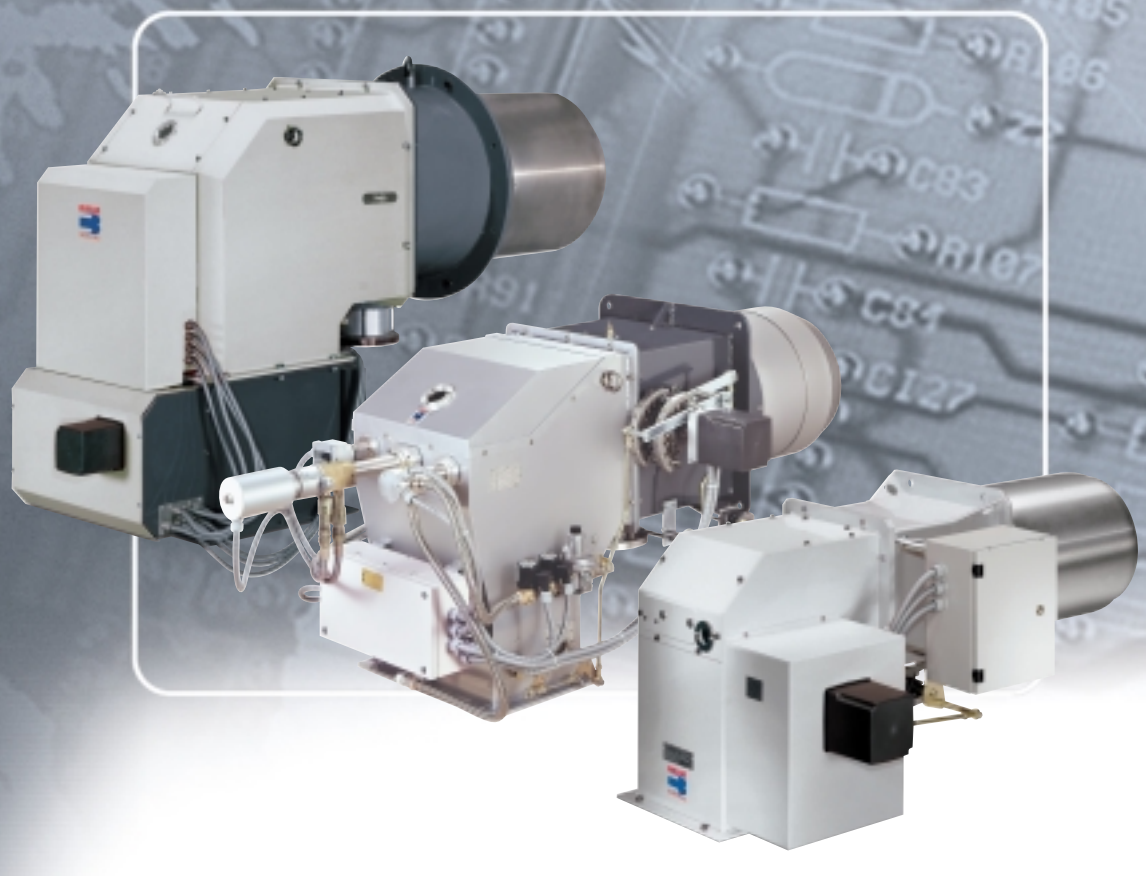
RIELLO BURNERS

CE

INDUSTRIAL OIL, GAS AND DUAL FUEL BURNERS

TI SERIES		
TI 10	3000 ÷ 5200	kW
TI 11	4200 ÷ 7000	kW
TI 12	6000 ÷ 8700	kW
TI 13	7800 ÷ 11000	kW
TI 14	8500 ÷ 12000	kW



The industrial burners TI series are designed for big civil installations and industrial processes with a remarkable thermal demand.
These series allows to realise a modular and flexible combustion system adding a preparation fuel unit (regulation pressure group set, preheating/pumping oil station), a gas train, a control panel and a fan.
It can also be used a preheated air as in the oil diathermic generators and other heat recovery systems.
The modulating regulation, with a variable geometry head combustion, always allows to reach a wide modulation ratio and optimal fluid-dynamics conditions for a good combustion.

