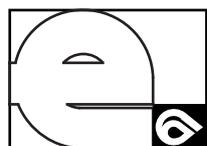


GAS / LIGHT-OIL DUAL BURNERS



Ecoflam

techniques for energy saving

MODEL



ISO 9001
registered by
GASTEC



Multicalor 300.1

Multicalor 400.1

Light oil / Natural gas 40÷300 mbar

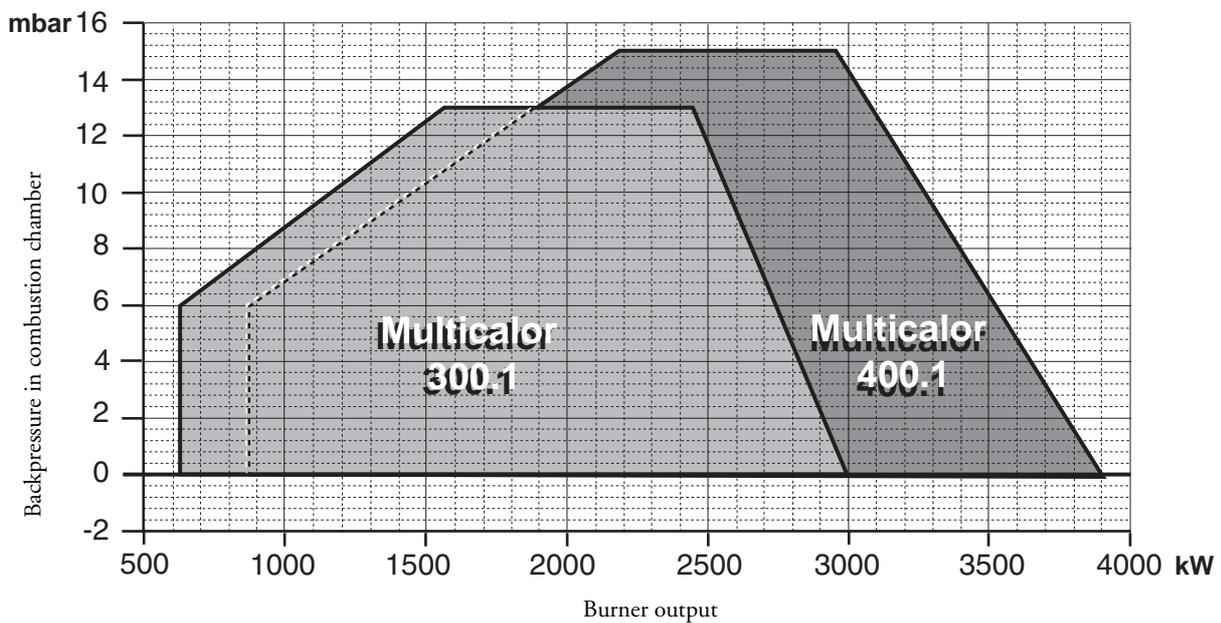


LB1203

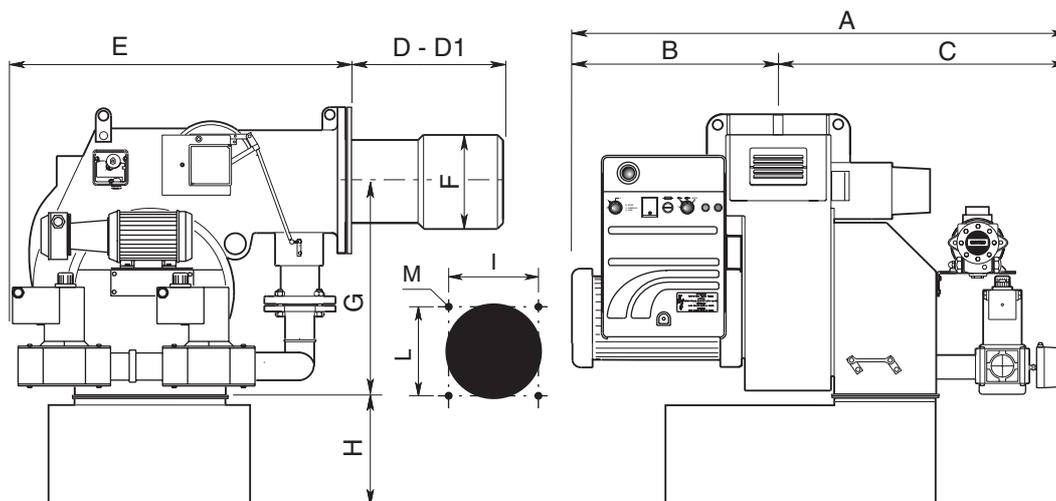
24.10.2003

TECHNICAL FEATURES :		Multicalor 300.1	Multicalor 400.1
Max. thermal output	kcal/h	2.586.000	3.362.000
	kW	3.000	3.900
Min. thermal output	kcal/h	543.100	754.300
	kW	630	875
Max flow rate	Nm ³ /h	301	392
Min flow rate	Nm ³ //h	63	170
Natural gas supply pressure	mbar	40÷300	40÷300
Max. light oil flow rate	kg/h	253	329
Min. light oil flow rate	kg/h	68	143
Voltage, 3phase + neutral, at 50 Hz	V	230/400	230/400
Motor	kW	5,5	7,5
Motor's RPM	N°	2800	2800
Fuels: Nat. Gas LHV = 35,9 Mj/Nm ³ = 8.570 kcal/Nm ³ ; Light Oil LHV = 10.200 kcal/kg max. 1,5° at 20 °C			

WORKING FIELDS

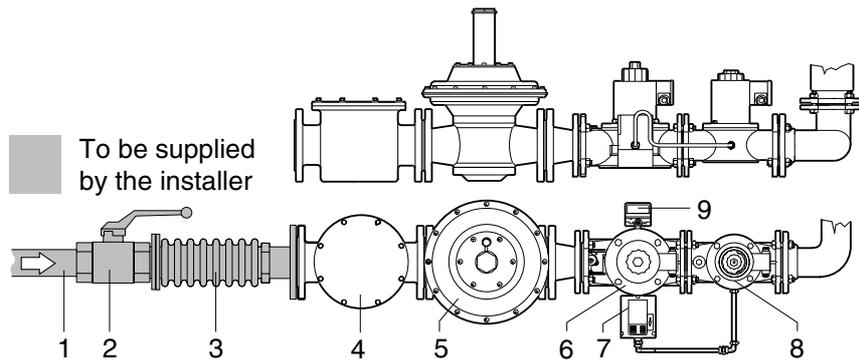


OVERALL DIMENSIONS

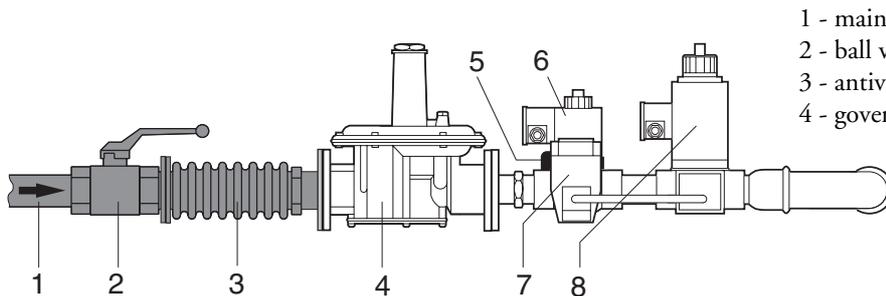


MODEL	A	B	C	D	D1	E	F	G	H	I	L	M
MULTICALOR 300.1	1351	453	898	328	528	755	290	466	280	315	315	M16
MULTICALOR 400.1	1351	453	898	363	563	755	320	466	280	315	315	M16
				D = short head D1 = long head								

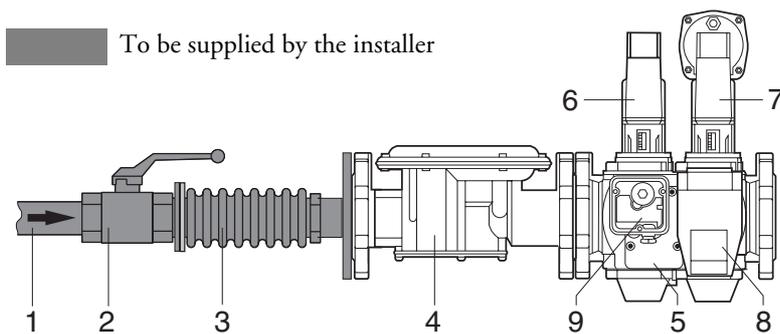
GAS TRAIN ASSEMBLY



- 1 . Main gas pipe
- 2 . Cut-off valve
- 3 . Antivibrating coupling
- 4 . gas rfilter
- 5 . Gas governor
- 6 . Safety gas valve
- 7 . Leakage control device
- 8 . Working gas valve
- 9 . Min. gas pressure switch



- 1 - main gas pipe
- 2 - ball valve
- 3 - antivibration coupling
- 4 - governor
- 5 - gas pressure switch
- 6 - safety gas valve
- 7 - leakage control
- 8 - working gas valve



- 1 - main gas pipe
- 2 - ball valve
- 3 - antivibration coupling
- 4 - gas filter
- 5 - working gas valve
- 6 - actuator
- 7 - actuator
- 8 - leakage control
- 9 - gas pressure switch

CONNECTION TO GAS PIPE

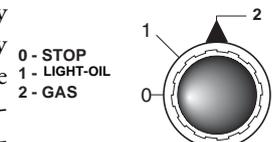
Once the burner has been connected to the gas supply, check that this last is perfectly sealed. Also verify that the chimney is not clogged. Open the on-off valve and carefully bleed the piping through the pressure port, then check the pressure value through a suitable pressure gauge. Turn on the system and adjust the thermostats to the needed temperature. When the thermostats close, the leakage control device runs a valves leakage test, then enables the burner to start the ignition cycle.

