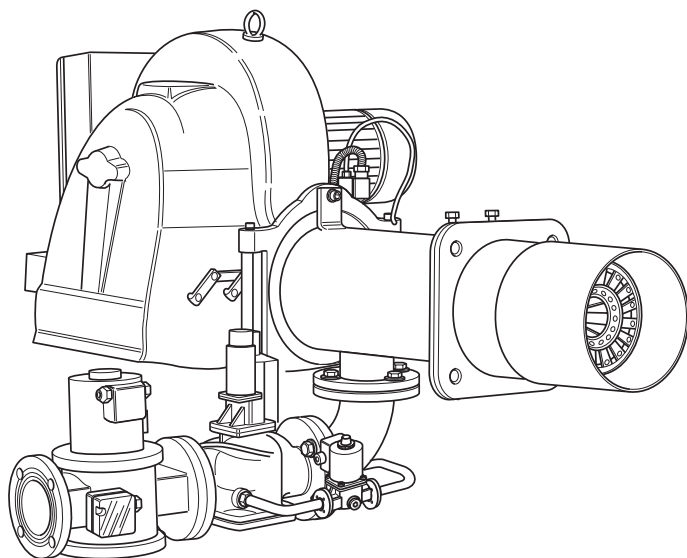




Lamborghini
CALORECLIMA

AZIENDA CERTIFICATA ISO 9001



BRUCIATORI A GAS A DUE FIAMME
DOUBLE-FLAME GAS BURNERS
BRULEURS A GAZ A DEUX FLAMMES
ZWEIFLAMMIGE GASBRENNER
QUEMADORES A GAS CON DOS LLAMAS



310 - 430 PM/2-E

MANUALE DI
INSTALLAZIONE E
MANUTENZIONE

INSTALLATION
AND MAINTENANCE
MANUAL

NOTICE
D'INSTALLATION ET
D'ENTRETIEN

INSTALLATIONS-
UND
WARTUNGSANLEITUNG

MANUAL PARA LA
INSTALACIÓN Y EL
MANTENIMIENTO

ITALIANO

4

Leggere attentamente le istruzioni ed avvertenze contenute sul presente libretto in quanto forniscono importanti indicazioni riguardanti la sicurezza d'installazione, d'uso e di manutenzione. Conservare con cura questo libretto per ogni ulteriore consultazione. L'installazione deve essere effettuata da personale qualificato che sarà responsabile del rispetto delle norme di sicurezza vigenti.

ENGLISH

26

Read all warnings and instructions contained in this manual carefully as they give important safety instructions regarding installation, use and maintenance. Keep this manual for future reference. Installation must be carried out by qualified personnel who will be responsible for observance of safety standard in force.

FRANÇAIS

48

Lire attentivement le mode d'emploi et les instructions du présent livret car ils fournissent des indications importantes pour la sécurité de l'installation, de l'emploi et de la manutention. Conserver avec soin ce livret pour ultérieures consultations. L'installation doit être effectuée par un personnel qualifié qui sera responsable de respecter les normes de sécurité en vigueur.

DEUTSCH

70

Lesen Sie die Anleitungen in diesem Handbuch aufmerksam durch, da sie Ihnen wichtige Hinweise für eine sichere Installation, Wartung und einen sicheren Betrieb liefern. Bewahren Sie dieses Handbuch für spätere Verwendung sorgfältig auf. Die Installation muß von Fachpersonal ausgeführt werden, das für die Einhaltung der geltenden Sicherheitsvorschriften verantwortlich ist.

ESPAÑOL

92

Lean detenidamente las instrucciones y advertencias que contiene el presente folleto ya que dan indicaciones importantes relativas a la seguridad de la instalación, al uso y al mantenimiento. Conserven con cuidado este folleto para cualquier ulterior consulta. La instalación debe ser efectuada por personal técnico cualificado que será responsable del respeto de las normas de seguridad vigentes.



CONTENTS	PAGE
GENERAL INSTRUCTIONS _____	27
DESCRIPTION _____	29
DIMENSIONS _____	30
MAIN COMPONENTS _____	30
TECHNICAL SPECIFICATIONS _____	31
OPERATING CURVES _____	31
GAS PRESSURE/FLOW CURVES _____	32
BOILER ASSEMBLY _____	34
ELECTRICAL CONNECTIONS _____	35
ELECTRODES POSITION _____	36
GAS CONNECTION _____	36
COMBUSTION HEAD REGULATION _____	37
OPERATING CYCLE _____	38
REGULATIONS _____	39
CONVERSION FOR OPERATION WITH DIFFERENT TYPES OF GAS _____	44
MAINTENANCE _____	45
FAULT-FINDING CHART _____	46

Congratulations...

... for having made an excellent choice. We thank you for the preference demonstrated for our products. Since 1959 LAMBORGHINI CALORECLIMA has operated in Italy and around the world with a vast network of agents and concessionaires, who continually guarantee the presence of our products on the market.

Our products are backed up by the technical assistance of "LAMBORGHINI SERVICE" providing expert product maintenance.

IMPORTANT - Burner installation must comply strictly with current regulations. Utilise and purchase standard or specially requested components from LAMBORGHINI sales and assistance centres. Failure to comply with the above will release the manufacturer from all responsibility.



