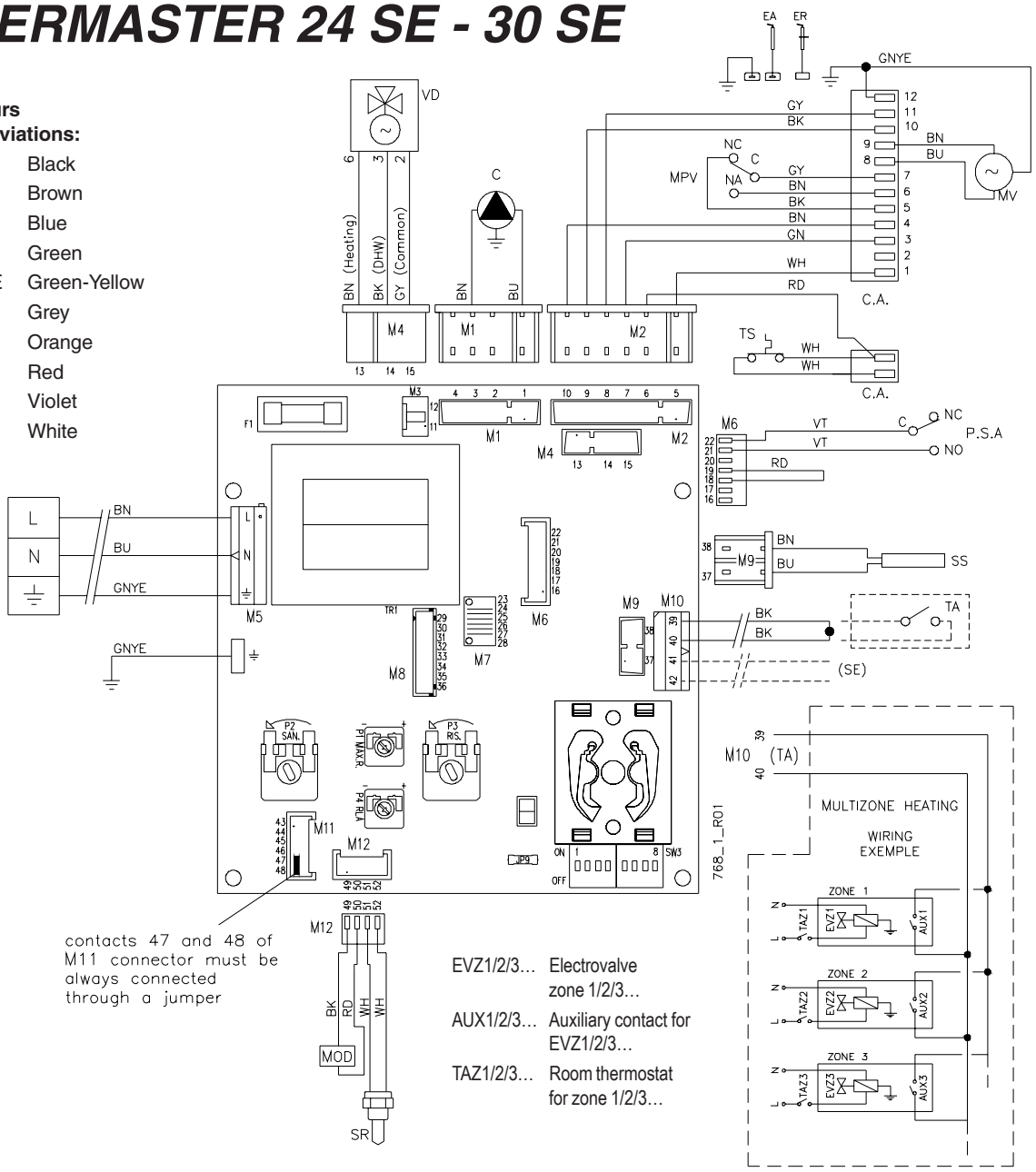


- C Pump
- CA Ignition and flame control unit
- EA Ignition electrode
- ER Flame sense electrode
- F1 Fuse (2 A)
- MOD Modulatore
- PSA Low water pressure switch (contact NA closed = in pressure)
- SR Heating NTC sensor
- SS DHW storage NTC sensor
- TA Voltage-free Contact for Room Thermostat or Cronothermostat (for trade) (safety extra low voltage SELV)
- TF Flue thermostat
- TS Safety thermostat
- VD Motorized deviating valve
- (SE) Arrangement for external sensor (optional)

