



BRUCIATORI DI GAS AD ARIA SOFFIATA
BLOWN AIR GAS BURNERS
BRULEURS GAZ A AIR SOUFFLE
QUEMADORES DE GAS DE AIRE SOPLADO



Ecoflam

CE



BLU 500.1 P AB

BLU 700.1 P AB

BLU 1000.1 P AB

BLU 1400.1 P AB

Low Nox

G20-G25

G30-G31

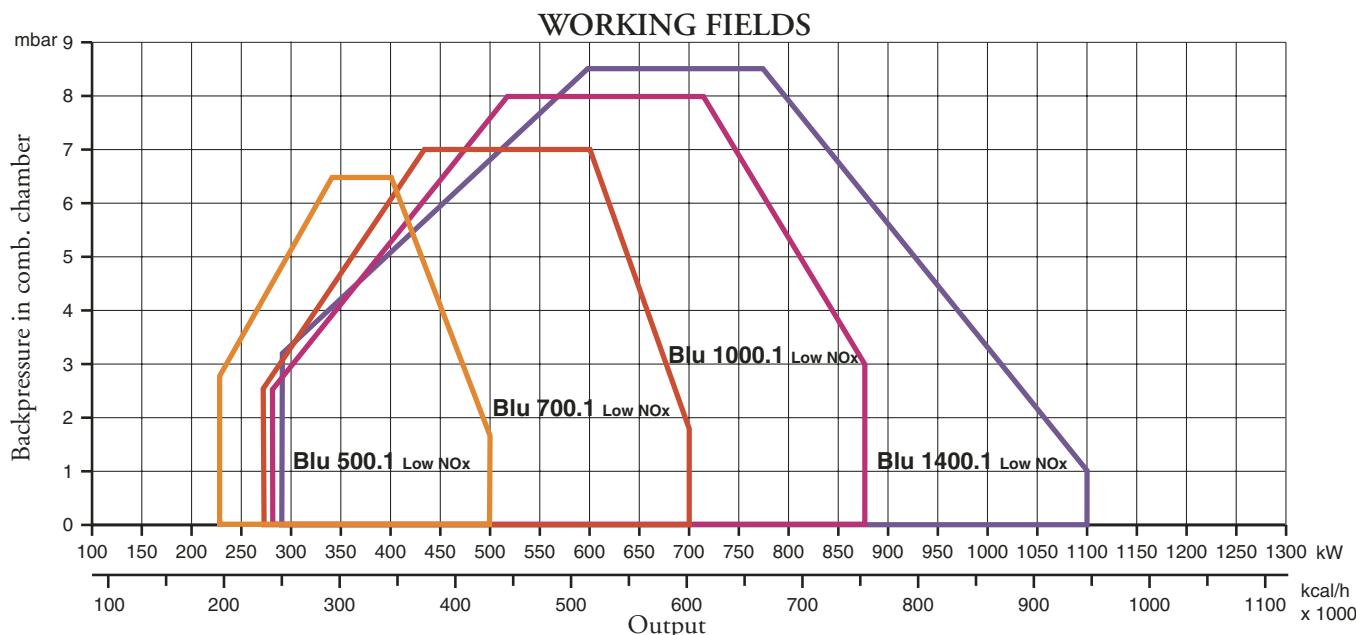


LB1584

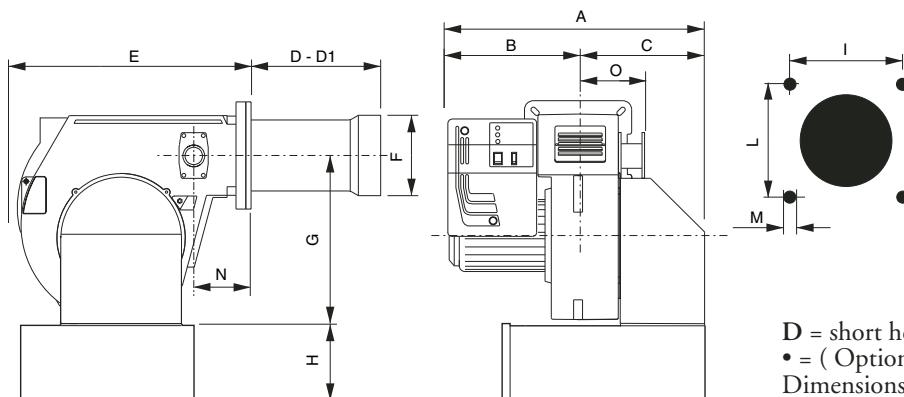
04.07.2006

OPERATING FEATURES					
Model : BLU 500.1-700.1-1000.1-1400.1 PAB			Gas family - II 2H 3P		
	G20	G25	G31	G30	
Max. gas pressure	mbar	25	-	45	35
Min. gas pressure	mbar	17	-	25	20
Fuel L.C.V.	kcal/Nm ³	8.570	-	22.260	29.320

TECHNICAL DATA					
BLU	500.1 P AB	700.1 P AB	1000.1 P AB	1400.1 P AB	
Termal power max.	kW	500	700	875	1100
	kcal/h	430.000	602.000	752.500	946.000
Termal power min.	kW	230	270	280	290
	kcal/h	197.800	232.200	240.800	249.400
Voltage	50 HzV	230 / 400	230 / 400	230 / 400	230 / 400
Motor	kW	0,55	0,74	1,1	2,2
Rpm	N°	2800	2800	2800	2800