ELECTRICAL CONNECTIONS

All burner motors are tested at 400 V 3phase at 50 Hz, whilst auxiliaries are tested at 230V 1phase at 50 Hz. Should it be necessary to power the burners at 230V/50Hz 3phase without neutral, carry out the necessary modifications according to the burner's wiring diagram, and check that the thermal relay is within the absorption field of the motor.

OPERATION OF BURNER WITH GAS MULTICALOR 300.1-400.1

Before starting the burner, make sure it is mounted correctly. Then check connections are correct according to the diagram and piping is appropriate to the system. Before connecting the burner to the electricity supply, make sure voltage corresponds to burner plate data. The connection diagram and start-up cycle are shown separately. For wiring from control box to burner, see the enclosed connection diagram. Pay particular attention to neutral and phase connections : never exchange them!. Vent air and impurities of gas pipe. Check gas pressure conforms to the limits stated on the burner plate when connecting a master gauge to the test port provided on the burner. Blower motor starts and pre-purging begins. Since pre-purging has to be carried out with the max. air delivery, the burner control circuit turns the air damper to the max. delivery position by the air servocontrol in approximately 30 seconds time. When the servocontrol is fully open, a signal to the electronic control unit starts the 66 seconds pre-purge cycle. At the end of the prepurging time, the air servocontrol gets to the Low Flame position so that burner ignition is ensured at min. output. Simultaneously the ignition transformer receives voltage and after 3 seconds (pre-ignition) opens the gas valve. Fuel flows to the combustion head and ignites, being governed by the gas firing butterfly valve. Two seconds after gas valves have opened, the ignition transformer is excluded from the circuit. In



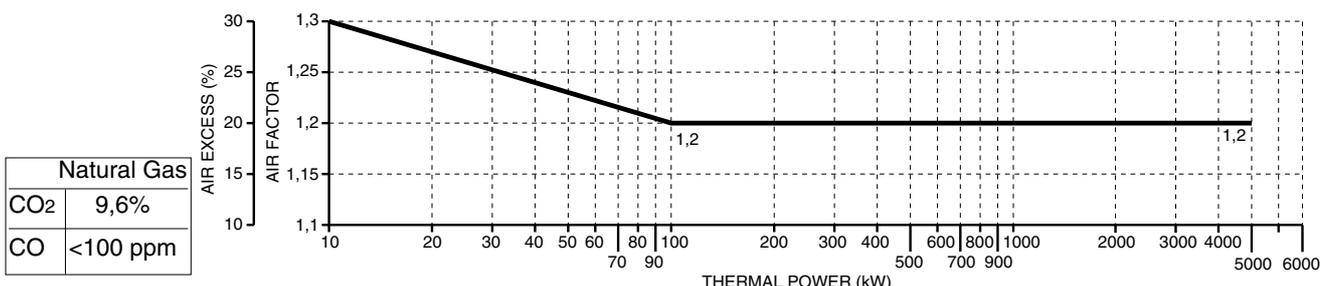
case of no ignition the burner goes to lock-out within two seconds. Now the burner is operating at the min. firing rate (about 30% of the max. firing rate). The air servocontrol runs at the Low Flame position and in case the temperature control has to be set at the max. output it goes to a fully open position of air damper and butterfly valve. During the burner-off periods the air dumper closes up fully.

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.

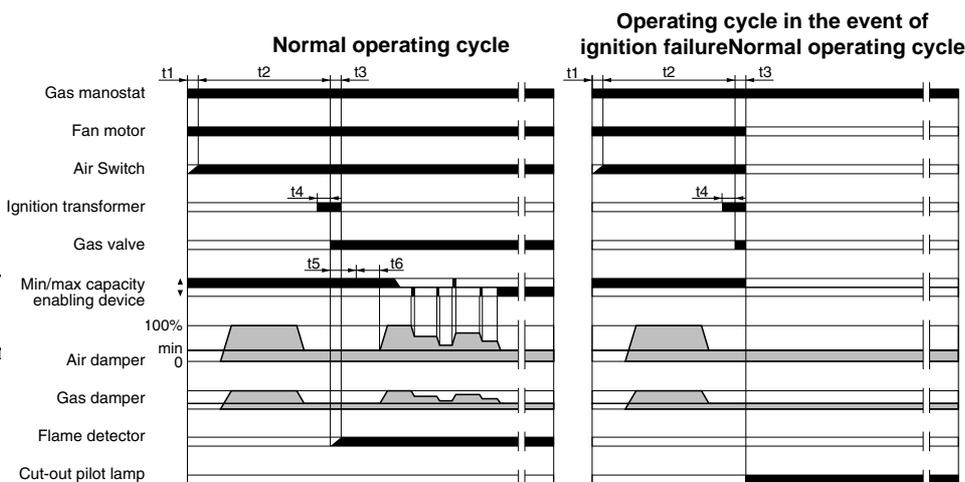
THESE OPERATIONS MUST BE DONE BY PROFESSIONALLY-QUALIFIED TECHNICIANS.

NOTE: ALL SAFETY DEVICES (AIR PRESSURE SWITCH, MINIMUM GAS PRESSURE SWITCH, GAS SOLENOID VALVES AND GAS GOVERNOR) SHALL BE DULY SEALED AFTER CALIBRATION AND BURNER START UP BY ECOFLAM'S TECHNICIANS.



LANDIS & STAEEFA, Model LFL1.622 OPERATING CYCLE

Ref.	Description	Duration
t1	Duration Waiting time for confirmation of air pressure	8"
t3	Preventilation time	66"
t4	Safety time	2"
t5	Pressurizing time	4"
	Time for enabling operation of the main gas valve on minimum capacity	10"
t6	Time for enabling operation of the main gas valve on maximum capacity	10"



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 (V_s safety valve and V_I 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 shutdown within the safety time. In case of gas lack or a major pressure drop, the minimum air pressure switch shuts down the burner.

CALCULATING THE BURNER CAPACITY

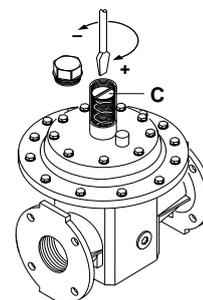
To calculate the burner's capacity in kW, proceed as follows: Check the gas flow rate (in liters) on the counter and the time of the reading in seconds.

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

e = Litres gas
 sec = Time in second
 f $\left\{ \begin{array}{l} G20 = 34,02 \\ G30 = 116 \\ G31 = 88 \end{array} \right.$

ADJUSTING THE PRESSURE REGULATOR

The pressure regulator, complete with its incorporated filter, must be installed to avoid contaminants reaching the gas valve. It is important to ensure certain conditions: The pressure of the gas must not exceed the established maximum pressure. To increase the pressure of the gas supply, tighten screw C; to reduce the pressure, loosen screw C. After making any adjustments, put the cap back in place.

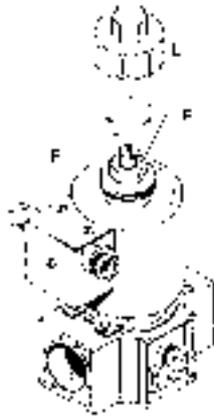


ADJUSTMENT OF GAS SOLENOID VALVES

The ignition flow rate is carefully adjusted. during test phase to 1/3 of the maximum flow rate (according to specifications). **Operations for eventual further adjustment must be carried out by skilled personnel authorized by ECOFLAM.**

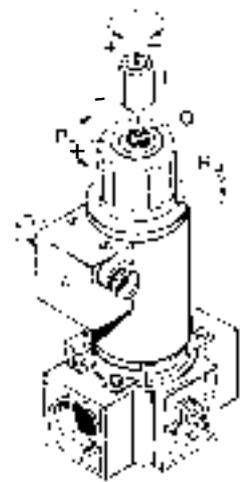
DUNGS MVD

To adjustment gas output, take out the cap L and loose the nut F. Adjust the screw E with a screwdriver. To reduce output turn counter clockwise, to increase it turn clockwise. Tighten the nut F.



DUNGS MVDLE

To adjustment gas output, loosen the screw R and turn the knob P as required. To reduce output, turn knob clockwise, to increase it turn knob counterclockwise. Tighten the screw R. For fast opening adjustment, remove the cap T and insert it in the pin Q with its groove up. To reduce firing output screw it up, to increase, unscrew it.



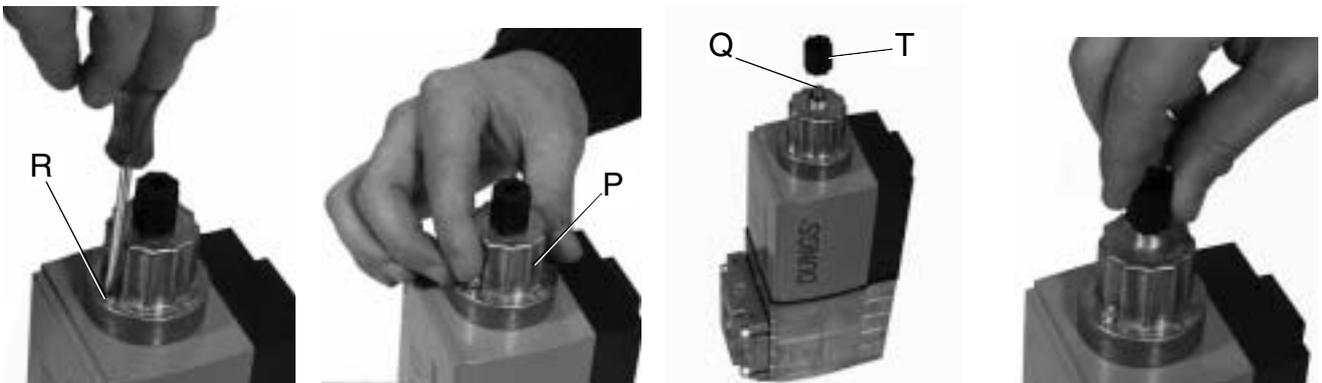
ADJUSTMENT THE PRESSURE OF GAS SOLENOID VALVE (Landis SKP20)



The pressure regulator is inside to gas solenoid valve (actuator SKP20). For adjustment the pressure proceed as follows: Take out the cap (A) and turn the screw (B) with a screwdriver. To increase pressure, turn screwdriver clockwise, to reduce it turn screwdriver counterclockwise. Take in the cap (A).

