

INSTRUCTIONS MANUAL FOR BURNERS MODEL:

G1.22 – G1.22R (2001)

G2.22 – G2.22R (MAXI)

GX3.22 – GX4.22 – GX5.22



# TWO STAGES LIGHT-OIL BURNERS WITH JUMP OF PRESSURE [ SERIES 2001 ]

MOD.: G1.22-G1.22R  
G2.22-G2.22R

070045\_2G

01

## TECHNICAL DATA

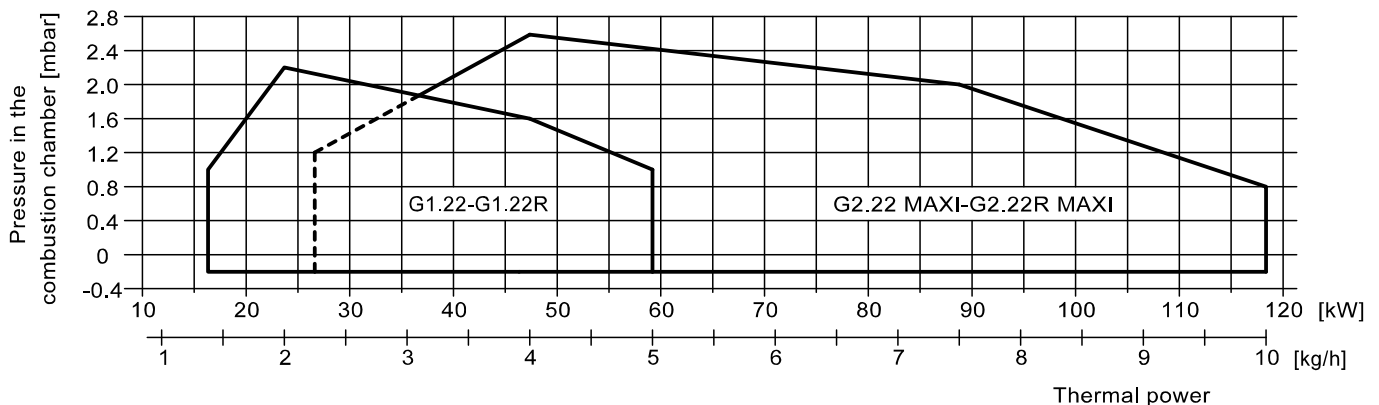
MODEL		G1.22R	G1.22	G2.22R MAXI	G2.22 MAXI
Flow min 1° st./min 2° st.-max 2° st. *	[kg/h]	1,4/2,0-5,0	1,4/2,0-5,0	2,2/4-9,8	2,2/4-9,8
Thermal power min 1° st./min 2° st.-max 2° st. *	[Mcal/h]	14,3/20,4-51	14,3/20,4-51	22,4/40,8-99,9	22,4/40,8-99,9
Thermal power min 1° st./min 2° st.-max 2° st. *	[kW]	16,6/23,7-59,2	16,6/23,7-59,2	26/47,3-116	26/47,3-116
Fuel : LIGHT-OIL 1.5° E to 20° C = 6.2 cSt = 35 sec Redwood N° 1					
Intermittent working operation (min. 1 arrest every 24 hours) two stages with jump of pressure					
Environmental conditions operation / storage : -15...+40°C / -20...+70°C , rel. humidity max. 80%					
Max temperature combustion air	[ °C ]	60	60	60	60
Nominal electric power	[ W ]	220	130	250	140
Motor fan	[ W ]	100	100	100	100
Nominal absorption	[ A ]	1	0,6	1,1	0,7
Preheated	[ W ]	30-110	-	30-110	-
Power supply:		1/N~230V-50Hz	1/N~230V-50Hz	1/N~230V-50Hz	1/N~230V-50Hz
Degree of electric protection:		IP40	IP40	IP40	IP40
Noisiness ** min-max	[ dBA ]	57-59	57-59	59-61	59-61
Weight burner ***	[ kg ]	10	10	10	10

\* Conditions of reference: Environment temperature 20°C - barometric pressure 1013 mbars - Altitude 0 m o.s.l.

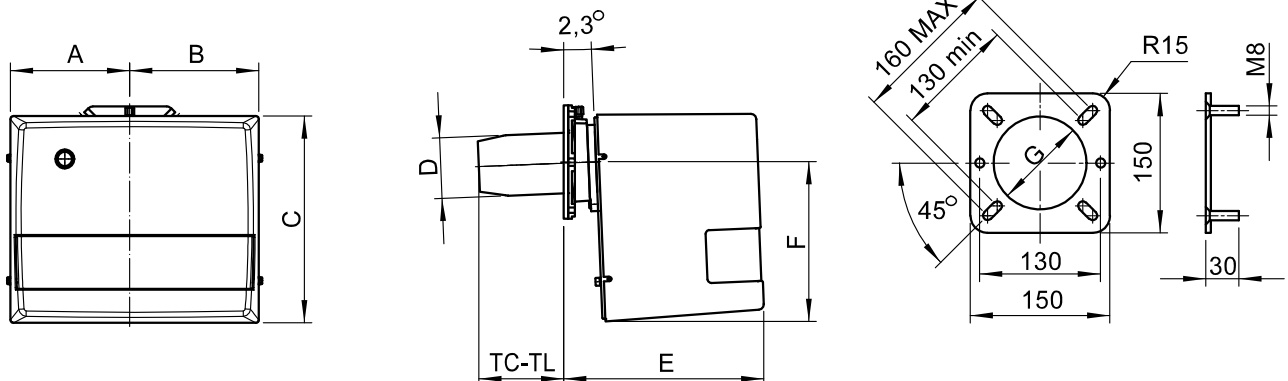
\*\* Measured sonorous pressure in the laboratory combustion, with functional burner on beta boiler to 1m of distance. (UNI EN ISO 3746).

\*\*\* For burner with cover in steel (F) to add kg 2 to the weight.

