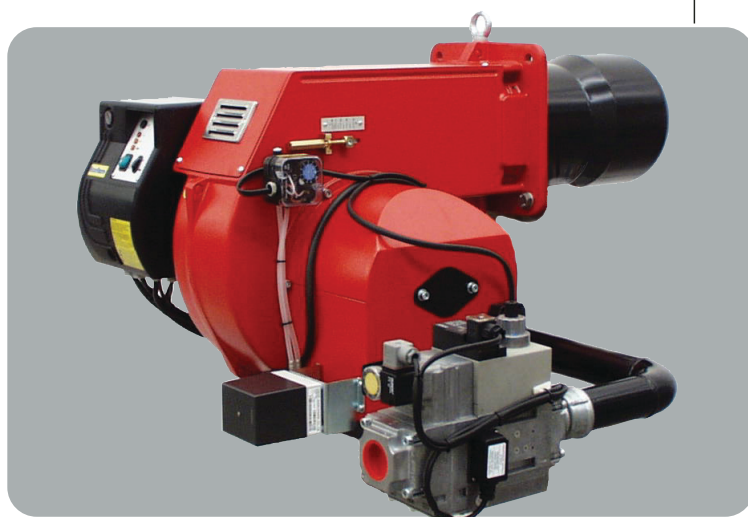


- IT *BRUCIATORI DI GAS AD ARIA SOFFIATA*
- EN *BLOWN AIR GAS BURNERS*
- FR *BRULEURS GAZ A AIR SOUFFLE*
- ES *QUEMADOR DE GAS DE AIRE SOPLADO*
- RU *ДУТЬЕВЫЕ ГАЗОВЫЕ ГОРЕЛКИ*

# Ecoflam



**BLU 1700.1 P AB**  
**BLU 2000.1 P AB**

G.N. 20÷300 mbar  
LPG. 37÷150 mbar



420010281600

420010281600

29.01.2010

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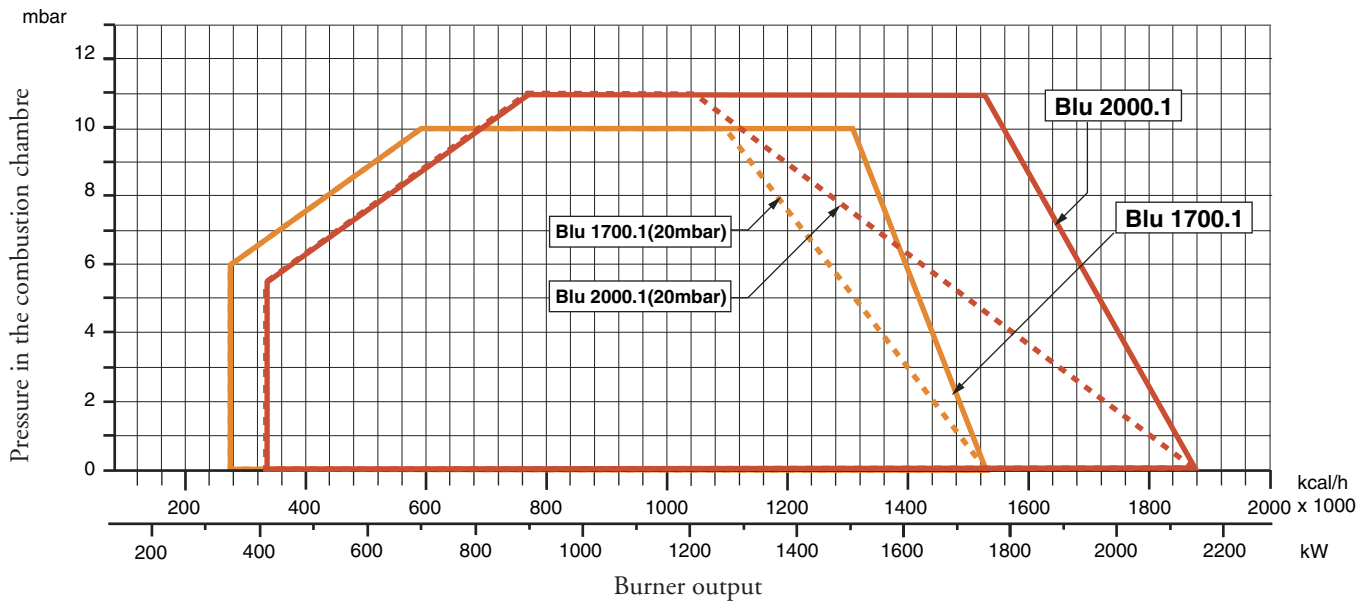
### 4 - Maintenance

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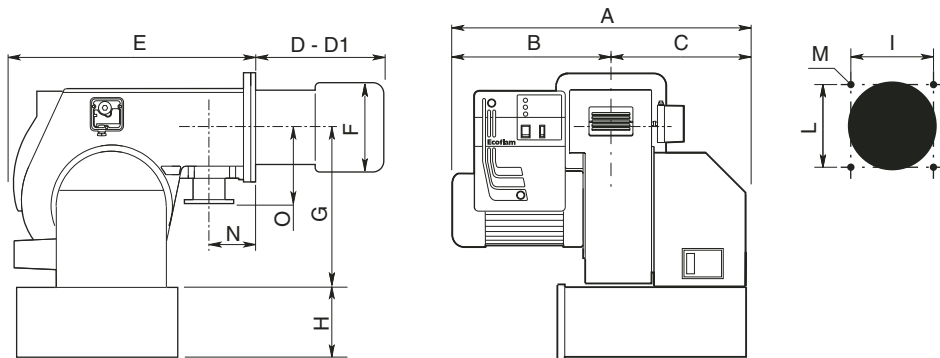
TECHNICAL DATA

