

OIL BURNERS

**Ecoflam**

CE



**MAX P 25 AB D HT**



420011136800

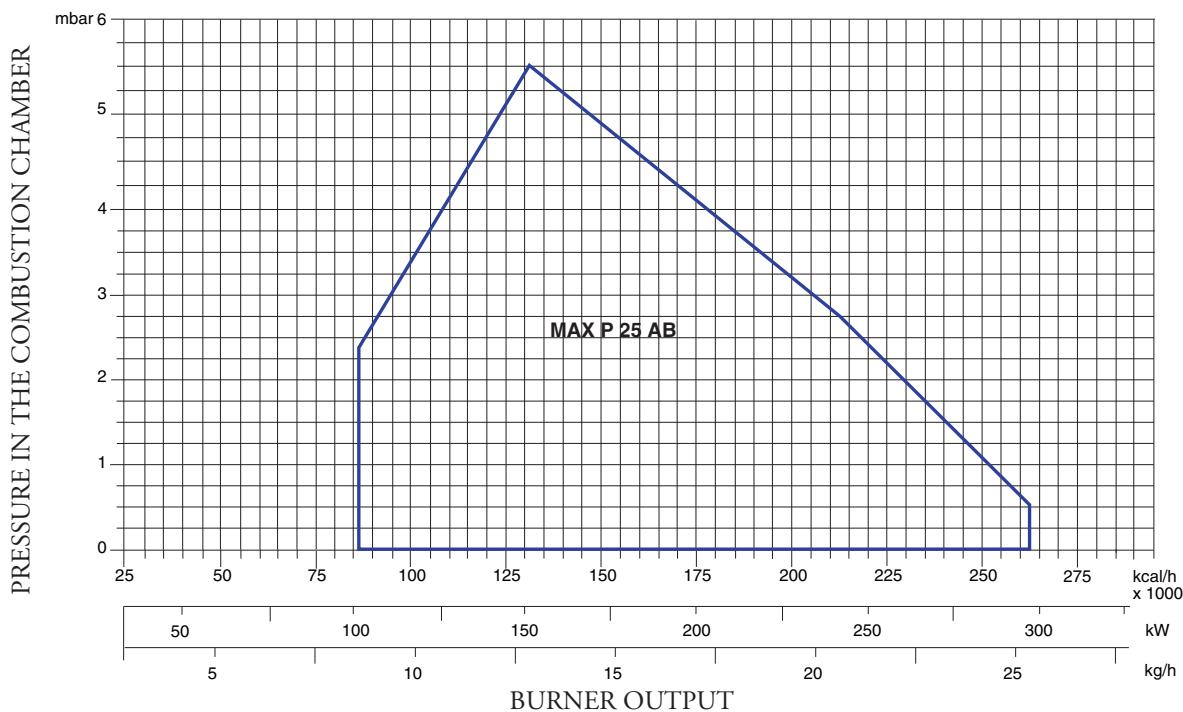
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24.02.2021

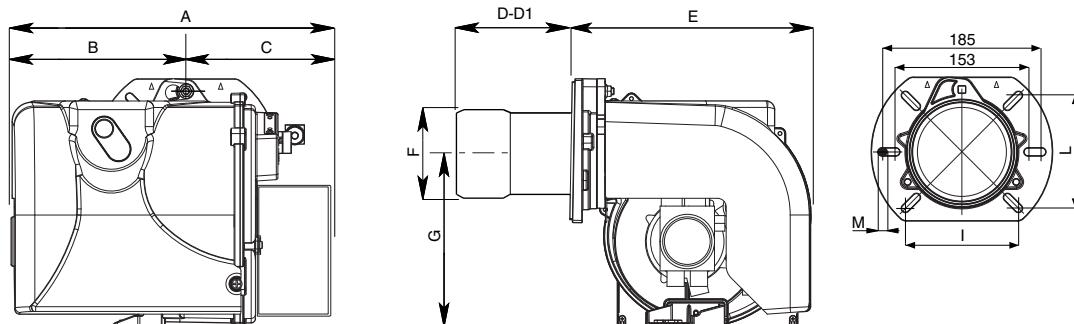
## TECHNICAL DATA

MODELS		MAX P 25 AB	
Thermal power max.	kcal/h	259.080	
	kW	300	
Thermal power min.	kcal/h	87.720	
	kW	102	
Max. flow rate light oil	kg/h	25,4	
Min. flow rate light oil	kg/h	8,6	
Feeding power	50 Hz V	220	
Motor	W	200	
Rpm	Nº	2.800	
Ignition transformer	kV/mA	2x7,5 /40	
Control box	SIEMENS	LMO24	
Fuel: light oil	kcal/kg	10.200 max. visc 1,5°C a 20°C	