TECHNICAL DATA

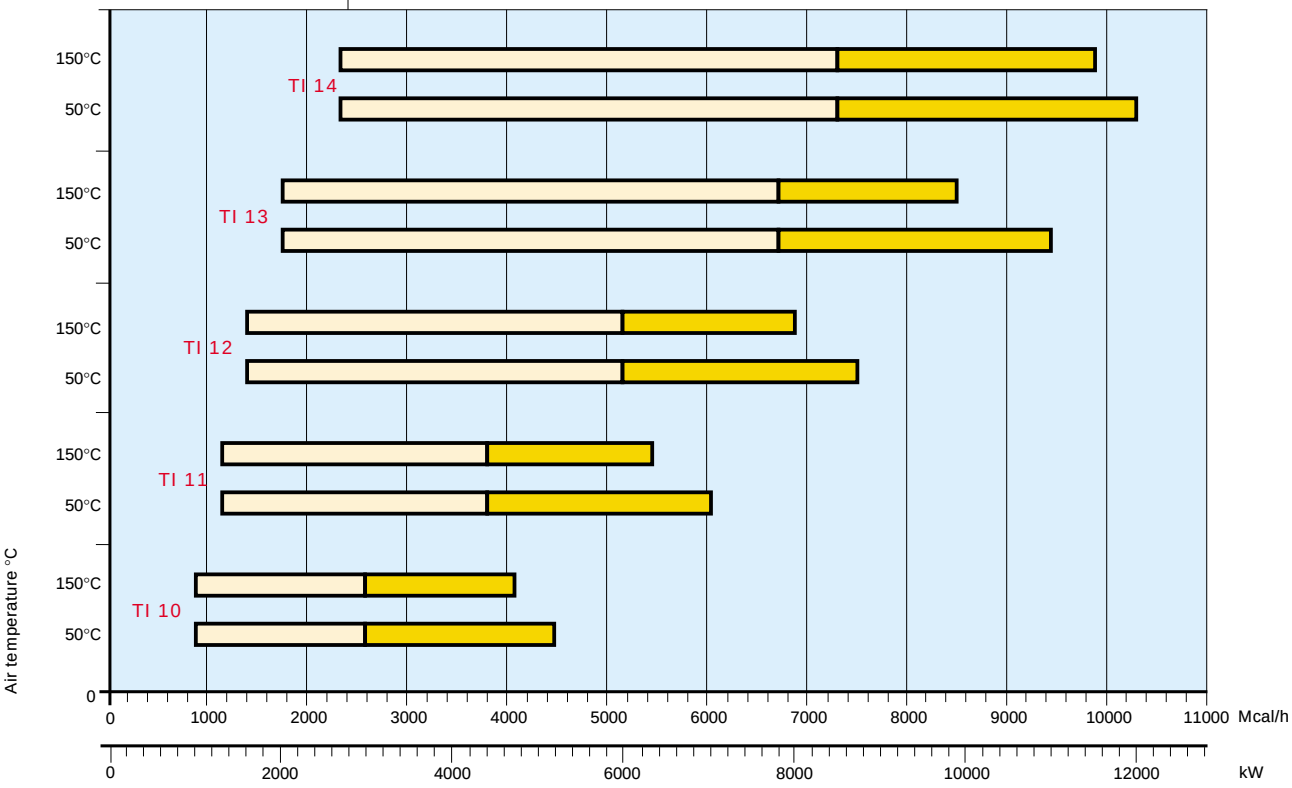
	Model			TI 10	TI 11	TI 12	TI 13	TI 14
	Setting type			modulating				
	Modulation ratio at max output		natural gas	1 : 6	1 : 6	1 : 6	1 : 6	1 : 5
			LPG	1 : 5	1 : 5	1 : 5	1 : 5	1 : 4
			light oil	1 : 4	1 : 4	1 : 4	1 : 4	1 : 3,5
			heavy oil	1 : 3	1 : 3	1 : 3	1 : 3	1 : 3
	Servo-motor	type		SQM10				
		run time	s	42				
	Heat Output	natural gas	kW	870/3000÷5200	1160/4200÷7000	1450/6000÷8700	1830/7800÷11000	2400/8500÷12000
			Mcal/h	748/2580÷4472	998/3612÷6020	1247/5160÷7482	1574/6708÷9460	2064/7310÷10320
		LPG	kW	1040/3000÷5200	1400/4200÷7000	1740/6000÷5700	2200/7800÷11000	3000/8500÷12000
			Mcal/h	894/2580÷4472	1204/3612÷6020	1496/5160÷7482	1892/6708÷9460	2580/7310÷10320
		light oil	kW	1300/3000÷5200	1750/4200÷7000	2170/6000÷8700	2750/7800÷11000	3400/8500÷12000
			Mcal/h	1118/2580÷4472	1505/3612÷6020	1866/5160÷7482	2365/6708÷9460	2924/7310÷10320
		heavy oil	kW	1700/3000÷5200	2330/4200÷7000	2900/6000÷8700	3660/7800÷11000	4000/8500÷12000
			Mcal/h	1462/2580÷4472	2004/3612÷6020	2494/5160÷7482	3148/6708÷9460	3440/7310÷10320
	Working temperature		°C min./max.	-15/60				
Fuel/Air Data	Light oil	net calorific value	kWh/kg	11,8				
			Kcal/kg	10200				
		viscosity at 20°C	mm^2/s (cSt)	4 ÷ 6				
		Output	Kg/h	111/253÷438	148/354÷590	183/506÷734	232/658÷927	287/717÷1012
		max temperature	°C	50				
	Heavy oil	net calorific value	kWh/kg	11,1÷11,3				
			Kcal/kg	9545÷9720				
		viscosity at 20°C	mm^2/s (cSt)	500				
		Output	Kg/h	152/268÷464	208/375÷625	259/536÷777	326/696÷982	357/759÷1071
		max temperature	°C	140				