### OPERATING RANGE DIAGRAM: Thermal power-Pressure in the combustion chamber



### DIMENSIONS [mm.]



MODEL	A	B	C	D	E	F	G	TC	TL
G1.22-G1.22R	157	170	275	80	265	210	90	112	152
G2.22-G2.22R	157	170	275	90	265	210	100	107	147



# TWO STAGES LIGHT-OIL BURNERS WITH JUMP OF PRESSURE

MOD.: G X3.22  
G X4.22  
G X5.22

070045\_2E

02

## TECHNICAL DATA

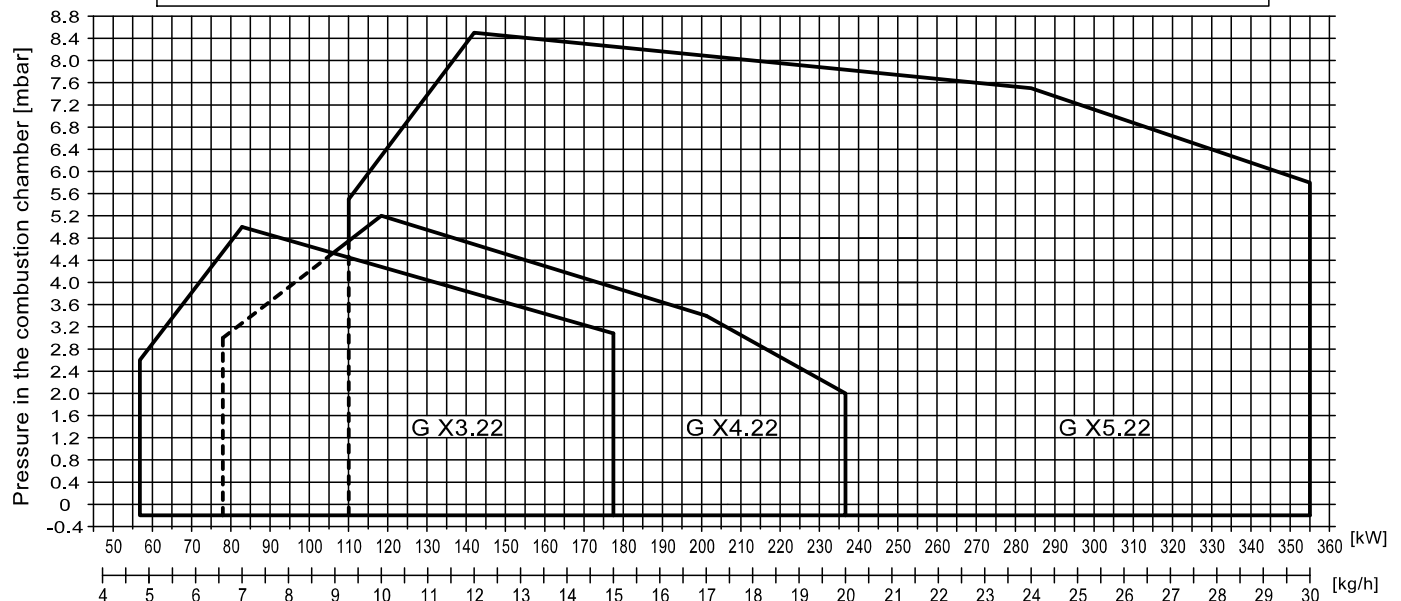
MODELLO		G X3.22	G X4.22	G X5.22
Flow min 1° st./min 2° st.-max 2° st. *	[kg/h]	4.8/7-15	6.8/10-20	9/12-30
Thermal power min 1° st./min 2° st.-max 2° st. *	[Mcal/h]	49/71-153	69/102-204	92/122-306
Thermal power min 1° st./min 2° st.-max 2° st. *	[kW]	57/83-178	80/118-236	107/142-355
Fuel : LIGHT-OIL 1.5° E to 20° C = 6.2 cSt = 35 sec Redwood N° 1				
Intermittent working operation (min. 1 arrest every 24 hours) two stages with jump of pressure				
Environmental conditions operation / storage : -15...+40°C / -20...+70°C , rel. humidity max. 80%				
Max temperature combustion air	[ °C ]	60	60	60
Nominal electric power	[ W ]	220	250	600
Motor fan	[ W ]	150	200	450
Nominal absorption	[ A ]	1	1.1	2.7
Power supply:		1/N~230V-50Hz	1/N~230V-50Hz	1/N~230V-50Hz
Degree of electric protection:		IP40	IP40	IP40
Noisiness ** min-max	[ dBA ]	66-66	67-68	71-72
Weight burner ***	[ kg ]	14	14	25

\* Conditions of reference: Environment temperature 20°C - barometric pressure 1013 mbars - Altitude 0 m o.s.l.

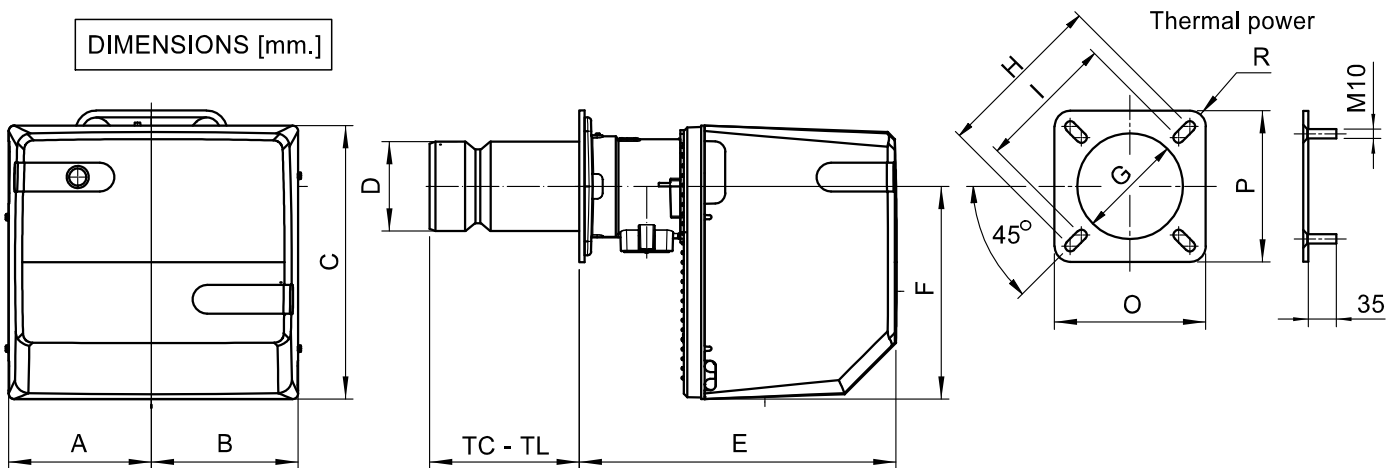
\*\* Measured sonorous pressure in the laboratory combustion, with functional burner on beta boiler to 1m of distance. (UNI EN ISO 3746).

