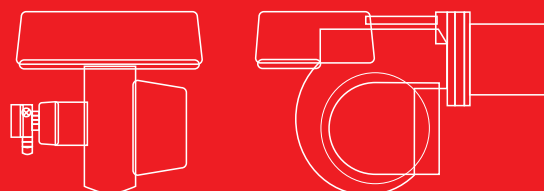


PRESS G Series

Two Stage Light Oil Burners

PRESS GW	107/178 ÷	356 kW
PRESS 1G	130/190 ÷	534 kW
PRESS 2G	214/356 ÷	712 kW
PRESS 3G	273/534 ÷	1168 kW
PRESS 4G	415/830 ÷	1660 kW



The PRESS G series of burners covers a firing range from 107 to 1660 kW and they have been designed for use in civil installations of average dimensions, like building areas and large apartment groups or for use in industrial applications, like small or medium plants.

Operation is two stage; the burners are fitted with a microprocessor-based burner safety control box which supplies indication of operation and diagnosis of fault cause. The combustion head, that can be set on the basis of required output, allows optimal performance ensuring good combustion and reducing fuel consumption. The main feature of these burners is their reliability due to a simple and strong construction, that permits operation without particular maintenance intervention.

Simplified maintenance is achieved by the slide bar system, which allows easy access to all of the essential components of the combustion head. All electrical components are easily accessible only by dismounting a protection panel, thus guaranteeing a quick and simple intervention on components.

A RIELLO burner (Heat Generator), where it is matched with a water-based boiler (Heater Housing) with a nominal output ≤ 400 kW, providing heat for heating purposes and heat to deliver sanitary hot water, can be installed:

- With boilers (heater housings) already in service in the field, for replacement, in conformity to Article 1, paragraph 2, point (G) of the EU Regulation No. 813/2013;
- With boilers (heater housings) on a new installation, put on the market after 26th of September 2015;
- With all new boilers (heater housings), where placed on the market before 26th of September 2015.

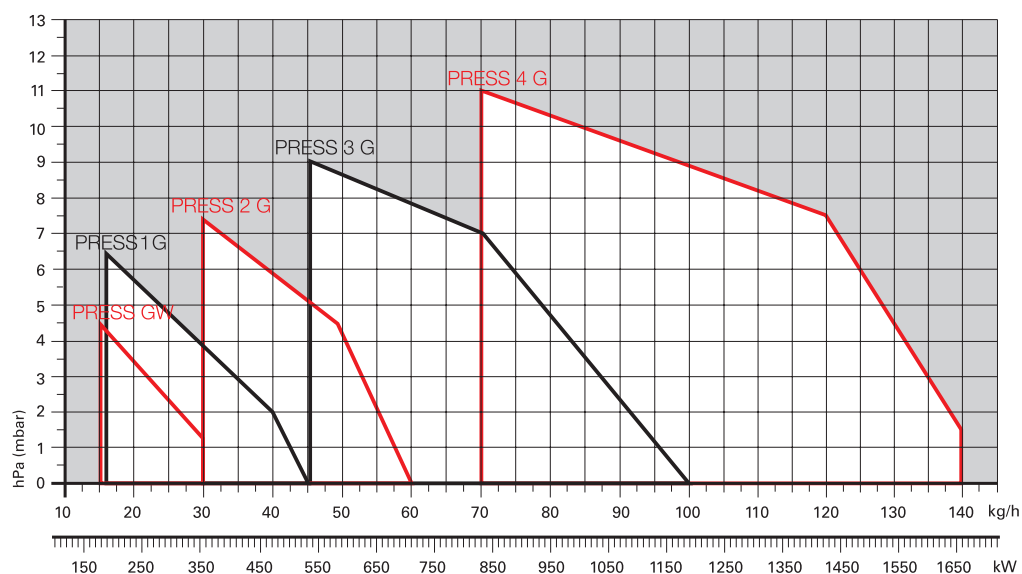
Technical Data

MODEL		PRESS GW	PRESS 1G	PRESS 2G	PRESS 3G	PRESS 4G
Burner operation mode		Two stage				
Modulation ratio to max. output		2 ÷ 1				
Servomotor	type	--				
	run time	s	--			
Heat output	kW	107/178÷356	130/190÷534	214/356÷712	273/534÷1168	415/830÷1660
	Mcal/h	92/153÷306	112/163÷459	184/306÷612	235/459÷1004	357/714÷1428
	Kg/h	9/15÷30	11/16÷45	18/30÷60	23/45÷100	35/70÷140
Working temperature		°C min./max. 0/40				
FUEL/AIR DATA						
Net calorific value	kWh/kg	11,8				
	Kcal/kg	10200				
Viscosity at 20°C		mm²/s (cSt) 4 ÷ 6				
Pump	type	AN 67	AN 77	AN 77	J 6	J 7
	output	kg/h at 12 bar	65	90	90	164
Atomised pressure		bar 12				
Fuel temperature		Max. °C 50				
Fuel pre-heater		NO				
Fan		type (01)	(01)	(01)	(01)	(01)
Air temperature		Max. °C 60				
ELECTRICAL DATA						
Electrical supply		Ph/Hz/V (02)	(03)	(03)	(03)	(03)
Auxiliary electrical supply		Ph/Hz/V (02)	(02)	(02)	(02)	(02)
Control box		type RMO				
Total electrical power		kW 0,43	0,6	1,07	2,05	3,8
Auxiliary electrical power		kW 0,18	0,15	0,3	0,5	0,8
Protection level		IP 40				
Pump motor electrical power		kW --				
Rated pump motor current		A --				
Pump motor start up current		A --				
Pump motor protection level		IP --				
Fan motor electrical power		kW 0,25	0,45	0,75	1,5	3
Rated fan motor current		A 2,1	1,9 - 1,1	2,9 - 1,7	6 - 3,5	10,5 - 6
Fan motor start up current		A 4,8	9,5 - 5,5	14 - 8	28 - 16	55 - 32
Fan motor protection level		IP 54				
Ignition transformer	type	--				
	V1 - V2	230V - 8kV				
	I1 - I2	1,8A - 30mA				
Operation		(04)	(04)	(04)	(04)	(04)
EMISSIONS						
Sound pressure		dB(A) 75,5	78	81,5	83	85
Sound power		dB(A) 86,5	89	92,5	94	96
CO emission		mg/kWh < 110				
Grade of smoke indicator		N° Bach. < 1				
CxHy emission		mg/kWh < 10 (after the first 20 s.)				
NOx emission		mg/kWh < 250				
APPROVAL						
Directive		2009/142/EC - 2014/30/UE - 2014/35 UE				
According to		EN 267				
Certification		--				