OVERALL DIMENSIONS



D = short head D1 = long head
 • = (Optional)
 Dimensions (mm)

MODELS	A	B	C	D	D1	E	F	G	H	I	L	M	N	O
BLU 500.1 PAB	650	330	320	175	395	555	160	385	225•	190	190	M10	115	165
BLU 700.1 PAB	650	330	320	175	395	555	170	385	225•	190	190	M10	115	165
BLU 1000.1 PAB	650	330	320	175	395	555	190	385	225•	190	190	M10	115	165
BLU 1400.1 PAB	670	350	320	310	460	555	200	385	225•	190	190	M10	115	165



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:

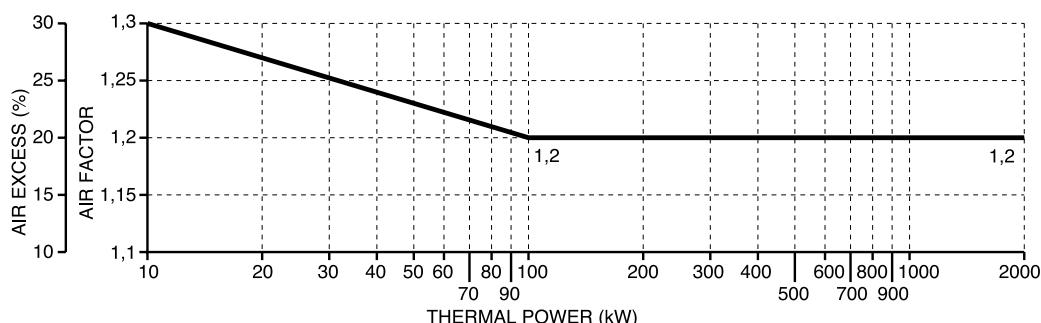
- gas type and feed pressure;
- gas valves closed;
- the seals in the pipe fittings;
- gas pipe breather and input pressure;
- that the cable complies with the diagram and the phase and neutral wires correspond;
- that the burner shuts down when the boiler thermostat opens
- the seal of the boiler furnace 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 CO₂ 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



Nat. gas
CO ₂ 9,6 %
CO < 50 ppm
L.P.G.
CO ₂ 11,7 %
CO < 50 ppm

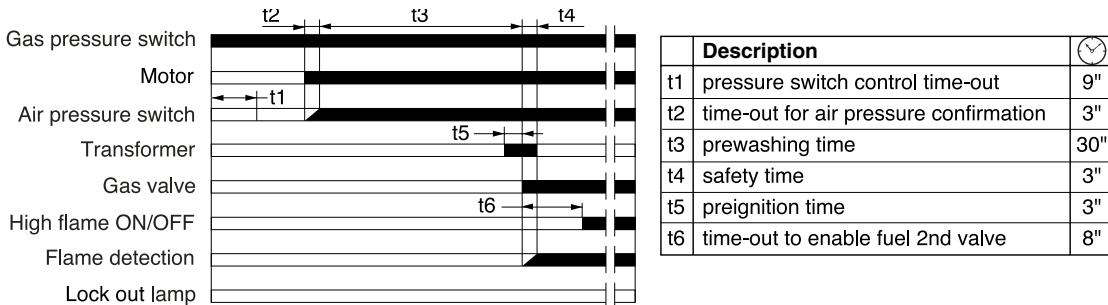
WARNING:

in order to adjust combustion and thermal capacity correctly, the fumes must be analyzed using specific instruments. Combustion and thermal capacity must be adjusted simultaneously, making sure that the values read are correct and in any case, that they comply with the safety regulations in force.

THIS OPERATION MUST BE PERFORMED BY PERSONNEL WHO ARE PROFESSIONALLY QUALIFIED AND AUTHORIZED BY ECOFLAM SPA.

CONTROL BOXES LANDIS & STAEEFA LGB21/LGB22

The Landis control box starts the fan and begins the pre-purging of the combustion chamber. The air pressure switch controls the correct operation. At the end of the pre-purging phase, the ignition transformer cuts-in followed by the opening of the gas valves. In case of missed ignition or accidental shutdown, the ionisation probe cuts-in and set the burner in lockout mode within the safety time.



LANDIS & STAEEFA 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).

MANUAL RELEASE SWITCH

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

Fix the gas train to burner body by means of the 4 screws of the flange, pay attention to set correctly the gasket (O-ring).

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 acting on the screw "1", after loosening nut " 2 ".