MODELS		1700.1-20	1700.1	2000.1-20	2000.1
Thermal power max.	kW	1770	1770	2150	2150
	kcal/h	1.526.000	1.526.000	1.853.450	1.853.450
Thermal power min.	kW	342	342	414	414
	kcal/h	295.000	295.000	356.900	356.900
Min. Natural gas pressure	mbar	20	40÷300	20	40÷300
Min. LPG gas pressure	mbar	-	37÷150	-	37÷150
Voltage 50 Hz	V	230/400	230/400	230/400	230/400
Motor	kW	3	3	4	4
Rpm	N°	2800	2800	2800	2800
Fuel :	P.c.i. Natural Gas = 35,9 MJ/Nm <sup>3</sup> = 8.570 kcal/Nm <sup>3</sup> P.c.i LPG =22.260 kcal / Nm <sup>3</sup>				

WORKING FIELDS



OVERALL DIMENSIONS



MODELS	A	B	C	D	D1	E	F	G	H	I	L	M	N	O
BLU 1700.1 PAB	710	385	325	340	540	680	250	398	283*	240	240	M14	125	250
BLU 2000.1 PAB	730	405	325	345	545	680	270	398	283*	240	240	M14	125	250

\* Optional  
D = Short head D1 = Long head

## ELECTRICAL CONNECTIONS

All burners factory tested at 400 V 50 Hz three-phase for motors and 230 V 50 Hz monophase with neutral for auxiliary equipment. If mains supply is 230 V 50 Hz three-phase without neutral, change position of connectors on burner as in fig. Protect burner supply line with safety fuses and any other devices required by safety standards obtaining in the country in question.

## CONNECTION TO THE GAS PIPELINE

Once connected the burner to the gas pipeline, it is necessary to control that this last is perfectly sealed. Also verify that the chimney is not obstructed. Open the gas cock and carefully bleed the piping through the pressure gauge connector, then check the pressure value through a suitable gauge. Power on the system and adjust the thermostats to the desired temperature. When thermostats close, the sealing control device runs a seal test of valves; at the end of the test the burner will be enabled to run the start-up sequence.

## START UP OF THE BURNER

### PRELIMINARY CHECKS

Before starting up the boiler check the following:

- Gas type and feed pressure.
  - Gas valves closed.
  - The seals in the pipe fittings.
  - Gas pipe breather and input pressure.
  - That the cable complies with the diagram and the phase and neutral wires correspond.
  - That the burner shuts down when the boiler thermostat opens.
  - The seal of the boiler furnace which prevents air from entering.
  - The seal on the flue-boiler pipe fitting.
  - The condition of the flue (sealed, free from blockage, etc.).
- If all these conditions are present, start the burner. The control device starts the motor to carry out prewashing of the combustion chamber. During this prewash period (about 30 seconds) the device checks that air pressure is correct via the air pressure switch. At the end, it supplies power to the transformer and opens the gas valves. The flame must be lit and stabilize within 3 seconds, which is the device's safety time limit. Check to ensure the flame is lit before placing any control instrument in the flue. Adjust and check the gas flow necessary for the boiler at the meter. Adjust the air flow according to the gas flow to obtain correct combustion.

### IMPORTANT ADVICE

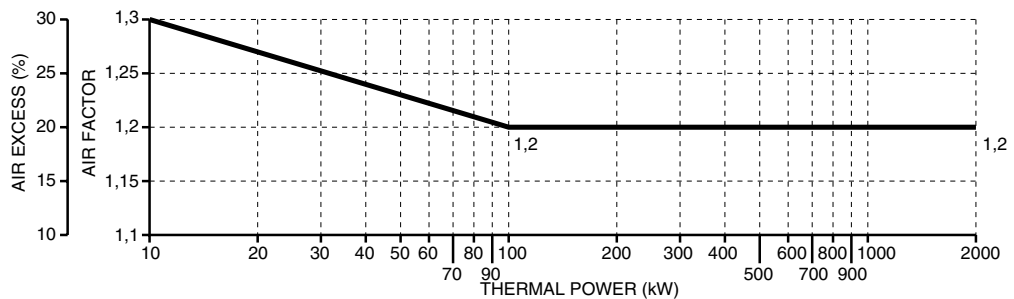
All adjustable parts must be fixed by the installer after making adjustments. Check flue combustion after each adjustment. The CO<sub>2</sub> values must be approx. 9.7 (G20) 9.6 (G25 11.7 (I3B) 11.7 (I3P) and the CO must be less than 75 ppm.

## ADJUSTING THE COMBUSTION PROCESS

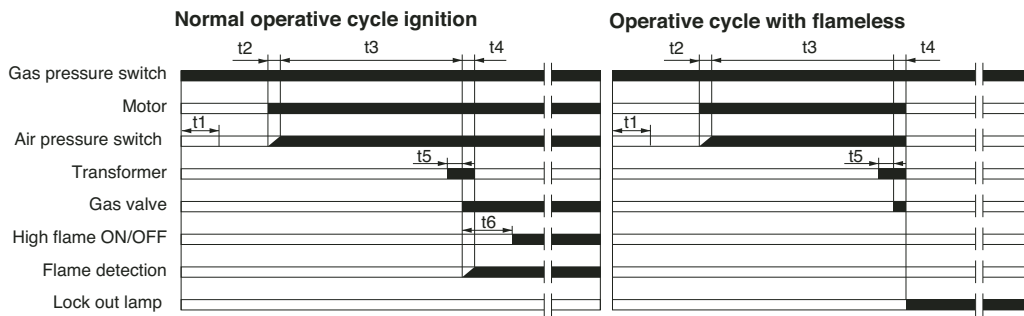
**IMPORTANT:** to obtain the right adjustment of the combustion and thermal capacity it is important to analyze the reducts of combustion with the aid of suitable instruments. The combustion and thermal capacity adjustment is done simultaneously, together with the analysis of the products of combustion, making sure that the measured values are suitable and that they comply with current safety standards. On this matter, please refer to the table and figure below.