- (01) Centrifugal with forward curve blades
 (02) 1/50/230~(±10%)
 (03) 3N/50/400~(±10%) 3/50/230~(±10%) △
 (04) Intermittent (at least one stop every 24 h)

Reference conditions:
 Temperature: 20°C - Pressure: 1013,5 mbar - Altitude: 0 m a.s.l. -
 Noise measured at a distance of 1 meter.

Firing Rates



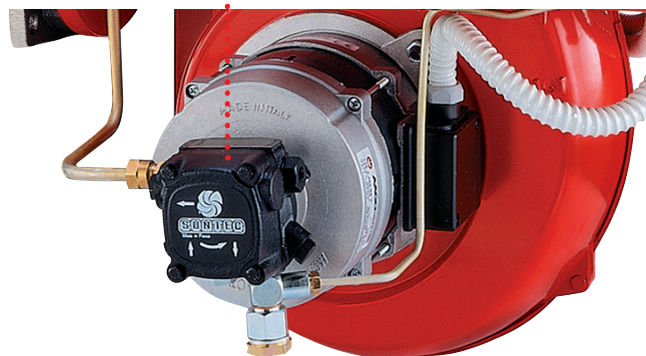
Useful working field
for choosing the burner

Test conditions
conforming to EN267
Temperature: 20°C
Pressure: 1013,5 mbar
Altitude: 0 m a.s.l.

Fuel Supply

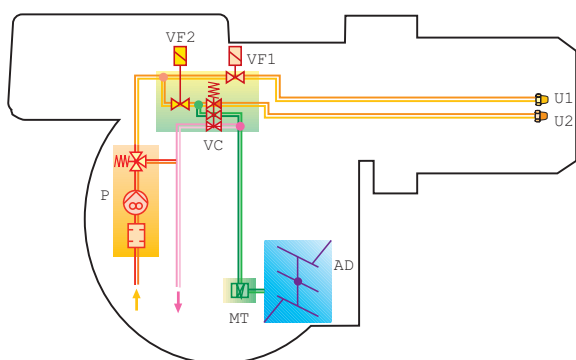
HYDRAULIC CIRCUIT

The burners are fitted with two oil delivery valves. A control device, on the basis of required output, regulates oil delivery valves opening, allowing light oil passage through the valves and the nozzles. 2nd stage delivery valve opening supplies the hydraulic ram which opens the air damper in relation to the fuel burnt on 2nd stage. All burners are fitted with a self-priming pump with filter and pressure regulator.



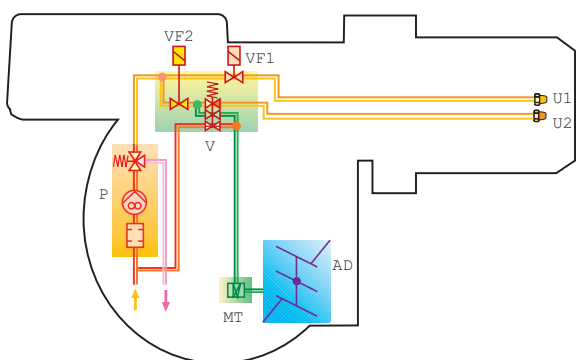
Example of self-priming pump of PRESS G burners.

PRESS GW - 1G - 2G



P	Pump with filter and pressure regulator on the output circuit
VF1	1st stage valve
VF2	2nd stage valve
VC	2nd stage control device
MT	Hydraulic ram
AD	Air damper
U1	1st stage nozzle
U2	2nd stage nozzle