GENERAL INSTRUCTIONS

- This booklet constitutes an integral and essential part of the product and should be supplied to the installer. Read carefully the instructions contained in this booklet as they provide important directions regarding the safety of installation, use and maintenance. Preserve this booklet with care for any further consultation. The installation of the burner must be carried out in compliance with current regulations, according to the instructions of the manufacturer and by qualified personnel. An incorrect installation can cause injury or damage to persons, animals and objects, for which the manufacturer cannot be held responsible.
- This appliance should be destined only for the use for which it has been expressly envisaged. Any other use is to be considered improper and therefore dangerous. The manufacturer cannot be considered responsible for any damages caused from improper, erroneous or unreasonable use.
- Before carrying out any cleaning or maintenance operation, disconnect the appliance from the power supply, by using the main system switch or through the appropriate interception devices.
- In case of failure and/or malfunctioning, switch off the equipment and refrain from trying any repair or direct intervention. Call in qualified personnel only. Any repair must be carried out by a servicing centre authorised by the manufacturing firm, one using original replacements exclusively. Non-observance of the above could compromise the safety of the appliance. In order to guarantee the efficiency of the appliance and its proper operation it is indispensable to keep to the manufacturer's directions, by ensuring the periodical servicing of the appliance is carried out by professionally qualified personnel.
- As soon as one decides not to use the appliance further, one should take care to render innocuous those parts liable to be potential sources of danger.
- The transformation from a gas (natural gas or liquid gas) to a gas of another group must be made exclusively by qualified personnel.
- Before starting up the burner for the first time ask qualified personnel to check:
 - a) that the data on the information plate corresponds to that required by the gas, and electrical supply networks;
 - b) that the calibration of the burner is compatible with the boiler output;
 - c) that the comburent air flow and the fumes evacuation take place properly in accordance with the regulations in force.
 - d) that correct aeration and maintenance are possible.
- After each reopening of the gas cock wait a few minutes before restarting the burner.
- Before carrying out whatever intervention which foresees the dismantling of the burner or the opening of any of the accesses for inspection, disconnect the electrical current and close off the gas cocks.
- Do not deposit containers of inflammable substances in the location where the burner is situated.



- On noticing the smell of gas do not touch any electrical switch. Open all doors and windows. Shut off the gas cocks. Call qualified personnel.
- The room where the burner is located must have the openings required by local regulations in force. Should you have any doubts as to the circulation of the air in the room, then you should first measure the CO₂ figure with the burner working at its maximum delivery and with the room ventilated solely by means of the openings that feed air to the burner; a second CO₂ measurement should then be taken with the door open.
The CO₂ figure should not vary very much from the first to the second reading.
Should there be more than one burner and one fan in the same room, then this test must be carried out with all the appliances working at the same time.

Never cover up the burner room's air vents, the burner's fan's air-intake openings or any existing air ducts or air gratings, thus avoiding:

- the formation of poisonous/explosive mixtures of gases in the burner room;
- combustion with insufficient air, which would be dangerous, costly and cause pollution.

The burner must at all times be protected from rain, snow and freezing.

The room where the burner is housed should be kept clean at all times, and there should be no volatile substances in the vicinity, substances which could be sucked into the fan and could block up the internal ducts of the burner or combustion head. Dust can be extremely harmful, particularly when it gets onto the fan blades as this can reduce ventilation and lead to pollution during combustion. Dust can also build up on the rear of the flame stability disk inside the combustion head, leading to a poor air-fuel mixture.

- The burner must be fed with the type of fuel for which it was designed, as indicated on the data plate and in the technical characteristics given in this manual.
The fuel feed line must be sealed and must be of the rigid variety, with an interposed metal expansion bend with either a flange joint or a threaded joint.
Furthermore, the feed line must be equipped with all the adjustment and safety devices required by the local regulations in force.
Particularly ensure that no foreign bodies get into the feed line during installation.
- Ensure that the electrical power supply used conforms to the technical characteristics indicated on the data plate and in this manual.
In accordance with current regulations, the electrical system must be connected to an efficient earth system. The earth cable must be a couple of cm longer than the phase and neutral wires.
Should there be any doubts, the verification should be made by qualified persons.

Never exchange neutral and live wires.

The burner can be connected up to the mains supply using a plug connection only if the latter is of the kind that does not allow neutral and live wires to be reversed. Upstream of the equipment, install an omnipolar switch with an opening between contacts of at least 3 mm, as required by the laws in force.

The entire electrical system, and in particular cable cross-sections, should conform to the maximum absorbed capacity indicated on the data plate and in this manual.

Should the burner's mains cable be found faulty, it must only be replaced by qualified persons.



Do not touch the burner with parts of the body which are wet or when in bare feet.

Do not pull (stretch) the mains cables and keep them well away from heat sources.

The length of the cables used must enable the burner to be opened, as well as the boiler door.

All electrical connections must be made by qualified personnel, in strict accordance with existing electricity regulations.

- After removing the packaging materials, check the content integrity and make sure that no damages have occurred during transportation. In case of doubt, do not use the burner and contact the supplier.

The packaging material (wooden cages, cartons, plastic bags, foam, clips, etc...) are potential sources of pollution and danger, if left lying around; they should be collected up and disposed of in the correct way (in a suitable place).

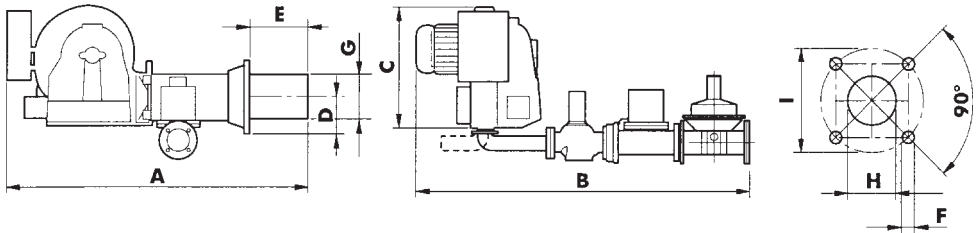
DESCRIPTION

These are natural gas burners with a mix of gas/air to the combustion head and reduced capacity start-up. The structure of the combustion head enables the use of all natural gases, mixes and liquids (consult technical assistance for specific information). The gas/air mix makes it possible to obtain combustion with a low excess of air, leading to a high combustion efficiency and low CO and NOx emissions, and consequently a low environmental impact. They are suitable for pressurised and negative pressure furnaces, according to the relative operating curves. With a long draught tube sliding on a flange, the burners make it possible to adapt the length of the insertion to the requirements of the boiler. The gas train can be installed on the right or left (on request). Complete access is easily achieved by means of the hinged opening between the casing and the burner head, without removing the gas line connection. The burners operate automatically and have ionisation-probe flame control.

These burners have a two-stage operation with start-up in two-interval, and closing of air on stopping. The burners are available with different valve sizes according to the gas flow rate required and the gas pressure (and boiler) available.