Electric diagram for SUPERMASTER 24 SE - 30 SE

Colours abbreviations:

BK	Black
BN	Brown
BU	Blue
GN	Green
GNYE	Green-Yellow
GY	Grey
OG	Orange
RD	Red
VT	Violet
WH	White



EVZ1/2/3… Electrovalve zone 1/2/3…

AUX1/2/3… Auxiliary contact for EVZ1/2/3…

TAZ1/2/3… Room thermostat for zone 1/2/3…

C Pump

CA Ignition and flame control unit

EA Ignition electrode

ER Flame sense electrode

F1 Fuse (2 A)

MOD Modulatore

MPV Flue pressure switch

MV Fan motor

PSA Low water pressure switch (contact NA closed = in pressure)

SR Heating NTC sensor

SS DHW storage NTC sensor

TA Voltage-free Contact for Room Thermostat or Cronothermostat (for trade) (safety extra low voltage SELV)

TS Safety thermostat

VD Motorized deviating valve

(SE) Arrangement for external sensor (optional)

USER INSTRUCTIONS

Warnings for first starting up

The first starting up must be done by a professionally qualified staff (for example the SERVICE CENTERS authorized by HERMANN).

Gas conversion from a specific gas (natural gas or LPG) to another gas, can be made also when the gas boiler is already installed, but only by a qualified technician. The technician will check that:

a) the label technical data of the gas boiler correspond to those of the gas, water and electrical supply lines;

b) the main burner regulation is compatible with the gas boiler output;

c) the chimney works correctly, expelling the combustion products;

d) the air supply and the combustion products evacuation work correctly, in accordance with the requirements in force;

e) the conditions for a correct ventilation are guaranteed, also when the gas boiler is located inside a furniture.

Useful advices

WARNING for "E" models: The boiler is fitted with a safety thermostat for chimney draught, operating in case of combustion products return in the installation room. This device must be always in function, because a combustion products return can cause chronic or acute intoxications with danger of death. If the thermostat must be replaced, use the original spare part only. In case of repeated interventions of the device, check that the Flue Products Outlet System is efficient and made according to the laws in force (see examples in page 15).

WARNING for "SE" models: The boiler is fitted with a safety flue pressure switch. This device must be always in function. In case of repeated interventions, call a qualified technician. If the pressure switch must be replaced, use the original spare part only. In case of repeated interventions of the device, check that the Air Flue Products Inlet/ Outlet System is efficient and made according to the laws in force (see examples in page 16).

INSTALLATION AND SERVICING

All installation, servicing and gas conversion operations MUST BE CARRIED OUT BY QUALIFIED TECHNICIANS authorized by Law n. 46 dtd March 5th, 1990 and in accordance with UNI-CIG 7129/ 01 and 7131/99 requirements and revisions.

Moreover, in accordance with art.11 section 4 of DPR 412/93 and revisions, boiler MAINTENANCE operations must be made at least once a year and following manufacturer's specifications and UNI and CEI rules in force.

APPLIANCE BOOKLET OR CENTRAL PLANT BOOKLET

All appliances, even those installed before August 1st, 1994, must have an appliance booklet (for outputs less or equal 35 kW) or a central plant booklet (for outputs more than 35 kW). All ordinary and special servicing operations and combustion checkings must be written on the booklet, together with the name of the person responsible for servicing.

COMBUSTION CHECKING

Combustion checking is made with a control of the boiler efficiency; this checking must be carried out only by a person with the requirements of the Law 46/90. Boilers that, after the checking, will have efficiency rates lower than the ones required and not changeable with suitable adjustments, must be replaced.

BOILER OPERATION AND SERVICING

The user (owner or tenant of the flat where the boiler is installed) or the administrator of the block of flats (in case of a central heating system) are responsible for the appliance operation and servicing; they can both transfer the responsibility of the servicing and eventually of the operation to another person, which must have the requirements indicated by the Law 46/90. Even if the user or the administrator decide to assume personally this responsibility, ordinary servicing of the warm air heater and combustion checkings must be carried out by a qualified technician.

Warnings

— In case of prolonged absence of the user, call the authorized servicing centre to empty the system.