PRESS 3G - 4G

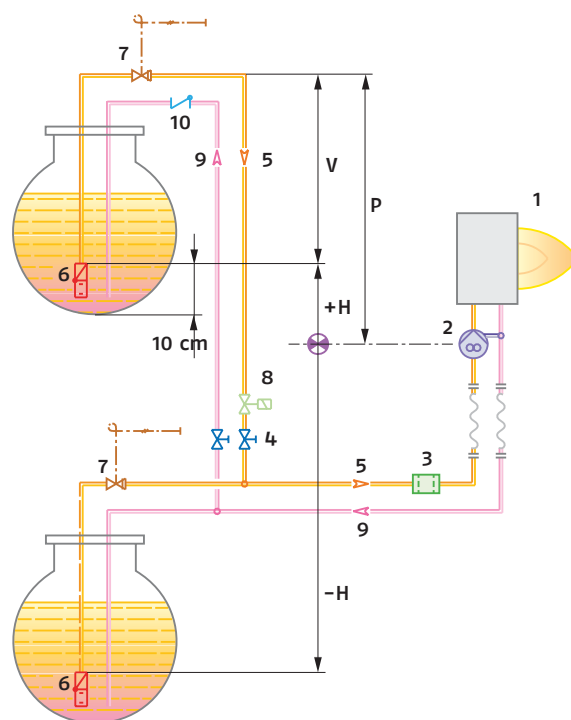


Dimensioning Of The Fuel Supply Lines

The fuel feed must be completed with the safety devices required by the local norms.

The table shows the choice of piping diameter for the various burners, depending on the difference in height between the burner and the tank and their distance.

H	Difference in height pump-foot valve
Ø	Internal pipe diameter
P	Max. height 10 m
V	Height 4 m
1	Burner
2	Burner pump
3	Filter
4	Manual shut off valve
5	Suction pipework
6	Bottom valve
7	Remote controlled rapid manual shut off valve (compulsory in Italy)
8	Type approved shut off solenoid valve (compulsory in Italy)
9	Return pipework
10	Check valve



MAXIMUM EQUIVALENT LENGTH FOR THE PIPING L[m]

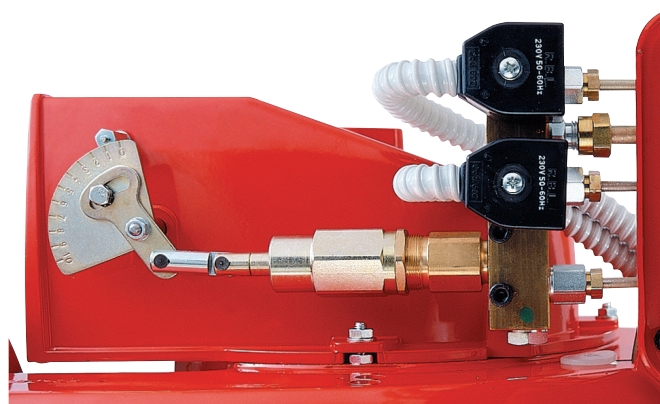
Model	PRESS GW			PRESS 1G - 2G			PRESS 3G			PRESS 4G		
Diameter piping	Ø8 mm	Ø10 mm	Ø12 mm	Ø10 mm	Ø12 mm	Ø14 mm	Ø12 mm	Ø14 mm	Ø16 mm	Ø12 mm	Ø14 mm	Ø16 mm
+H, -H (m)	L max (m)	L max (m)	L max (m)	L max (m)	L max (m)	L max (m)	L max (m)	L max (m)	L max (m)	L max (m)	L max (m)	L max (m)
+4,0	35	90	152	63	144	150	71	139	151	44	88	158
+3,0	30	80	152	55	127	150	62	123	151	38	77	140
+2,0	26	69	152	48	111	150	53	106	151	33	66	121
+1,0	21	59	130	40	94	150	45	90	151	27	56	103
+0,5	19	53	119	37	86	150	40	82	151	24	50	94
0	17	48	108	33	78	150	36	74	137	21	45	85
-0,5	15	43	97	29	70	133	32	66	123	18	40	76
-1,0	13	37	86	25	62	118	28	58	109	15	34	66
-2,0	9	27	64	17	45	88	19	42	81	9	23	48
-3,0	4	16	42	10	29	58	10	26	53	-	13	30
-4,0	-	6	20	-	12	28	-	10	25	-	-	12

With ring distribution oil systems, the feasible drawings and dimensioning are the responsibility of specialised engineering studios, who must check compatibility with the requirements and features of each single installation.

Ventilation

The ventilation circuit of PRESS burners is inserted in a extremely compact structure and it is provided with a forward blades centrifugal fan, which guarantees high pressure levels at the required air deliveries and permits installation flexibility.

Delivery oil valves opening supplies the adjustable hydraulic ram which regulates air delivery in relation to the fuel burnt on 2nd stage.



Example of air damper indexed selector and hydraulic ram of PRESS G burners.

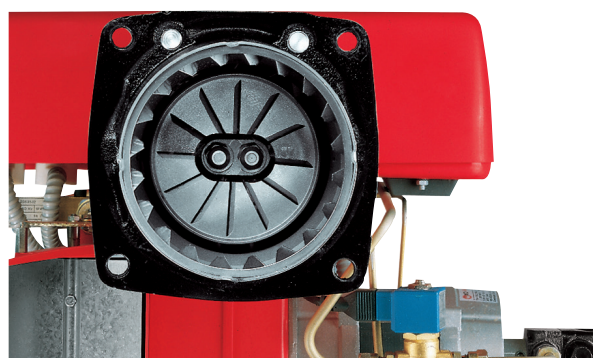
Combustion Head

For the PRESS G series of burners a special kit for increasing combustion head length is available.

The choice of using it depends on the thickness of the front panel and the type of boiler.

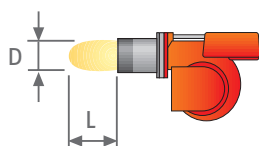
Depending on the type of generator, check that the penetration of the head into the combustion chamber is correct.

The internal position of the combustion head can easily be adjusted to the maximum defined output by adjusting a screw.