3. Regulate gas capacity in high flame through the gas governor, or operate on the adjustable gas valve.

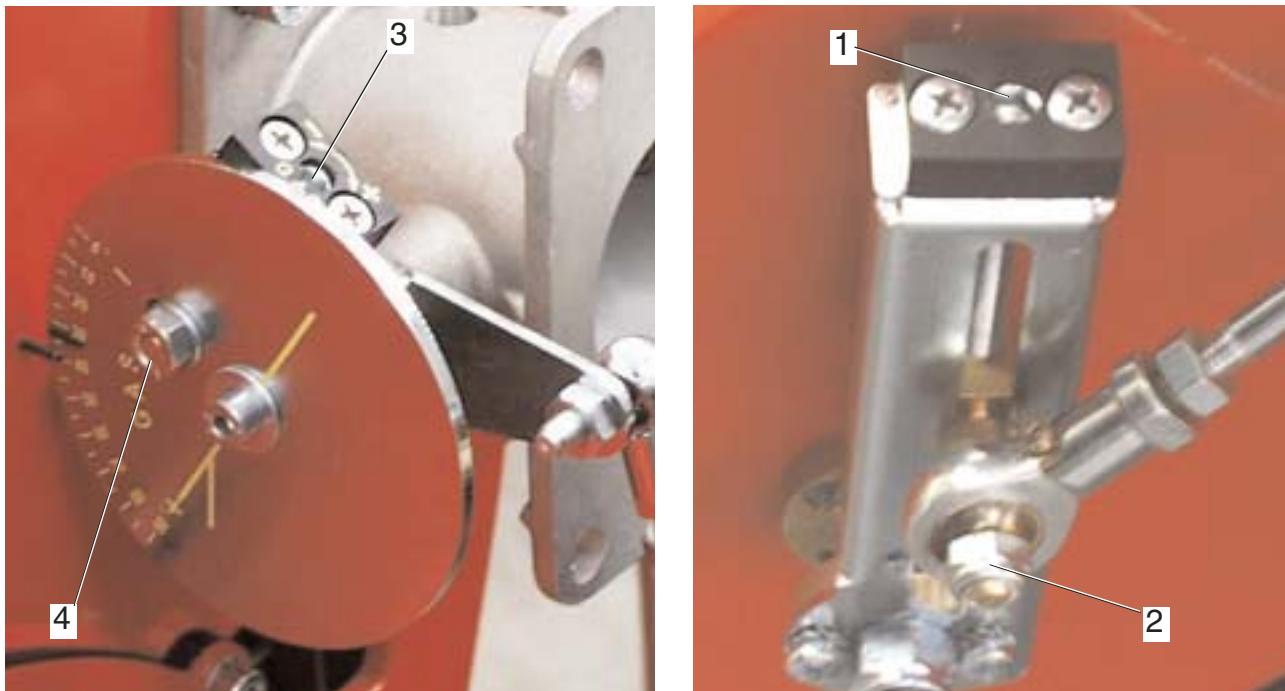
LOW FLAME

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, changing the position of the gas valve disc, act on screw " 3 ", after loosen nut " 4 ".

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.



CALCULATION OF WORKING OUTPUT OF THE BURNER

To calculate the burner's working output, in kW, proceed as follows:

- Check at the meter the quantity of supplied litres and the duration, in seconds, of the reading, then calculate the burner's output through the following formula:

$$\frac{e}{s} \times f = \text{kW}$$

e = Litres of gas
 s = Time in seconds

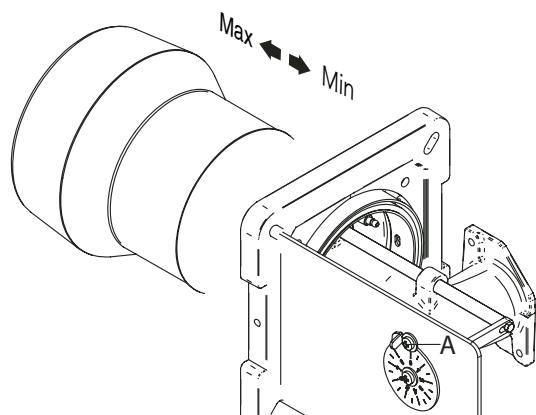
f	$G20 = 34,02$
	$G25 = 29,25$
	$G30 = 116$
	$G31 = 88$

COMBUSTION ADJUSTMENT

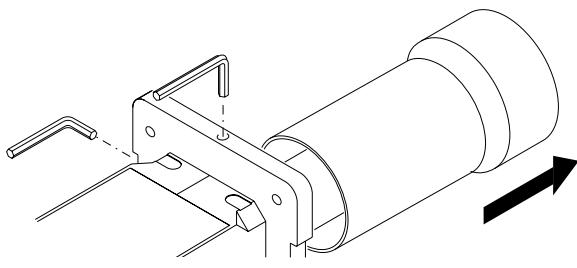
WARNING: In order to have a correct combustion and thermal output adjustments, these must be carried out together with a combustion analysis, to be executed through suitable devices, taking care that the values are the correct ones and are in accordance with the local safety regulations. The adjustments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

SETTING THE FIRING HEAD

The adjustment of the position of the firing head is made to obtain the best combustion performance. When used at the minimum power output the firing head is move back, whilst is forwarded at the maximum output. **Execution :** -loosen the locking screw of adjusting device A; - move the adjusting device until the desired position is reached; - tighten the locking screw.