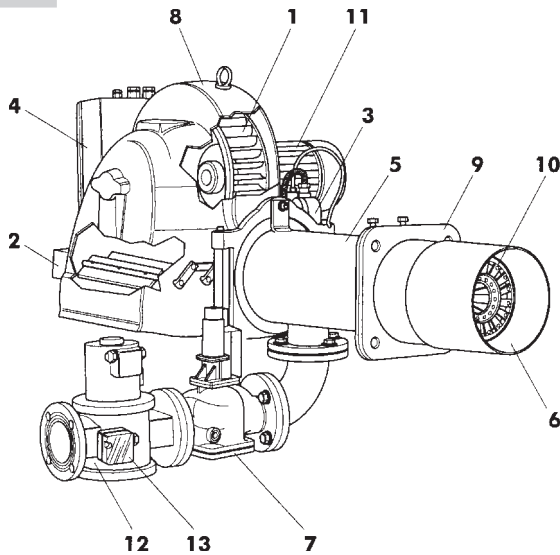


DIMENSIONS mm



Model	A	B	C	D	E		F	G Ø	H Ø	I	Gas connection
					min	max					
310 PM/2-E	1710	1435	700	165	250	550	M16	256	270	332	DN 65
310 PM/2-E	1710	1610	700	165	250	550	M16	256	270	332	DN 100
430 PM/2-E	1760	1435	700	165	250	600	M16	303	320	380 √ 440	DN 80
430 PM/2-E	1760	1610	700	165	250	600	M16	303	320	380 √ 440	DN 100

MAIN COMPONENTS



LEGEND

- | | | |
|-------------------------------------|----------------------|------------------------|
| 1 Fan | 6 Draught tube | 11 Motor |
| 2 Air servo control | 7 Main valve | 12 Safety valve |
| 3 Air pressure switch | 8 Burner casing | 13 Gas pressure switch |
| 4 Electrical panel with control box | 9 Attachment flange | |
| 5 Head | 10 Internal gas line | |



TECHNICAL SPECIFICATIONS

Model	Flow rate - Thermal power			Motor 2800 rpm kW	Power supply
	m ³ /h (G.N.)	kcal/h	kW		
310 PM/2-E	94 - 290	808.000 - 2.494.000	940 - 2900	5.50	230-400V - 50Hz
430 PM/2-E	120 - 430	1.032.000 - 3.676.500	1200 - 4275	9.2	

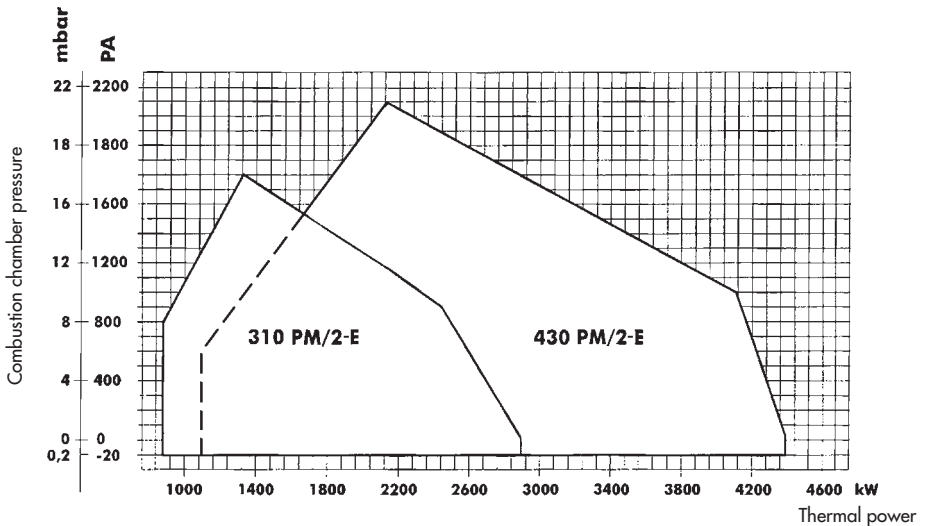
Category: I2H I3P

Gas nominal pressure: Natural gas 20 mbar - B/P 37 mbar

Transformer 2 x 6,5 kW - 35 mA

Note: The data of the model 430 PM/2 refer to analysis performed on test pipe diameter 1400 mm and lenght 5500 mm.

OPERATING CURVES

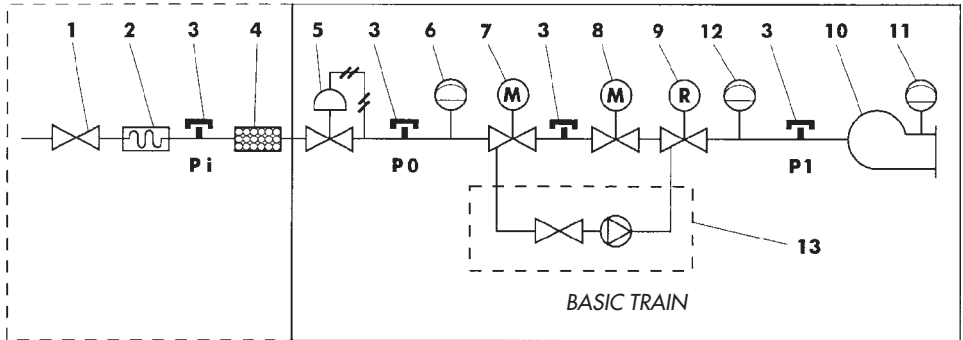


These indicate the power in kW depending on the back pressure in mbar or PA in the combustion chamber.



GAS PRESSURE/FLOW CURVES

These curves show the gas pressure in millibar (at various points along the gas train) necessary to produce a given flow rate (cu m/h). The pressures have been measured with the burner working, with combustion chamber pressure at 0 millibar. If the chamber is pressurized, then the gas pressure necessary will be that given in the graph plus that in the combustion chamber.