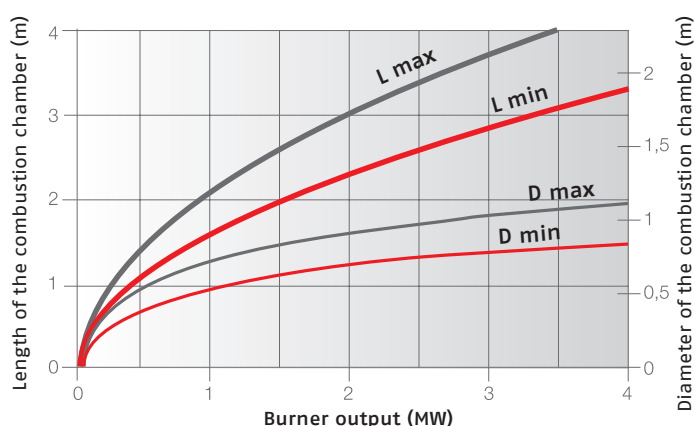


Example of a PRESS G burner combustion head.

SUGGESTED COMBUSTION CHAMBER DIMENSIONS



Example:
 Burner thermal output = 2000 kW;
 L Combustion Chamber (m) = 2,7 m (medium value);
 D Combustion Chamber (m) = 0,8 m (medium value)



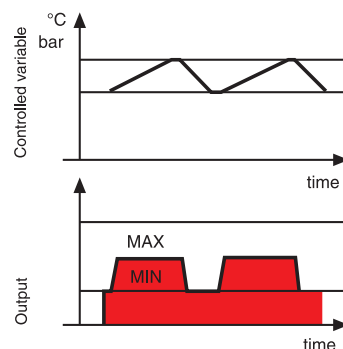
Operation

BURNER OPERATION MODE

With two stage operation, the PRESS G burners can follow the temperature load requested by the system. A modulation ratio of 2:1 is reached, thanks to the "two nozzles" technique; the air is adapted to the hydraulic ram positions.

On two stage operation, the burner gradually adjusts output to the requested level, by varying between the two pre-set levels (see picture A).

"Two stage" operation



Picture A

All PRESS G series burners are fitted with a new microprocessor control panel for the supervision during intermittent operation.

For helping the commissioning and maintenance work, there are two main elements:



The lock-out reset button is the central operating element for resetting the burner control and for activating / deactivating the diagnostic functions.



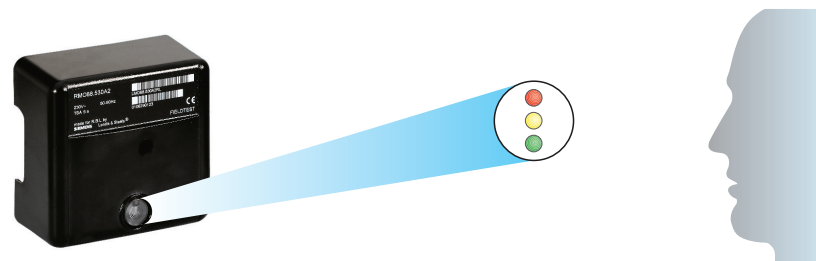
The multi-color LED is the central indication element for visual diagnosis and interface diagnosis.

Both elements are located under the transparent cover of lock-out reset button, as showed below.



There are two diagnostic choices, for indication of operation and diagnosis of fault cause:

- visual diagnosis :



- interface diagnosis :



by the interface adapter and a PC with dedicated software or by a predisposed flue gas analyzer (see paragraph accessories).

Indication of operation:

In normal operation, the various status are indicated in the form of colour codes according to the table below.

The interface diagnosis (with adapter) can be activated by pressing the lock-out button for > 3 seconds.

Color code table	
Operation status	Color code table
Stand-by	○ ○ ○ ○ ○ ○ ○ ○
Pre-purging	☀ ☀ ☀ ☀ ☀ ☀ ☀ ☀
Ignition phase	☀ ○ ☀ ○ ☀ ○ ☀ ○
Flame OK	☀ ☀ ☀ ☀ ☀ ☀ ☀ ☀
Poor flame	☀ ○ ☀ ○ ☀ ○ ☀ ○
Undervoltage, built-in fuse	☀ ☀ ☀ ☀ ☀ ☀ ☀ ☀
Fault, alarm	☀ ☀ ☀ ☀ ☀ ☀ ☀ ☀
Extraneous light	☀ ☀ ☀ ☀ ☀ ☀ ☀ ☀

○ LED off

Diagnosis of fault causes:





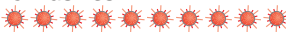
After lock-out has occurred, the red signal lamp is steady on. In this status, the visual fault diagnosis according to the error code table can be activated by pressing the lock-out reset button for > 3 seconds. The interface diagnosis (with adapter) can be activated by pressing again the lock-out button for > 3 seconds.