\*\*\* For burner with cover in steel (F) to add kg 3 to the weight.

### OPERATING RANGE DIAGRAM: Thermal power-Pressure in the combustion chamber



### DIMENSIONS [mm.]



MODEL	A	B	C	D	E	F	G	H	I	O	P	R	TC	TL
G X3.22	179	189	318	110	306	248	120	226	160	200	200	20	130	250
G X4.22	179	189	318	124	306	248	135	226	160	200	200	20	130	250
G X5.22	207	213	400	130	461	310	140	226	205	220	220	30	215	335



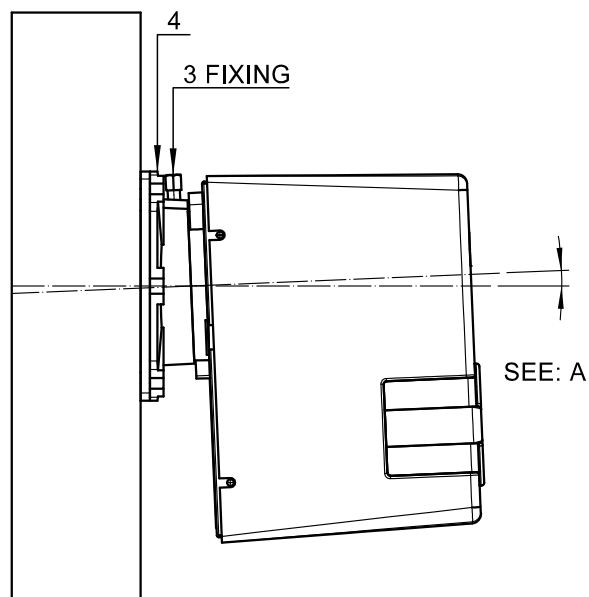
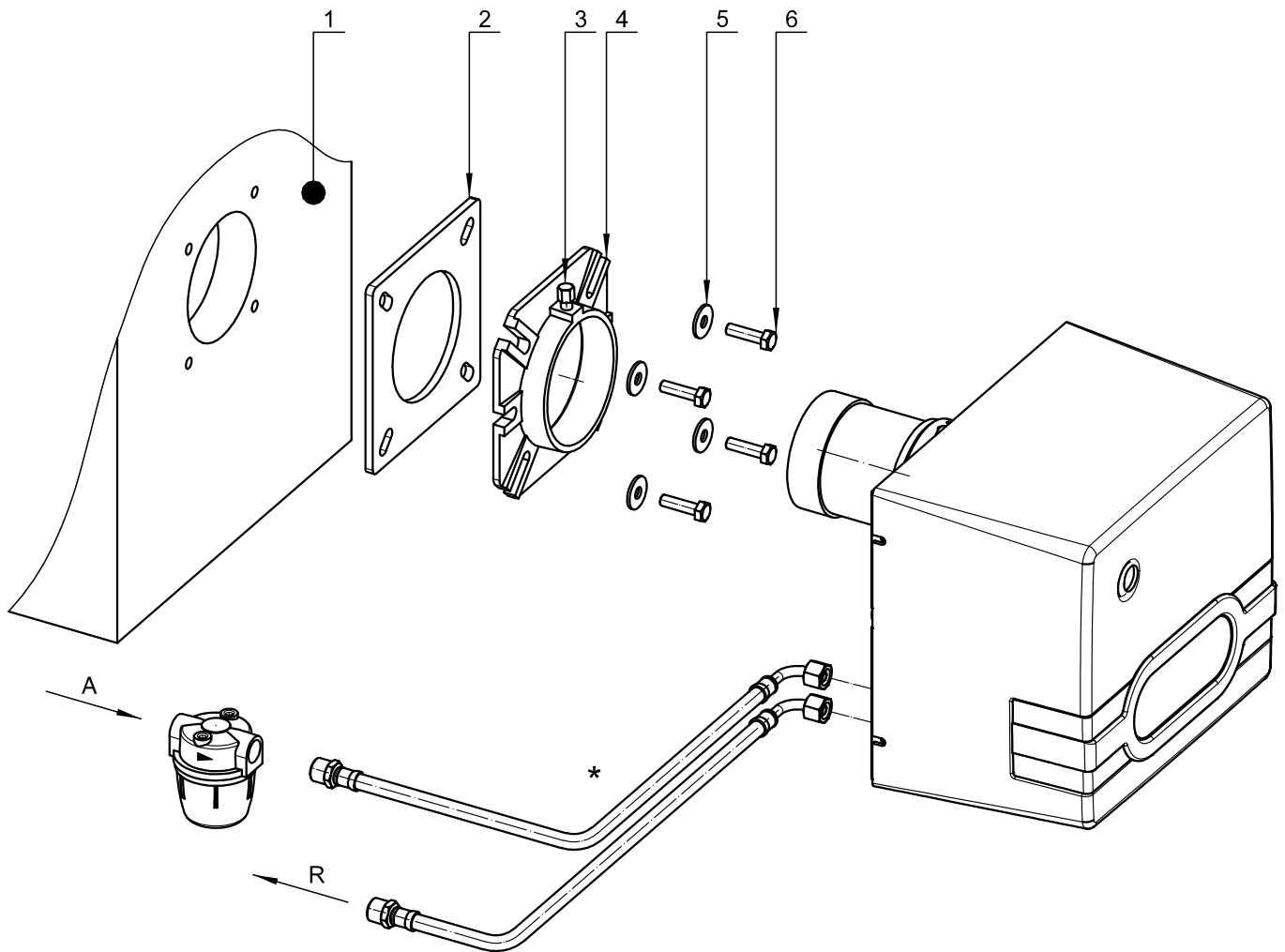
## 2 STAGES LIGHT-OIL BURNERS WITH JUMP OF PRESSURE

MOD.: G 1.22 -G 2.22  
G X3.22 -G X4.22

070045\_2D

03

### INSTALLATION



Fix the flange (4) to the boiler door (1) through the washers (5) and the screws (6), putting in the middle the insulating sheet (2). Then put the burner on the flange (4) and tighten the screw (3). After finishing the installation, verify that the burner is lightly inclined (see A).