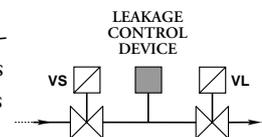
DUNGS SV-DLE

To adjustment gas output, loosen the screw R and turn the knob P as required. To reduce output, turn knob clockwise, to increase it turn knob counterclockwise. Tighten the screw R. For fast opening adjustment, remove the cap T and insert it in the pin Q with its groove up. To reduce firing output screw it up, to increase, unscrew it.



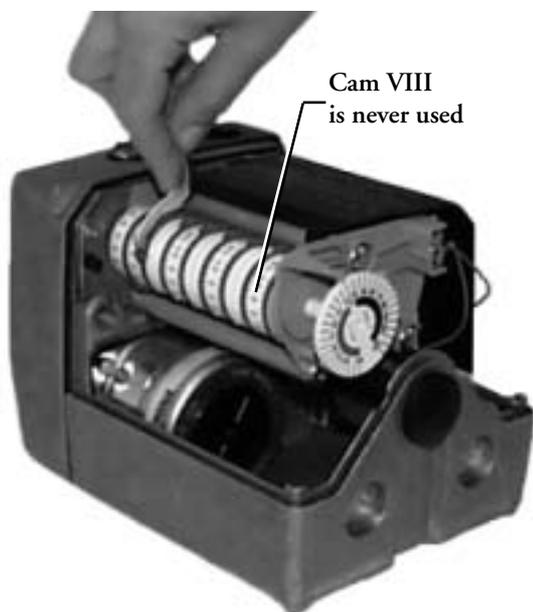
LEAKAGE CONTROL DEVICE DUNGS VPS 504-VDK 200

When the thermostats are closed, the gas leakage control device checks the valve seals by pressurizing the circuit between the two gas valves. When test pressure is reached the device remains in stand-by for about 25 seconds. At the end of the test the yellow pilot light on the control device lights up and the burner is enabled to carry out the start-up cycle. If the seal on one of the valves is faulty and this causes a drop in test pressure, the device puts the system into the safety condition and the red pilot light on the device lights up. The flame control device starts the burner fan to carry out prewashing of the combustion chamber, checking fan air pressure via the air pressure switch. After pre-ventilation the ignition transformer starts operating, generating a spark between the electrodes and simultaneously the gas valves open (safety gas valve VS and first stage operating valve VL). If the flame does not ignite or goes out, total safety is ensured by an ionization detection probe. The safety time limit in the event of no flame is less than 2 seconds at start-up and less than 1 during operation. In the event of no gas being supplied or of a considerable drop in pressure the minimum gas pressure switch interrupts burner operation. About 20/30 seconds after ignition the flame control device commands operation of the second stage via the gas valve and air servocontrol, thus taking the burner to maximum power.



LANDIS & STAEEFA SQM 50.381A2 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:



Multicalor 300.1

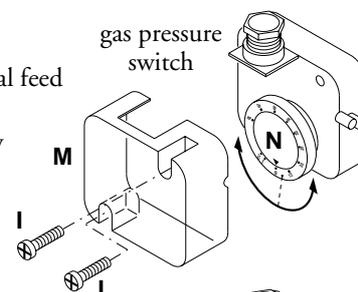
- I - High flame operating opening position adjusting cam (Light-Oil / Gas)
- II - Ignition flame opening position adjusting cam (Gas).
- III - Low flame operating opening position adjusting cam (Gas)
- IV - Low flame operating opening position adjusting cam (Light-Oil)
- V - 2nd flame solenoid valve opening On/Off cam (Light-Oil)
- VI - Not used cam
- VII - Not used cam
- VIII - Not used cam

Multicalor 400.1

- I - High flame operating opening position adjusting air cam
- II - Ignition flame opening position adjusting air cam (Gas/Light-Oil)
- III - Low flame operating opening position adjusting cam (Gas)
- IV - Low flame operating opening position adjusting cam (Light-Oil) (always 3° lesser than Low flame adjusting V cam)
- V - Low flame operating opening position adjusting air cam (Light-Oil)
- VI - Low flame solenoid valve opening On/Off cam (Light-Oil)
- VII - High flame solenoid valve opening On/Off cam (Light-Oil)
- VIII - Not used cam

ADJUSTMENT OF GAS MINIMUM PRESSURE SWITCH

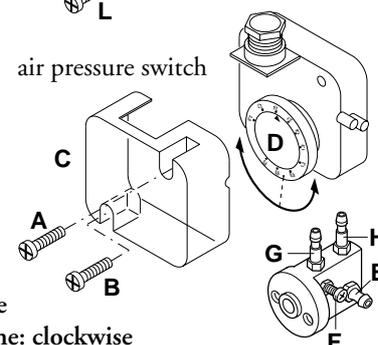
Unscrew off and remove cover M. - Set regulator N to a value equal to 60% of gas nominal feed pressure (i.e. for nat. gas nom. pressure = 20 mbar, set regulator to a value of 12 mbar; for L.P.G. nom. pressure of G30/G31- 30/37 mbar, set regulator to a value of 18 mbar). Screw up cover M



ADJUSTMENT OF THE AIR PRESSURE SWITCH

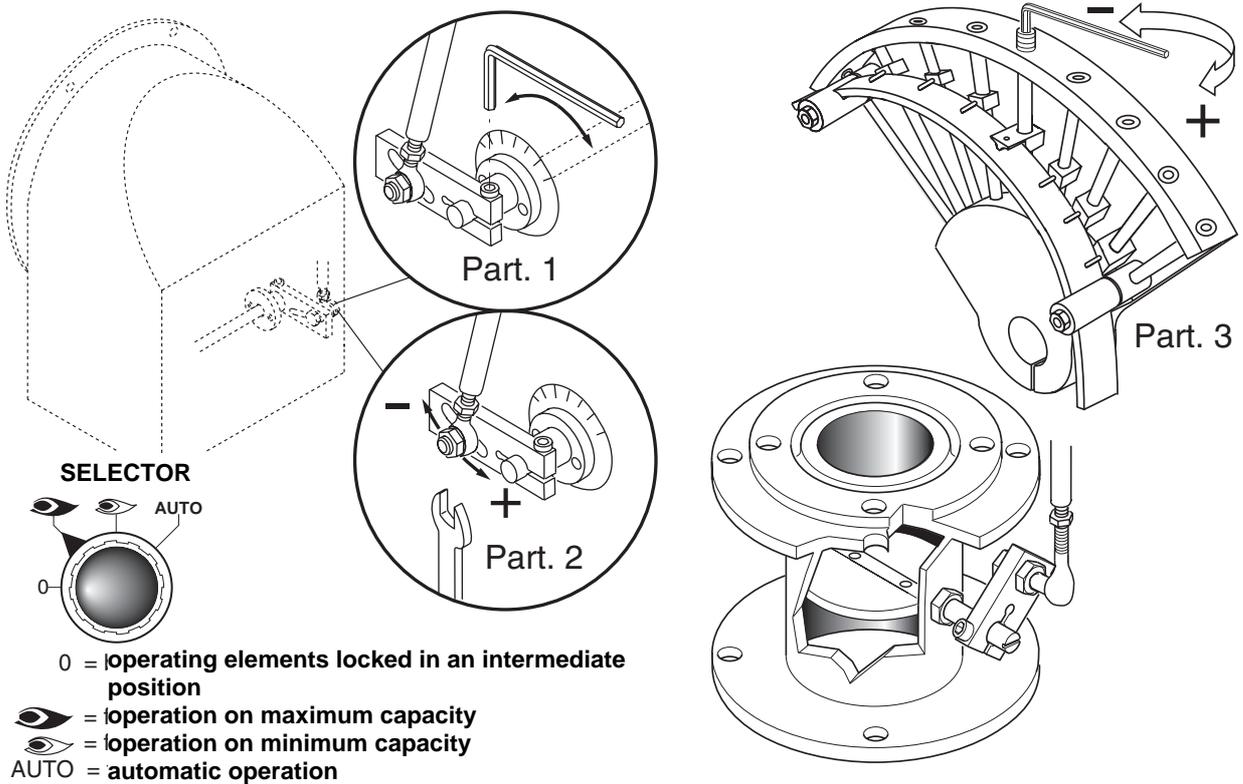
Unscrew screws A and B and remove cover C. - Set the pressure switch to the minimum by turning regulator D to position 1.

- 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 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.

AIR ADJUSTMENT



ADJUSTING THE MINIMUM CAPACITY OF THE BURNER – AIR and GAS

Position the selector placed on the control panel on position 2 and proceed as follows:

Adjust the minimum gas flow rate using a suitable wrench, turn the butterfly valve until you reach the correct gas flow, as established by analyzing the combustion process.

ADJUSTING THE MAXIMUM CAPACITY OF THE GAS

Position the selector, situated on the control panel, on position 1 and proceed as follows:

Adjusting the maximum gas flow rate (see figure on solenoid valve adjustments) or adjust the gas pressure in the governor.

ADJUSTING THE MAXIMUM AIR FLOW RATE

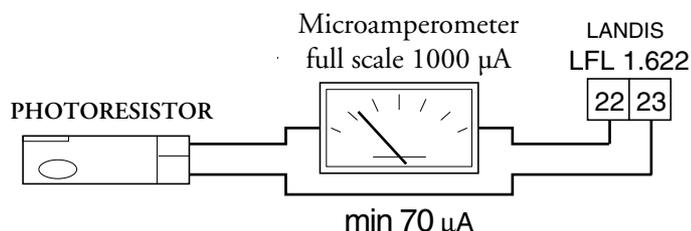
Adjusting the maximum air flow rate (see figure, detail 2). Loosen the nut holding the air damper transmission rod; The correct air flow as established by analyzing the combustion process.