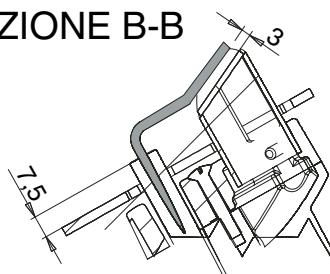


REMOVING THE NOSEPIECE

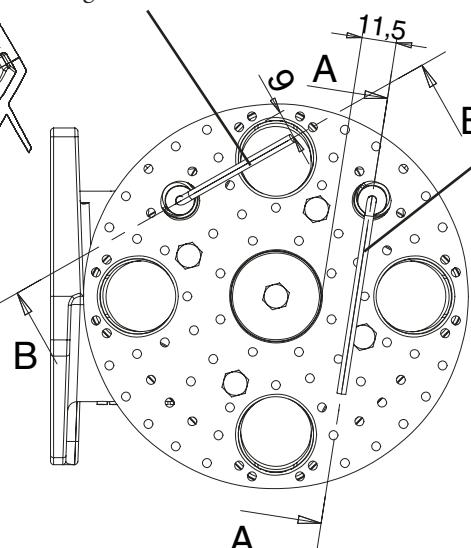


POSITION OF ELECTRODES

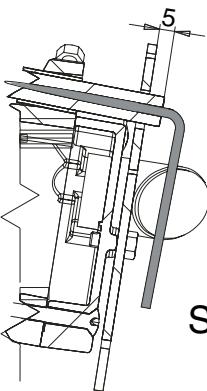
SEZIONE B-B



Ignition electrode



Ionization probe

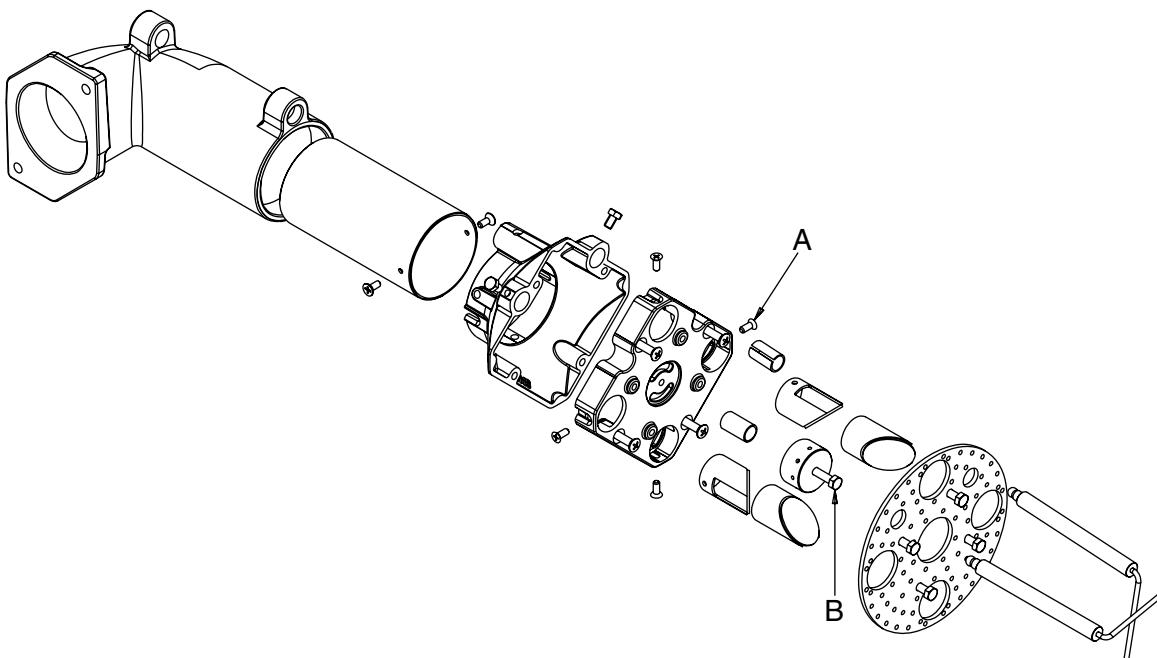


SEZIONE A-A

CHANGE BURNER OPERATION FROM NATURAL GAS TO LPG

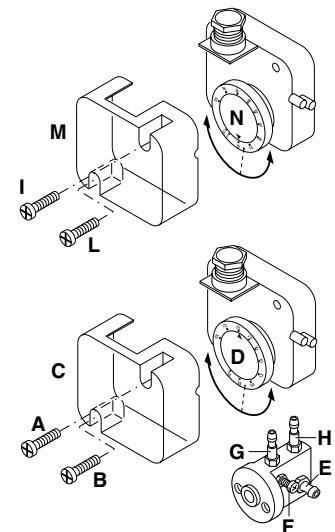
In order to change the burner operation from natural gas to LPG you have to follow these instructions :

- Remove the blast tube.
- Remove the ignition electrode.
- Replace 4 Diffusers (only 700.1, 1000.1, 1400.1) with LPG version, remove A screws.
- Replace Tooth with LPG version, remove B screw.
- Install the ignition electrode correctly.
- Install the blast tube .



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



DJUSTMENT OF THE AIR PRESSURE SWITCH

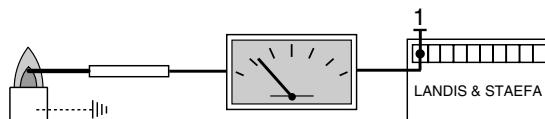
Unscrew screws A and B and remove cover C.- Set the pressure switch to the minimum by turning regulator D to position 1.

- 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 CO₂ 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.

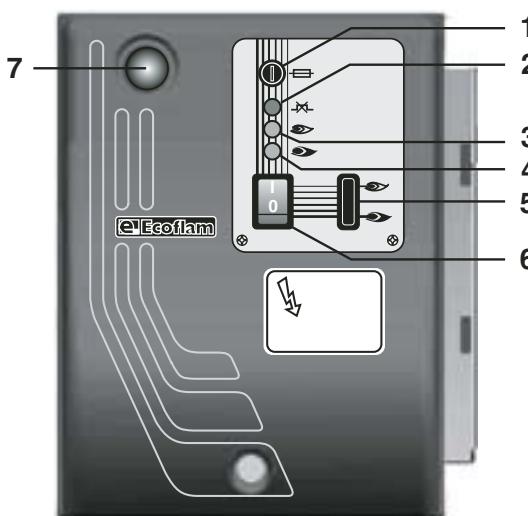
FLAME DETECTION SYSTEM CHECK

LGB21-LGB22 min. 3 µA
LMG21-LMG22 min. 2 µA



With the burner switched off, connect a DC microammeter with a 0÷50 or 0÷100 µA dial. When the burner is running, and is properly adjusted, the value read must be steady and never be smaller than 3 µA.