\* The burner is arranged to receive the light oil feeding pipes from right side, left side, upward or downward indifferently.



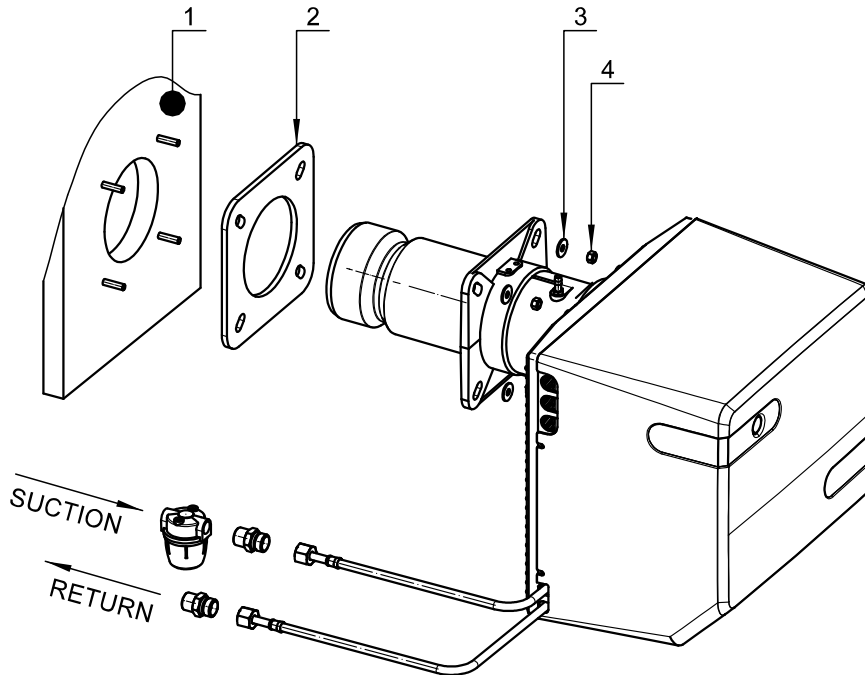
# TWO STAGES LIGHT-OIL BURNERS WITH JUMP OF PRESSURE

MOD.: G X5.22

070045\_2G

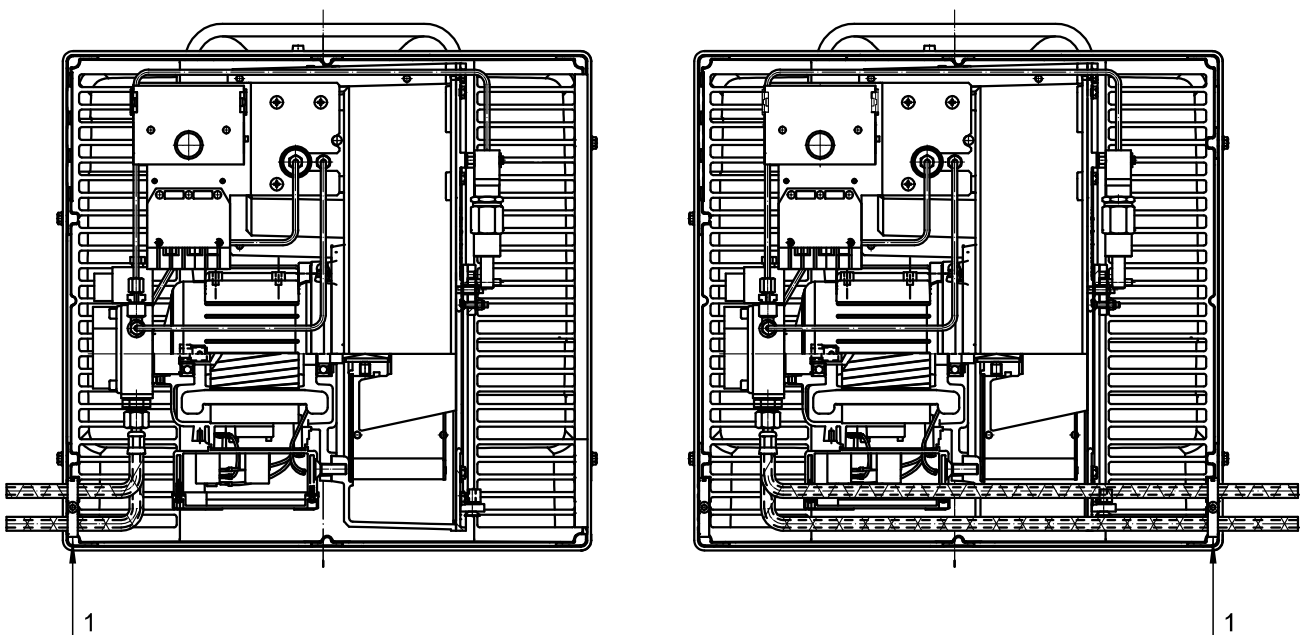
04

## INSTALLATION



Fix to the boiler door (1) through the washers (3) and the nuts (4), putting in the middle the insulating sheet (2).

## FUEL FEEDING



The burner is arranged to receive the light oil feeding pipes from right side or left side.  
Depending on pipes exit (that should be right side or left side), it is necessary to invert the fixing plate (1).