ADJUSTING THE INTERMEDIATE BURNER CAPACITY

Using the selector, start the servomotor (closing or opening) and position on 0 to stop the stroke; the adjustment is made as outlined below. Repeat the operation for the other cam points.

Adjustment the intermediate gas flow rates (see figure, detail 3): - using a suitable Allen wrench, change the position of the cam guide blade; if you screw it down, the flow rate is reduced; if you unscrew it, the flow rate increases.

FLAME DETECTION SYSTEM CHECK

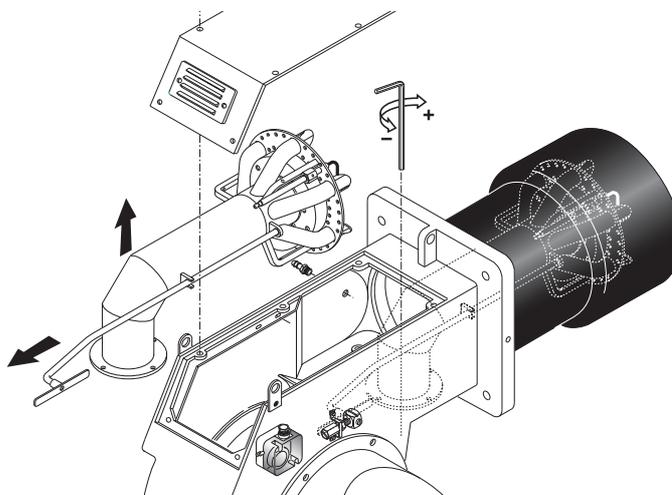
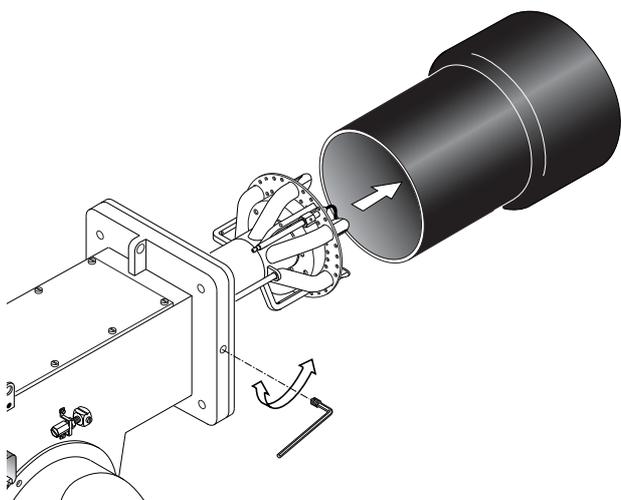


FIRING HEAD SETTING



REMOVING THE BLAST TUBE

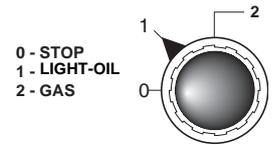
REMOVING THE FIRING HEAD



OPERATION OF BURNER WITH LIGHT-OIL FUEL MULTICALOR 300.1-400.1

Once 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.
- The motor rotation direction.
- The correct calibration of the motor's thermal protection.



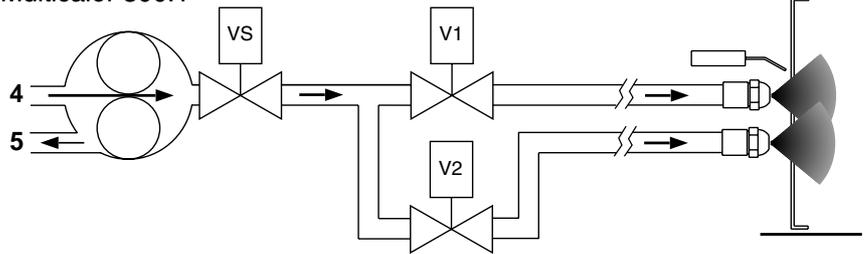
When all the above mentioned conditions are checked and accomplished, it is possible to go on with burner's tests. Power the burner. The control box feeds the ignition transformer and the burner's motor at the same time, which will run a prepurging of the combustion chamber. At the end of prepurging, the control box powers up the ignition transformer and opens the light-oil valve, so the burner start. the servomotor will set up to the light-oil ignition position, whilst the control box powers up the ignition transformer and the "Safety" and "Low flame" solenoid valves. After a safety interval of 2 seconds and a correct ignition, the control box turns off the ignition transformer and, 10 seconds later, sets the motorised air damper to its maximum opening and opens the 2nd stage solenoid valve (Multicalor 300.1) and 3rd stage solenoid valve (Multicalor 400.1). In case of faulty ignition, the control box will shut down the burner in 2 sec.

In order to obtain a correct combustion, it shall be necessary to adjust the Low and High flame by following the instructions of the Air servomotor and firing head adjustment.

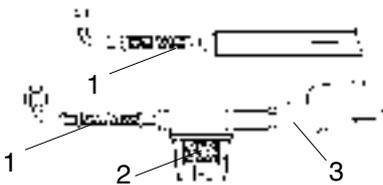
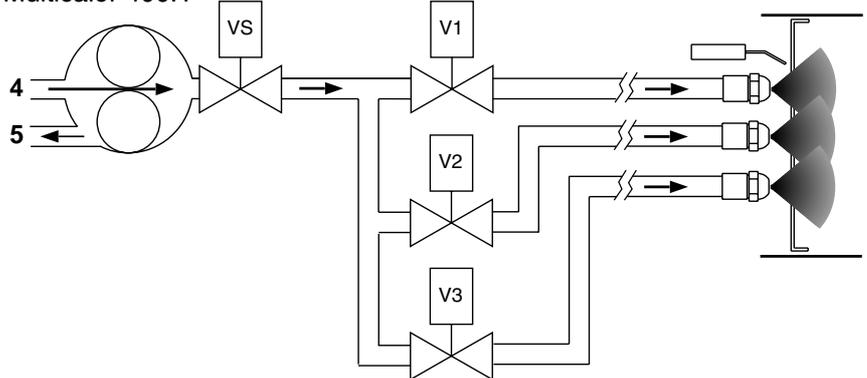
During such a phase, it will be possible to manually switch between HIGH and LOW flame and viceversa, through the High/Low flame switch. At the end of the adjusting phase, leave the switch in position "AUTO". The fuel pump feeding pressure, must remain around 12 bar.

HYDRAULIC CIRCUIT

Multicalor 300.1



Multicalor 400.1



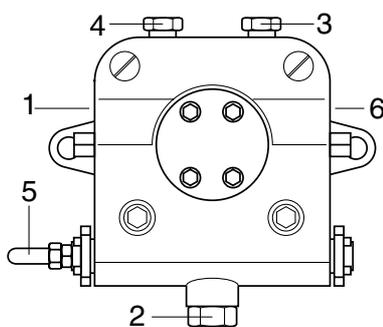
- 1 - HOSE
- 2 - OIL FILTER
- 3 - OIL COCK
- 4 - SUCTION
- 5 - RETURN

NOZZLE FLOW RATE (DELAVAN B - MONARCH PLP)

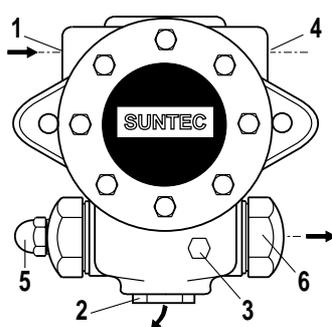
NOZZLE GPH	PUMP PRESSURE (bar)						
	10	11	12	13	14	15	16
2,50	9,50	9,97	10,41	10,83	11,24	11,64	12,02
3,00	11,40	11,96	12,49	13,00	13,49	13,96	14,42
3,50	13,30	13,95	14,57	15,17	15,74	16,29	16,83
4,00	15,20	15,94	16,65	17,33	17,99	18,62	19,23
4,50	17,10	17,94	18,73	19,50	20,24	20,95	21,63
5,00	19,00	19,93	20,82	21,67	22,48	23,27	24,04
5,50	20,90	21,92	22,90	23,83	24,73	25,60	26,44
6,00	22,80	23,92	24,98	26,00	26,98	27,93	28,84
6,50	23,70	25,91	27,06	28,17	29,23	30,26	31,25
7,00	26,60	27,90	29,14	30,33	31,48	32,58	33,65
7,50	28,50	29,90	31,22	32,50	33,73	34,91	36,05
8,30	31,54	33,08	34,55	35,97	37,32	38,63	39,90
9,50	36,10	37,87	39,55	41,17	42,72	44,22	45,67
10,50	40,06	41,73	43,74	45,41	47,20	48,90	50,50
12,00	45,60	47,80	50,00	52,00	54,00	55,90	57,70
13,80	52,40	55,00	57,50	59,80	62,10	64,20	66,30
15,30	58,10	61,00	63,70	66,30	68,80	71,10	73,60
17,50	66,50	69,80	72,90	75,80	78,70	81,50	84,10
19,50	74,10	77,70	81,20	84,50	87,70	90,80	93,70
21,50	81,70	85,70	89,50	93,20	96,70	100,10	103,40
24,00	91,20	95,70	99,90	104,00	107,90	111,70	115,40
28,00	106,40	111,60	116,60	121,30	125,90	130,30	134,60
30,00	114,00	119,60	124,90	130,00	134,90	139,60	144,20
GPH	OUTPUT kg/h						