DESCRIPTION OF THE CONTROL PANEL OF THE BURNER



- 1 - fuse
- 2 - termal lock-out lamp
- 3 - 1 st. stage working lamp
- 4 - 2 nd. stage working lamp
- 5 - high-low flame switch
- 6 - main switch I / O
- 7 - reset key

MAINTENANCE

YEARLY CHECKS:

The periodical checks of the burner (combustion head, electrodes etc.) must be carried out by authorised technicians once or twice in a year, according to burner's duty conditions.

Before going on with maintenance operations, it is advisable to proceed through a control of the burner's general state as follows:

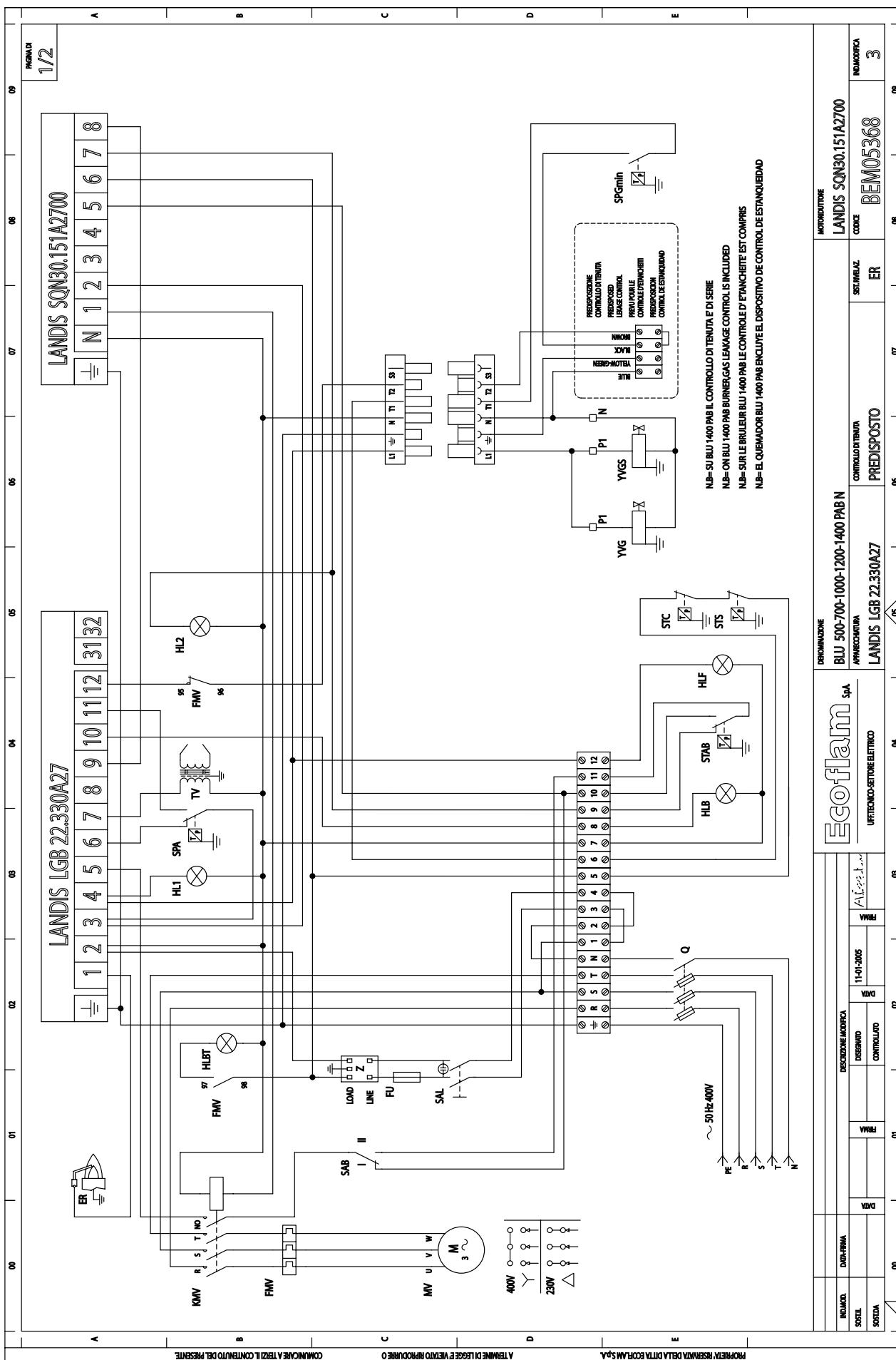
- Unplug the burner from supply mains.
- Close the gas cock.
- Remove burner's cover and clean fan and air intake's duct.
- Clean the combustion head and check electrodes position.
- Reassemble the whole.
- Check fittings seal.
- Check the chimney.
- Restart the burner and check combustion values
(CO₂ = 9,7% (G 20); 11,7% (G 30); 11,7% (G 31); CO lower than 75 ppm).