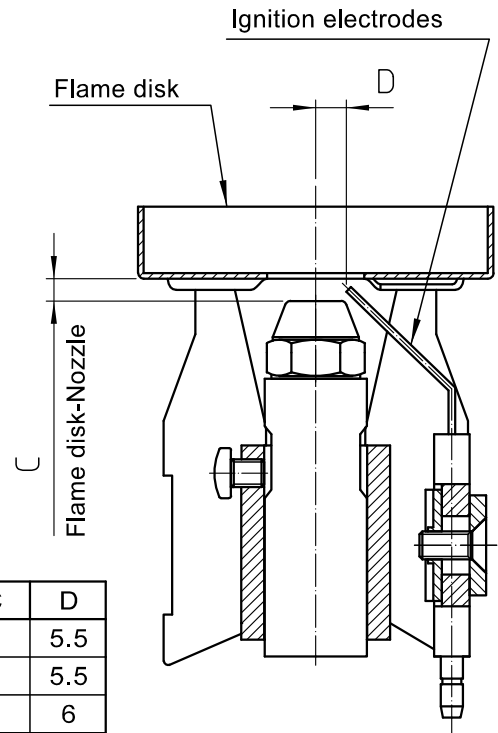
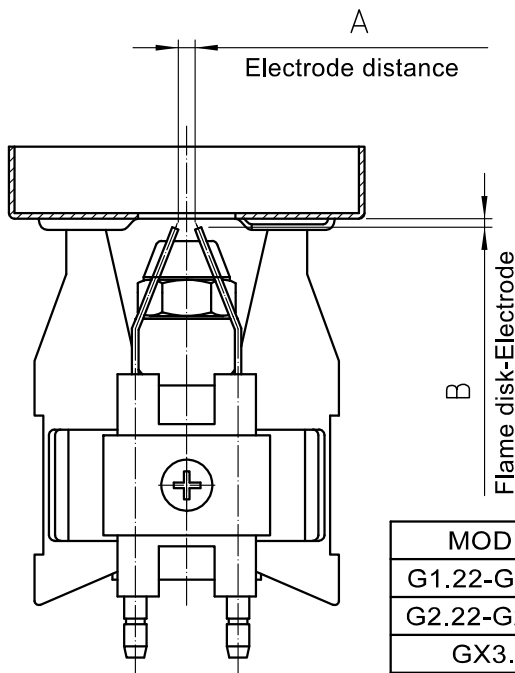
## 2 STAGES LIGHT-OIL BURNERS WITH JUMP OF PRESSURE

MOD.: G1.22-G2.22  
G X3.22-X4.22-X5.22

070045\_2F

05

### ELECTRODES POSITIONING



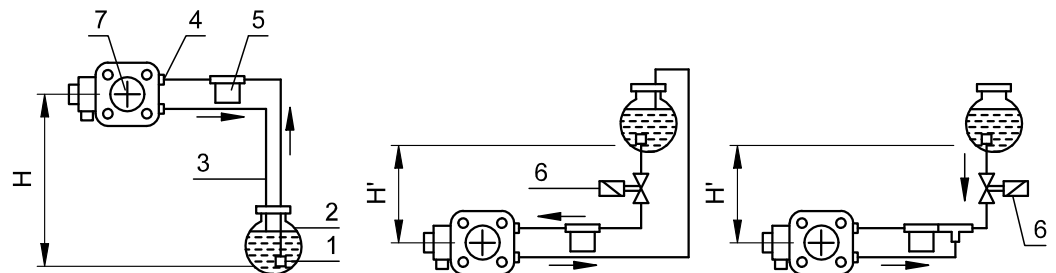
MODEL	A	B	C	D
G1.22-G1.22R	3	1.5	4	5.5
G2.22-G2.22R	3	1.5	4	5.5
GX3.22	3	3	5	6
GX4.22	4	1.5	6	6
GX5.22	4	1.5	8	6

### PUMP PRIMING

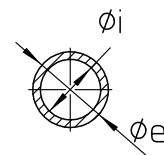
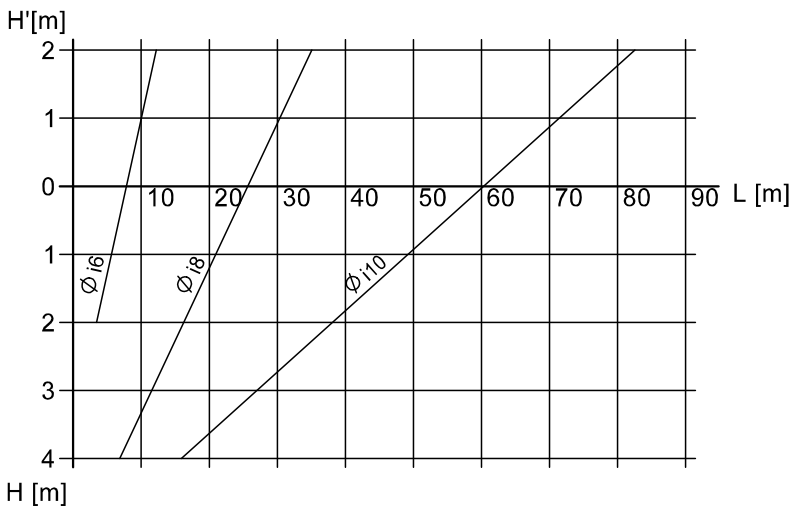
Connect correctly the suction and the return pipes (see the arrows on the pump), make sure that no closed gates exist on the return, then ignite the burner by keeping lighted the photoresistance and by bleeding from the pressure switch connection up until the light-oil comes out.

### HYDRAULIC SYSTEM SCHEME AND PIPE DIAMETERS

- 1 : Filter
- 2 : Tank
- 3 : Return
- 4 : Suction
- 5 : Line filter
- 6 : Valve
- 7 : Pump



THE INSTALLATION MUST BE IN CONFORMITY WITH LOCAL LEGISLATION.



Details are referred to installatio  
without strugglings and perfectly  
sealing.  
Copper pipes are recommended.  
Negative pressure must not be  
higher than max. 0.4 bar.