**THESE OPERATIONS MUST BE DONE BY PROFESSIONALLY-QUALIFIED TECHNICIANS.**

	Natural Gas
CO <sub>2</sub>	9,6%
CO	<50 ppm
	L.P.G.
CO <sub>2</sub>	11,7%
CO	<50 ppm



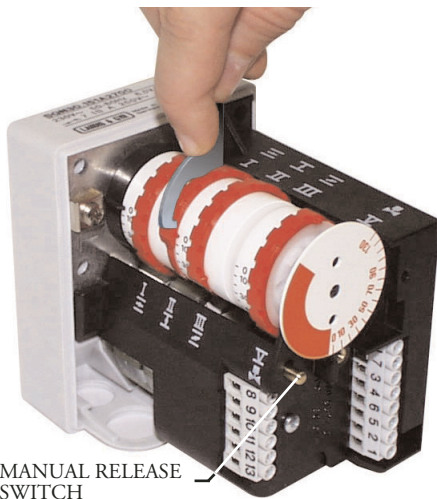
### LANDIS LGB 22 UP-CYCLE



Description	⌚
t1 pressure switch control time-out	9"
t2 time-out for air pressure confirmation	3"
t3 prewashing time	30"
t4 safety time	3"
t5 preignition time	3"
t6 time-out to enable fuel 2nd valve	8"

The control box starts the burner fan, to carry out the prepurging of the combustion chamber, and checks the vent air pressure through the air pressure switch. At the end of prepurging, the ignition transformer cuts-in and generates a spark between the electrodes. At the same time the two gas valves open (Vs safety valve and VI Low flame working valve). The total safety, in case of missed ignition or casual burner's flame-out, is granted by a ionisation probe which cuts-in and sets the burner shut-down within the safety time. In case of gas lack or a major pressure drop, the minimum air pressure switch shuts down the burner.

### LANDIS & STAEFA SQN 30 151A2700 AIR DAMPER MOTOR



Remove cover to gain access to the adjusting cams. The cams are to be adjusted through the suitable key provided for. Description:

- I - Limit switch for air damper "High Flame" position adjustment (Max. power)
- II - Limit switch for the air damper position at burner's shut down
- III - Limit switch for air damper "Low Flame" position adjustment (Min. power)
- V - Limit switch for 2nd stage's solenoid valve opening release

**NOTE :**

Cam V (to allow the 2nd stage's solenoid valve opening) must be adjusted to an intermediate position between the Low and High Flame ones (to an angle approximately 5° greater than the low flame position).

## "PAB" VERSION GAS BURNERS GAS TRAIN INSTALLATION AND SETTING INSTRUCTIONS

Fix the gas train to burner body by means of the screws of the flange, pay attention to set correctly the gasket. Connect electrically the gas train with the 6 pole plug.

Switch on the burner (it has already been tested in the factory, so it is pre set on average values) and verify the tightness of gas train connections made during installation. Act as follows to adapt the burner output to the boiler.

### High flame

1. Bring the burner in high flame, air inlet must be set at 75 ° (maximum opening position).  
To adjust air capacity operate on the combustion head position. Just in peculiar case it is necessary to reduce the air flow in high flame closing air intake damper.
2. The position of gas butterfly valve must be lower than 90° (typically 85°. It is important not get over 90° to obtain a perfect combustion during passage from high to low flame). Eventually adjust this position by shaft B after loosening the screw A.
3. Regulate gas capacity in high flame through the gas governor, or operate on the adjustable gas valve.

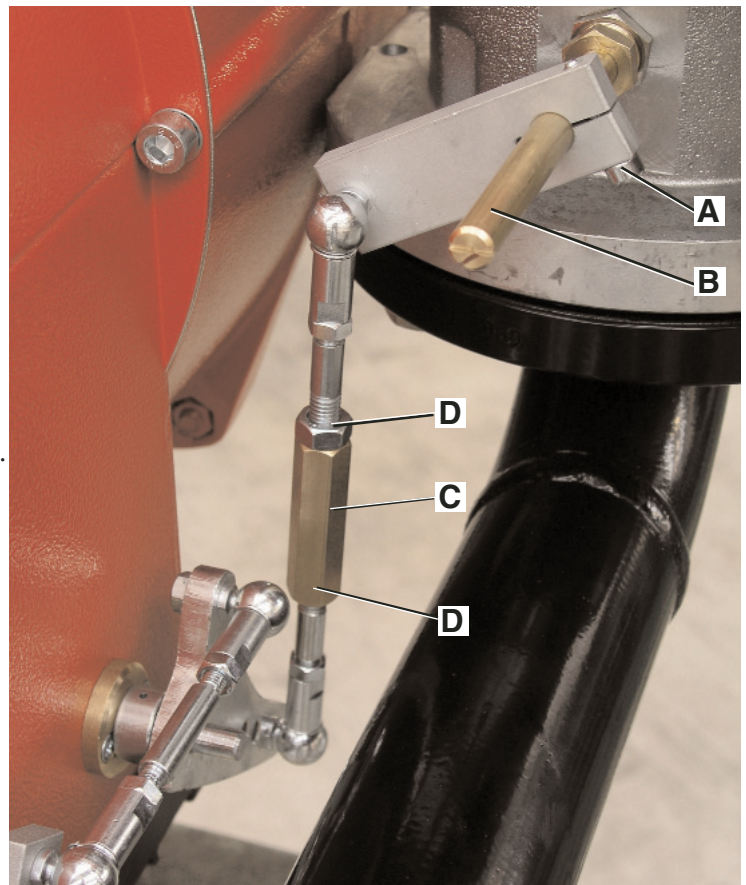
*Attention: the instructions for gas valves setting are included in the gas train manual.*

### Low flame

4. Choose the first stage position on the servocontrol (normally between 10°-30°) on the basis of the reduced charge output required and switch the burner to low flame.
5. Regulate gas capacity, to obtain optimal combustion. To adjust the butterfly valve position act upon hexagonal bar C after loosening nuts D.

### Final operations

6. Bring the burner in high flame again, if necessary adjust again gas flow (as shown in point n.2).
7. If necessary repeat operations described on point n. 5 and n. 6 until You obtain the exact position of the gas flow both in high and low flame.
8. Fix the nuts.