The flashes of red LED are a signal with this sequence :

(e.g. signal with n° 3 flashes – faulty air pressure monitor)

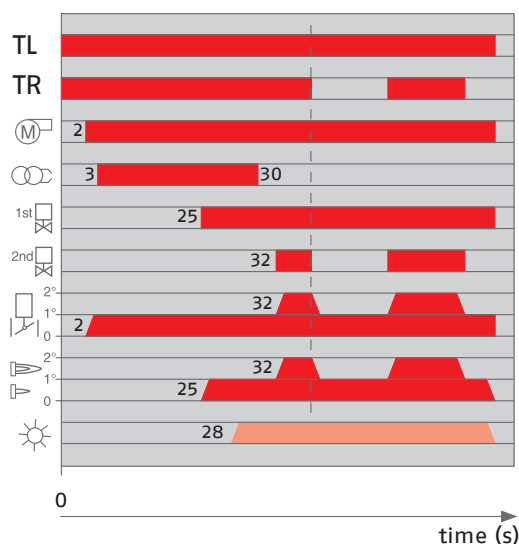


Error code table

Possible cause of fault	Flash code
No establishment of flame at the end of safety time :	<ul style="list-style-type: none"> - faulty or soiled fuel valves - faulty or soiled flame detector - poor adjustment of burner, no fuel - faulty ignition equipment 2 flashes 
Faulty air pressure monitor	3 flashes 
Extraneous light or simulation of flame on burner start up	4 flashes 
Loss of flame during operation :	<ul style="list-style-type: none"> - faulty or soiled fuel valves - faulty or soiled flame detector - poor adjustment of burner 7 flashes 
Wiring error or internal fault	10 flashes 

START UP CYCLE

PRESS GW – 1G – 2G – 3G – 4G

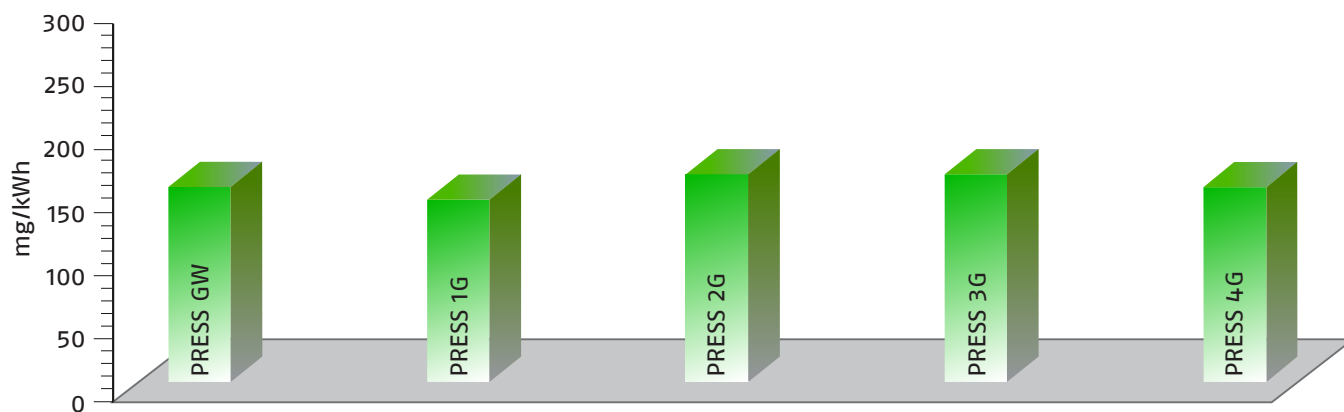


- 0 s The control device TL closes.
- 2 s The motor starts running.
- 3 s The ignition transformer is connected.
Pre-purging begins with the 1st stage air delivery.
- 25 s Firing: 1st delivery valve is opened.
- 30 s The ignition transformer switches off; output can be increased to 2nd stage.
- 39 s The starting cycle comes to an end.

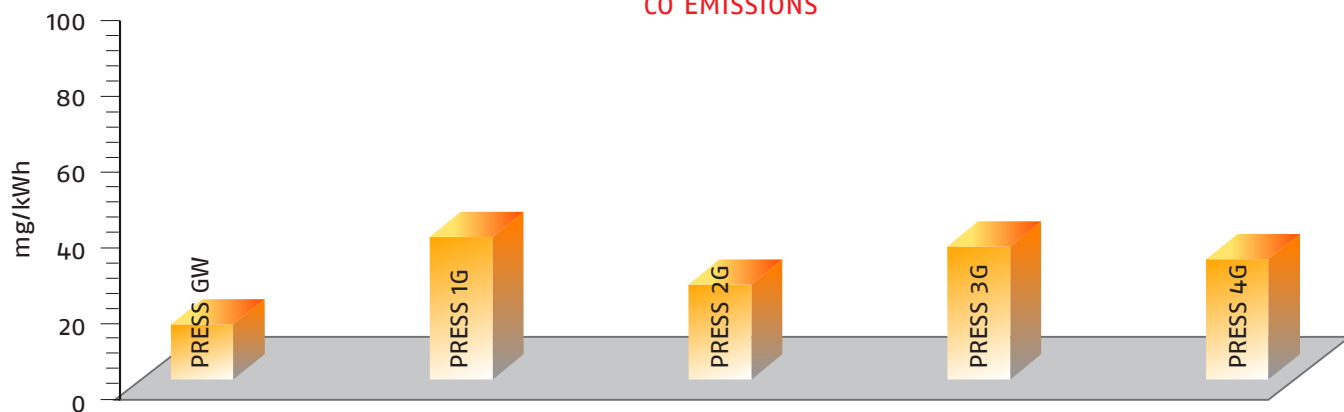
Emissions

The emission data has been measured in the various models at maximum output, according to EN 267 standard.