## WORKING FIELD



## OVERALL DIMENSIONS



MODELS	A	B	C	D	D1	E	F	G	I	L	M
MAX P 25 AB	372	202	170	160	260	276	125	201	120-131	120-131	M 8

D = short head D1 = long head

## ADJUSTMENT DATA

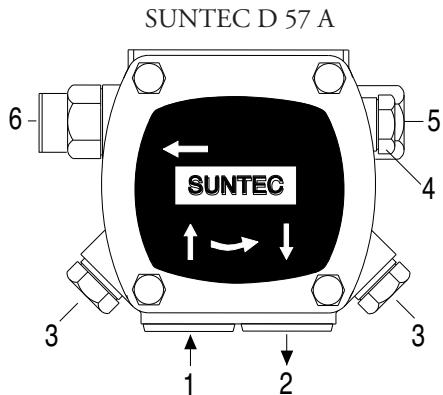
NOZZLE : DANFOSS H÷S 80°÷60°; DELAVAN W 60°; STEINEN S 60°

Correction of altitude	
Pump in suction (H +) or charging (H -)	
Altitude (m)	Theoretical H (m)
0-500	0
501-800	0,5
801-1300	1,0
1301-1800	1,5
1801-2200	2,0

e.g.: altitude 1100m Theoretical H = 1m actual H 2m, Corrected H for suction  $2 + 1 = 3$ m Corrected H for charging  $2 - 1 = 1$ m. Choose the Ø of the piping from the table, based on the length expanded between the tank and pump. If corrected H for suction exceeds 4m; make provisions for a transfer pump (max. pressure 2 bar).

The length of the tubes apply to burners powered by 50 Hz mains electricity; in case of 60 Hz power, divide the relevant lengths by 1.5.

## PRIMING AND ADJUSTMENT OF OIL PUMP



- 1 - INLET
- 2 - RETURN
- 3 - BLEED AND PRESSURE GAUGE PORT
- 4 - VACUUM GAUGE PORT
- 5 - PRESSURE ADJUSTMENT
- 6 - NOZZLE OUTLET

VERIFY:

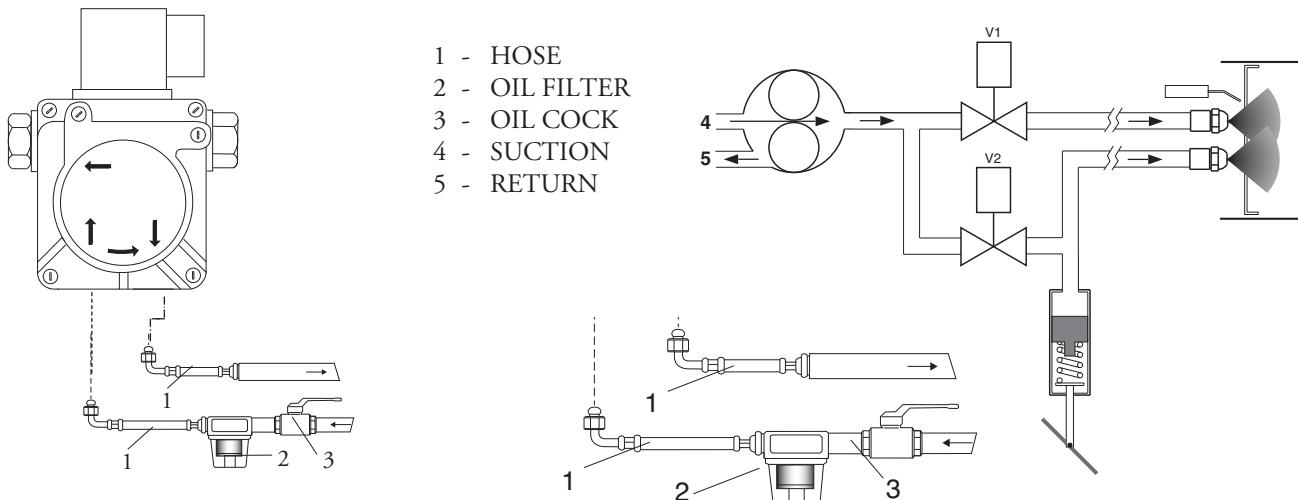
- That piping system is perfectly sealed.
- That the use of hoses is avoided whenever is possible (use copper pipes preferably).