⚠ **In case of gas smell:**

a) do not press electrical switches, use the telephone or other objects that can provoke sparks;

b) open immediately the windows and the doors in order to cleanse the room air;

c) close the gas supply taps;

d) call a qualified technician.

⚠ **Do not obstruct the ventilation openings of the gas boiler room, in order to avoid possible dangerous situations as the creation of poisonous or explosive mixtures.**

⚠ **When the boiler is off for a long period see the Paragraph "Inactivity of the Boiler" for the necessary precautions about the electrical supply, the gas supply and the protection against freezing.**

Boiler controls

To have the access to the boiler controls it is sufficient to push on the lower part of the panel, as shown in the figure.


770_R00

In addition to the controls in the front panel, we remind you that the boiler **must be equipped**, during the installation process, with an **external general switch** which totally disconnects the boiler from the electrical supply.

Instructions for boiler ignition, functioning and turning off

TO START THE BOILER

Open the gas tap and turn on the external general switch. The green lamp [1] flashes to show that the boiler is supplied but not on (in stand-by). Turn the Selector [2] in the suitable position SUMMER or WINTER . The green lamp [1] will turn constantly on to show that the boiler is on. If the water contained by the boiler is cold or however inferior to the set up temperature, there will be the ignition of the flame till the heating of the flame.

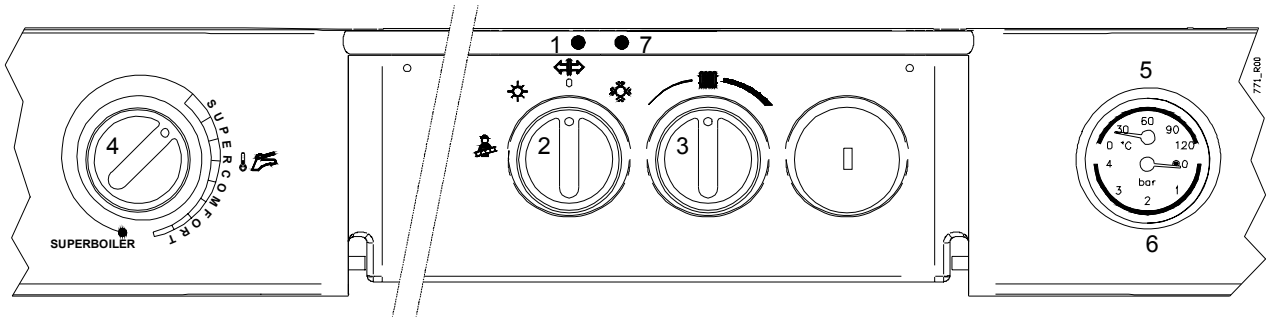
ATTENTION: Do not activate the Chimneysweeper Function which is reserved for the installer and which forces the ignition of the burner (the green lamp flashes rapidly). If, by mistake, it should happen, bring immediately the selector in the central position (0), wait until the green lamp flashes slowly, and then turn the selector in the desired position.

TO STOP THE BOILER (STAND-BY)

Turn the selector [2] in the central position (0).

If the boiler is off for a long period see the paragraph "INACTIVITY OF THE BOILER" for the necessary precautions about the electrical supply, gas supply and anti freezing protection.

CONTROL PANEL



SUMMER FUNCTIONING

Turn the selector [2] bringing it in the SUMMER position

To regulate the temperature of the cold water produced by the boiler, pull and then turn the knob [4] for the DHW temperature regulation. The rotation usually requires a certain strenght:

— When the knob is placed inside the SUPERCOMFORT zone (on the right) the hot water outlet is managed by the boiler in order to ensure the maximum stability of the flow temperature. The positions on the right offer slightly lower but more stable temperatures and big flows which meet the needs of several showers or basins of great sizes.

— Turning the knob in anticlockwise sense towards SUPERBOILER (on the left) you can obtain progressively the maximum available temperature. This regulation is indicated when you need very hot water.

In case of not ignition of the boiler (and consequently of cold water supply) check that the red lamp [7] is not on: if it's on, turn the selector [2] in the central Off/Unlock Position, wait until the red lamp [7] turns off, and then bring it again in the SUMMER position. See "Working and warning indicators" for more information and useful advices to solve common problems.

REMARK: at the interval of 7 days the boiler automatically provides for the heating of the water in the boiler to more than 60°C, so as to avoid eventual bacters which form in quiet water.