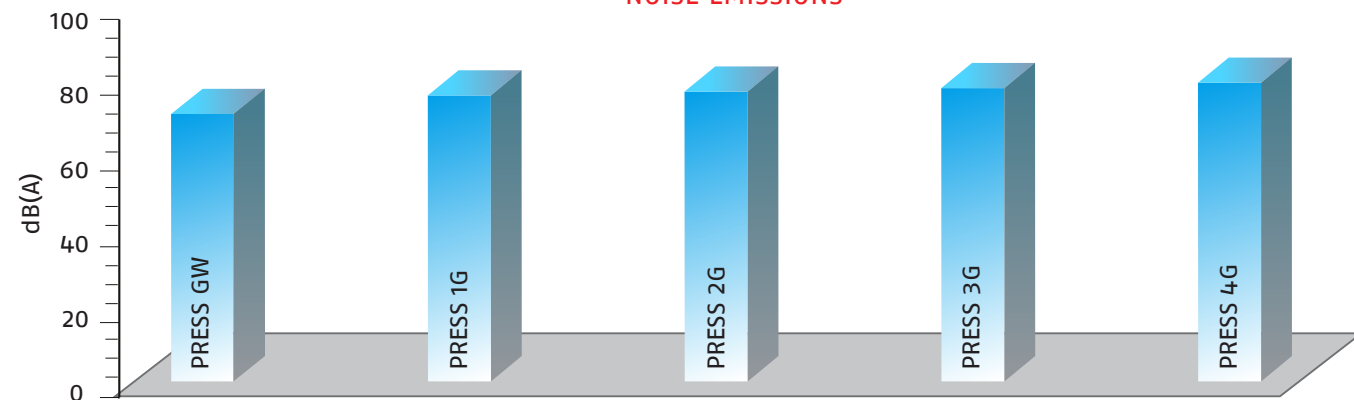
NO₂ EMISSIONS



CO EMISSIONS

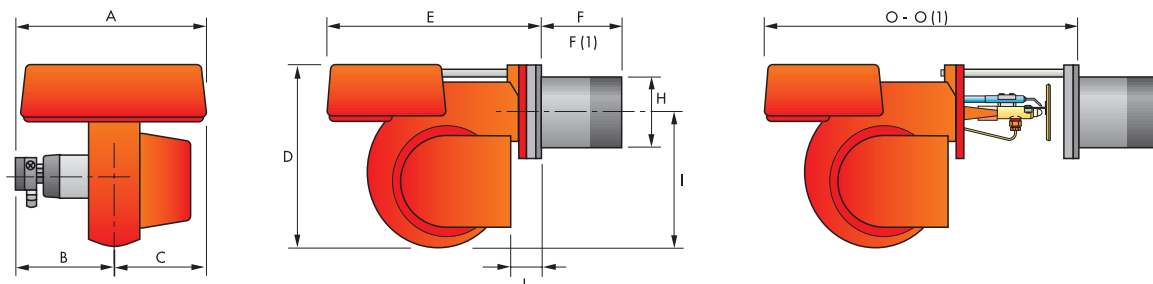


NOISE EMISSIONS



Overall Dimensions (mm)

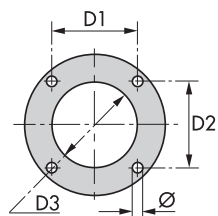
BURNER



Model	A	B	C	D	E	F - F (1)	H	I	L	O - O (1)
PRESS GW	439	234	205	397	473	185 - 320	140	292	59	745 - 880
PRESS 1G	475	270	205	397	473	237 - 370	150	292	59	745 - 880
PRESS 2G	475	270	205	437	506	245 - 403	155	332	89	785 - 945
PRESS 3G	611	406	205	485	570	254 - 412	175	370	88	846 - 1006
PRESS 4G	675	354	316	590	720	266 - 426	205	445	175	999 - 1159

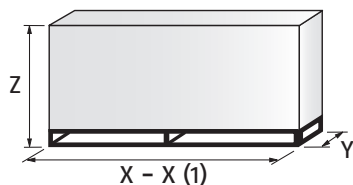
(1) Length with extended combustion head.

BURNER - BOILER MOUNTING FLANGE



Model	D1	D2	D3	Ø
PRESS GW	160	160	155	M10
PRESS 1G	160	160	165	M10
PRESS 2G	160	160	165	M10
PRESS 3G	195	195	185	M12
PRESS 4G	230	230	210	M12

PACKAGING



Model	X - X (1)	Y	Z	kg
PRESS GW	695	542	468	37
PRESS 1G	745	542	468	44
PRESS 2G	800	542	515	44
PRESS 3G	1000	790	550	55
PRESS 4G	1200	790	650	95

(1) Length with extended combustion head.

Installation Description

Installation, start up and maintenance must be carried out by qualified and skilled personnel.
All operations must be performed in accordance with the technical handbook supplied with the burner.

BURNER SETTING

All the burners have slide bars, for easier installation and maintenance.

After drilling the boilerplate, using the supplied gasket as a template, dismantle the blast tube from the burner and fix it to the boiler.

Refit the burner casing to the slide bars.

Install the nozzles, choosing these on the basis of the maximum boiler output and following the diagrams included in the burner instruction handbook.

Check the position of the electrodes.

Close the burner, sliding it up to the flange, keeping it slightly raised to avoid the flame stability disk rubbing against the blast tube.

Adjust the combustion head.

HYDRAULIC AND ELECTRICAL CONNECTIONS AND START UP

The burners are supplied for connection to two pipes fuel supply system.