	Atomised pressure		bar	25÷28				
	G20	net calorific value	kWh/Nmc	10				
		Density	kg/Nmc	0,71				
		Output	Nmc/h	87/300÷520	116/420÷700	145/600÷870	183/780÷1100	240/850÷1200
	G25	net calorific value	kWh/Nmc	8,6				
		Density	kg/Nmc	0,78				
		Output	Nmc/h	101/349÷605	135/488÷814	169/698÷1012	213/907÷1279	279/988÷1395
	LPG	net calorific value	kWh/Nmc	25,8				
		Density	kg/Nmc	2,02				
		Output	Nmc/h	40/116÷202	54/163÷271	67/233÷337	85/302÷426	116/329÷465
	Fan		type	Centrifugal with reverse curve blades				
	Air temperature		°C max.	150				
Electrical Data	Electrical supply		Ph/Hz/V	1/50-60/230 - (1/50-60/110 on request)				
	Control box		type	LFL 1.333 - LFL 1.335 (Intermittent working) - LGK 16 (Continuos working)				
	Auxiliary electrical power		VA	630				
	Total current		A	2,7 - 5,7				
	Protection level		IP	54				
	Ignition transformer		V1 - V2	230 V - 1x8 KV				
			I1 - I2	1,4A - 30 mA				
	Operation			Intermittent (at least one stop every 24 h) - Continuos (at least one stop every 72 h)				
Emissions	Sound pressure		dBA	--				
	Sound output		W	--				
	Light oil	CO emission	mg/kWh	< 110				
		Grade of smoke indicator	N° Bach.	< 1				
		NOx emission	mg/kWh	< 250				
	Heavy oil	CO emission	mg/kWh	Depending on the fuel amount				
		Grade of smoke indicator	N° Bach.	Depending on the fuel amount				
		NOx emission	mg/kWh	Depending on the fuel amount				
	G20	CO emission	mg/kWh	< 100				
		NOx emission	mg/kWh	< 170				
Approval	Reference directive			89/336 - 73/23 - 98/37 - 90/396 CEE				
	Reference norms			EN 267 - EN 676				
	Certifications			--				