WINTER FUNCTIONING

Turn the selector [2] bringing it in the WINTER Position.

Regulate the Boiler Thermostat [3] at the desired temperature.

If a Room thermostat or a Cronothermostat is installed, the regulation of this last keeps the room temperature as that arranged (refer to the respective using instructions). In this case it is useful to regulate the boiler thermostat according to the outdoor seasonal climate, so as to allow the gaining of the desired temperature, but without excessive overheatings (consider that the radiators emit heat also after the turning off of the boiler).

The hot water regulation is the same in both winter and summer mode: see previous "SUMMER FUNCTIONING" for details.

In case of not ignition of the boiler, check that the red lamp [7] is not on: if it's on, turn the selector [2] in the central Off/Unlock Position, wait until the red lamp [7] turns off, and then bring it again in the WINTER Position. See "Working and warning indicators" for more information and useful advices to solve common problems.

Important:

The temperature in the boiler is shown by the thermometer [5] and the pressure is shown by the Gauge [6].

Remark: If pressure falls down to 0.5 bar, boiler will stop (the red lamp turns on). To reset the system, proceed with system filling.

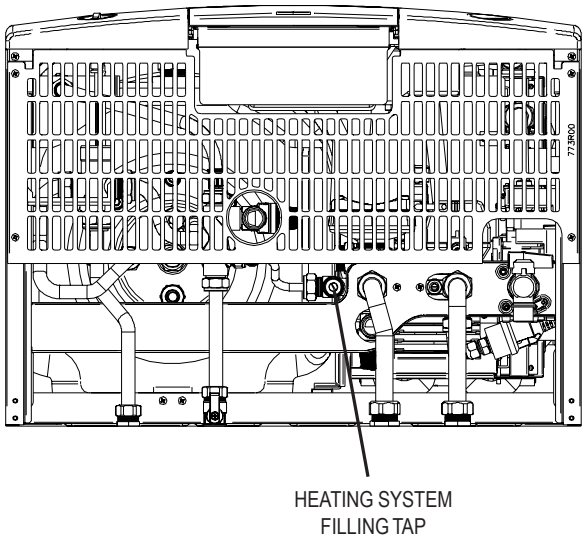
ROOM TEMPERATURE REGULATION

We want here to remind you that the room temperature must be regulated through a room thermostat with two temperature levels. This required by DPR 26 Agosto 1993 n°412 and relevant changes.

SYSTEM FILLING

Make sure that the system pressure in a cold state is always between 0.5÷1.5 bar (optimal pressure: 1÷1.5 bar). If pressure is lower, open the filling valve (see figure) till it reaches a maximum value of 1,5 bar; this value is checked with the pressure gauge (item 6 in previous Control Panel figure).

BOILER BOTTOM VIEW



Working and warning indicators

GREEN FUNCTIONING LAMP [1]

The green lamp can be **off, flashing** (slowly or rapidly) or **on**.

OFF: the boiler is electrically disconnected. In these conditions the boiler obviously doesn't work. The Automatic Anti Freezing and Anti Blocking functions can't be activated (useful during long period of inactivity). The external general switch could be off.

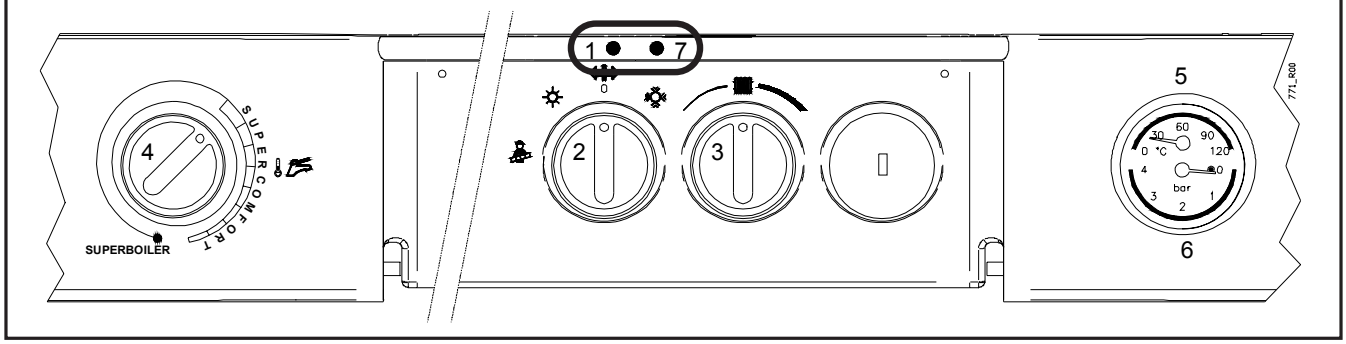
FLASHING (slowly): the boiler is electrically supplied but the SUMMER/WINTER Selector is in central position (0). The boiler will not turn on following the needs of heating and water in the boiler won't be maintained hot, but the Anti Freezing and Anti Blocking Functions are on (this last can request the temporary ignition of the burner, then it is necessary that the gas is open).