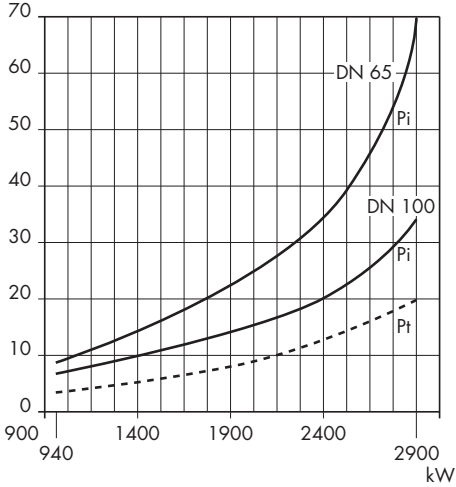


LEGEND

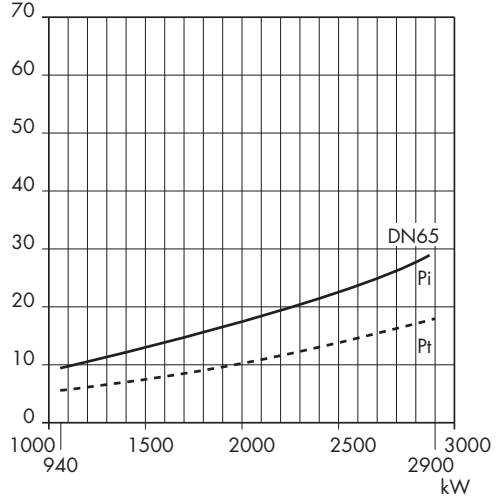
- 1 - Cut-off cock - airtight at 1 bar and pressure drop ≤ 0.5 mbar.
- 2 - Vibration-damping joint.
- 3 - Gas pressure tap for measuring pressure.
- 4 - Gas filter.
- 5 - Gas pressure regulator.
- 6 - Minimum gas pressure control device (gas pressure switch).
- 7 - Class A solenoid safety valve - Closing time: ≤ 1 sec.
- 8 - Class A solenoid safety valve - Closing time: ≤ 1 sec. Start-up power within 10-40% of the nominal thermal power.
- 9 - Gas flow regulator normally inserted in either solenoid valve 7 or 8.
- 10 - Combustion head.
- 11 - Minimum air pressure control device.
- 12 - Maximum gas pressure control device (over 350 kW) (on request).
- 13 - Seal check device (on request).



310 PM/2-E

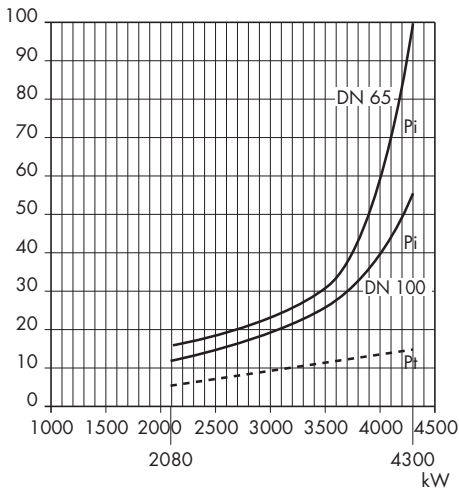


310 PM/2-E Gpl

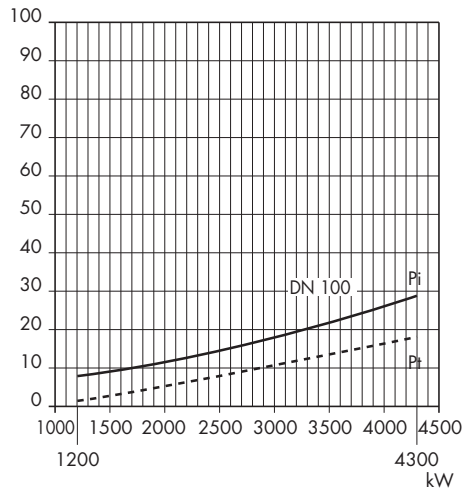


Pi = Pressure at gas train inlet
Pt = Pressure at combustion head

430 PM/2-E



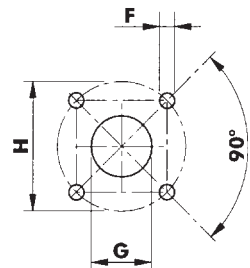
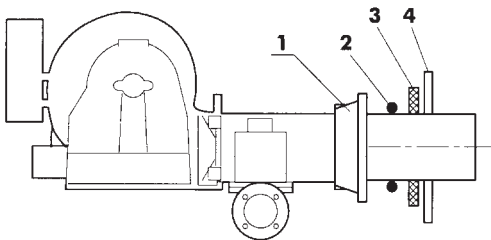
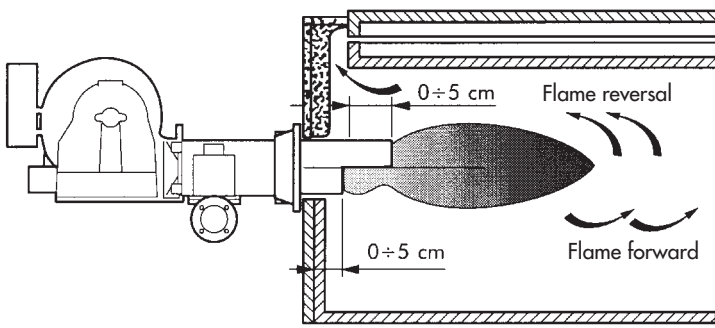
430 PM/2-E Gpl





BOILER ASSEMBLY

The burner is fastened by using the equipped flange (or semi-flanges). The flange slides on the draught tube and has a suitable insulating seal placed between it and the boiler plate. Between the seal and the flange is the insulating cord around the tube. Before locking permanently it is necessary to check the insertion length, ensuring that the draught tube penetrates the combustion chamber for several cm beyond the edge of the tube bundle.



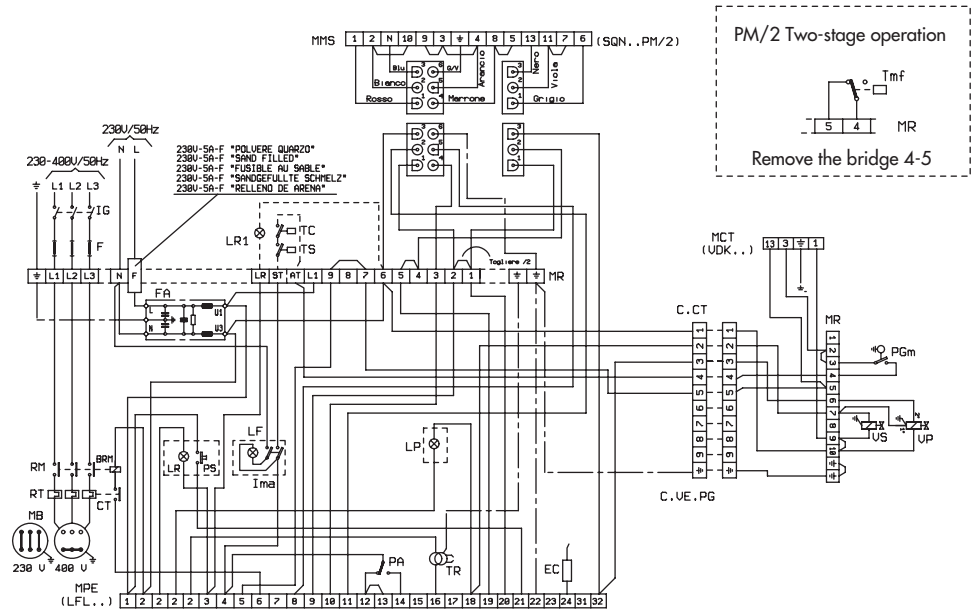
- 1 Sliding flange
- 2 Insulating cord
- 3 Insulating seal
- 4 Boiler plate