Reference conditions:
Temperature: 20°C - Pressure: 1013.5 mbar - Altitude: 100 meters a.s.l. - Noise measured at a distance of 1 meter.

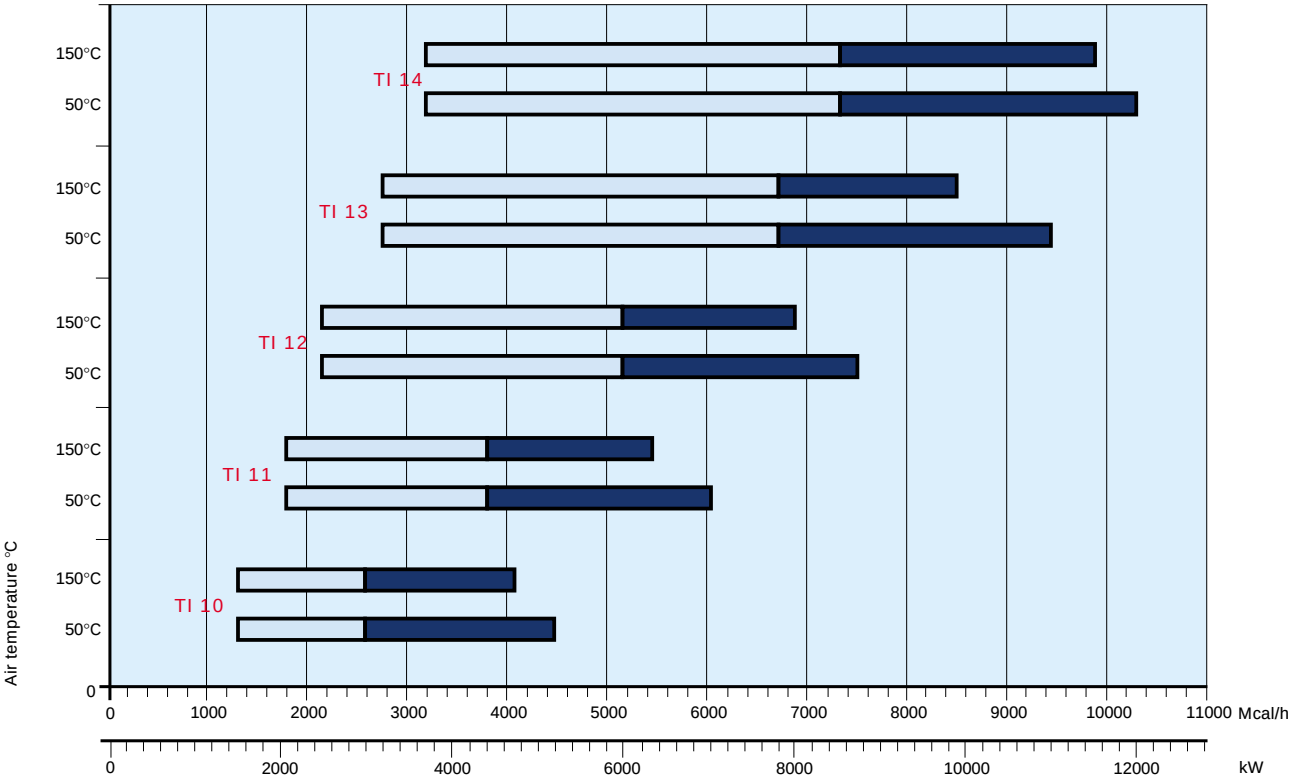
Since the Company is constantly engaged in the production improvement, the aesthetic and dimensional features, the technical data, the equipment and the accessories can be changed.

FIRING RATES

GAS



OIL



Useful rate for the choice of the burner

Modulating rate

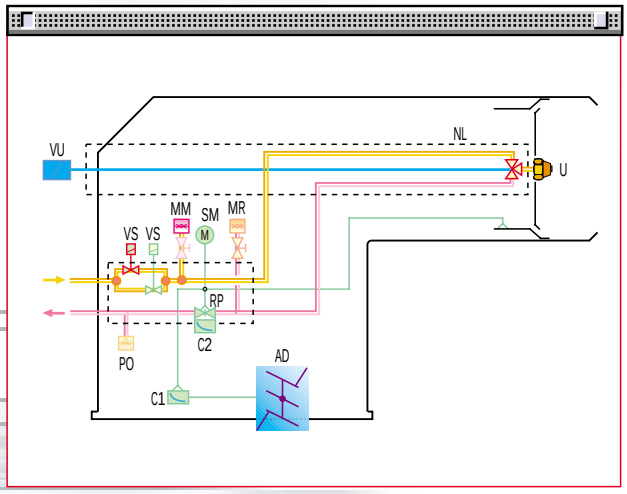
Test conditions conforming EN 267; EN 676:
Temperature: 20°C
Pressure: 1013.5 mbar
Altitude: 100 m.s.l.

OIL BURNERS HYDRAULIC CIRCUIT

The hydraulic circuit of industrial burner TI series is composed by two main blocks; the first one, on bord, includes the emergency and regulation units; the second, separate to the burner, constitutes the pumping group.
A variable profile cam connects the regulation of the fuel and the air guaranteeing an elevate combustion efficiency on all firing rates.