- That depression is not greater than 0,45 bar, to avoid pump's cavitation.
- That check valve is suitably designed for the duty.

The pump pressure is set at a value of 12 bar during the testing of burners. Before starting the burner, bleed the air in the pump through the gauge port. Fill the piping with light-oil to facilitate the pump priming. Start the burner and check the pump feeding pressure. In case the pump priming does not take place during the first prepurging, with a consequent, subsequent lock-out of the burner, rearm the burner's lock-out to restart, by pushing the button on the control box. If, after a successful pump priming, the burner locks-out after the prepurging, due to a fuel pressure drop in the pump, rearm the burner's lock-out to restart the burner. Do never allow the pump working without oil for more than three minutes. Note: before starting the burner, check that the return pipe is open. An eventual obstruction could damage the pump sealing device.

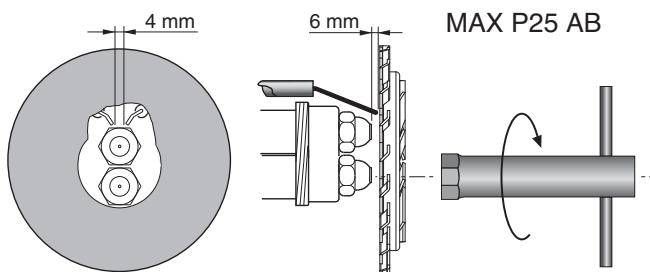
## HYDRAULIC CIRCUIT

MAX P25AB



## NOZZLE CLEANING AND REPLACEMENT

Use only the suitable box wrench provided for this operation to remove the nozzle, taking care to not damage the electrodes. Fit the new nozzle by the same care. Note: Always check the position of electrodes after having replaced the nozzle (see illustration). A wrong position could cause ignition troubles.



## BURNER START-UP AND ADJUSMENT

Once having installed the burner, check the following items:

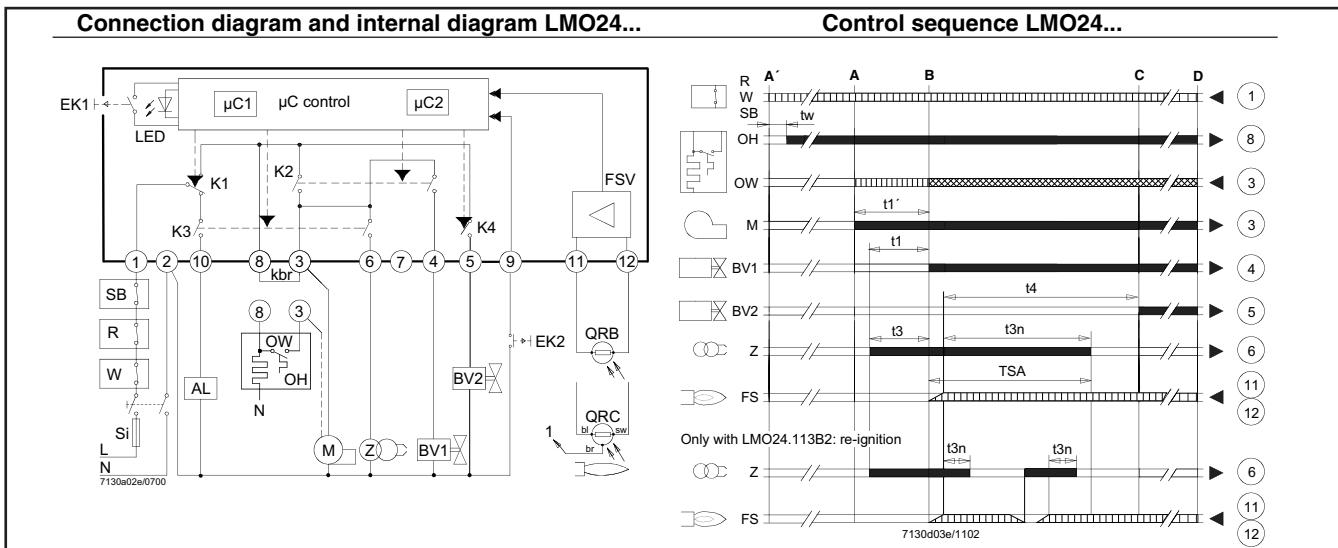
- The burner power feeding and the main line protection fuses
- The correct length of pipes and that the same are sealed.
- The type of fuel, which must be suitable for burner.
- The connection of boiler's thermostats and all the safeties.