Model	F	G	H
310 PM/2-E	M16	270	332
310 PM/2-E	M16	270	332
430 PM/2-E	M16	320	380 ÷ 440
430 PM/2-E	M16	320	380 ÷ 440



ELECTRICAL CONNECTIONS

The installation technician should perform connections to the mains, thermostat line (TA-TC-TS-TMF) and safety light if present.



LEGEND

BRM	Motor relay coil	MPE	Control box terminal board - LANDIS LFL1.322
C.CT.	Connector seal check	MR	Transmission terminal board
CT	Thermal relay contact	PA	Air pressure switch
C.VE.PG.	Connector gas valve-gas pressure	PGm	Minimum gas pressure switch
EC	Control electrode	PS	Release-reset pushbutton
F	Fuses	RM	Motor relay contacts
FA	Anti-disturbance filter	RT	Thermal relay
IG	Main switch	TC	Boiler thermostat
lma	On/Off switch	TS	Safety Thermostat
LF	Operating light	Tmf	2nd flame modulation thermostat (if present)
LP	Lamp presence flame	TR	Starting transformer
LR	Blocking-mode light	VP	Main valve
LR1	Blocking-mode light (if present)	VS	Safety valve
MB	Burner motor		
MMS	Servo control motor terminal board LANDIS SQN 30...		

If operating with TMF, it is necessary to remove the connection jumper between terminals 4 and 5 of the MR transmission terminal board. Do not exchange the neutral with the phase wire.

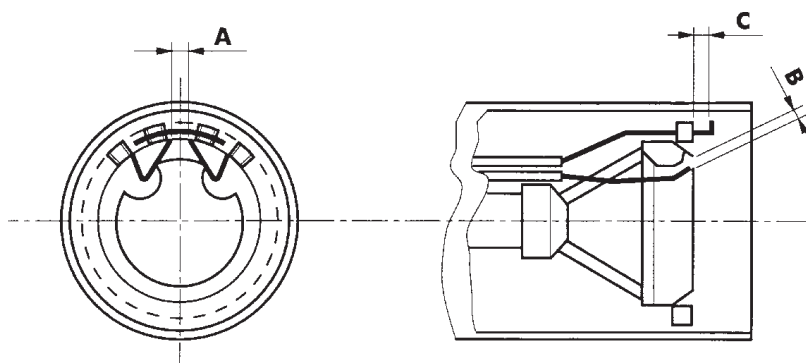
Make proper earth connections. COMPLY WITH GOOD ENGINEERING PRACTICES AND OBSERVE THE REGULATIONS IN FORCE.



ELECTRODES POSITION

Two starting electrodes and one flame control electrode are provided. They should not touch the baffle or other metal parts for any reason, as their function could fail and consequently compromise the operation of the burner.

Check that they are correctly positioned after every maintenance or repair operation on the head.



Model	A	B	C
310 PM/2-E	3 - 4	13 - 15	14 - 15
430 PM/2-E	3 - 4	13 - 15	14 - 15

GAS CONNECTION

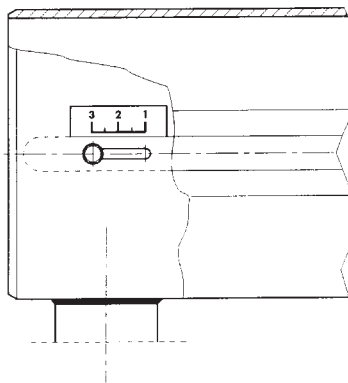
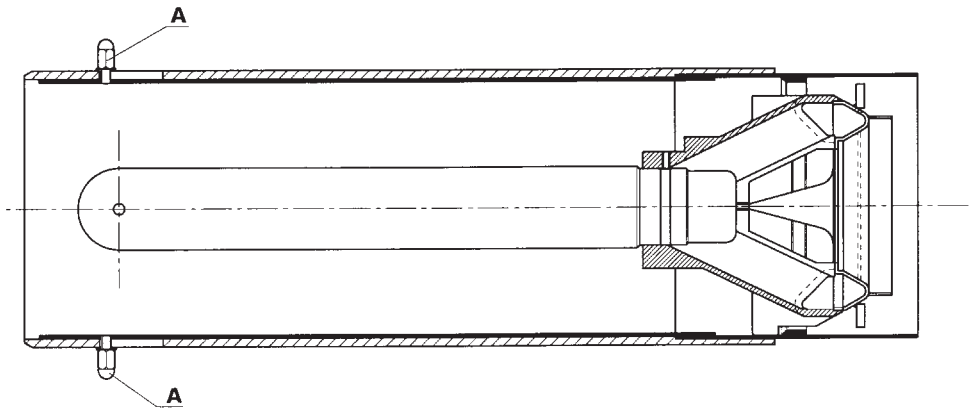
The system must be complete with the accessories prescribed by regulations. Do not exert mechanical force on components.

Also take into account the spaces required for burner and boiler maintenance.