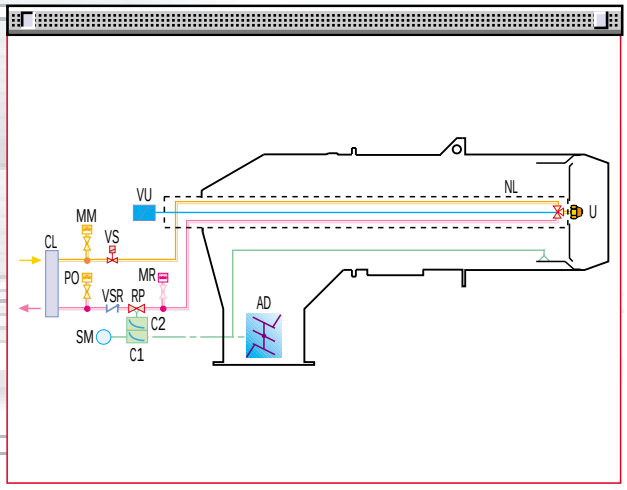
Example of oil unit TI 13

TI 10 - 11 - 12

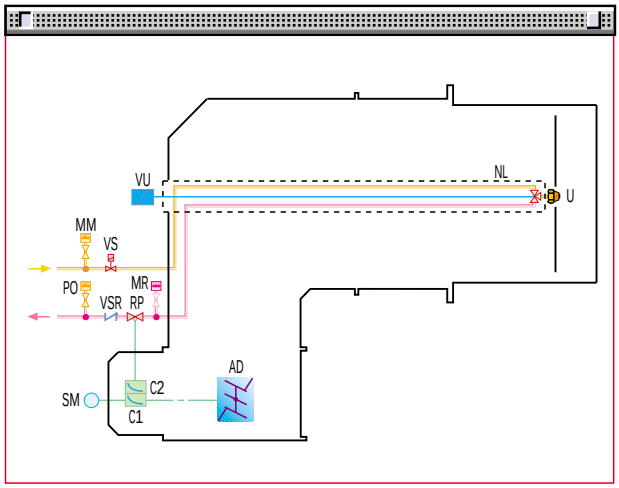


AD	Air damper
CL	Oil collector
C1	First adjusting cam
C2	Second adjusting cam
MM	Pressure gauge on the delivery circuit
MR	Pressure gauge on the return circuit
NL	Oil pipe
U	Nozzle
PO	Max. oil pressure switch on the return circuit
RP	Pressure regulator on the return circuit
SM	Servomotor
VS	Safety oil valve
VSR	Safety oil valve on the return circuit
VU	Nozzle safety valve