## CALCULATING THE BURNER CAPACITY

To calculate the burner's capacity in kW, proceed as follows: Check the gas flow rate (in liters) on the counter and the time of the reading in seconds.

Proceed with the calculation using the following :  $\frac{e}{\text{sec}} \times f = \text{kW}$

e	=	Litres gas
sec	=	Time in second
f	[	G20 = 34,02
		G30 = 116
		G31 = 88

## COMBUSTION ADJUSTMENT

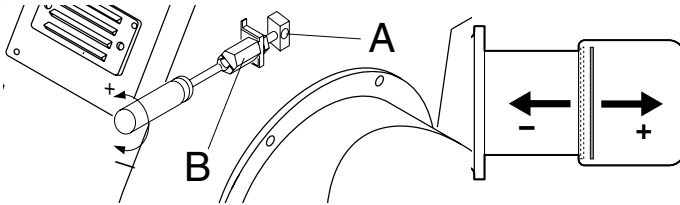
**WARNING:** In order to have a correct combustion and thermal output adjustments, these must be carried out together with a combustion analysis, to be executed through suitable devices, taking care that the values are the correct ones and are in accordance with the local safety regulations. The adjustments must be carried out by qualified and skilled technicians authorised by Ecoflam S.p.A.



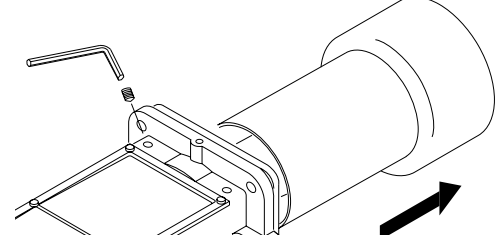
## SETTING THE FIRING HEAD

The firing head position adjustment is made in order to obtain the best combustion efficiency. When used with minimum outputs the firing head is adjusted in rear position. With high output, the firing head is adjusted in forward position. **Adjustment:**

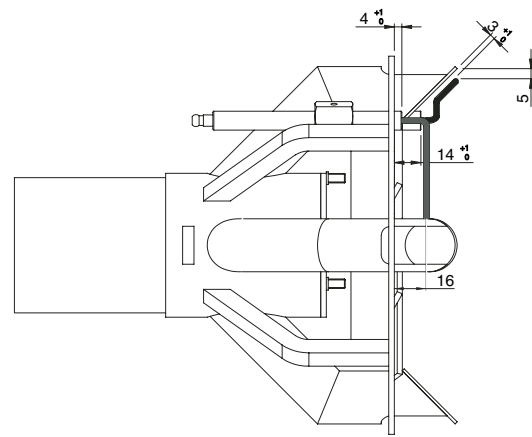
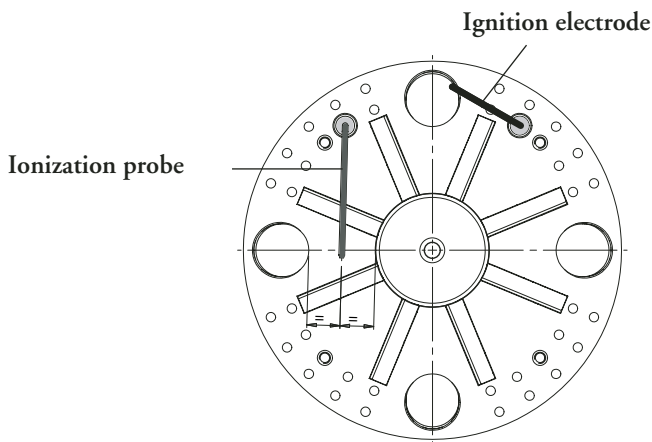
- Loosen screw A through a suitable Allen key. - By a screwdriver act on the hex. head screw B until is reached the desired position. - Tighten screw A



## REMOVING THE BLAST TUBE

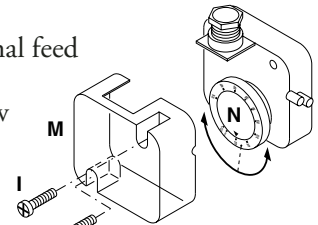


## POSITION OF ELECTRODES



## ADJUSTMENT OF GAS MINIMUM PRESSURE SWITCH

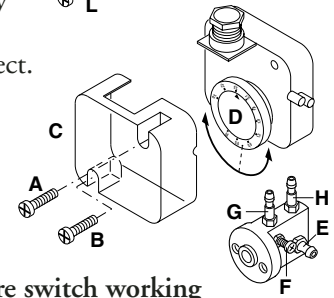
Unscrew off and remove cover M. - Set regulator N to a value equal to 60% of gas nominal feed pressure (i.e. for nat. gas nom. pressure = 20 mbar, set regulator to a value of 12 mbar; for L.P.G. nom. pressure of G30/G31- 30/37 mbar, set regulator to a value of 18 mbar). Screw up cover M



## ADJUSTMENT OF THE AIR PRESSURE SWITCH

Unscrew screws A and B and remove cover C. - Set the pressure switch to the minimum by turning regulator D to position 1.

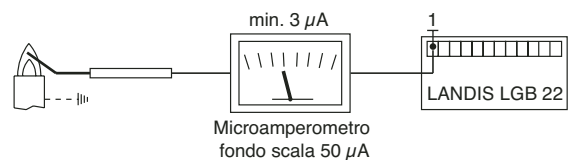
- Start the burner and keep in low flame running, while checking that combustion is correct. Through a small cardboard, progressively obstruct the air intake until to obtain a CO<sub>2</sub> increase of 0,5÷0,8% or else, if a pressure gauge is available, connected to pressure port E, until reaching a pressure drop of 1 mbar (10 mm of W.G.). - Slowly increase the adjustment value of the air pressure switch until to have the burner lockout. Remove the obstruction from the air intake, screw on the cover C and start the burner by pressing the control box rearm button.