# TWO STAGES LIGHT-OIL BURNERS WITH JUMP OF PRESSURE [ SERIES 2001 ]

MOD.: G1.22-G1.22R  
G2.22-G2.22R

070045\_2C

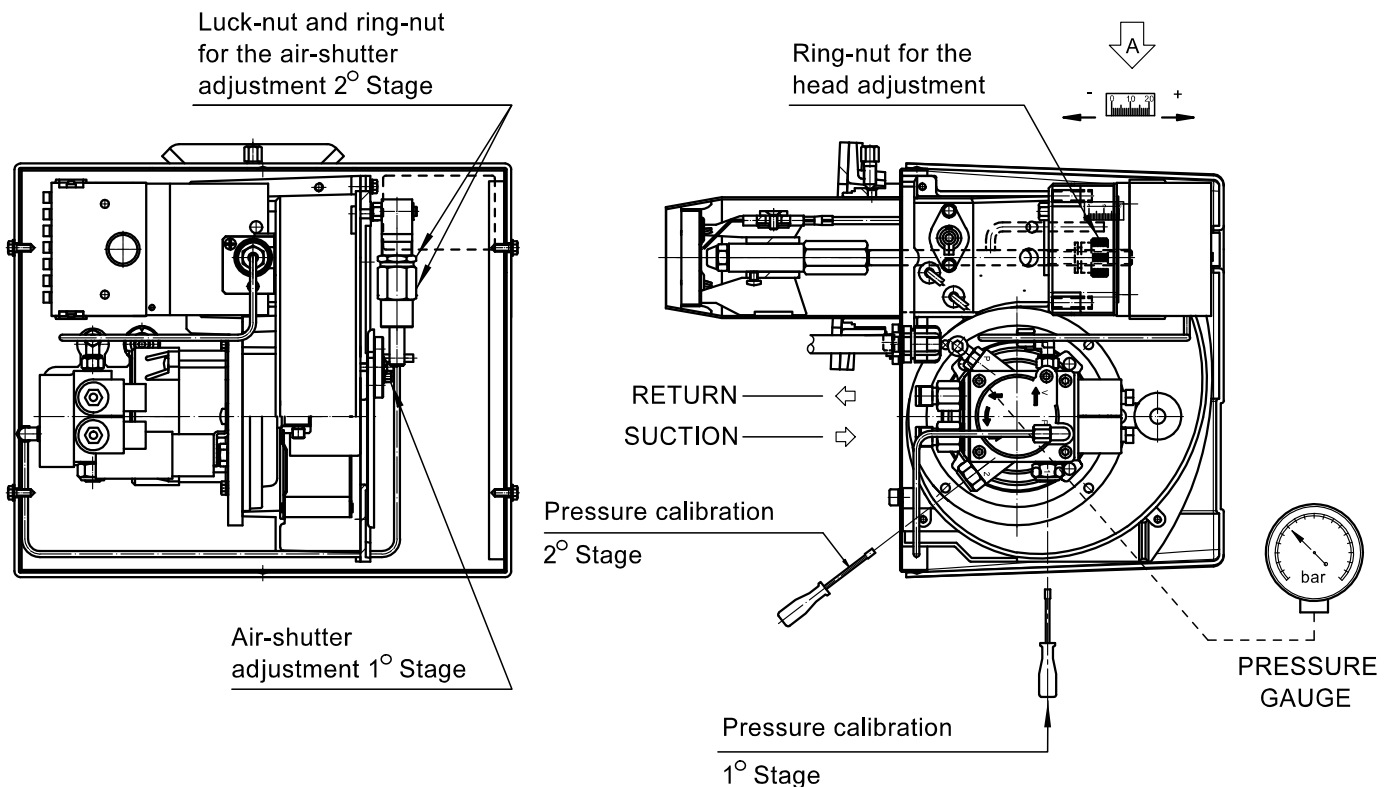
06

## TABLE OF INDICATIVE CALIBRATIONS

Calibrations effected with pressure in chamber 0,1 mbar.

The definitive calibration must be done in operation by means of a combustion analyser.

MODEL	NOZZLE G.P.H. x a°	HEAD [NOTCHES N°]	1° STAGE				2° STAGE			
			PRESSURE [bar]	FLOW [kg/h]	THERMAL POWER [kW-Mcal/h]	AIR [NOTCHES N°]	PRESSURE [bar]	FLOW [kg/h]	THERMAL POWER [kW-Mcal/h]	AIR [NOTCHES N°]
G 1.22 G 1.22R	0.40x80°	8	9	1.4	16.6-14.3	0.5	19	2.0	23.7-20.4	3.5
	0.60x60°	13	9	2.1	24.8-21.4	3.5	19	3.0	35.5-30.6	6
	0.75x60°	16	9	2.6	30.8-26.5	5	20	4.0	47.3-40.8	8
	1.00x60°	20	9	3.5	41.4-35.7	5.5	19	5.1	60.3-52	9.5
G 2.22 G 2.22R	1.00x60°	0	9	3.5	41.4-35.7	5.5	20	5	59.2-51	9.5
	1.25x60°	4	9	4.2	49.7-42.8	6.5	19	6.1	72.2-62.2	10.5
	1.35x60°	8	9	4.7	55.6-47.9	7.5	19	7	86.9-74.9	11
	1.65x60°	12	9	5.6	66.3-57.1	9	20	8	94.7-81.6	11.5
	1.75x60°	16	9	6.1	72.2-62.2	9	20	8.8	104.1-89.8	13
	2.00x60°	20	9	6.9	81.6-70.4	9.5	19	10	118.3-102	14.5