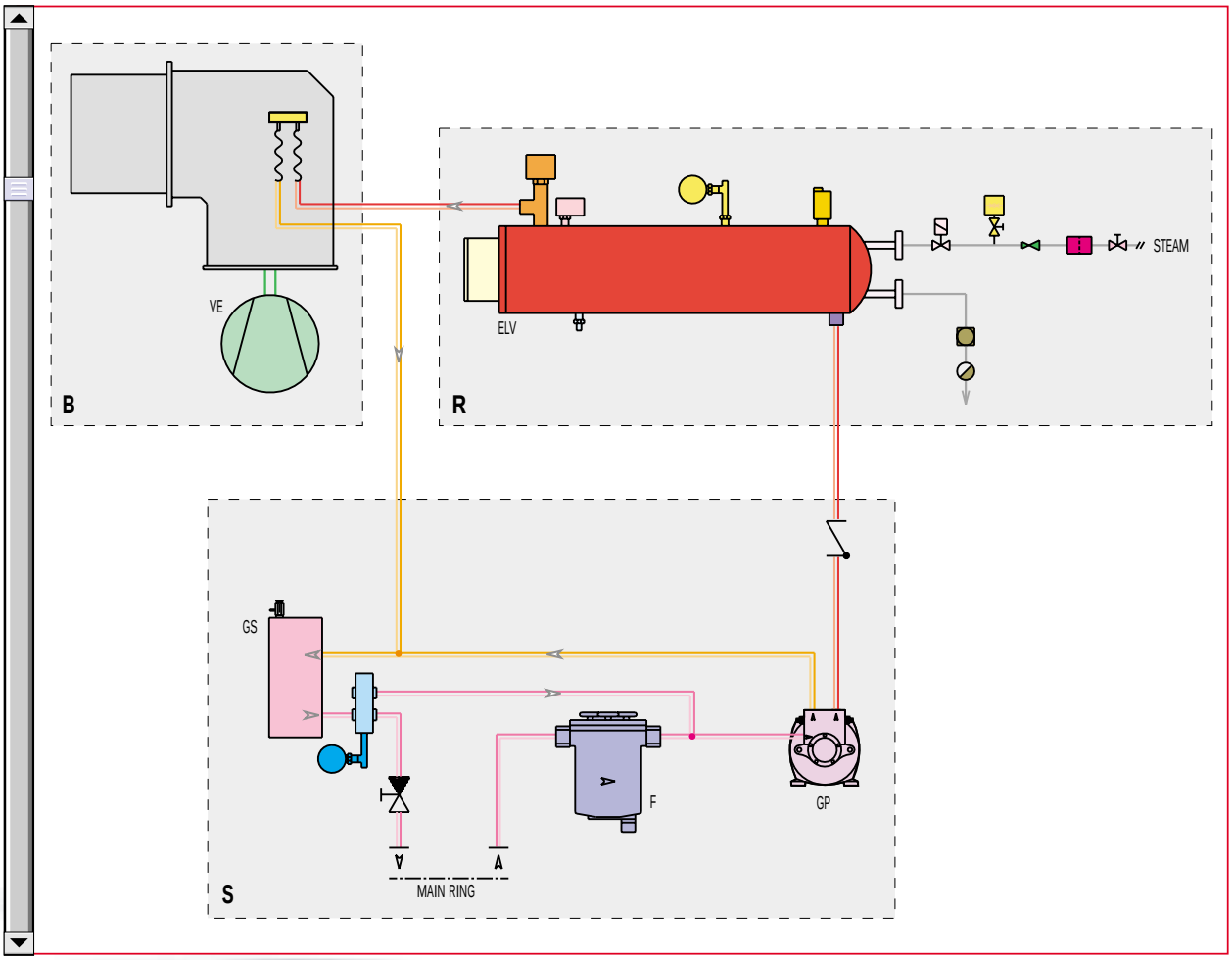
TI 13



TI 14



EXAMPLE OF COMPLETE SUPPLY OIL CIRCUIT

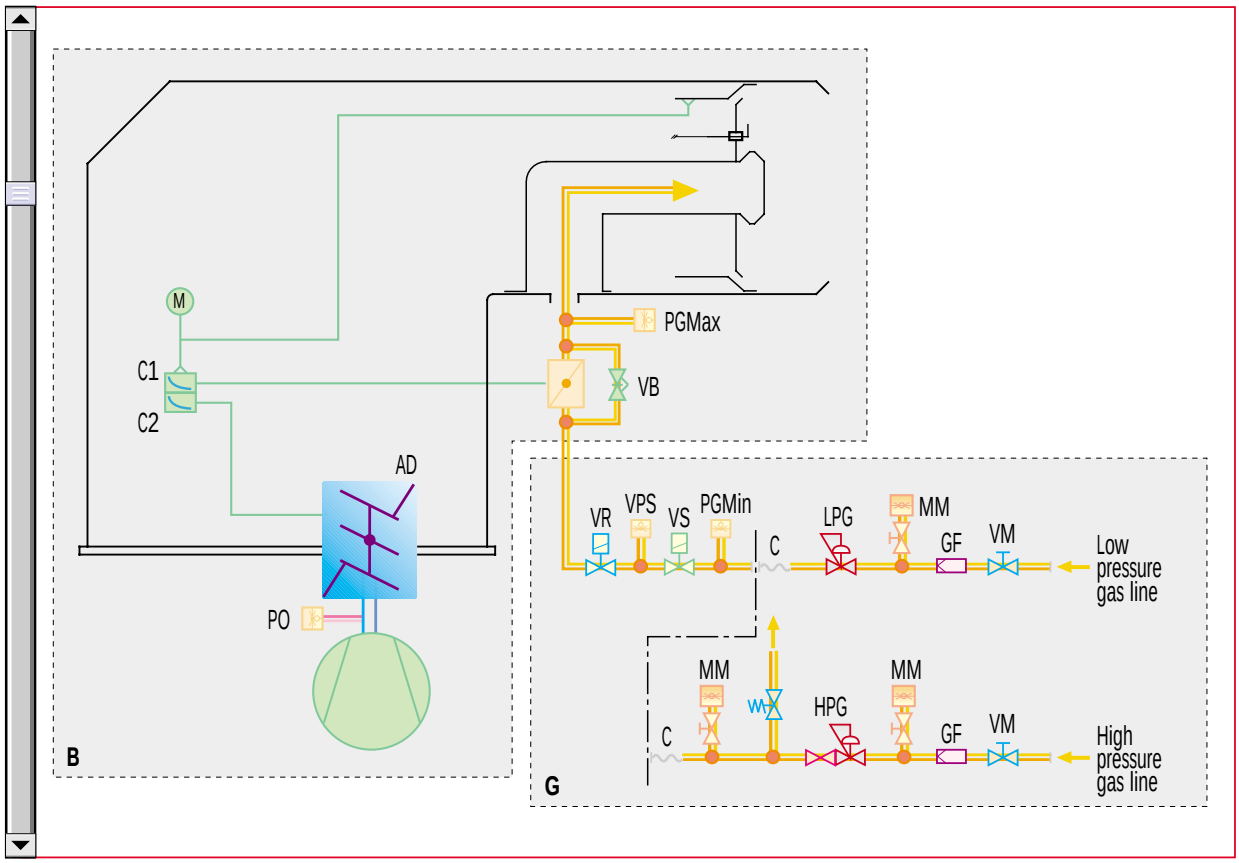


B	Burner and fan
VE	Fan
S	Pumping unit skid
R	Preheting group
ELV	Electrical/steam oil preheater
F	Selfcleaning filter
GP	Pump with pressure regulator
GS	Degasing tank

note *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.*

EXAMPLE OF COMPLETE SUPPLY GAS LINE

The TI burners series are fitted with a butterfly valve to regulate the fuel, controlled by a variable profile cam servomotor which guarantees, through the association of the air and fuel regolation, high thermal efficency all over the firing rates.