When all the above mentioned conditions are checked and accomplished, it is possible to go on with burner's tests. Power the burner. The control box feeds the ignition transformer and the burner's motor at the same time, which will run a prepurging of the combustion chamber for about 20 sec.

At the end of prepurging, the control box opens the fuel pump and the 1st stage (Low flame) solenoid valves, the ignition transformer produces a spark and the burner ignites. After a safety interval of 5÷10 seconds and a correct ignition, the control box turns off the ignition transformer and, 10 seconds later, sets the air damper to its maximum opening and opens the 2nd stage solenoid valve (High flame). In case of faulty ignition, the control box switches the burner into safety condition. In order to obtain an optimal combustion, it is necessary adjust the LOW - HIGH flame air flow, according to the instruction given further on. The fuel pump feeding pressure, must remain around 12 bar.

SIEMENS LMO 24 CONTROL INFORMATION SYSTEM

In case of burner lockout, it is possible to read which cause originated it. Proceed as follows: with the burner in lockout mode (red LED switched on) keep pressed the lockout button for more than 3 sec. then release it. The red LED will blink according to the following error code list:



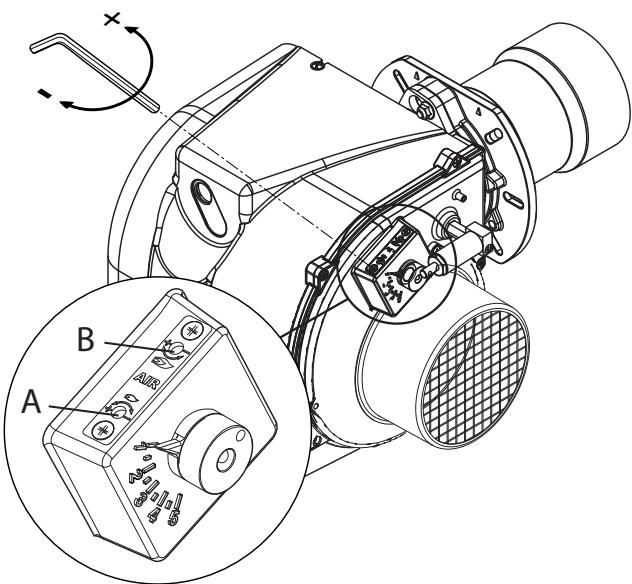
AL	Alarm device
BV...	Fuel valve
EK1	Lockout reset button
EK2	Remote lockout reset button
FS	Flame signal
FSV	Flame signal amplifier
K...	Contacts of control relay
	kbr Cable link (required only when no oil preheater is used)
LED	3-color signal lamp
M	Burner motor
OW	Release contact of oil preheater
OH	Oil preheater

**QRB...** Photoresistive flame detector  
**QRC...** Blue-flame detector  
**R** bl = blue, br = brown, sw = black  
**R** Control thermostat or  
 pressurestat  
**SB** Safety limit thermostat  
**Si** External primary fuse  
**W** Limit thermostat or pressure  
 switch  
**Z** Ignition transformer  
**TSA** Ignition safety time  
**tw** Waiting time

t1	Prepurge time
t1'	Purge time
t3	Preignition time
t3n	Postignition time
t4	Interval from flame signal to release of «BV2»
A'	Start of startup sequence with burners using an «OH»
A	Start of startup sequence with burners using no «OH»
B	Time of flame establishment
C	Operating position
D	Controlled shutdown by «R»