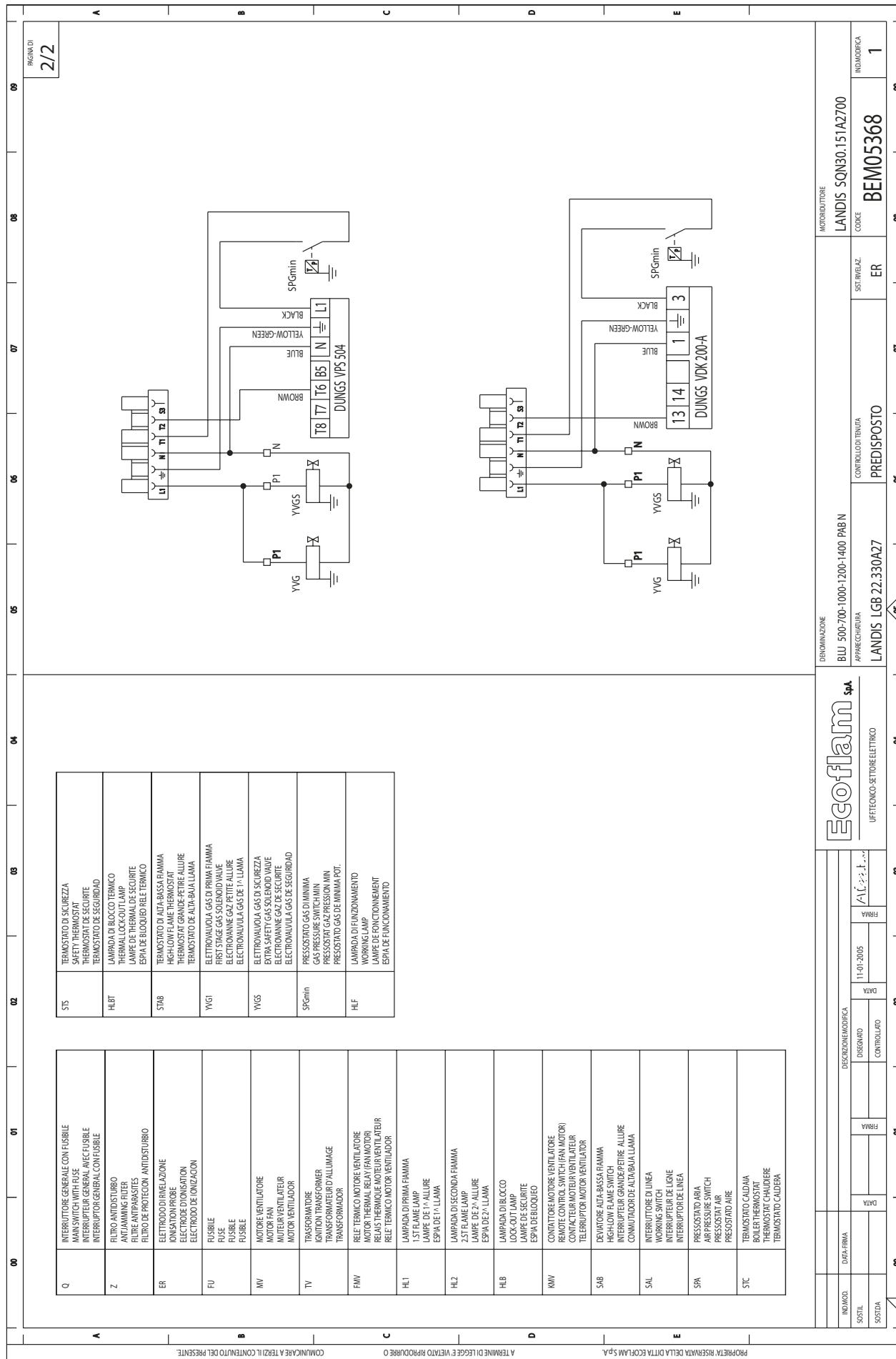
BEFORE ANY INTERVENTION VERIFY THAT:

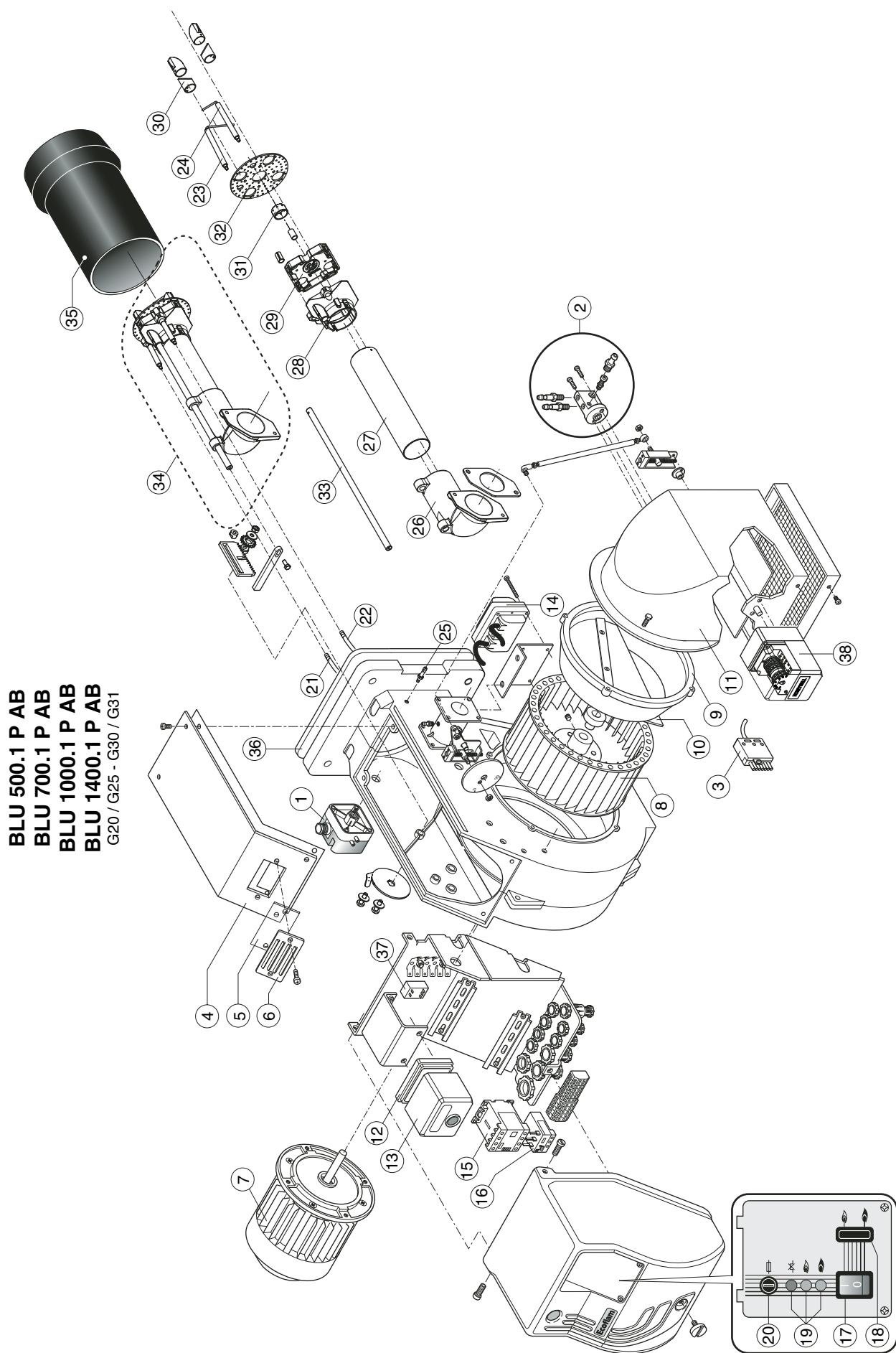
- The system is supplied with power and the burner is plugged in.
- Gas pressure is the correct one and the gas cock is open.
- The control devices are suitably connected.
- If all such a conditions are satisfied, start the burner by pressing the lockout rearm button and check its ignition sequence.

SHORT TROUBLESHOOTING:

- The burner does not start: check power switch, thermostats, motor, gas pressure, leakage control device (if any).
- The burner runs the pre-purging but switches to lockout at the end of cycle: check air pressure, fan and air pressure switch.
- The burner runs the pre-purging but does not ignite: check electrodes installation and position, ignition cable, ignition transformer, control box and gas solenoid valves.
- The burner ignites but switches to lockout at the expiring of safety time: check that phase and neutral are properly connected; check ionization probe's position and connection; check control box.
- The burner ignites properly but switches to lockout after few minutes of working: check gas pressure governor and filter, gas pressure, detection value (3 µA min.) and combustion values.









DESCRIPTION		BLU 500.1 P AB code	BLU 700.1 P AB code
1 - AIR PRESSURE SWITCH	DUNGS LGW10 A2P	Q120	Q120
2 - AIR INTAKE SET		GRPA101	GRPA101
3 - PLUG WIELAND	6 pin	E226	E226
4 - BURNER COVER		BFC09151/011	BFC09151/011
5 - GLASS		BFC02004	BFC02004
6 - PEED WINDOM FRAME		BFC02006	BFC02006
7 - MOTOR	550 W	M169	-
	740 W	-	M147/4
8 - FAN	220 x 98	BFV10155/001	-
	250 x 84	-	BFV10153/001
9 - AIR CONVEYOR		BFC08202/017	BFC08201/017
10 - FAN SCOOP		BFC08055/001	BFC08051/001
11 - AIR INTAKE		BFC04160/011	BFC04160/011
12 - CONTROL BOX BASE	LANDIS	A402	A402
13 - CONTROL BOX	LANDIS LGB 22	A130/1	A130/1
14 - IGNITION TRANSFORMER	COFI 820 PM	T106/4	T106/4
15 - REMOTE CONTROL SWITCH	TRIP. BG0910A	R623	R623
16 - MOTOR THERMAL RELAY	Lovato RF9 1,4-2 ,3A	R510	-
	Lovato RF9 2-3,3 A	-	R510/1
17 - MAIN SWITCH	cod.40100I1509	R1020	R1020
18 - HIGH-LOW FLAME SWITCH	cod.360000001	R1020/1	R1020/1
19 - LAMP	EL/N-SC4 Elettrospring	E1510	E1510
20 - FUSE SUPPORT	FUSIT FH-B528	E802/2	E802/2
21 - IONIZATION CABLE	TC	BFE01403/4	BFE01403/4
	TL	E1102/21	E1102/21
22 - IGNITION CABLE	TC	BFE01402/1	BFE01402/1
	TL	BFE01402/2	BFE01402/3
23 - IONIZATION PROBE		BFE01075	BFE01075
24 - IGNITION ELECTRODES		BFE01076	BFE01076
25 - PRESSURE GAUGE		BFT01105/001	BFT01105/001
26 - HEAD SUPPORT PIPE		BFT13121/004	BFT13121/004
27 - HEAD PIPE	TC	BFT13128/001	BFT13128/001
	TL	BFT13132/001	BFT13132/001
28 - FIRING HEAD		BFT13118/051	BFT13118/051
29 - HEAD CAP		BFT13119/051	BFT13119/051
30 - DIFFUSER		BFT13133	BFT13134
	(G30-G31)	-	BFT13133
31 - TOOTH	(G20)	BFT13120	BFT13120
	(G30-G31)	BFT13126	BFT13126
32 - FRONT DISC		BFD07043	BFD07043
33 - ROD	TC	BFA08039/001	BFA08039/001
	TL	BFA08045/001	BFA08045/001
34 - INNER ASSEMBLY	TC	GRTT0102/001	GRTT0102/011
	(G30-G31) TC	GRTT0102/003	GRTT0102/013
	TL	GRTT0102/002	GRTT0102/012
	(G30-G31) TL	GRTT0102/004	GRTT0102/014
35 - BLAST TUBE	TC	BFB04018/017	BFB04017/017
	TL	BFB04022/017	BFB04021/017
36 - GASKET ISOMART		BFG03002/1	BFG03002/1
37 - ANTIJAMMING FILTER		S132/4	S132/4
38 - AIR DAMPER MOTOR	LANDIS SQN 30.151A2700	M212/3	M212/3