PRIMING AND ADJUSTMENT OF OIL PUMP

SUNTEC TA3C40105



SUNTEC J7CCC10014P



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

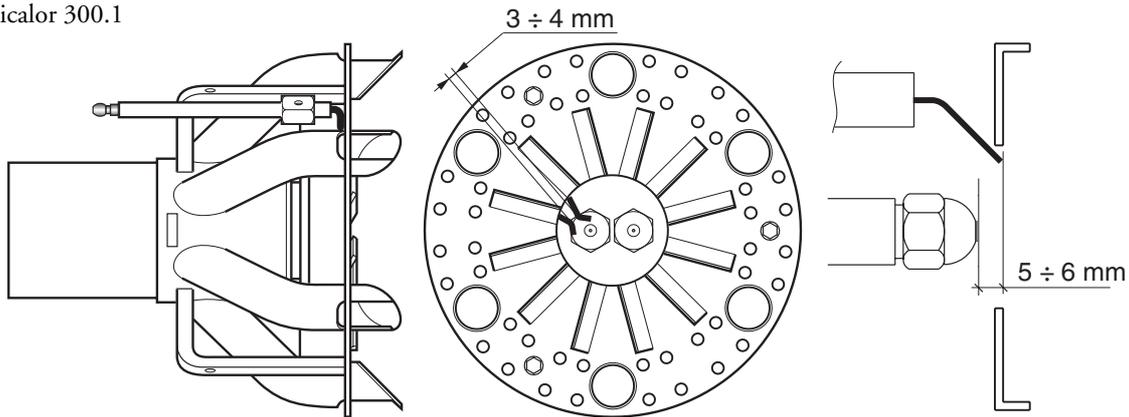
VERIFY:

- 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;

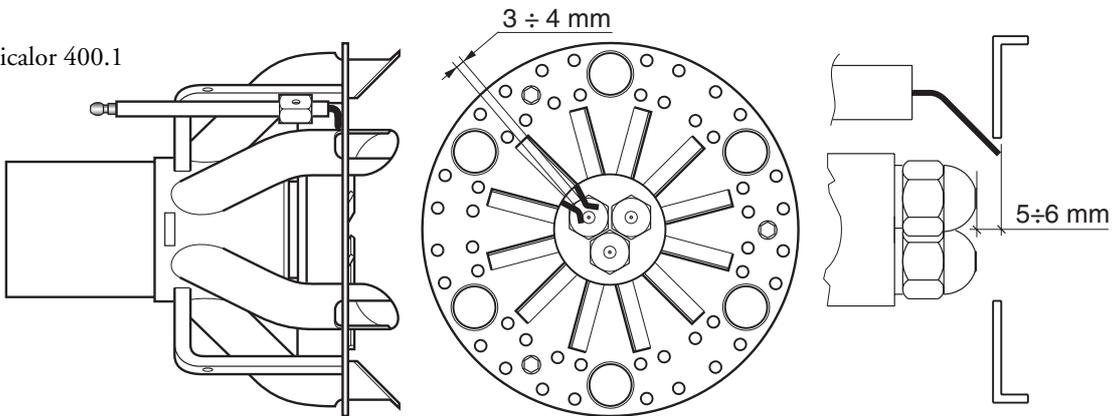
The pump pressure is set at a value of 12 bar during the testing of burners. Before starting the burner, bleed the air in the pump through the gauge port. Fill the piping with light-oil to facilitate the pump priming. Start the burner and check the pump feeding pressure. In case the pump priming does 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.

POSITION OF IGNITION ELECTRODES

Multicalor 300.1



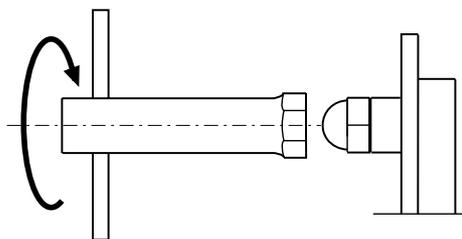
Multicalor 400.1



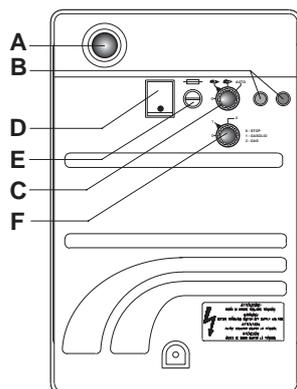
NOZZLE CLEANING AND REPLACEMENT

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 with the same care.

Note: Always check the position of electrodes after having replaced the nozzle (see illustration). A wrong position could cause ignition troubles.



DESCRIPTION OF CONTROL PANEL



- A - pulsante di sblocco
- B - operating lamps (orange=light-oil; green= gas)
- C - Selector switch:
 - = Loking of devoices for operating at intermediate outputs
 - ☞ = Operation at max. output
 - ☞ = Operation at min. output
- AUTO= Automatic operation
- D - ON/OFF switch
- E - Fuse holder
- F - Selector:
 - 0 = STOP
 - 1 = Light-oil operation
 - 2 = Gas operation

MAINTENANCE

YEARLY CHECKS

The burner's periodical check (firing head, electrodes etc.) must be carried out by authorised personnel one or two times per year, depending on the utilisation. Before going on with the maintenance controls of the burner, it should be advisable to check its general conditions, according to the following steps:

Unplug the burner; close the fuel cock; shut down the gas supply; remove burner's cover and clean the fan and air intake; clean the firing head and check the electrode's position; reassemble all the parts; check the connection's sealing; check the chimney; start the burner and check the combustion flue (CO₂ = 9.5 ÷ 9.8; O = lower than 75 ppm).

BEFORE EVERY INTERVENTION CHECK:

The electric system is duly powered and the burner is plugged in.

The gas pressure must be the suitable one and the gas cock open.

The control devices must be properly connected.

When all the above conditions are met, start the burner by pressing the lockout enable pushbutton.

Check the burner's cycle.

THE BURNER DOES NOT START:

Check the ON/OFF switch, the thermostats, the motor and the gas pressure.

The master switch is in position "0". Fuses are blown out.

The control box is faulty.

THE BURNER RUNS THE PREPURGING AND SWITCHES TO LOCKOUT AT THE END OF CYCLE:

Check the fan and the air pressure.

Check the air pressure switch.

Control box faulty. Ignition transformer faulty.

Check the ignition cable. Electrodes are dirty or in wrong position.

Nozzles are clogged or worn. Filters are clogged. Light-oil pressure is too low.

Combustion air's flow rate too high related to nozzle output.

THE BURNER RUNS THE PREPURGING BUT DOES NOT IGNITE:

Check the position of the electrodes; check the ignition cable;

Check the ignition transformer;

Check the control box.

THE BURNERS IGNITES BUT SWITCHES TO LOCKOUT AFTER THE SAFETY TIME:

Check phase and neutral for a correct connection.

Check gas solenoid valve.

Check the position of ionisation probe and its connection.

Check the control box.

Check nozzles (clogged or worn).

The photoresistor does not detect the flame.

The filters are clogged. Light-oil pressure too low.

Combustion air's flow rate too high related to nozzle output.

THE BURNERS IGNITES BUT SWITCHES TO LOCKOUT AFTER FEW MOMENTS:

Check gas governor and gas filter.

Check gas pressure through a manometer.

Check ionization value (min. 70 µA).

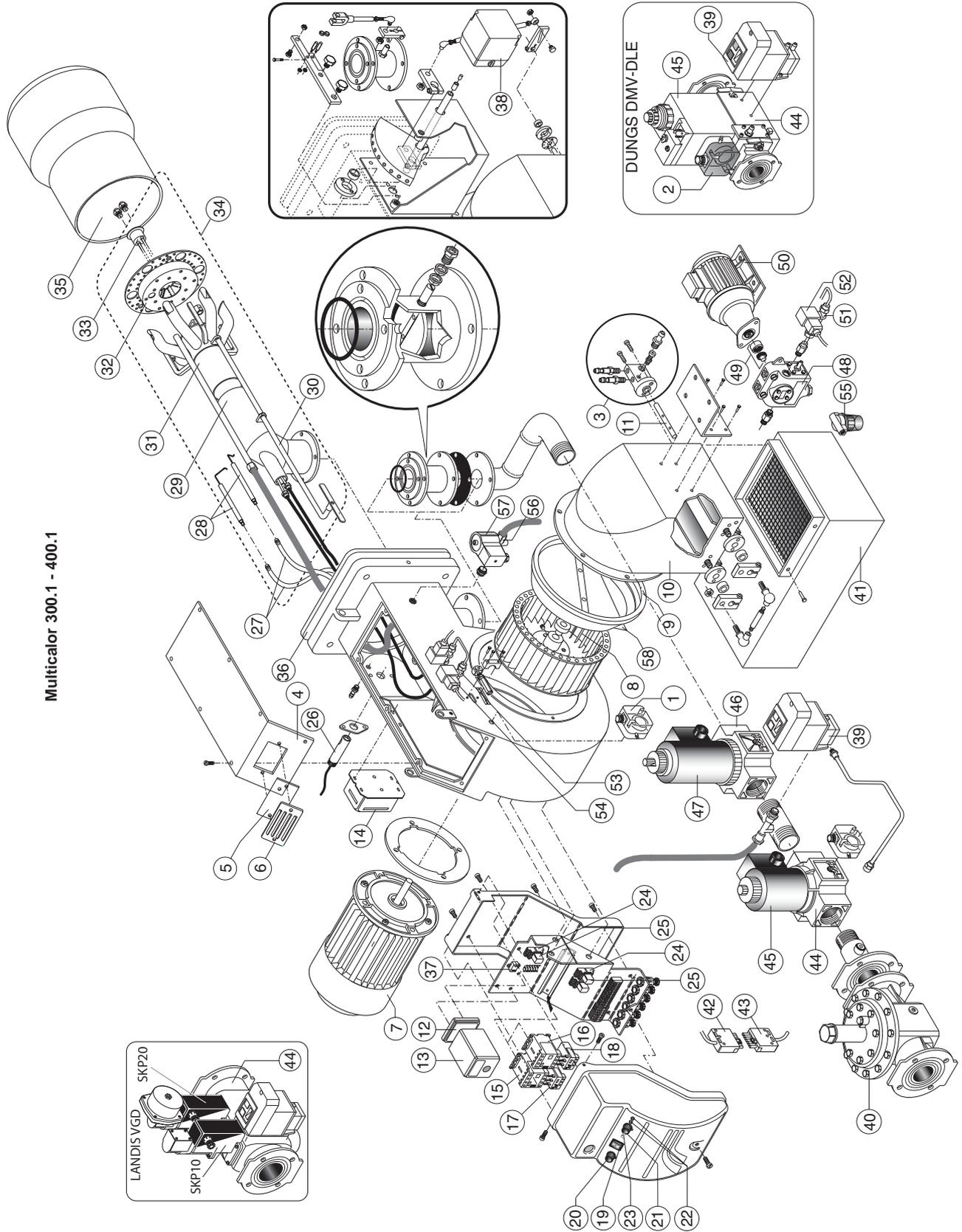
THE BURNER DOES NOT SWITCHES TO HIGH (OR 3RD) FLAME:

Manual selector switch in wrong position.