B	Burner
G	Supply gas line
VE	Fan
PA	Minimum air pressure switch
AD	Air damper
C1	First adjusting cam
C2	Second adjusting cam
SM	Servomotor
PG max	Maximum gas pressure switch
RG	Butterfly valve
VB	By-pass valve

VR	Gas train adjusting valve
VPS	Seal control
VS	Gas train safety valve
PG min	Minimum gas pressure switch
C	Anti-vibrant joint
LPG	Low pressure regulator
MM	Pressure gauge
GF	Filter
VM	Manual valve
SRV	Vent safety valve
HPG	High pressure regulator

COMBUSTION HEAD

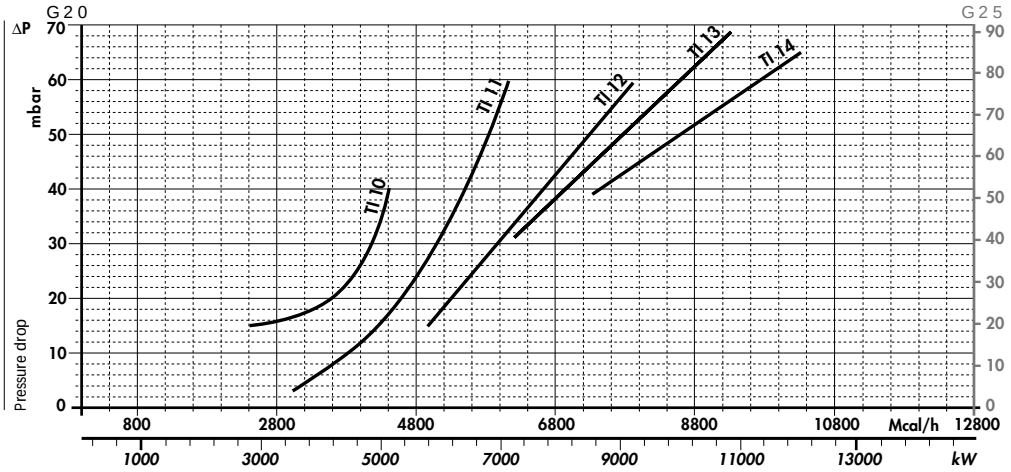
Example of TI 13 combustion head.

Different lengths of the combustion head can be chosen for the TI series of burners. The choice 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 TI burner series (except for TI 14 model), are provided with mobile head combustion adjustable on the basis of required output, through the same servomotor used for the air damper regulation. This system guarantees an optimal fuel/air mix all over the firing rates.

CHARACTERISTICS COMBUSTION HEAD CURVES

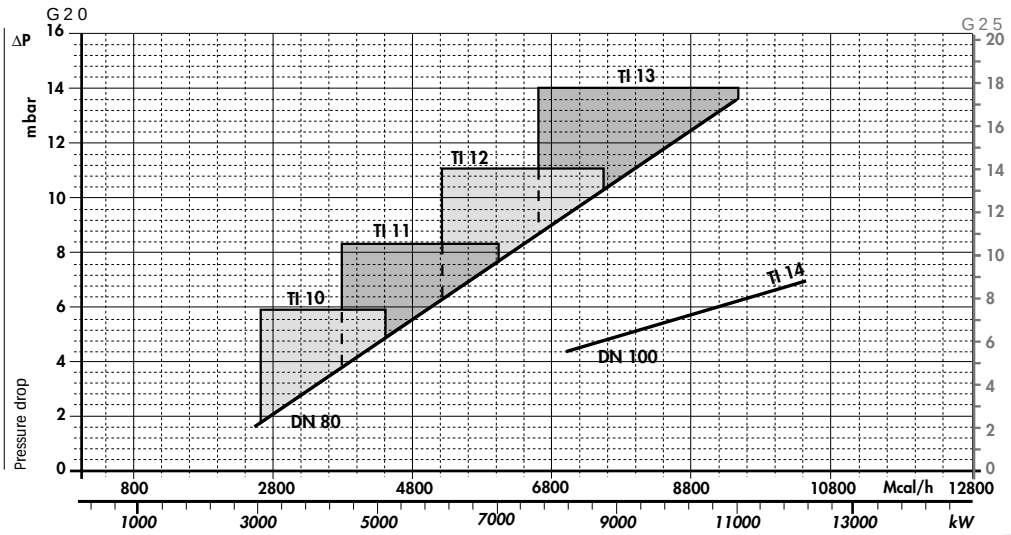
GAS PRESSURE LOSSES
The following diagrams indicate the gas side losses of the combustion head and the regulator butterfly valve.
Adding to the value of these losses the combustion chamber pressure and total gas train loss, it is obtained the minimal input pressure necessary to the gas train.