TC = SHORT HEAD TL = LONG HEAD



DESCRIPTION		BLU 1000.1 P AB code	BLU 1400.1 P AB code
1 - AIR PRESSURE SWITCH	DUNGS LGW10 A2P	Q120	Q120
2 - AIR INTAKE SET		GRPA101	GRPA101
3 - PLUG WIELAND	6 pin	E226	E226
4 - BURNER COVER		BFC09151/011	BFC09151/011
5 - GLASS		BFC02004	BFC02004
6 - PEED WINDOM FRAME		BFC02006	BFC02006
7 - MOTOR	1100 W	M115/3	-
	2200 W	-	M167
8 - FAN	260 x 98	BFV10152/001	-
	260 x 110	-	BFV10151/001
9 - AIR CONVEYOR		BFC08201/017	BFC08201/017
10 - FAN SCOOP		BFC08051/001	BFC08051/001
11 - AIR INTAKE		BFC04160/011	BFC04160/011
12 - CONTROL BOX BASE	LANDIS	A402	A402
13 - CONTROL BOX	LANDIS LGB 22	A130/1	A130/1
14 - IGNITION TRANSFORMER	COFI 820 PM	T106/4	T106/4
15 - REMOTE CONTROL SWITCH	TRIP. BG0910A	R623	R623
16 - MOTOR THERMAL RELAY	Lovato RF9 3-5 A	R510/2	-
	Lovato RF9 4,5 - 7,5 A	-	R510/3
17 - MAIN SWITCH	cod.40100I1509	R1020	R1020
18 - HIGH-LOW FLAME SWITCH	cod.360000001	R1020/1	R1020/1
19 - LAMP	EL/N-SC4 Elettrospring	E1510	E1510
20 - FUSE SUPPORT	FUSIT FH-B528	E802/2	E802/2
21 - IONIZATION CABLE	TC	BFE01403/4	BFE01403/4
	TL	E1102/21	E1102/21
22 - IGNITION CABLE	TC	BFE01402/1	BFE01402/1
	TL	BFE01402/3	BFE01402/3
23 - IONIZATION PROBE		BFE01075	BFE01075
24 - IGNITION ELECTRODES		BFE01076	BFE01076
25 - PRESSURE GAUGE		BFT01105/001	BFT01105/001
26 - HEAD SUPPORT PIPE		BFT13121/004	BFT13121/004
27 - HEAD PIPE	TC	BFT13128/001	BFT13130/001
	TL	BFT13132/001	BFT13131/001
28 - FIRING HEAD		BFT13118/051	BFT13118/051
29 - HEAD CAP		BFT13119/051	BFT13119/051
30 - DIFFUSER		BFT13134	BFT13136
	(G30-G31)	BFT13135	BFT13135
31 - TOOTH	(G20)	BFT13120	BFT13120
	(G30-G31)	BFT13126	BFT13126
32 - FRONT DISC		BFD07045	BFD07046
33 - ROD	TC	BFA08039/001	BFA08047/001
	TL	BFA08045/001	BFA08048/001
34 - INNER ASSEMBLYA	TC	GRTT0102/021	GRTT0102/031
	(G30-G31) TC	GRTT0102/023	GRTT0102/033
	TL	GRTT0102/022	GRTT0102/032
	(G30-G31) TL	GRTT0102/024	GRTT0102/034
35 - BLAST TUBE	TC	BFB05013/017	BFB05012/017
	TL	BFB05017/017	BFB05016/017
36 - FLANGIA ISOMART		BFG03002/2	BFG03002/2
37 - ANTIJAMMING FILTER		S132/4	S132/4
38 - AIR DAMPER MOTOR	LANDIS SQN 30.151A2700	M212/3	M212/3

TC = SHORT HEAD TL = LONG HEAD