Faulty control box. High (3rd) flame solenoid valve's coils faulty. High (3rd) flame's nozzle clogged.

Air damper's jacket faulty or wrongly adjusted.

Multicalor 300.1 - 400.1

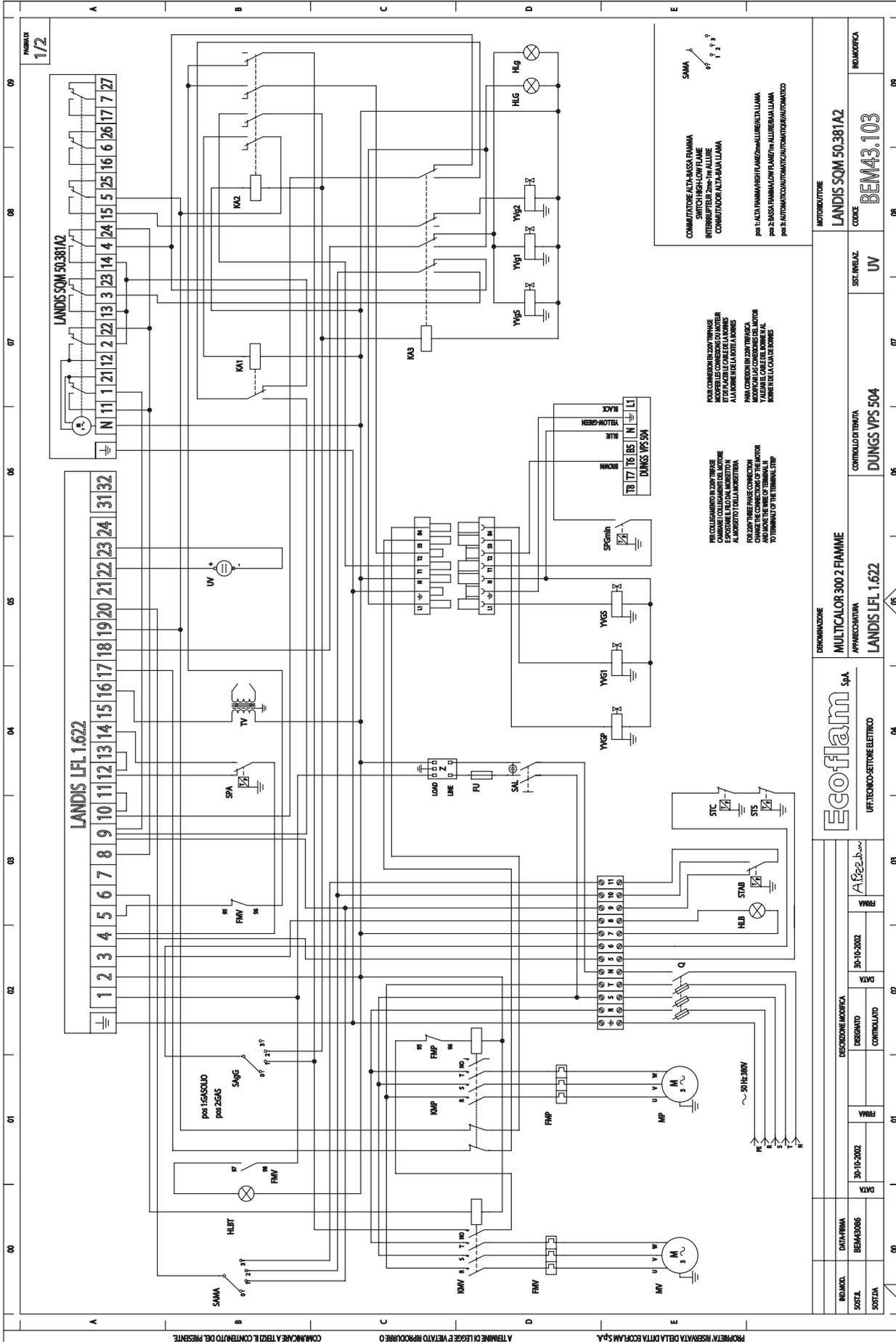


N°	DESCRIPTION	Natural gas 50 mbar	Multicalor 300.1 code	Multicalor 400.1 code
1	- AIR PRESSURE SWITCH	DUNGS LGW10 A2P	Q120	Q120
2	- GAS PRESSURE SWITCH MIN.	DUNGS GW 50 A4 DUNGS GW 50 A5	Q107 -	- Q107/3
3	- AIR INTAKE SET		GRPA100	GRPA100
4	- COVER		BFC09254/038	
5	- GLASS		BFC02004	BFC02004
6	- PEED WINDOM FRAME		BFC02006	BFC02006
7	- MOTOR	5,5 k W 7,5 k W	M128/017 -	- M129/017
8	- FAN	320 x 150	BFV10304/001	BFV10304/001
9	- AIR CONVEYOR		BFC08256/001	BFC08256/001
10	- AIR INTAKE		GRCA320	GRCA320
11	- AIR INTAKE PIPE		BFS02208/201	BFS02208/201
12	- CONTROL BOX BASE	LANDIS	A401	A401
13	- CONTROL BOX	LANDIS LFL1.622	A113	A113
14	- IGNITION TRANSFORMER	BRAHMA T8	T101	T101
15	- REMOTE CONTROL SWITCH	BF40.00	R616	R616
16	- REMOTE CONTROL SWITCH (PUMP)	MC9.10	R603/1	R603/1
17	- MOTOR THERMAL RELAY	Lovato RF25 14-23A	-	R513/1
18	- MOTOR THERMAL RELAY (PUMP)	Lovato RF9 1,4-2,3 A	R510	R510
19	- MAIN SWITCH	cod.40100I1509	R1020	R1020
20	- GAS/LIGHT-OIL SELECTOR		R1020/5	R1020/5
21	- SELECTOR		R1020/5	
22	- LAMP	Elettrospring EL/N-SC4	E1510	E1510
23	- FUSE SUPPORT	FUSIT FH-B528	E802/2	E802/2
24	- RELÉ BASE	Finder 5532 Finder 5534	R905 R906	R905 R906
25	- RELÉ	Finder 5532 Finder 5534	R711 R712	R711 R712
26	- UV CELL	LANDIS QRA 2	A205	A205
27	- IGNITION CABLE	SHORT HEAD LONG HEAD		BFE01403/2
28	- IGNITION ELECTRODES SET		E625	E625
29	- PIPE	SHORT HEAD LONG HEAD		
30	- ROD	SHORT HEAD LONG HEAD		
31	- FIRING HEAD			
32	- FRONT DISC			
33	- NOZZLE HOLDER			
34	- INNER ASSEMBLY	SHORT HEAD LONG HEAD		
35	- BLAST TUBE	SHORT HEAD LONG HEAD	BFB07023/103 BFB07023/203	BFB07026/103 BFB07026/203
36	- GASKET ISOMART		BFG04051/1	BFG04051/1
37	- ANTIJAMMING FILTER		S132/4	S132/4
38	- AIR DAMPER MOTOR	LANDIS SQM50.381A2	M212/9	M212/9
39	- LEAKAGE CONTROL	VPS 504 S02	V185	V185
40	- GAS FILTER	FSDR50/CE FSDR65/CE	S505/2 -	- S513/6
41	- SILENCER		GRSIL04/01	GRSIL04/01
42	- WIELAND PLUG	7 pin 6 pin	E225 -	- E226
43	- WIELAND SOCKET	7 pin 6 pin	E225/1 -	- E226/1
44	- GAS VALVE	DUNGS MVD 215 DUNGS SV 520 LANDIS VGD40.080	V117 - -	- V1994/6 V190/01
45	- COIL	DUNGS MVD 215 DUNGS SV 520 Landis SKP 10.110B27 Landis SKP 20.110B27	- - - -	- - V190/91 V190/8
46	- GAS VALVE	DUNGS MVDLE 215 DUNGS SV-DLE 520	V118 -	- V1994/61

N°	DESCRIPTION	<i>Natural gas 50 mbar</i>	Multicalor 300.1 code	Multicalor 400.1 code
47 -	COIL	DUNGS MVDLE 215		
		DUNGS SV-DLE 520	-	
48 -	OIL PUMP	SUNTEC J7CCC10014P	P103/1	-
		SUNTEC TA2C40105	-	P148
49 -	COUPLING		MP501/4	MP503
50 -	PUMP MOTOR	740 W	M147	M147
51 -	OIL VALVE	Parker SCEM VE 140	V175/1	V175/1
52 -	COIL	Parker SCEM VE 140		
53 -	OIL VALVE	DELTA 1/8 F.F.F84	V420	V420
54 -	COIL	DELTA 1/8 F.F.F84		
55 -	OIL FILTER	1 X1 7010 1	S103	-
		1 X1 03	-	S107/5
56 -	GAS VALVE	BRAHMA E6GSRP	V109	-
		BRAHMA EG12SR	-	V142/1
57 -	COIL	BRAHMA	V209	V209
58 -	FAN SCOOP		-	BFC08059/001