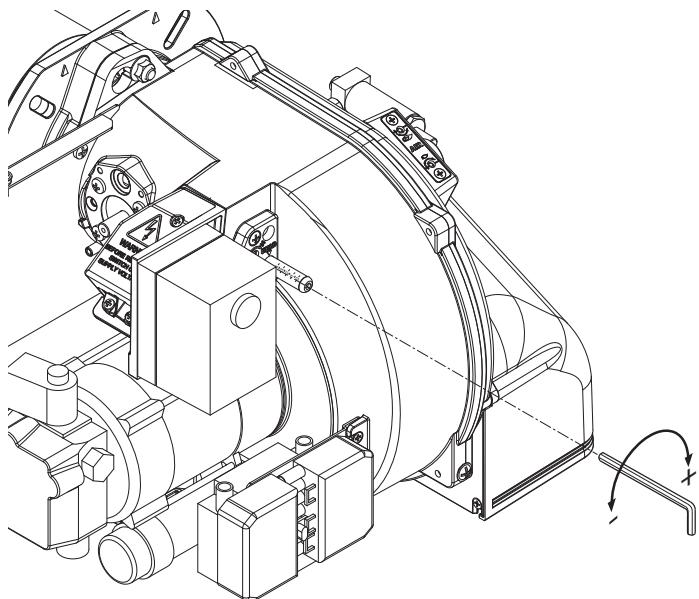
Error code table		
Red blink code of signal lamp (LED))	«AL» at term. 10	Possible cause
2 blinks	on	No establishment of flame at the end of «TSA» - Faulty or soiled fuel valves - Faulty or soiled flame detector - Poor adjustment of burner, no fuel - Faulty ignition equipment
3 blinks	on	Free
4 blinks	on	Extraneous light on burner startup
5 blinks	on	Free
6 blinks	on	Free
7 blinks	on	Too many losses of flame during operation (limitation of the number of repetitions)- Faulty or soiled fuel valves. - Faulty or soiled flame detector - Poor adjustment of burner.
8 blinks	on	Time supervision oil preheater - Oil preheater failed 5 times during prepurging
9 blinks	on	Free
10 blinks	off on	Wiring fault or internal fault, output contacts,other faults. 3 times temporary fault of the output contacts

## AIR REGULATION



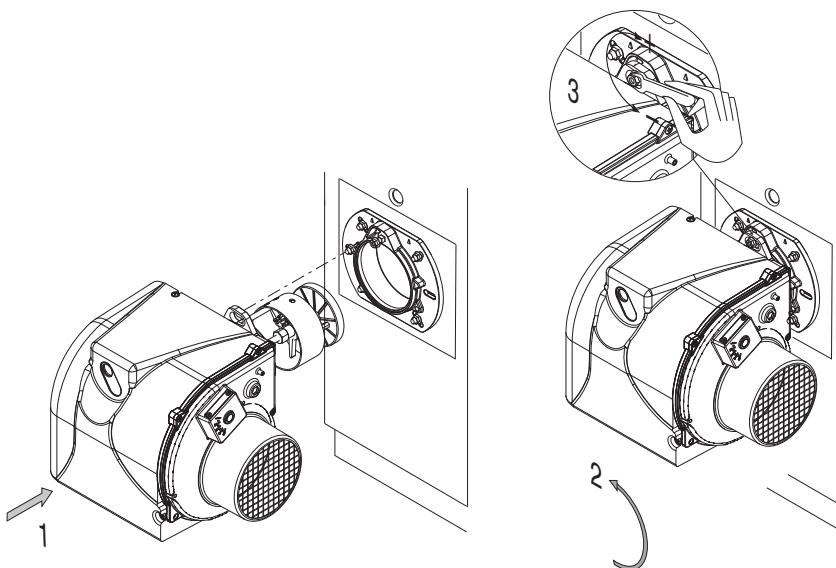
To adjust **LOW** air flow, turn the screw A as required. To reduce output, turn screw clockwise, to increase it turn screw counterclockwise.