COMBUSTION HEAD REGULATION

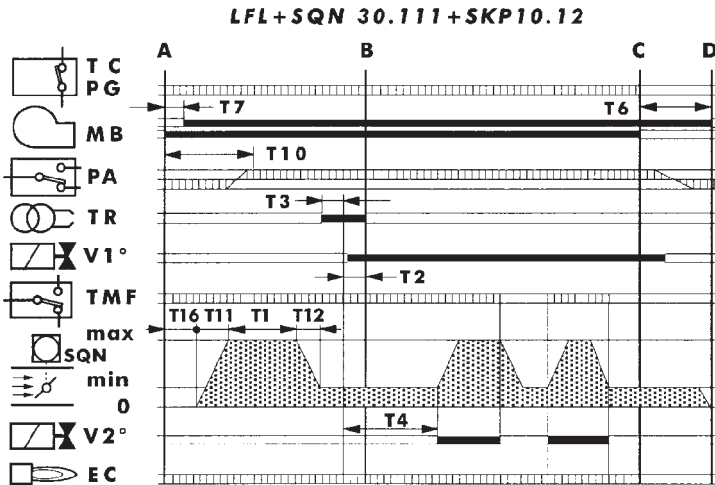
- 1 Loosen knobs (A).
- 2 Moving the knobs the position of the draught tube can be changed in relation to the combustion head. Position the knobs between 1 and 3 according to that required. They correspond respectively to the minimum and maximum capacity of the burner.
- 3 Tighten the knobs after regulation has been carried out.





OPERATING CYCLE

310 - 430 PM/2-E



- T11** Time required to open the air flap, from 0 to maximum.
- T10** = 8 sec. Time interval begins with start-up of the motor. The PA should give its clearance signal by this time;
- T1** = 36 sec. Prevention time interval with air flap completely open;
- T12** Time required to bring the air flap to start-up position.
- T3** = 4 sec. Pre-starting time which ends with the opening of the gas valve;
- T2** = 2 sec. Safety time interval within which electrode EC should receive the flame signal;
- T4** = 20 sec. Time interval between the opening of the gas valve V1 and opening of second stage V2;
- T6** Time required to close the air flap and reset the program. With post-ventilation time with a duration of 12 sec.
- T7** Motor start-up delay of 2 seconds, if the motor is connected for post-ventilation.
- T16** Air flap opening delay of 4 sec.

- Required input signals
- Output signals
- A** Onset of start-up
- B** Flame present
- B-C** Operation
- C** Regulation stop
- C-D** Air flap close + post-ventilation
- TC-PG** Thermostat line and gas pressure switch
- MB** Burner motor
- PA** Air pressure switch
- TR** Transformer
- V1-V2** 1st-2nd stage gas valve
- EC** Control electrode
- TMF** High/low flame thermostat
- SQN** Air servo control

SQN30.111 = 4,5 sec. \curvearrowright 90°



REGULATIONS

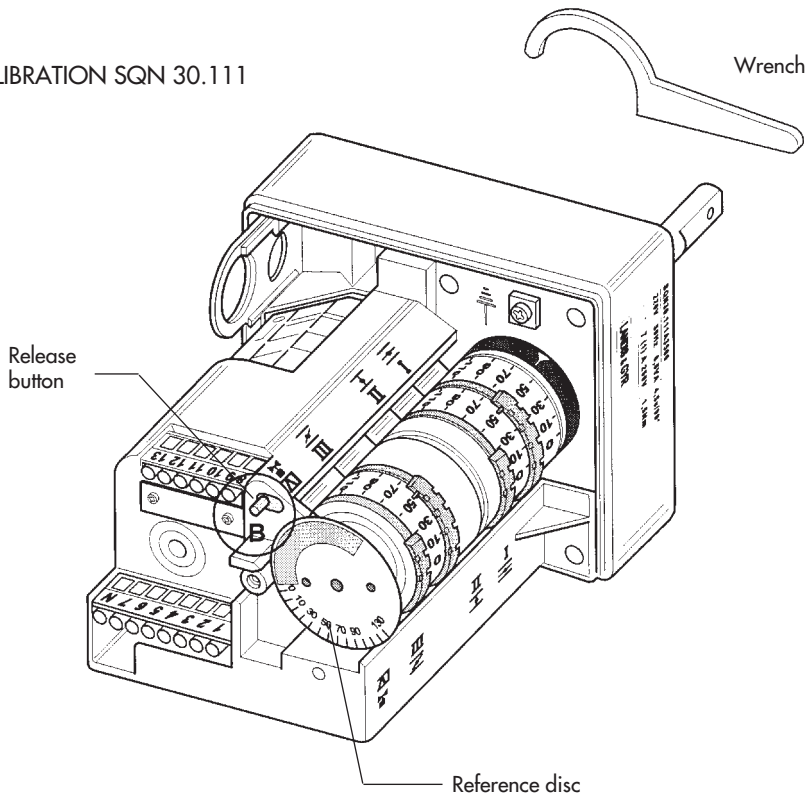
AIR REGULATION

The air flap is activated by an electric servo control. The air flap positions are determined by means of the cams, with their alignment indicated on the reference disc.

The cams can be moved by using the equipped wrench as they are self-locking.

By pressing button B, the air flap drive system is disengaged, and the air flap is free to be moved manually.

CALIBRATION SQN 30.111



Cams

- I Max air opening
- II Air closing on stopping
- III Air opening on start-up or 1st stage
- IV 2nd stage gas opening to be regulated 15-20° more than cam III

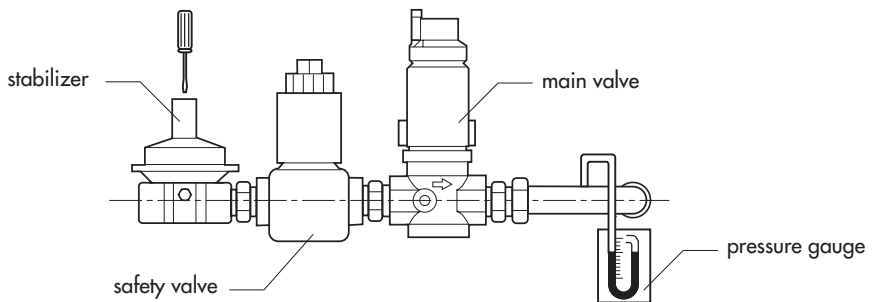


GAS REGULATION

The maximum flow and start up flow must be regulated.
Ensure that there are no leaks from the gas ramp.

MAXIMUM FLOW

- Install a pressure gauge to measure the gas pressure at the burner head;
- Set the gas valve to its maximum opening;
- With the burner operating, regulate the stabilizer (if present) until the desired flow has been achieved (read on the meter); check the pressure indicated on the pressure gauge;
- Regulate the valve by closing it until the pressure indicated on the pressure gauge starts to decrease. **A** this point the desired maximum flow has been set and checked by both the stabilizer and the gas valve.