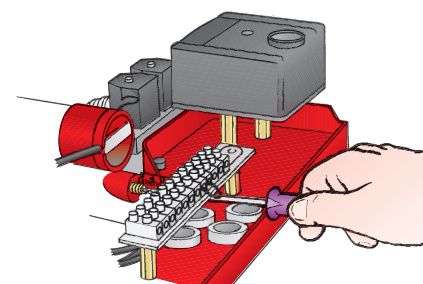
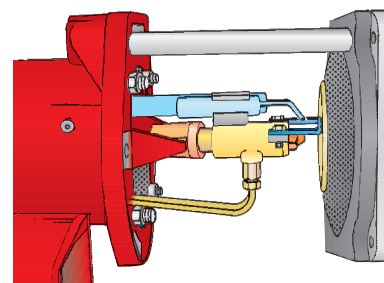
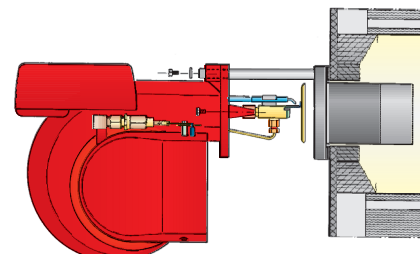
Connect the ends of the flexible pipes to the suction and return pipework using the supplied nipples.

Make the electrical connections to the burner following the wiring diagrams included in the instruction handbook.

Prime the pump by turning the motor.

On start up, check:

- Pressure pump (to max. and min.)
- Combustion quality, in terms of unburned substances and excess air.



Burner accessories

Nozzles

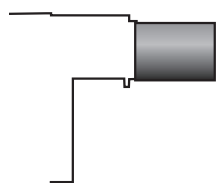


The nozzles must be ordered separately. The following table shows the features and codes on the basis of the maximum required fuel output.

NOTE: each burner is equipped with N° 2 nozzles.

Burner	Rated delivery [kg/h] at 12 bar	GPH	Nozzle code
PRESS GW - 1G	8,5	2,00	3042126
PRESS GW - 1G	10,6	2,50	3042140
PRESS GW - 1G	12,7	3,00	3042158
PRESS GW - 1G	14,8	3,50	3042162
PRESS GW - 1G - 2G	17	4,00	3042172
PRESS 1G - 2G	19,1	4,50	3042182
PRESS 1G - 2G	21,2	5,00	3042192
PRESS 1G - 2G	23,3	5,50	3042202
PRESS 2G - 3G	25,5	6,00	3042212
PRESS 2G - 3G	27,6	6,50	3042222
PRESS 2G - 3G	29,7	7,00	3042232
PRESS 3G	31,8	7,50	3042242
PRESS 3G	33,9	8,00	3042252
PRESS 3G	36,1	8,50	3042262
PRESS 3G - 4G	40,3	9,50	3042282
PRESS 3G - 4G	42,4	10,00	3042292
PRESS 3G - 4G	46,7	11,00	3042312
PRESS 3G - 4G	50,9	12,00	3042322
PRESS 4G	55,1	13,00	3042332
PRESS 4G	59,4	14,00	3042352
PRESS 4G	63,6	15,00	3042362
PRESS 4G	67,9	16,00	3042382
PRESS 4G	72,1	17,00	3042392
PRESS 4G	76,4	18,00	3042412

Extended head kit



"Standard head" burners can be transformed into "extended head" versions, by using the special kit.

Burner	Standard head length (mm)	Extended head length (mm)	Kit code
PRESS GW	185	320	3000581
PRESS 1G	237	370	3000537
PRESS 2G	245	403	3000538
PRESS 3G	254	412	3000851
PRESS 4G	266	426	3000555

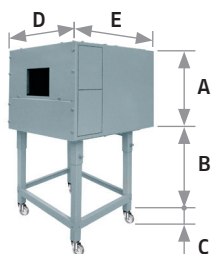
Spacer kit



If burner head penetration into the combustion chamber needs reducing, varying thickness spacers are available, as given in the following list.

Burner	Spacer thickness S (mm)	Kit code
All models	142	3000755

Sound proofing box



If noise emission needs reducing even further, sound-proofing boxes are available. In case of generator heights, where a lower dimension "B" is required, ask for the Box Support Kit code 20065135. The useful dimensions are 40 mm less than the total dimensions indicated in the table (A, D, E). Not suitable for outdoor use.

Burner	Box type	A (mm)	B (mm) min-max	C (mm)	D (mm)	E (mm)	[dB(A)] (*)	Box code
PRESS GW - 1G	C1/3	650	372 - 980	110	690	770	10	3010403
PRESS 2G - 3G								
PRESS 4G	C4/5	850	160 - 980	110	980	930	10	3010404

(*) Average noise reduction according to EN 15036-1 standard

Degasing unit



To solve problem of air in the oil sucked, two versions of degasing unit are available.

Burner	Filter	Filtering degree (μm)	Degasing unit code
PRESS GW	With filter	50 - 75	3010055
PRESS 1G - 2G - 3G(*) - 4G(*)			
PRESS GW	Without filter	-	3010054
PRESS 1G - 2G - 3G(*) - 4G(*)			

Air damper complete closure kit



To minimize thermal dispersion caused by the stack draught sucking air from the fan's suction opening, an "air damper complete closure kit" is available. This is composed by a hydraulic ram, which closes the air damper completely when the burner shuts down.