N°	DESCRIPTION	Natural gas 300 mbar	Multicalor 300.1 code	Multicalor 400.1 code
1	- AIR PRESSURE SWITCH	DUNGS LGW10 A2P	Q120	Q120
2	- GAS PRESSURE SWITCH MIN.	DUNGS GW 50 A4	Q107	-
		DUNGS GW 50 A5	-	Q107/3
3	- AIR INTAKE SET		GRPA100	GRPA100
4	- COVER		BFC09254/038	
5	- GLASS		BFC02004	BFC02004
6	- PEED WINDOM FRAME		BFC02006	BFC02006
7	- MOTOR	5,5 k W	M128/017	-
		7,5 k W	-	M129/017
8	- FAN	320 x 150	BFV10304/001	BFV10304/001
9	- AIR CONVEYOR		BFC08256/001	BFC08256/001
10	- AIR INTAKE		GRCA320	GRCA320
11	- AIR INTAKE PIPE		BFS02208/201	BFS02208/201
12	- CONTROL BOX BASE	LANDIS	A401	A401
13	- CONTROL BOX	LANDIS LFL1.622	A113	A113
14	- IGNITION TRANSFORMER	BRAHMA T8	T101	T101
15	- REMOTE CONTROL SWITCH	BF40.00	R616	R616
16	- REMOTE CONTROL SWITCH (PUMP)	MC9.10	R603/1	R603/1
17	- MOTOR THERMAL RELAY	Lovato RF25 14-23A	-	R513/1
18	- MOTOR THERMAL RELAY (PUMP)	Lovato RF9 1,4-2,3 A	R510	R510
19	- MAIN SWITCH	cod.40100I1509	R1020	R1020
20	- GAS/LIGHT-OIL SELECTOR		R1020/5	R1020/5
21	- SELECTOR		R1020/5	
22	- LAMP	Elettrospring EL/N-SC4	E1510	E1510
23	- FUSE SUPPORT	FUSIT FH-B528	E802/2	E802/2
24	- RELÉ BASE	Finder 5532	R905	R905
		Finder 5534	R906	R906
25	- RELÉ	Finder 5532	R711	R711
		Finder 5534	R712	R712
26	- UV CELL	LANDIS QRA 2	A205	A205
27	- IGNITION CABLE	SHORT HEAD		BFE01403/2
		LONG HEAD		
28	- IGNITION ELECTRODES SET		E625	E625
29	- PIPE	SHORT HEAD		
		LONG HEAD		
30	- ROD	SHORT HEAD		
		LONG HEAD		
31	- FIRING HEAD			
32	- FRONT DISC			
33	- NOZZLE HOLDER			
34	- INNER ASSEMBLY	SHORT HEAD		
		LONG HEAD		
35	- BLAST TUBE	SHORT HEAD	BFB07023/103	BFB07026/103
		LONG HEAD	BFB07023/203	BFB07026/203
36	- GASKET ISOMART		BFG04051/1	
37	- ANTIJAMMING FILTER		S132/4	S132/4
38	- AIR DAMPER MOTOR	LANDIS SQM50.381A2	M212/9	M212/9
39	- LEAKAGE CONTROL	VPS 504 S02	V185	
40	- GAS FILTER	FSDR50/CE	S505/2	-
		FSDR65/CE	-	S513/6
41	- SILENCER		GRSIL04/01	GRSIL04/01
42	- WIELAND PLUG	7 pin	E225	-
		6 pin	-	E226
43	- WIELAND SOCKET	7 pin	E225/1	-
		6 pin	-	E226/1
44	- GAS VALVE	DUNGS MVD 215	V117	-
		DUNGS SV 520	-	V1994/6
45	- COIL	DUNGS MVD 215	-	-
		DUNGS SV 520	-	-
46	- GAS VALVE	DUNGS MVDLE 215	V118	-
		DUNGS SV-DLE 520	-	V1994/61
47	- COIL	DUNGS MVDLE 215	-	-
		DUNGS SV-DLE 520	-	-
48	- OIL PUMP	SUNTEC J7CCC10014P	P103/1	-

N°	DESCRIPTION	<i>Natural gas 300 mbar</i>	Multicalor 300.1 code	Multicalor 400.1 code
		SUNTEC TA2C40105	-	P148
49 -	COUPLING		MP501/4	MP501/4
50 -	PUMP MOTOR	740 W	M147	M147
51 -	OIL VALVE	Parker SCEM VE 140	V175/1	V175/1
52 -	COIL	Parker SCEM VE 140		
53 -	OIL VALVE	DELTA 1/8 F.F.F84	V420	V420
54 -	COIL	DELTA 1/8 F.F.F84		
55 -	OIL FILTER	1 X1 7010 1	S103	-
		1 X1 03	-	S107/5
56 -	GAS VALVE	BRAHMA E6GSRP	V109	-
		BRAHMA EG12SR	-	V142/1
57 -	COIL	BRAHMA	V209	V209
58 -	FAN SCOOP		-	BFC08059/001



COMMUTATORE ALTA/BASSA FIAMMA
SWITCH HIGH-LOW FLAME
INTERMEDIATE ZONE IN ALLURE
COMBUSTION RATE/FLAME LENGTH

pos 1: ALTA FIAMMA/HIGH FLAME/7mm ALLURE/TA LUMIA
pos 2: BASSA FIAMMA/LOW FLAME/7mm ALLURE/TA LUMIA
pos 3: AUTOMATICO/AUTOMATIC/AUTOMATICO

PER COLLEGAMENTO IN QUATTRE FASI
PER COLLEGAMENTO IN TRE FASI
PER FASES CONNESSIONE
PER FASES CONNESSIONE
ALLO SCHEMATA DI CALORE E A BOMBE
ALLO SCHEMATA DI CALORE E A BOMBE

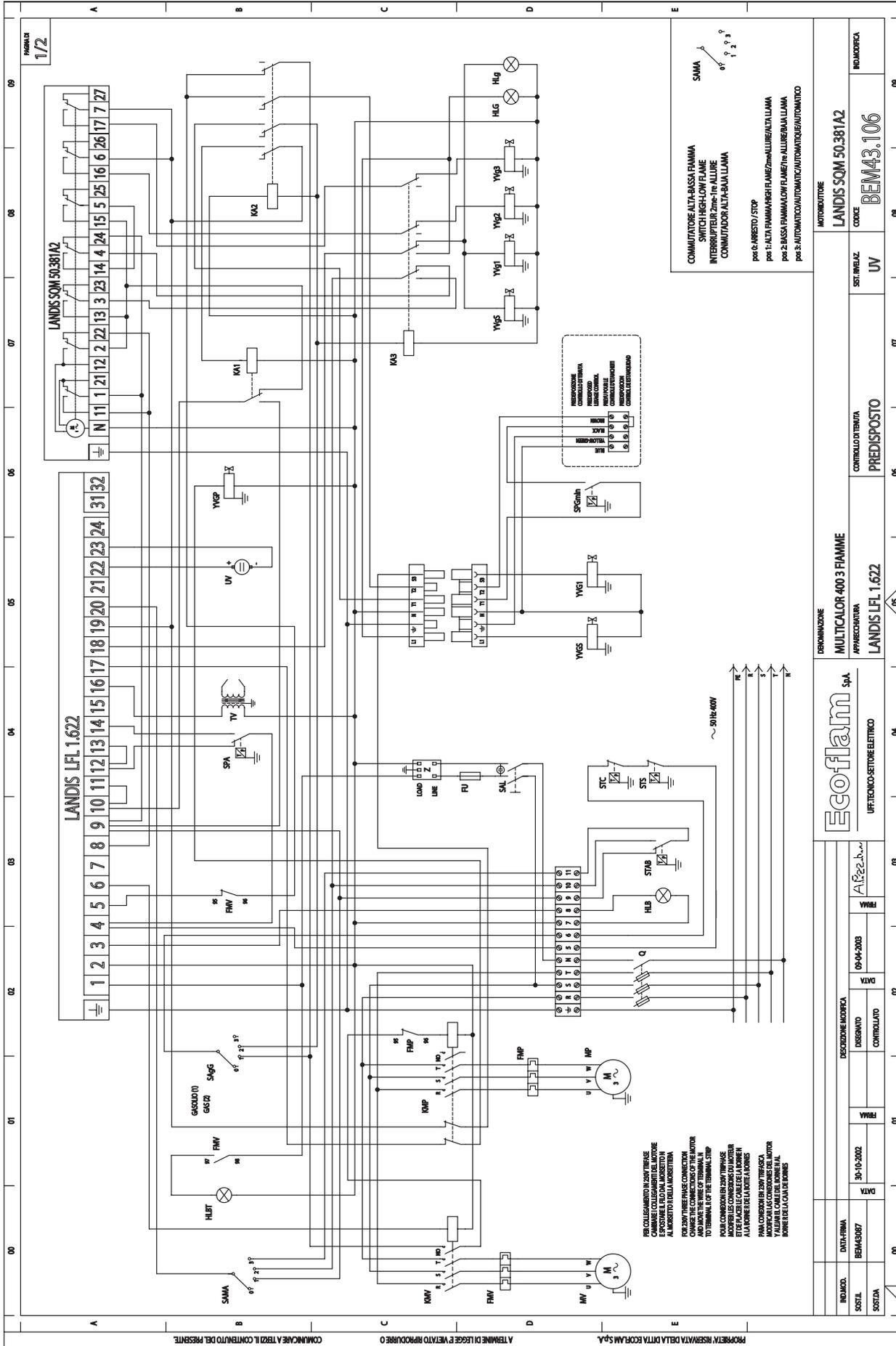
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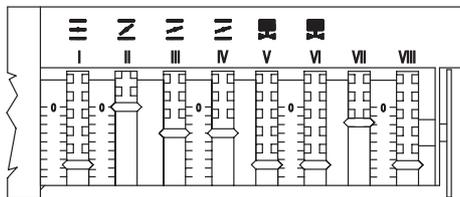
IND. MOD.	DATA-FIAMA	DESCRIZIONE MODIFICA		INDICAZIONE
SOC. I.	BEM43086	DESIGNATO	30-10-2002	INDICAZIONE
SOC. II.		CONTROLLATO		
Ecoflam s.p.a.		UFT-TECNICO-SETTORE ELETTRICO		
MULTICALOR 300 2 FIAMME		CONTROLO DI TEMPERATURA		
APPARECCHIATURA		DUNGS VPS 504		
LANDIS LFL 1.622		UV		
LANDIS SOM 50381A2				
CODICE		BEM43.103		