FLASHING (rapidly): the Chimneysweeper Function (which is reserved for the technician) **is on** by mistake.

Turn it off bringing the SUMMER/WINTER selector in the central position (0) until the green lamp flashes slowly.

ON: the boiler is on and the SUMMER/WINTER selector is in the SUMMER ☼ Position or in the WINTER ☼ Position. The boiler will turn on following the needs of heating or to keep the water in the boiler hot.

CONTROL PANEL



BOILER'S LOCK OUT RED LAMP [7]

The red lamp can be **off**, **flashing** and **on**.

OFF: the functioning of the boiler **is correct**.

FLASHING:

— **One of the internal sensors of the boiler has been damaged.** Call a Qualified Technician for repairing.

ON - it signals problems that can be normally solved by the user:

— The boiler has been **just installed**, or **works** have been made **on the gas pipes**.

It is normal that the boiler goes repeatedly in Lock Out when the Inlet Gas is mixed with air. This impedes the correct ignition and then provokes the Lock out. In the conditions described above, it is necessary to repeat more times the ignition of the boiler turning the SUMMER/WINTER Selector in the Unlock ⇦|⇨ Position until the red lamp turns off.

— **The water pressure**, shown by the gauge in the control panel, **is not sufficient** (0,5 bar or lower).

Restore the correct pressure (optimal pressure: **1÷1,5 bar at cold system**) opening the inlet tap (the action is described before). Do not restore the pressure with hot system, because when the system gets cold the pressure decreases.

Consider that the pressure, in normal conditions, should not decrease. If this happens, there is probably a loss in the heating system. Sometimes the loss is so small that it doesn't leave evident signs, but with the progress of the time it can cause the decreasing of the pressure.

Also the opening of the Manual Radiator Outlet taps (intentional or unintentional) makes the pressure decrease. Check that this doesn't happen.

— the boiler has an overheating and the Safety Thermostat has triggered;

Turn the SUMMER/WINTER Selector in the central Unlock ⇦|⇨ Position until the red lamp turns off (or eventually for a longer period to make the boiler cool), then bring again the selector in the desired position (Summer ☼ or Winter ☼). If the Lock Out takes place again call the Service Centre.

— the burner hasn't regularly switched on or the flame has suddenly turned off; incorrect combustion.

Restore the service turning the SUMMER/WINTER selector in the Unlock ⇦|⇨ Position until the red lamp turns off. In case of frequent Locks:

- Call a technician to check the combustion and verify that the burner is clean and in good conditions;

In "SE" models with Sealed Combustion Chamber:

- Check that the Inlet/Outlet Ducts and the respective terminals are clean and in good condition, and that there are no leaks. During the Installation Process it is necessary

to respect the prescriptions included in the national and local regulations and laws, in addition to the slopes and measurement included in the paragraphs “Chimney connections” and “Flue systems”.

***Note for the TECHNICIAN**: The burner flame is not detected by the Flame Control Unit becouse it has not turned on or it has suddendly turned off, or it has detached from the burner, because of an incorrect combustion. This can be due, in exemple, to combustion product reflowing into inlet duct, leaks in inlet/ outlet ducts or errors in sizing of ducts (ducts length above or below the allowed, and/or wrong use of restrictor on boiler’s outlet).*

— **“E” models with Natural Draught only: the device which signals the wrong Flue Outlet has intervened;**

Exceptionally the cause can be a strong wind gust. Restore the service turning the SUMMER/WINTER selector in the Unlock ⇦|⇨ Position until the red lamp turns off. In case of frequent Locks:

- Check the efficiency of the Flue.
- Check that the outlet which communicates with the outdoor, compulsory according to the law, is not obstructed by pieces of furniture against the wall or by other objects. *It is however normal that the outlet is realized behind a radiator.* The outlet must be of the dimension prescribed by the law and must be cleaned inside: some types have an anti-insects net which could have been dirtied by dust or by spider’s webs. Call a Qualified Technician when it is necessary.
- If in the room where the boiler is installed there are mantelpieces, stoves, coal stoves or similar, fans for the Air Outlet, such as wall fans, aspiring cowls for cooking boards with outlet pipe, let the technician check that the inlet is correctly OVERSIZED or that there are the ADDITIONAL Inlets as prescribed by the laws in force, because, otherwise, these devices interfere with the evacuation of the Boiler’s Flue.

Boiler inactivity

The effects of the periods of inactivity can be relevant in particular situations such as in flats used only for some months per year, most of all in cold places.

The user will have to decide to put the boiler in the **SAFETY LOCK OUT state** disconnecting all the supplies, or to **leave it in stand-by and use the Anti Freezing Function**. In general it is better to use the SAFETY LOCK OUT. When there is the possibility of freezing it is convenient to chose between the advantages and the disadvantages of the SAFETY LOCK OUT and of the Stand By/ Anti Freezing Way.

SAFETY LOCK OUT

— Turn off the general switch on the Electrical Supply Line of the Boiler;

— Close the Gas Tap;

When it is expected that the temperature is going to decrease under 0°C and the system doesn’t include the Anti Freezing Function, empty the heating system totally, or fill it with an Anti Freezing Solution, and empty the tank.

Notice that if it had been necessary to restore the pressure (because of possible loss) in an heating system already filled with an Anti freezing solution, the concentration of the system could have decreased and it could not guarantee the Anti freezing Protection.

REMARK: the boiler is equipped with a system which protects the main components from the exceptional cases of LOCK OUT, due to the inactivity in presence of water and scale. The Anti Lock out System can't work during the Safety Lock Out Process, because of the lack of electrical supply.

STAND-BY AND ANTI FREEZING/ANTI LOCK OUT FUNCTION

The boiler is equipped with an Anti freezing System which provides the ignition of the boiler whenever the temperature of the water - in the heating circuit or in the tank inside the boiler - decreases under 5°C and which provides the turning off when the temperature reaches 30°C. In order to activate the Anti Freezing Function:

- electrical power supply MUST be ON;
- boiler must be left in stand-by mode (Summer/Winter selector on 0, green lamp flashing);
- the gas must be left open;
- system pressure must be correct (1÷1.5 bar in a cold state, minimum 0.5 bar).

In case of lack of gas, the burner won't turn on and the boiler will go in LOCK OUT state (red lamp on or flashing). Nevertheless the pump will work, making the water circulate in the system and reducing in this way the possibility of freezing.

Moreover, the boiler in stand-by activates periodically the main internal components to prevent the exceptional cases of Lock out due to the inactivity in presence of water and scale. This happens also if the boiler goes in Lock Out state (red lamp on or flashing).

"ROOM ANTIFREEZING" FUNCTION

If the flat (where the boiler is installed) remains unused for a period with cold temperature, you can consider the possibility to extend the antifreezing capability of the boiler, to all the heating system (and to the flat rooms). Also in this case, are needed the presence of all supplies (electric, gas) and the correct system pressure.

— **if the REMOTE CONTROL (original optional kit) is installed** the antifreeze function is automatically started by putting the boiler in Stand-by by means of the relevant pushbutton on the Remote Control. The boiler, the rooms and the DHW tank will be kept at a minimum temperature as to avoid the freezing of the liquids in them;

— **if a common thermostat or chronothermostat is installed**, featuring* an "anti freezing" function and you want to use it, it's necessary to set the boiler in Winter mode and NOT in Stand-by, to allow it to heat the heating circuit when the room temperature sensor requires it. To avoid extra gas consumption, it's advisable to ask a technician to set the tank temperature to the minimum, as described in "Hydraulic section" paragraph, "Regulation" section, back in this handbook (otherwise boiler will heat the water in the tank, without any reason).