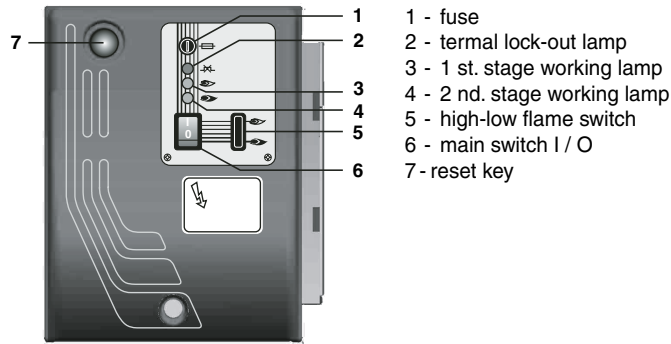
**Note:** The pressure measured at pressure port E must be within the limits of the pressure switch working range. If not, loose the locking nut of screw F and gradually turn the same: clockwise to reduce the pressure; counterclockwise to increase. At the end tighten the locking nut.

## IONIZATION CURRENT

The minimum current necessary to operate the control-box is 3  $\mu$ A (Landis LGB22). When the measurement of the current is required it is necessary to disconnect the lead to the probe and insert in its place a microammeter for direct current (see fig. under).



## DESCRIPTION OF THE CONTROL PANEL OF THE BURNER



## TROUBLESHOOTING

### YEARLY INSPECTION

Periodic inspection of the burner (combustion head, electrodes, etc.) must be carried out by authorised personnel once or twice a year, depending of use.

Before carrying out maintenance inspection on the burner, it is advisable to check its general condition and carry out the following operations:

- Disconnect the burner from the power supply (remove the plug).
- Close the gas cock.
- Remove the burner cover, clean the fan and air intake.
- Clean the combustion head and check the position of the electrodes.
- Re-assemble the parts.
- Check the seal on the gas pipe fittings.
- Check the flue.
- Restart the burner.
- Check the combustion parameters ( $CO_2 = 9.5$  to  $9.8$ ), ( $O =$  less than  $75$  ppm).

### BEFORE EACH INTERVENTION CHECK:

- That the system is supplied with power and the burner connected.
- That the gas pressure is correct and the gas cock open.
- That the control systems are correctly connected.

If all these conditions are present, start the burner by pressing the release button. Check the burner cycle.

### THE BURNER WILL NOT START:

- Check the switch, thermostats, motor, gas pressure.

### THE BURNER PREVENTILATES AND LOCKS AT THE END OF THE CYCLE:

- Check the air pressure and fan.
- Check the air pressure switch.

### THE BURNER PREVENTILATES AND WILL NOT IGNITE:

- Check the assembly and position of electrodes.
- Check the ignition cable.
- Check the ignition transformer.
- Check the safety devices.

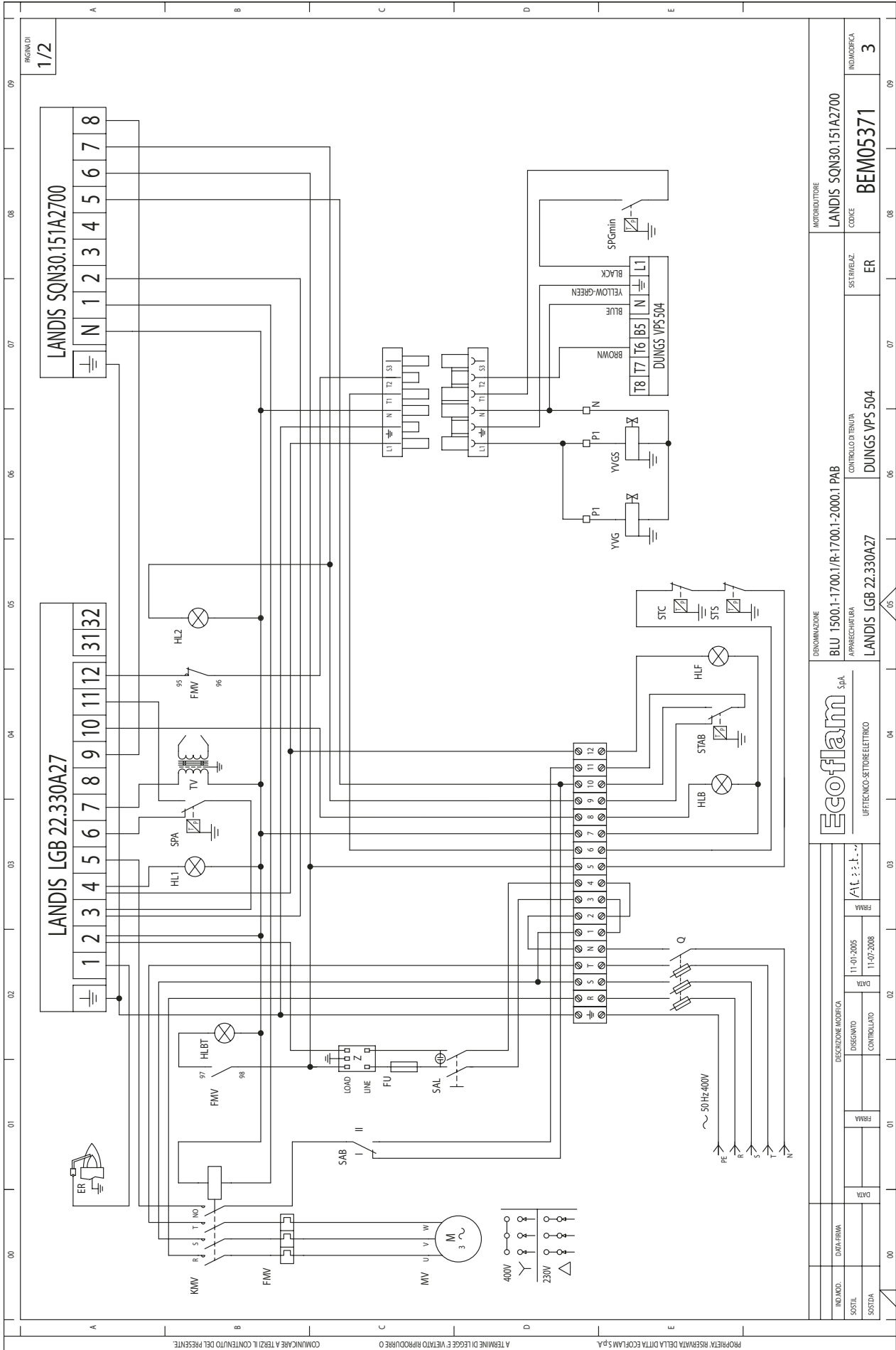
### THE BURNER STARTS UP AND LOCKS AFTER THE SAFETY TIME LIMIT:

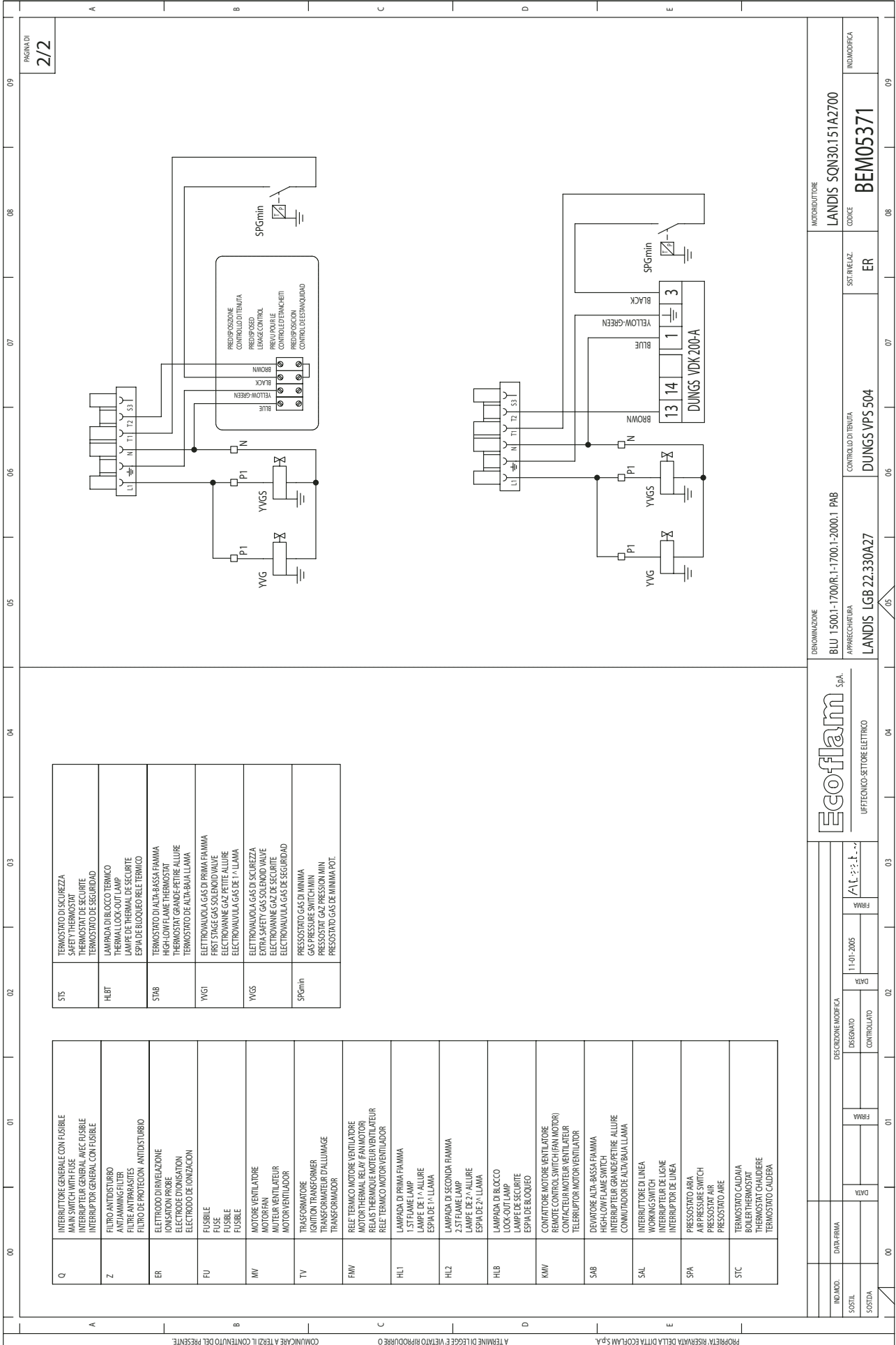
- Check that the phase and neutral wires are correctly connected.
- Check the gas electrovalves.
- Check the position of the detection electrode and its connection.
- Check the detection electrode.
- Check the safety devices.

### THE BURNER STARTS UP AND LOCKS AFTER RUNNING FOR A FEW MINUTES:

- Check the pressure regulator and the gas filter.
- Check the gas pressure with an ammeter.
- Check the detection value (min  $3 \mu A$  LGB22).