<p>PAGINA 2/2</p>	<table border="1"> <tr><td>Q</td><td>INTERRUTTORE GENERALE CON FUSIBILE MAIN SWITCH WITH FUSE INTERRUPTEUR GENERAL AVEC FUSIBLE INTERRUPTOR GENERAL CON FUSIBLE</td></tr> <tr><td>Z</td><td>FILTRO ANTIDISTURBO ANTI-JAMMING FILTER FILTRE ANTIPARASITES FILTRO DE PROTECCION ANTIDISTURBIO</td></tr> <tr><td>FU</td><td>FUSIBILE FUSE FUSIBLE FUSIBLE</td></tr> <tr><td>MP</td><td>MOTORE POMPA OIL PUMP MOTOR MOTEUR POMPE MOTOR BOMBA</td></tr> <tr><td>MV</td><td>MOTORE VENTILATORE MOTOR FAN MUTEUR VENTILATEUR MOTOR VENTILADOR</td></tr> <tr><td>TV</td><td>TRASFORMATORE IGNITION TRANSFORMER TRANSFORMATEUR D'ALLUMAGE TRANSFORMADOR</td></tr> <tr><td>UV</td><td>FOTOCELLULA UV CELL CELLULE UV FOTOCELULA</td></tr> <tr><td>FMP</td><td>RELE' TERMICO MOTORE POMPA MOTOR PUMP THERMAL RELAY RELAIS THERMIQUE MOTEUR POMPE RELE' TERMICO MOTOR BOMBA</td></tr> <tr><td>FMV</td><td>RELE' TERMICO MOTORE VENTILATORE MOTOR THERMAL RELAY (FAN MOTOR) RELAIS THERMIQUE MOTEUR VENTILATEUR RELE' TERMICO MOTOR VENTILADOR</td></tr> <tr><td>HLB</td><td>LAMPADA DI BLOCCO LOCK-OUT LAMP LAMPE DE SECURITE ESPIA DE BLOQUEO</td></tr> <tr><td>HLG</td><td>LAMPADA GAS GAS LAMP LAMPE DE GAZ ESPIA GAS</td></tr> <tr><td>HLg</td><td>LAMPADA GASOLIO OIL LAMP TEMOIN MAZOUT ESPIA GASOLEO</td></tr> <tr><td>KA1</td><td>RELE' RELAY RELAIS RELE'</td></tr> <tr><td>KA2</td><td>RELE' RELAY RELAIS RELE'</td></tr> <tr><td>KA3</td><td>RELE' RELAY RELAIS RELE'</td></tr> </table>	Q	INTERRUTTORE GENERALE CON FUSIBILE MAIN SWITCH WITH FUSE INTERRUPTEUR GENERAL AVEC FUSIBLE INTERRUPTOR GENERAL CON FUSIBLE	Z	FILTRO ANTIDISTURBO ANTI-JAMMING FILTER FILTRE ANTIPARASITES FILTRO DE PROTECCION ANTIDISTURBIO	FU	FUSIBILE FUSE FUSIBLE FUSIBLE	MP	MOTORE POMPA OIL PUMP MOTOR MOTEUR POMPE MOTOR BOMBA	MV	MOTORE VENTILATORE MOTOR FAN MUTEUR VENTILATEUR MOTOR VENTILADOR	TV	TRASFORMATORE IGNITION TRANSFORMER TRANSFORMATEUR D'ALLUMAGE TRANSFORMADOR	UV	FOTOCELLULA UV CELL CELLULE UV FOTOCELULA	FMP	RELE' TERMICO MOTORE POMPA MOTOR PUMP THERMAL RELAY RELAIS THERMIQUE MOTEUR POMPE RELE' TERMICO MOTOR BOMBA	FMV	RELE' TERMICO MOTORE VENTILATORE MOTOR THERMAL RELAY (FAN MOTOR) RELAIS THERMIQUE MOTEUR VENTILATEUR RELE' TERMICO MOTOR VENTILADOR	HLB	LAMPADA DI BLOCCO LOCK-OUT LAMP LAMPE DE SECURITE ESPIA DE BLOQUEO	HLG	LAMPADA GAS GAS LAMP LAMPE DE GAZ ESPIA GAS	HLg	LAMPADA GASOLIO OIL LAMP TEMOIN MAZOUT ESPIA GASOLEO	KA1	RELE' RELAY RELAIS RELE'	KA2	RELE' RELAY RELAIS RELE'	KA3	RELE' RELAY RELAIS RELE'	<table border="1"> <tr><td>KMP</td><td>CONTATTORE MOTORE POMPA PMP REMOTE CONTROL SWITCH CONTACTEUR MOTEUR POMPE EMPALME MOTOR BOMBA</td></tr> <tr><td>KMV</td><td>CONTATTORE MOTORE VENTILATORE REMOTE CONTROL SWITCH (FAN MOTOR) CONTACTEUR MOTEUR VENTILATEUR TELEINTERRUPTOR MOTOR VENTILATOR</td></tr> <tr><td>SAL</td><td>INTERRUTTORE DI LINEA WORKING SWITCH INTERRUPTEUR DE LIGNE INTERRUPTOR DE LINEA</td></tr> <tr><td>SPA</td><td>PRESSOSTATO ARIA AIR PRESSURE SWITCH PRESSTAT AIR PRESOSTATO AIRE</td></tr> <tr><td>STC</td><td>TERMOSTATO CALDAIA BOILER THERMOSTAT THERMOSTAT CHAUDIERE TERMOSTATO CALDERA</td></tr> <tr><td>STS</td><td>TERMOSTATO DI SICUREZZA SAFETY THERMOSTAT THERMOSTAT DE SECURITE TERMOSTATO DE SEGURIDAD</td></tr> <tr><td>SAgG</td><td>COMMUTATORE GASOLIO-GAS SWITCH (OIL-GAS) INTERRUPTEUR MAZOUT-GAS COMNUTADOR GASOLEO-GAS</td></tr> <tr><td>SAMA</td><td>COMMUTATORE MANUALE-AUTOMATICO SWITCH (MANUAL-AUTOMATIC) INTERRUPTEUR MANUEL-AUTOMATIQUE COMNUTADOR MANUAL-AUTOMATICO</td></tr> <tr><td>STAB</td><td>TERMOSTATO DI ALTA-BASSA FIAMMA HIGH-LOW FLAME THERMOSTAT THERMOSTAT GRANDE-PETITE ALLURE TERMOSTATO DE ALTA-BAJA LLAMA</td></tr> <tr><td>YVG1</td><td>ELETTROVALVOLA GAS DI PRIMA FIAMMA FIRST STAGE GAS SOLENOID VALVE ELECTROVANNE GAZ PETITE ALLURE ELECTROVALVULA GAS DE 1ª LLAMA</td></tr> <tr><td>YVg1</td><td>ELETTROVALVOLA GASOLIO DI PRIMA FIAMMA FIRST STAGE OIL SOLENOID VALVE ELECTROVANNE MAZOUT PETITE ALLURE ELECTROVALVULA DE GASOLEO 1ª LLAMA</td></tr> 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<p>FU FUSIBILE FUUSE FUSIBLE FUSIBLE</p>		<p>KA1 RELE' 1 RELAY 1 RELAIS 1 RELE' 1</p>		<p>SAL INTERRUITTORE DI LINEA WORKING SWITCH INTERRUPTEUR DE LIGNE INTERRUPTOR DE LINEA</p>	
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<p>MV MOTORE VENTILATORE MOTOR FAN MUTEUR VENTILATEUR MOTOR VENTILADOR</p>		<p>STC TERMOSTATO CALDAIA BOILER THERMOSTAT THERMOSTAT CHAUDIERE TERMOSTATO CALDERA</p>		<p>STS TERMOSTATO DI SICUREZZA SAFETY THERMOSTAT THERMOSTAT DE SECURITE TERMOSTATO DE SEGURIDAD</p>	
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<p>HLB LAMPADA DI BLOCCO LOCK-OUT LAMP LAMPE DE SECURITE ESPIA DE BLOQUEO</p>		<p>Yvg3 ELETTROVALVOLA GASOLIO DI TERZA FIAMMA THIRD STAGE OIL SOLENOID VALVE ELECTROVANNE MAZOUT 3me ALLURE ELECTROVALVULA DE GASOLEO 3a FIAMMA</p>		<p>YVG5 ELETTROVALVOLA GAS DI SICUREZZA EXTRA SAFETY GAS SOLENOID VALVE ELECTROVANNE GAZ DE SECURITE ELECTROVALVULA GAS DE SEGURIDAD</p>	
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REGOLAZIONE CAMME PER MULTICALOR 400 3F



- (60°) I: CAMMA DI REGOLAZIONE ARIA MASSIMA FIAMMA
- (15°) II: CAMMA DI REGOLAZIONE ARIA ACCENSIONE (GAS E GASOLIO)
- (40°) III: CAMMA DI REGOLAZIONE ARIA BASSA FIAMMA GAS
- (42°) IV: CAMMA DI REGOLAZIONE AUSILIARIA BASSA FIAMMA GASOLIO (regolare sempre 3° inferiore alla camma V)
- (45°) V: CAMMA DI REGOLAZIONE ARIA BASSA FIAMMA GASOLIO
- (40°) VI: CAMMA APERTURA ELETTROVALVOLA BASSA FIAMMA GASOLIO
- (50°) VII: CAMMA APERTURA ELETTROVALVOLA ALTA FIAMMA GASOLIO
- (0°) VIII: CAMMA NON UTILIZZATA

Ecoflam SpA

UFFICIO TECNICO SETTORE ELETTRICO

DESCRIZIONE MODICA

DESEGNATO

CONTROLLATO

DATA FIRMA

RELAIS 107

DATA

30-10-2002

FIRMA

MOTORIZZAZIONE

LANDIS SQM50.381A2

CODICE

BEM43.106

SIST. ARIELAZ.

UV

CONTROLLO DI TIRATA

MULTICALOR 400 3 FIAMME

APPLICAZIONE

LANDIS IFL 1.622



 **Ecoflam**

ECOFLAM S.p.A. reserves the right to make any adjustments, without prior notice, which it considers necessary or useful to its products, without affecting their main features.

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