Burner	Kit code
PRESS GW	3000853
PRESS 1G	3000854
PRESS 2G	3000855
PRESS 3G	3000856
PRESS 4G	3000857

PC Interface kit



To connect the control box to a personal computer for the transmission of operation, fault signals and detailed service information, an interface adapter with PC software are available.

BURNER	KIT CODE
All models	3002719

Protection kit (electromagnetic interferences)

When the burner is installed in a room particularly subject to electromagnetic interference (signals emitted over 10 V/m) due for example to INVERTER presence or in systems where the lengths of the thermostat connections is over 20 meters, this specific protection kit is available as an interface between the thermostatic controls and the burner.

BURNER	KIT CODE
All models	3010386

Specification

DESIGNATION OF SERIES

Series : PRESS						
Operation : GV or G24 One stage						
GW or 1-2-3-4G Two stage						
Emission : ... Class 1 EN267						
Head : TC Standard head						
TL Extended head						
Flame control system : FS1 Standard (1 stop every 24 h)						
FS2 Continuous working (1 stop every 72 h)						
Electrical supply to the system : 1/230/50 1/230V/50Hz						
1/210/60 1/210V/60Hz						
1/220/60 1/220V/60Hz						
1/200/50-60 1/200V/50-60Hz						
3/230-400/50 3/230V/50Hz - 3N/400V/50Hz						
3/210/60 3/210V/60Hz						
3/220-380/60 3/220V/60Hz - 3N/380V/60Hz						
3/200/50-60 3/200V/50-60Hz						
Auxiliary voltage : 230/50 230V/50Hz						
120/60 120V/60Hz						
220/60 220V/60Hz						
200/50-60 200V/50-60Hz						
PRESS	4G	TC		FS1	3/230-400/50	230/50
BASIC DESIGNATION						
EXTENDED DESIGNATION						

AVAILABLE MODELS

PRESS GBW	TC	FS1	1/230/50	230/50
PRESS GW	TC	FS1	1/200/50-60	200/50-60
PRESS GW	TC	FS1	1/220/60	220/60
PRESS GW	TC	FS1	1/230/50	230/50
PRESS 1G	TC	FS1	3/200/50-60	200/50-60
PRESS 1G	TC	FS1	3/220-380/60	220/60
PRESS 1G	TC	FS1	3/230-400/50	230/50
PRESS 2G	TC	FS1	3/200/50-60	200/50-60
PRESS 2G	TC	FS1	3/220-380/60	220/60
PRESS 2G	TC	FS1	3/230-400/50	230/50
PRESS 3G	TC	FS1	3/200/50-60	200/50-60
PRESS 3G	TC	FS1	3/220-380/60	220/60
PRESS 3G	TC	FS1	3/230-400/50	230/50
PRESS 4G	TC	FS1	3/200/50-60	200/50-60
PRESS 4G	TC	FS1	3/220-380/60	220/60
PRESS 4G	TC	FS1	3/230-400/50	230/50
PRESS G	TC	FS1	1/220/60	220/60

STATE OF SUPPLY

Monoblock forced draught oil burner with two stage operation, fully automatic, made up of:

- Air suction circuit lined with sound-proofing material
- Fan with forward curve blades with high performance concerning pressure and air delivery
- Air damper for air setting
- Hydraulic ram for air damper control
- Starting motor at 2800 rpm, three-phase 400V with neutral, 50Hz (single-phase, 230V and 50Hz for the PRESS GW model)
- Combustion head, that can be set on the basis of required output, fitted with:
 - stainless steel end cone, resistant to corrosion and high temperatures
 - ignition electrodes
 - flame stability disk
- Fan pressure test point
- Gears pump for high pressure fuel supply, fitted with:
 - filter
 - pressure regulator
 - connections for installing a pressure gauge and vacuumeter
 - internal by-pass for single pipe installation
- Valve unit with two delivery oil valves on the output circuit
- Photocell for flame detection
- Microprocessor-based burner safety control box, with diagnostic function
- Slide bars for easier installation and maintenance
- Protection filter against radio interference
- IP 44 electric protection level.

Standard equipment:

- 2 flexible pipes for connection to the oil supply network
- 2 gaskets for the flexible pipes
- 2 nipples for connection to the pump
- 4 screws for fixing the burner flange to the boiler
- 1 thermal screen
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

Riello Burners a world of experience in every burner we sell.

06/2016

TS0037UK03



[1]



[2]

[1] BURNERS PRODUCTION PLANT
S. PIETRO, LEGNAGO (VERONA) - ITALIA

[2] HEADQUARTER BURNERS DIVISION
S. PIETRO, LEGNAGO (VERONA) - ITALIA

Across the world, Riello sets the standard in reliable and high efficiency burner technology.

With burner capacity from 5 kW to 48 MW, Riello gas, oil, dual fuel and Low Nox burners deliver unbeatable performance across the full range of residential and commercial heating applications, as well as in industrial processes.

With headquarter in Legnago, Italy, Riello has been manufacturing premium quality burners for over 90 year. The manufacturing plant is equipped with the most innovative systems of assembling lines and modern manufacturing cells for a quick and flexible response to the market.

Besides, the Riello Combustion Research Centre, located in Angiari, Italy, represents one of the most modern facility in Europe and one of the most advanced in the world for the development of the combustion technology.

Today, the company's presence on worldwide markets is distinguished by a well-constructed and efficient sales network, alongside many important Training Centres located in various countries to meet its customers' needs. Riello has 13 operational branches abroad (in Europe, America and Asia), with customers in over 60 countries.

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