## FIRING HEAD SETTING

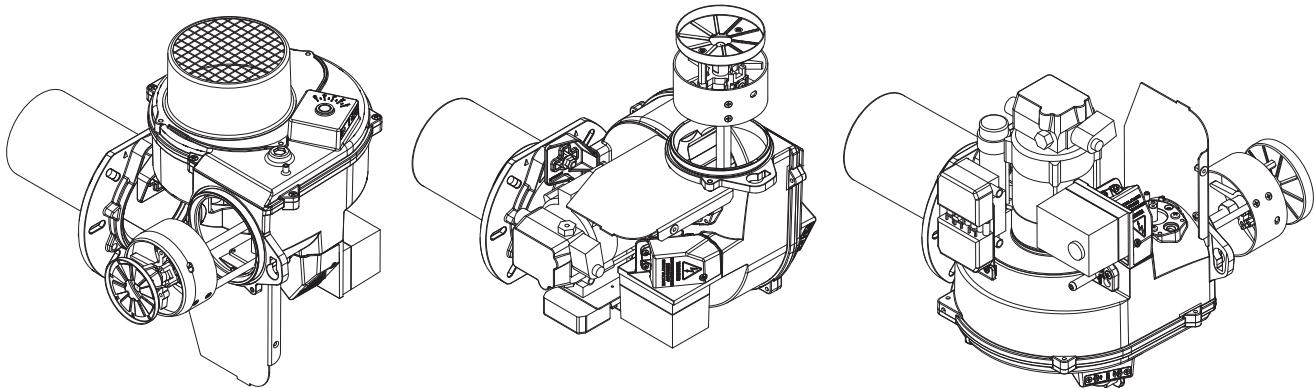


To adjust **HI** air flow, turn the screw B as required. To reduce output, turn screw clockwise, to increase it turn screw counterclockwise.

## MOUNTING TO THE BOILER



## MAINTENANCE POSITION



## TROUBLESHOOTING

**The burner does not start.**

- Main switch in "0" position
- Fuses are blown.
- Boiler thermostats are in open position.
- Control box is faulty.

**The burner runs the prepurging but does not ignite and then switches into safety condition.**

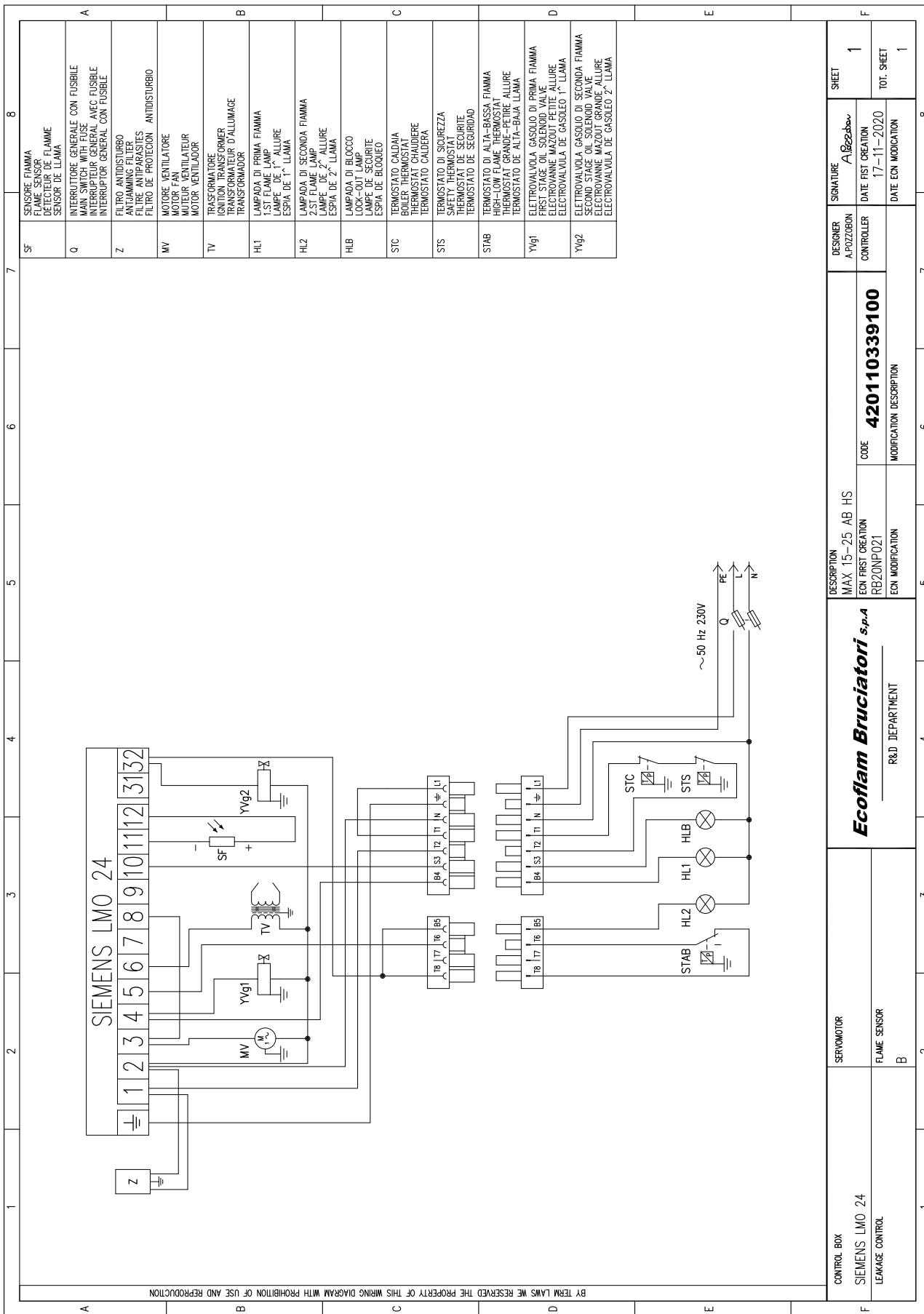
- Control box is faulty.
- Ignition transformer is faulty.
- Electrodes are dirty.
- Electrodes are faulty.
- Electrodes are in wrong position.
- Nozzles are clogged.
- Nozzles are too worn.
- Filters are clogged.
- Oil pressure too low.
- Combustion air flow rate excessively high related to nozzle's flow rate.