CHECK OF THE GAS QUANTITY ON START-UP

The check of the gas quantity on start-up is performed by using the following formula:

$$T_s \times Q_s \leq 100$$

where T_s = Safety interval in seconds
 Q_s = Energy released in the safety interval expressed in kW

The Q_s value is obtained by :

$$Q_s = \frac{\frac{Q_1}{T_{s1}} \times \frac{3600}{1000} \times \frac{8127}{860}}{Q_n} \times 100$$

where Q_1 is the flow rate in litres released in 10 starts within the safety interval.
 T_{s1} is the sum of the actual safety interval in 10 starts.
 Q_n is the nominal power.



To obtain Q1 perform the following:

- Disconnect the control electrode (ionisation electrode) cable
- Take the reading from the gas meter before the test
- Have the burner start ten times. This will correspond to 10 safety blocks.
- Retake the reading from the gas meter and subtract the initial reading. This will be the value of Q1.

ex. initial reading 00006,682 litres
 final reading 00006,947 litres
 total Q1 00000,265 litres

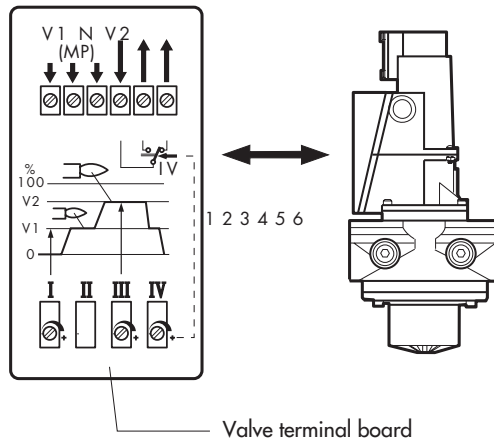
- By performing these operations we can obtain Ts1 by timing one start (safety blocks) and multiplying it by the number of starts.

ex. Actual safety interval = 1.95 sec
 Ts1 = 1.95 sec x 10 = 1.95 sec

- Should a value over 100 result at the end of this check, regulate the opening speed of the main valve.

REGULATION OF VALVE SKP10.12 (main valve) FLOW RATE

The valve is motor driven and has two opening positions, which are commanded by the electrical control box. Closing occurs in two stages provided the TMF is connected. Regulation is performed by adjusting the special screws inside the terminal board according to the instructions.



CALIBRATION OF AIR PRESSURE SWITCH

The air pressure switch places the burner in safety mode or shuts it down should there be a drop in combustion air pressure. It will be calibrated at a pressure below 1 st stage rated-flow on-burner air pressure, checking that CO values do not exceed 10,000 p.p.m.



CALIBRATION OF MINIMUM GAS PRESSURE SWITCH

The minimum gas pressure switch serves to prevent the burner from being started up, or to shut it down if it is operating, when the gas pressure falls below the minimum required level. This setting should be 40% lower than the gas pressure obtained with the burner operating at max. flow rate.

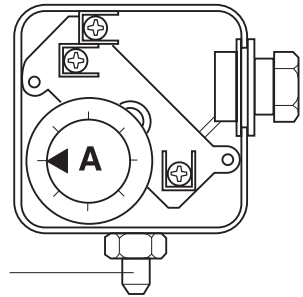
CALIBRATION OF MAXIMUM GAS PRESSURE SWITCH (ON REQUEST)

The maximum gas pressure switch serves to put the burner in blocking mode if the gas pressure exceeds the pre-set value. Set the combustion head pressure to 15% (for Natural Gas) and 10% (for B/P) more than the nominal capacity required at the time of installation.

PRESSURE SWITCH Model: GW 50 - LGW 10 A2P

Take off the cover and turn dial (A).

Pressure tap

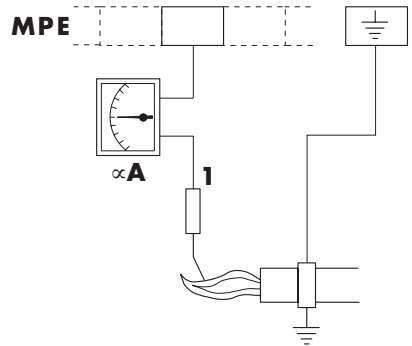


Model	Air pressure switch - model	Setting range millibar	Gas pressure switch - model	Setting range millibar
310 PM/2-E	DUNGS LGW 10 A2P	1 - 10	DUNGS GW 50	2,5 - 50
430 PM/2-E	DUNGS LGW 10 A2P	1 - 10	DUNGS GW 50	2,5 - 50



CHECKING IONIZATION CURRENT

The minimum value of 30 μA should be observed, and large oscillations are to be avoided.



MICROAMPEREMETER CONNECTION

CHECKING AND REGULATING COMBUSTION

In order to obtain optimum combustion efficiency and to safeguard the environment, we recommend to check, and regulate combustion using the appropriate instruments.

The most important levels to be checked are:

- CO_2 . The level of CO_2 indicates the excess of air percentage during combustion; if the quantity of air is increased, then the CO_2 level decreases, while a decrease in combustion air leads to an increase in CO_2 . Acceptable values would be between 8.5 and 10% NATURAL GAS, 11-12% B/P.
- CO. This indicates the presence of unburnt gas; CO, as well as lowering the combustion efficiency, is also a danger, being a poisonous gas. The presence of CO is thus an indication of imperfect combustion, and is usually a sign that there is a lack of air during combustion. Maximum acceptable value is $\text{CO} = 0.1\%$ volume.
- Flue gas temperature. This represents the loss of heat through the chimney; the higher is the temperature, the greater is the loss of heat and the lower is the combustion efficiency. If the temperature is too high, then it is necessary to decrease the amount of gas burnt. Acceptable temperature levels range between 160° and 220°C.

IONISATION CURRENT

When calibration is completed and the combustion tests have been conducted, check that the control electrode is positioned correctly. This is ascertained by measuring the ionisation current. Use a microammeter with a scale of 100 μA , and connect it in series to the electrode. The minimum value of the current should be 30 μA and relatively stable.

Normally the flame monitoring circuit is insensitive to the negative influences of the ignition spark on the ionisation current. If the disturbances of the ignition spark on the ionisation current are excessive, it will be necessary to invert the polarity of the electrical connection of the starting transformer primary and/or verify the placement of the starting electrode in relation to the ionisation electrode.