## TWO STAGES LIGHT-OIL BURNERS WITH JUMP OF PRESSURE

MOD.: G X3.22  
G X4.22

070045\_2B

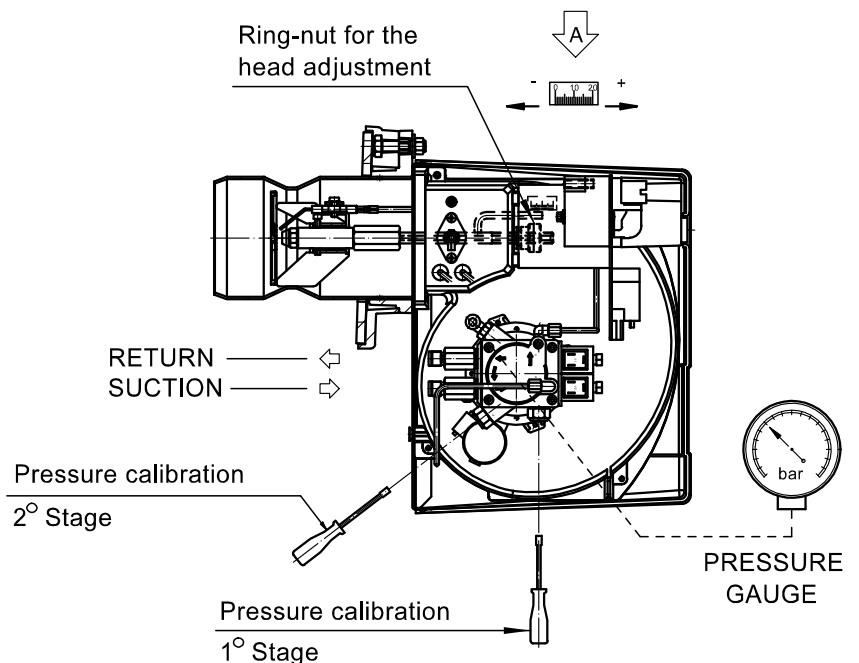
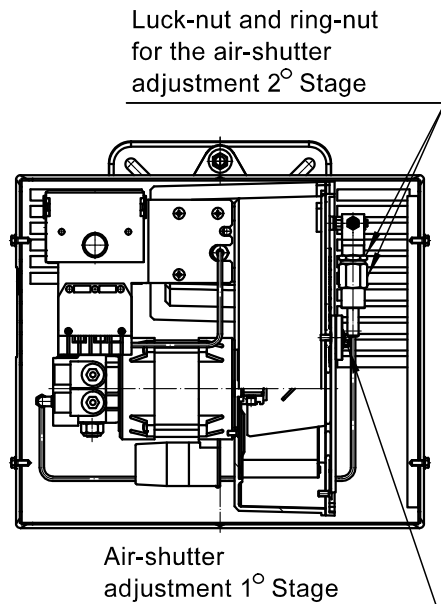
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### TABLE OF INDICATIVE CALIBRATIONS

Calibrations effected with pressure in chamber 0,1 mbar.

The definitive calibration must be done in operation by means of a combustion analyser.

MODEL	NOZZLE G.P.H. x a°	HEAD [NOTCHES N°]	1° STAGE				2° STAGE			
			PRESSURE [bar]	FLOW [kg/h]	THERMAL POWER [kW-Mcal/h]	AIR X°	PRESSURE [bar]	FLOW [kg/h]	THERMAL POWER [kW-Mcal/h]	AIR X°
G X3.22	1.35x60°	4	9	4.8	56.9-49	8°	19	7	83-71.4	12.5°
	1.50x60°	6	9	5.2	61.7-53	8°	20	8	94.9-81.6	12.5°
	1.75x60°	7	9	6.3	74.7-64.3	10°	19	9	106.7-91.8	17.5°
	2.00x60°	9	9	7.3	86.6-74.5	12.5°	18	10	118.6-102	17.5°
	2.00x60°	10	9	7.3	86.6-74.5	12.5°	20	11	130.5-112.2	20°
	2.25x60°	12	9	8.0	94.9-81.6	12.5°	20	12	142.4-122.4	22.5°
	2.50x60°	14	9	8.8	104.4-89.8	15°	20	13	154.2-132.6	22.5°
	2.75x60°	15	9	9.9	117.4-100	17.5°	19	14	166-142.8	30°
	3.00x60°	17	9	10.3	122.2-105	20°	20	15	177.9-153	35°
G X4.22	2.00x60°	2	9	7	82.8-71.4	10°	19	10	118.3-102	17.5°
	2.25x60°	3	9	8	94.6-81.6	12.5°	19	11	130.2-112.2	20°
	2.50x60°	4	9	9	106.5-91.8	15°	17	12	142-122.4	22.5°
	2.50x60°	6	9	9	106.5-91.8	15°	19	13	153.6-132.6	22.5°
	2.75x60°	8	9	10	118.3-102	17.5°	19	14	165.8-142.8	22.5°
	3.00x60°	10	9	10.5	124.2-107.1	17.5°	19	15	177.5-153	25°
	3.25x60°	12	9	11.5	136-117.3	17.5°	17	16	189.3-163.2	25°
	3.50x60°	14	9	12.5	147.9-127.5	20°	17	17	201.1-173.4	27.5°
	3.50x60°	16	9	12.5	147.9-127.5	20°	19	18	213-183.6	30°
	4.00x60°	18	9	14	164.7-142.8	22.5°	19	19	224.8-193.8	35°
	4.00x60°	20	9	14	164.7-142.8	22.5°	19	20	236.6-204	45°