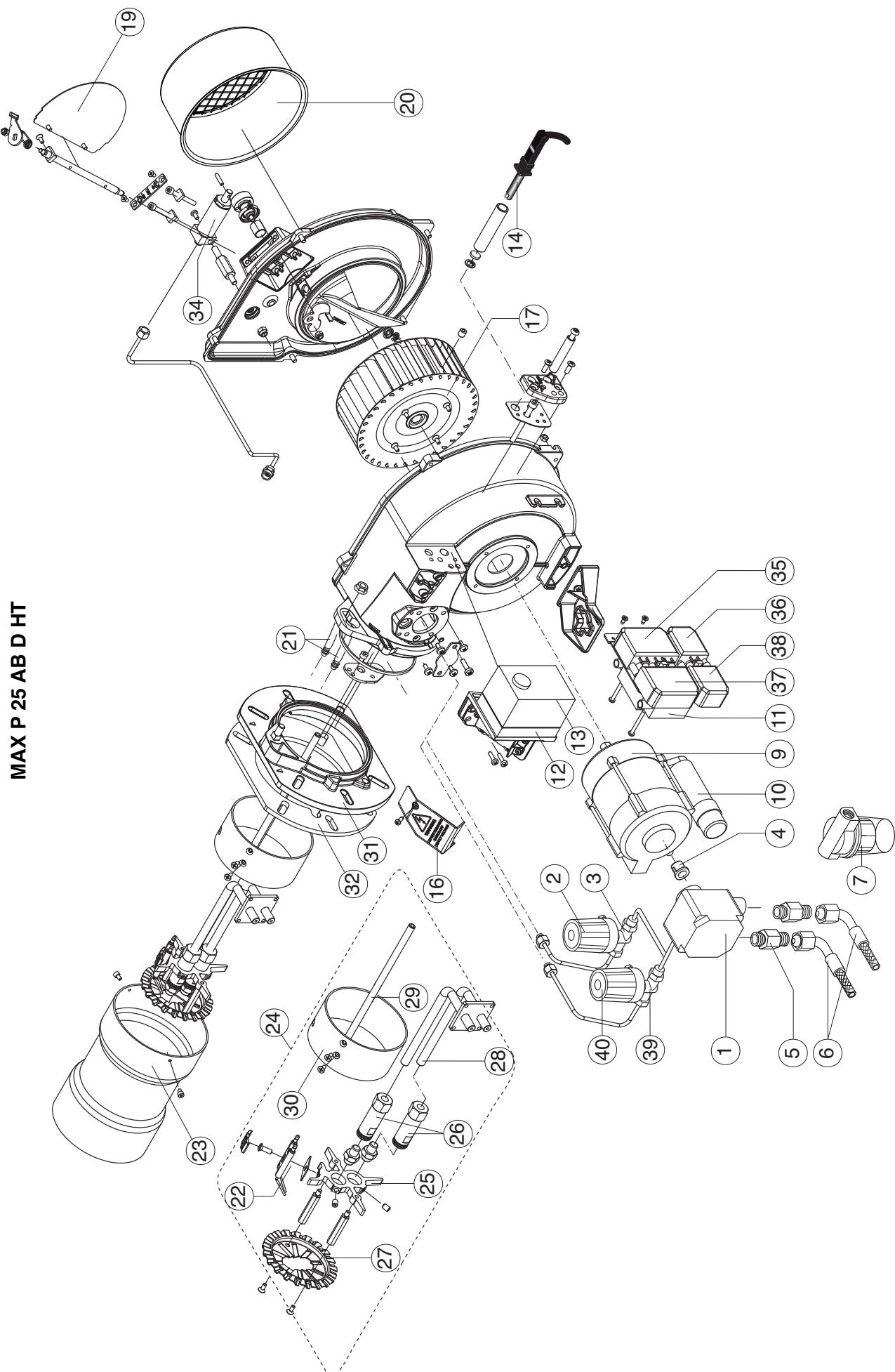
**The burner ignites but then switches into safety condition.**