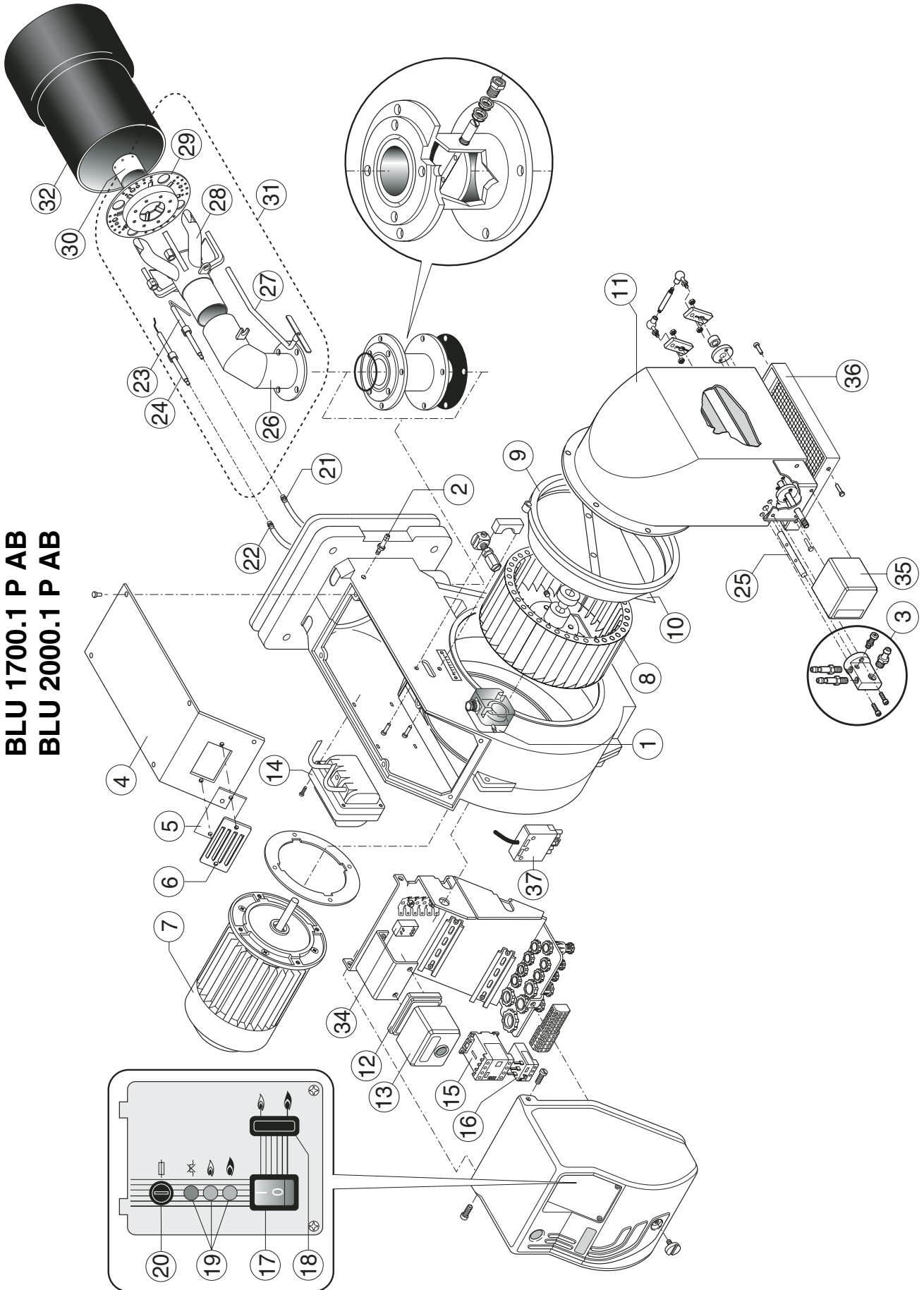
Q	INTERRUTTORE GENERALE CON FUSIBILE GENERAL SWITCH WITH FUSIBLE INTERRUPTEUR GENERAL AVEC FUSIBLE INTERRUPTOR GENERAL CON FUSIBLE	ST5	TERMOSTATO DI SICUREZZA EXTRA SAFETY GAS SOLENOID VALVE ELECTROVAVULA GAS DE SEGURIDAD
Z	FILTRO ANTIDISTURBO ANTI-JAMMING FILTER FILTRE ANTIPARASITES FILTRO DE PROTECCION ANTIDISTURBO	HL1	LAMPADA DI BLOCCO TERMICO THERMAL LOCK-OUT LAMP LAMPE DE THERMAL DE SECURITE ESPIA DE BLOQUEO RELE TERMICO
ER	ELETTRODO DI RIVELAZIONE IONISATION PROBE ELECTRODE D'IONISATION ELECTRODO DE IONIZACION	STAB	TERMOSTATO DI ALTA-BASSA FIAMMA HIGH-LOW FLAME THERMOSTAT THERMOSTAT GRANDE-PETITE ALLURE TERMOSTATO DE ALTA-BAJA LLAMA
FU	FUSIBILE FUSE FUSIBLE FUSIBLE	YVGI	ELETTROVAVOLA GAS DI PRIMA FIAMMA FIRST STAGE GAS SOLENOID VALVE ELECTROVAVULA GAS DE 1ª LLAMA
MV	MOTORE VENTILATORE MOTOR FAN MOTEUR VENTILATEUR MOTOR VENTILADOR	YVGS	ELETTROVAVOLA GAS DI SICUREZZA EXTRA SAFETY GAS SOLENOID VALVE ELECTROVAVULA GAS DE SEGURIDAD
TV	TRASFORMATORE IGNITION TRANSFORMER TRANSFORMATEUR D'ALLUMAGE TRANSFORMADOR	SPGmin	PRESSOSTATO GAS DI MINIMA GAS PRESSURE SWITCH MIN PRESOSTATO GAS DE MINIMA POT.
FMV	RELE TERMICO MOTORE VENTILATORE MOTOR THERMAL RELAY FAN MOTOR RELAIS THERMIQUE MOTEUR VENTILATEUR RELE TERMICO MOTOR VENTILADOR		
HL1	LAMPADA DI PRIMA FIAMMA 1.5T FLAME LAMP LAMPE DE 1 <sup>re</sup> ALLURE ESPIA DE 1 <sup>re</sup> LLAMA		
HL2	LAMPADA DI SECONDA FIAMMA 2.5T FLAME LAMP LAMPE DE 2 <sup>de</sup> ALLURE ESPIA DE 2 <sup>de</sup> LLAMA		
HLB	LAMPADA DI BLOCCO LOCK-OUT LAMP LAMPE DE SECURITE ESPIA DE BLOQUEO		
KMW	CONTATTORE MOTORE VENTILATORE REMOTE CONTROL SWITCH (FAN MOTOR) CONTACTEUR MOTEUR VENTILATEUR TELEINTERRUPTOR MOTOR VENTILADOR		
SAB	DEVITORE ALTA-BASSA FIAMMA HIGH-LOW FLAME SWITCH INTERMEDIATEUR GRANDE-PETITE ALLURE COMUNICADOR DE ALTA-BAJA LLAMA		
SAL	INTERRUTTORE DI LINEA WORKING SWITCH INTERMUTEUR DE LIGNE INTERRUPTOR DE LINEA		
SPA	PRESSOSTATO ARIA AIR PRESSURE SWITCH PRESOSTATO AIR PRESOSTATO AIRE		
STC	TERMOSTATO CALDAIA BOILER THERMOSTAT THERMOSTAT CHAUDIERE TERMOSTATO CALDERA		