# TWO STAGES LIGHT-OIL BURNERS WITH JUMP OF PRESSURE

MOD.: G X5.22

070045\_2A

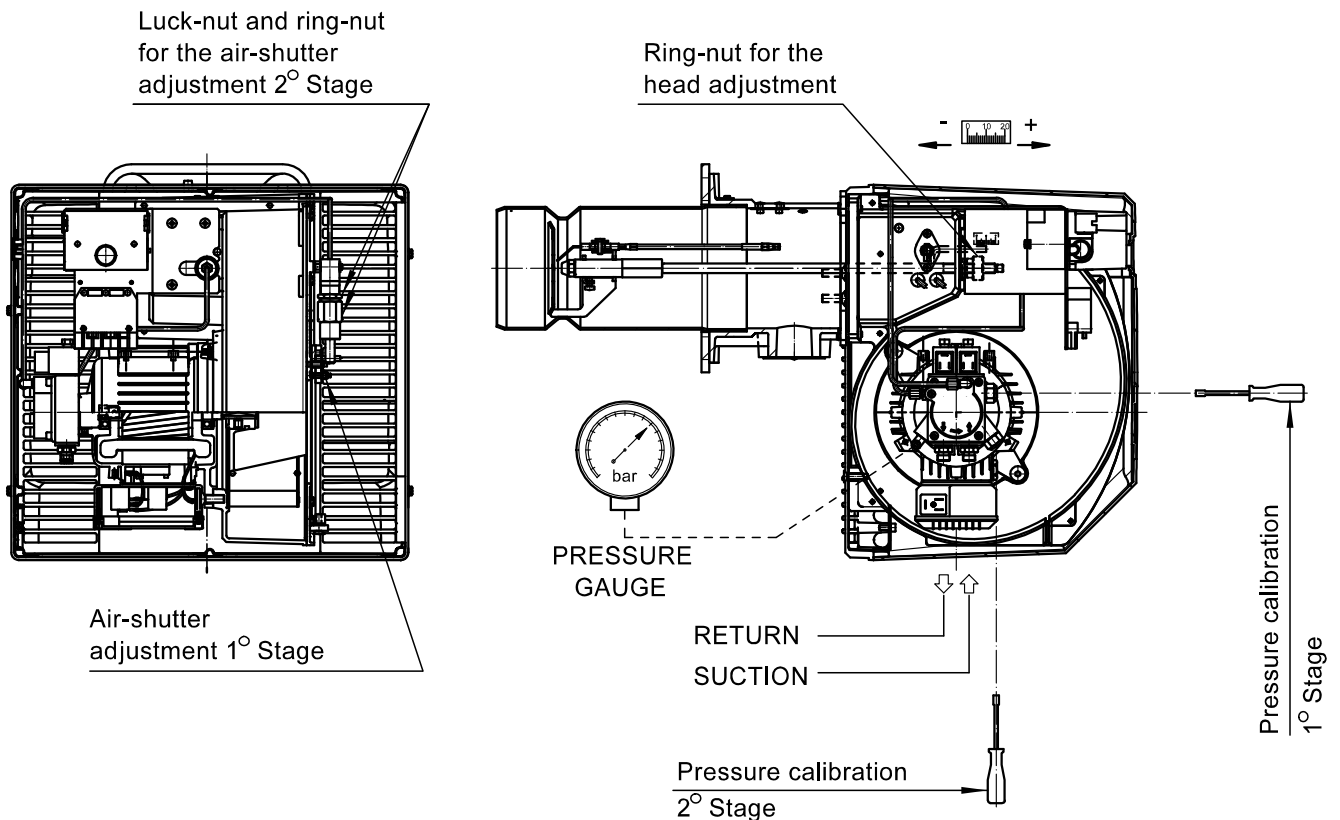
08

## TABLE OF INDICATIVE CALIBRATIONS

Calibrations effected with pressure in chamber 0,1 mbar.

The definitive calibration must be done in operation by means of a combustion analyser.

MODEL	NOZZLE G.P.H. x a°	HEAD [NOTCHES N°]	1° STAGE				2° STAGE			
			PRESSURE [bar]	FLOW [kg/h]	THERMAL POWER [kW-Mcal/h]	AIR X°	PRESSURE [bar]	FLOW [kg/h]	THERMAL POWER [kW-Mcal/h]	AIR X°
G X5.22	2.50x60°	6	9	9	106.5-91.8	6°	18	12	142-122.4	10°
	2.75x60°	8	9	10	118.3-102	6°	18	14	165.6-142.8	10°
	3.00x60°	10	9	11	130.2-112.2	7.5°	18	16	189.3-163.2	12.5°
	3.50x60°	12	9	12.5	147.9-127.5	9°	18	18	213-183.6	15°
	4.00x60°	14	9	14	165.7-142.8	10°	18	20	236.7-204	15°
	4.50x60°	16	9	15.5	183.4-158.1	12.5°	18	22	260.3-224.4	17.5°
	5.00x60°	17	9	17.5	207-178.5	15°	18	24	284-244.8	20°
	5.50x60°	18	9	20	236.7-204	15°	17	26	307.6-265.2	22.5°
	5.50x60°	19	9	20	236.7-204	15°	19	28	331.3-285.6	25°
	6.00x60°	20	9	21.5	254.4-219.3	17.5°	18	30	355-306	30°





## 2 STAGES LIGHT-OIL BURNERS WITH JUMP OF PRESSURE

MOD.: G 1.22 -G 2.22  
G X3.22 -G X4.22 -G X5.22

070045\_2A

09

### COMBUSTION CONTROL

In order to obtain the best combustion performance and efficiency, and for respect of the environment, checks and adjustment of the combustion must be carried out, and with appropriate tools.

Basic values to be considered are:

CO<sub>2</sub> indicates the amount of excess air during combustion; if air is increased, CO<sub>2</sub>% values decrease, and if combustion air is decreased, CO<sub>2</sub>% values increase .

SMOKE SCALE (Bacharach) indicates that solid un-burnt particles are present in the smoke. If N°2 on the BH scale is exceeded the nozzle must be checked for faults and that it is adapt to the burner and boiler (trade, type, pulverization angle). Usually the BH scale number tends to decrease, increasing pump pressure, in this case keep the increasing combustion levels under control.

SMOKE TEMPERATURE is a level which indicates heat loss through the chimney; higher the temperature, greater is the loss and lower combustion efficiency. If the temperature is too high the quantity of burned light oil needs to be lowered.

#### IMPORTANT :

Existing laws in some countries can require a different adjustment to that given here and may also have different parameters. The burners are designed to meet the toughest international laws on energy saving and respect of the environment.



## 2 STAGES LIGHT-OIL BURNERS WITH JUMP OF PRESSURE

MOD.: G 1.22 -G 2.22  
G X3.22 -G X4.22 -G X5.22

070045\_2A

10

### FAULT FINDING

PROBLEM	PROBABLE CAUSE	SOLUTION
Motor does not work.	No power supply.	a) check fuses. b) check thermostats.
Motor works but there is no flame formation and with lock-out.	a) electrodes are not discharged. b) nozzle is dented. c) it doesn't arrive combustible.	a) check correct position of tips and clean them. b) clean or replace nozzle. c) check light oil level in tank and that there are no shutters closed along the light oil line.
Burner starts and flame forms, there is flame formation and goes in lock-out.	a) photoresistance is dirty. b) nozzle is pulverizing badly.	a) clean the photoresistance. b) clean or replace nozzle.
Flame is irregular, small and with sparks.	a) nozzle is pulverizing badly. b) pump pressure is too low. c) water in the light-oil.	a) clean or replace nozzle. b) check and increase pressure. c) extract water from tank, clean the filters.
Flame is smokey.	a) nozzle is pulverizing badly. b) little air of combustion.	a) clean or replace nozzle. b) check atmospheric air flap opens normally. Clean the fan.