- Control box is faulty.
- Nozzles are clogged.
- Nozzles are too worn.
- The photocell does not detect the flame.
- Filters are clogged.
- Oil pressure too low.
- Combustion air flow rate excessively high related to nozzle's flow rate.

**The burner does not switch to High flame.**

- 1st(Low flame) and 2nd (High flame) stage manual switch on control board is in wrong position.
- Control box is faulty.
- 2nd stage solenoid valve coil is faulty.
- Oil pressure too low.
- Filters are clogged.
- 2nd stage nozzle is too worn.
- 2nd stage nozzle is clogged.
- Air damper's hydraulic jack not properly adjusted or faulty.





MAX P 25 AB D HT

N°	DESCRIPTION		MAX P 25 AB D HT
1	OIL PUMP	SUNTEC D 57A	65322959
2	COIL	BRAHMA E 7/L	65323762
3	OIL VALVE	BRAHMA E 7/L	65323737
4	COUPLING		65322920
5	NIPPLE		65321179
6	HOSES	TN 6X700	65323189
7	FILTER	ART.70451-006AV	65325046
8	COVER		-
9	MOTOR	200 W	65322876
10	CAPACITOR	6 µF AEG	65321850
		6,3 µF SIMEL	65325000
11	IGNITION TRANSFORMER	COFI E820	65323243
12	CONTROL BOX BASE	SIEMENS	65320092
13	CONTROL BOX	SIEMENS LMO 24	65325119
14	PHOTOTRANSISTOR	FTEB1 F MM 700 W	65328785
15	WIRING TERMINAL BOX		-
16	PROTECTION BOX		65320663
17	FAN	160 x 62	65323820
18	ORING		65321061
19	AIR DAMPER		65321223
20	COVER AIR INLET		65320552
21	CABLES	TC	65320935
		TL	65320937
22	ELECTRODES		65320924
23	BLAST TUBE	TC	65320396
		TL	65320397
24	FIRING HEAD	TC	65322569
		TL	65322570
25	NOZZLE HOLDER SUPPORT		65320691
26	NOZZLE HOLDER		65320707
27	DIFFUSER		65320791
28	ROD	TC	65320193
		TL	65320194
29	WAISTBAND ROD	TC	65320195
		TL	65320196
30	WAISTBAND		65320224
31	FLANGE		65320971
32	GASKET		65321106
33	ANTI JAMMING FILTER	D.E.M.	-
34	HYDRAULIC SYSTEM		65322335
35	SOCKET WIELAND	7 pin	65322070
36	SOCKET WIELAND	4 pin	65322068
37	PLUG WIELAND	7 pin	65322069
38	PLUG WIELAND	4 pin	65322065
39	OIL VALVE	BRAHMA E 7/L	65323737
40	COIL	BRAHMA E 7/L	65323762

TC = SHORT HEAD TL = LONG HEAD

# Ecoflam

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