PAGINA DI <b>2/2</b>		INDICAZIONE BLU 15001-1700(R)-1-1700.1-2000.1 P AB		DENOMINAZIONE MOTORIDUTTORE LANDIS SQN30.151A2700	
DISCIPLINA ELETTRICA		APPARECCHIATURA LANDIS LGB 22.330A27		SIST. IN ELAZ. ER	
DISCIPLINA SOSTITUIBILI		SOSTITUIBILI DUNGS VPS 504		CODICE BEM05371	
SOSTITUIBILI SOSTITUIBILI		SOSTITUIBILI DUNGS VPS 504		INDICAZIONE INDICAZIONE	

**Ecoflam** S.p.A.  
UFFICIO TECNICO SETTORE ELETTRICO

DATA FIRMA	DATA	DATA	DATA
11-01-2005	11-01-2005	11-01-2005	11-01-2005
DISSEGNO	DISSEGNO	DISSEGNO	DISSEGNO
CONTROLLATO	CONTROLLATO	CONTROLLATO	CONTROLLATO

**BLU 1700.1 P AB**  
**BLU 2000.1 P AB**



N	DESCRIPTION	DESCRIPCION		BLU 1700.1 PAB	BLU 2000.1 PAB
				code	code
1	PRESSOSTAT AIR	PRESOSTATO AIRE	DUNGS LGW10 A2P	65323047	65323047
2	PRISE DE PRESSION	TOMA DE PRESION		65321341	65321341
3	SET DE PRISES D'AIR	COJUNTO TOMAS DE AIRE		65322346	65322346
4	COUVERCLE	TAPA		65320676	65320676
5	HUBLLOT	VIDRIOSO		65320487	65320487
6	PROTECTION HULBOT	SOPORTE VIDRIOSO		65320488	65320488
7	MOTEUR	MOTOR	3000 W	65322831	-
			4000 W	-	65322820
8	VENTILATEUR	VENTILADOR	280 x 140	65321798	65321798
9	CONVOYEUR D'AIR	CONDUCTO DE AIRE		65320643	65320643
10	SURPRESSEUR	SURPRESSORE		-	65320625
11	BOITE D'AIR	REJILLA DE PROTECCION		65320555	65320555
12	SOCLE	BASE DEL EQUIPO	LANDIS	65320092	65320092
13	COFFRET DE SECURITE	EQUIPO CONTROL LLAMA	LANDIS LGB 22	65320034	65320034
14	TRASFORMATEUR D'ALLUMAGE	TRANSFORMADOR	COFI 820 PM	65323227	65323227
15	TELERUPTEUR	EMPALME MOTOR VENTILADOR	BF16.10	65323131	65323131
16	RELAIS THERMIQUE	TERMICO	Lovato RF25 6-10 A	65323108	65323108
17	INTERRUPTEUR DE TRAVAIL	INTERRUPTOR DE LINEA	cod.40100I1509	65323064	65323064
18	INTERRUPTEUR 1RE. ET 2ME. ALLURE	INTERRUPTOR 1°-2° LLAMA	cod.360000001	65323065	65323065
19	LAMPE	ESPIA	EL/N-SC4 Elettrospring	65322053	65322053
20	PORTEFUSIBLE	PORTAFUSIBLE	FUSIT FH-B528	65322181	65322181
21	CABLE D'IONISATION	CABLE DE CONTROL LLAMA	TC	65322002	65322002
			TL	65322003	65322003
22	CABLE D'ALLUMAGE	CABLE DE ENCENDIDO	TC	65320943	65320943
			TL	65320946	65320946
23	SONDE D'IONISATION	ELECTRODO DE CONTROL LLAMA		65320892	65320892
24	ELECTRODE D'ALLUMAGE	GRUPO ELECTRO DE ENCENDIDO		65320903	65320903
25	TUYAU PRISE D'AIR	TUBO PARA REJILLA DE PROTECCION		65321230	65321230
26	TUYAU	TUBO	TC	65321667	65321667
			TL	65321668	65321668
27	SUPPORT	SOPORTE CABEZA DE COMBUSTION	TC	65320244	65320244
			TL	65320245	65320245
28	TETE DE COMBUSTION	CABEZA DE COMBUSTION		65321669	65321669
29	GROUPE DIFFUSEUR	GRUPO DIFUSOR		65320743	65320743
30	TUYAU ANTERIEUR	MANGUITO	METANO	65321606	65321606
			GPL	65321609	65321609
31	GROUPE TETE DE COMBUSTION	GRUPO CABEZA DE COMBUSTION	TC		
			TL		
32	GUEULARD	TUBO LLAMA	TC	65320438	65320436
			TL	65320439	65320437
33	BRIDE ISOMART	JUNTA ISOMART		65321124	65321124
34	FILTRE ANTIPARASITES	FILTRO ANTIDISTURBIO		65323170	65323170
35	MOTOREDUCTEUR	MOTORREDUCTOR	Landis SQN 30.151A2700	65322897	65322897
36	PROTECTION	PROTECCION		65320557	65320557
37	FICHE MALE WIELAND	ESPIA WIELAND	6 pin	65322072	65322072

TC = TETE COURTE / CABEZA CORTA TL = TETE LONGUE / CABEZA LARGA