* *if it's without this specific function, it's possible anyway to set the room temperature to a few degrees above the freezing temperature, in exemple +5°C (if you have a chronothermostat, remember to choose the manual mode).*

Incidental not functioning

THE BURNER DOESN'T TURN ON

— If the room thermostat is installed, check that this is regulated with an higher temperature in respect of that of the place where it is installed;

— check that there is electrical supply and that the Summer/Winter Selector isn't on 0 (stand-by) but on SUMMER or WINTER . The GREEN lamp must be constantly ON (see details in the paragraph "Working and warning indicators");

— if the Lock Out red lamp is on or flashing, see the paragraph "Working and warning indicators";

— check on the gauge that the boiler pressure is correct (1÷1.5 bar in a **cold** state) or at least not lower than 0.5 bar.

— In SE Models, in some cases, eventual problems with the flue outlet impede the ignition of the boiler without turning on the unblock red indicator. You have to check the ducts for the inlet and the outlet, the relevant terminals and the device which controls the correct flue outlet. In the installation process the prescriptions connected to the laws and the national and local rules must be respected together with the rules contained in the paragraph "Chimney connections".

SHORTAGE OF DOMESTIC HOT WATER PRODUCTION

— make sure that D.H.W. thermostat is not set on a too low position;

— call a qualified technician to check gas valve regulation;

— let a technician check the storage temperature regulation, in the case it has been set to the minimum because of an inactivity period, using the "room antifreeze" procedure (see "Boiler inactivity" and "Hydraulic section");

— call a qualified technician to check, and eventually clean, the hot water tank.

Remark: where the water hardness value is too high, it is suggested the installation of a softening device, in order to prevent the limestone precipitation; this operation avoids a frequent cleaning of the coil.

Do not try to repair the gas boiler by yourself.

For any intervention on the electrical, hydraulic or gas circuit exclusively call a qualified technician.

The gas boilers must be fitted with original accessories only.

HERMANN Ltd. is not responsible for damages caused by the incorrect, wrong or unreasonable use of non-original materials.

User warnings

— Check frequently water pressure on the hydrometer and verify that, **when the system is cold,** water pressure values are in line with the manufacturer instructions.

— If water pressure is frequently dropping down, call a qualified technician to repair possible leakages in the system.

— If the boiler is off for a very long period, see the Paragraph “Inactivity of the Boiler” for the necessary precautions about the electrical supply, the gas supply and the protection against freezing.

— Every 6 months make the check of the efficiency of the magnesium anode which protects the water heater from the corrosion, and if necessary, replace it.

Do not touch the heated surfaces of the boiler, as the doors, the flue, the chimney pipe, etc., also after the boiler operation because, for a certain time, these surfaces are oveheated. Any contact with them can cause dangerous scalds. It is then forbidden to let children or inexperienced people be close to the boiler, during its operation.

— Do not expose the wall hung gas boiler to water vapours directly coming from gas cookers/ hobs.

— Do not wet the gas boiler with water or other liquids sprinklings.

— Do not put any object on the gas boiler.

— The gas boiler utilization is forbidden to children and to inexperienced people.

— If the gas boiler is going to be definitively unused, call a qualified technician to carry out all required operations, checking in particular disconnection of gas, water and electrical supplies.

— **Only on SUPERMASTER E models** (natural draught): the installation of aspirators, fireplaces or similar appliances in the boiler room (and in adjacent rooms in case of indirect ventilation), must be made in compliance with all specific safety rules and laws (for example by augmenting the dimensions of ventilation openings), even in case of modifications or additions.

INSTRUCTIONS MANUAL

Make sure that the present manual is ALWAYS with the boiler, for any consultation of the user and servicing personnel.

HERMANN CONVENTIONAL GUARANTEE CONDITIONS

Hermann offers to the customer a particular and exclusive CONVENTIONAL GUARANTEE, which is automatically activated asking the First Ignition to a Hermann Authorized Service Center. The conditions of the HERMANN CONVENTIONAL GUARANTEE don’t prejudge nor invalidate the rights indicated by the European Rule 1999/44/CE actuated with Italian Laws by the Decree 02 Februar 2002 N°24 of which the User is the Owner.

HERMANN S.r.l. Via Salvo d'Acquisto 29010 Pontenure (PC)
Tel. 0523/510341 Fax 0523/510359
E-MAIL : hermann@hermann.it
http://www.hermann.it

07/2003 COD. 982160038 / REV. 003 (UKENG)