- N.B. When the burner is started up, ensure that there are no leaks from the gas circuit.**
- N.B. Existing regulations in some countries may require a regulation different from that indicated, as well as compliance with other parameters.**

PROLONGED SHUT-DOWN

Should the burner be inactive for a long period of time, turn off the gas cock and disconnect power from the unit.



CONVERSION FOR OPERATION WITH DIFFERENT TYPES OF GAS

Burner is delivered equipped with a head set suitable to operate with only one type of gas (natural gas or B/P).

Should you need to adapt the burner to a different type of gas (ex. from NATURAL GAS to B/P), you should purchase the suitable gas conversion kit.

CONVERSION


To convert burner the complete head set must be replaced; this is available in a conversion kit.

To replace the head set see "Maintenance".

ATTENTION

Once the conversion has been carried out it is necessary to put the label, supplied with the conversion kit, which indicates the figures related to the new adjustments.

This label must replace the one present on the burner (adjustment label).

			
BRUCIATORE REGOLATO PER:			
GAS NATURALE	I2H	20 /	mbar
BURNER ADJUSTED FOR:			
NATURAL GAS	I2H	20 /	mbar
BRULEUR REGLE POUR:			
GAZ NATUREL	I2E+	20 /	mbar
BRENNER MIT EINSTELLUNG FÜR:			
NATURALGAS	I2ELL	20 /	mbar
QUEMADOR REGULADO PARA:			
GAS NATURAL	I2H	20 /	mbar

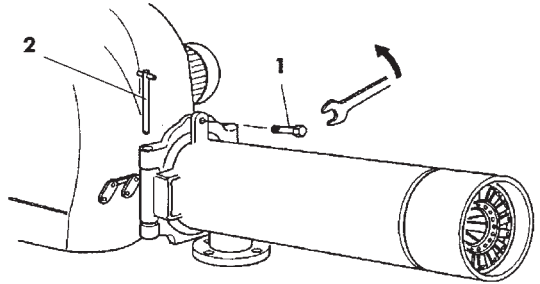
ADJUSTMENT LABEL (ex. natural gas)



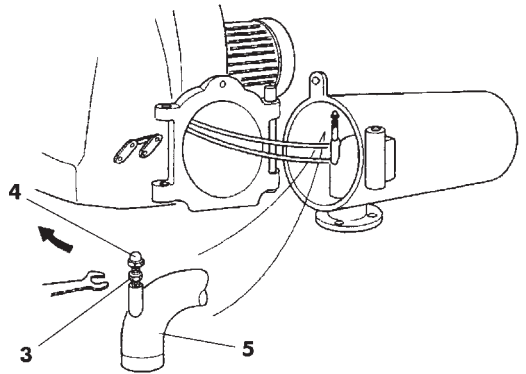
MAINTENANCE

By means of the burner casing's hinged rotation, the internal head may be removed for inspection without affecting electrical or gas train connections.

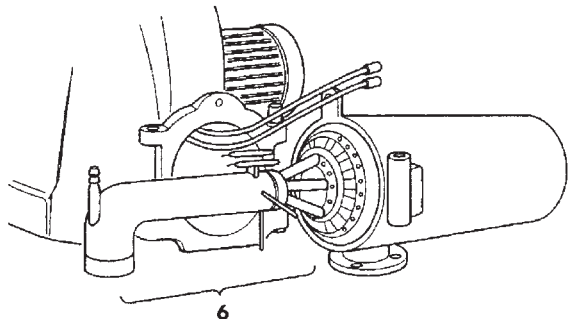
- Unfasten the screw 1;
- Remove the pin 2.



- Open the burner;
- Loosen the nut 3;
- Screw on the spacer 4;
- Lift the tube 5 until it is removed from its housing;



- Remove the head unit 6.
- Remove the electrode and earth cables;





FAULT-FINDING CHART

FAULT	CAUSE	SOLUTION
The burner does not start.	a) no electricity.	a) check the mains fuses and the control box fuses. Check the thermostat line and the gas pressure switch line.
	b) gas fails to reach the burner.	b) check that the cut-off devices positioned along the feeder pipe open properly.
The burner starts, there is no flame and thus it goes automatically into blocking mode.	a) the gas valves do not open.	a) check operation of the valves.
	b) there is no jump spark between the electrodes' tips.	b) check ignition transformer is working properly, and check the position of the electrode tips.
	c) the air pressure switch does not give its enabling signal.	c) check the air pressure switch setting and the working of the switch itself.
The burner starts, the flame is formed but then the burner goes into blocking mode.	a) the control electrode either fails to detect the presence of the flame or it does so inadequately.	a) check the control electrode position - check the ionisation current level.

BRUCIATORI
CALDAIE MURALI E TERRA A GAS
GRUPPI TERMICI IN GHISA E IN ACCIAIO
GENERATORI DI ARIA CALDA
TRATTAMENTO ACQUA
CONDIZIONAMENTO

Le illustrazioni e i dati riportati sono indicativi e non impegnano. La LAMBORGHINI si riserva il diritto di apportare senza obbligo di preavviso tutte le modifiche che ritiene più opportuno per l'evoluzione del prodotto.

Las ilustraciones y los datos son indicativos y no comprometen. LAMBORGHINI se reserva el derecho de realizar sin preaviso todas las modificaciones que estime oportuno para la evolución del producto.

The illustrations and data given are indicative and are not binding on the manufacturer. LAMBORGHINI reserves the right to make those changes, considered necessary, for the improvement of the product without forwaming the customer.

Les illustrations et les données sont à titre indicatif et sans engagement. La LAMBORGHINI se réserve le droit d'apporter sans obligation de préavis les modifications qu'elle retient le plus nécessaires pour l'évolution du produit.

Die Abbildungen und die angegebenen Daten sind, als indikativ und nicht verpflichtend zu verstehen. Die LAMBORGHINI behält sich das Recht vor, ohne Vorankündigung die adequatesten Verbesserungen bezüglich der Entwicklung des Produktes vorzunehmen.

LAMBORGHINI CALOR S.p.A.
VIA STATALE, 342
44047 DOSSO (FERRARA)
ITALIA
TEL. ITALIA 0532/359811 - EXPORT 0532/359913
FAX ITALIA 0532/359952 - EXPORT 0532/359947