Combustion head losses



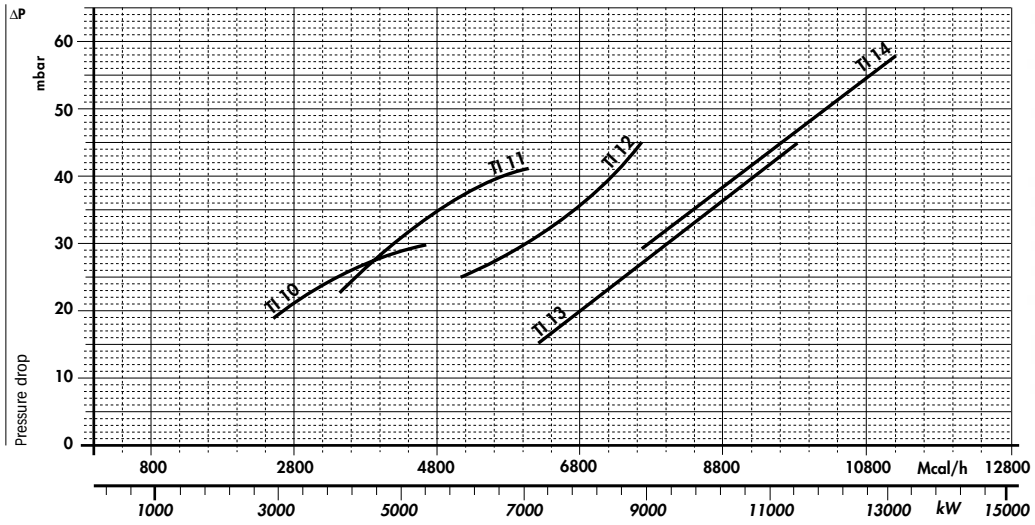
Reference conditions:
Temperature: 15°C
Pressure: 1013.5 mbar

Butterfly valve losses



Reference conditions:
Temperatura: 15°C
Pressione: 1013.5 mbar

AIR PRESSURE LOSSES



SETTING

OUTPUT SETTING

The TI burner series can have “two stage progressive” or “modulating” setting.

“Two stage progressive” setting

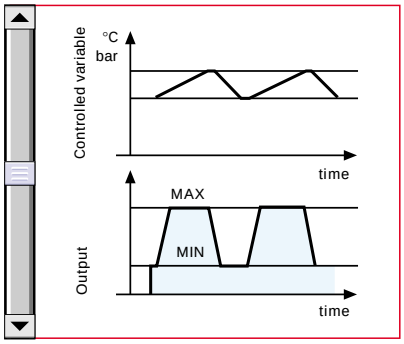


Figure A

On “two stage progressive” setting, the burner gradually adapts the output to the requested level, by varying between two pre-set levels (figure A).

On “modulating” setting, normally required in steam generators, in superheater boilers or diathermic oil burners, a specific regulator and probes are required.
These are supplied as accessories that must be ordered separately.
The burner can work for long periods at intermediate output levels (figure B).

“Modulating” setting

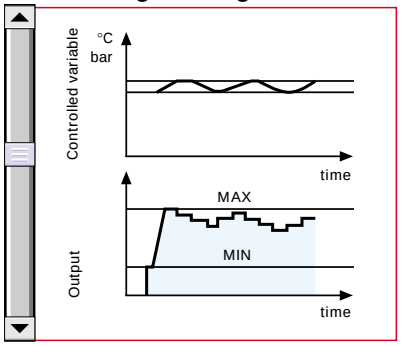
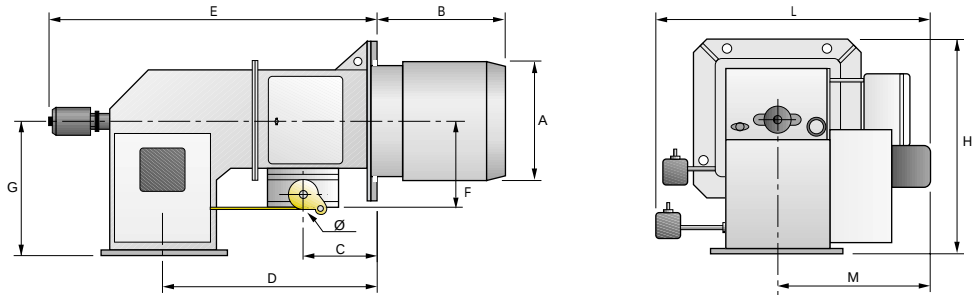


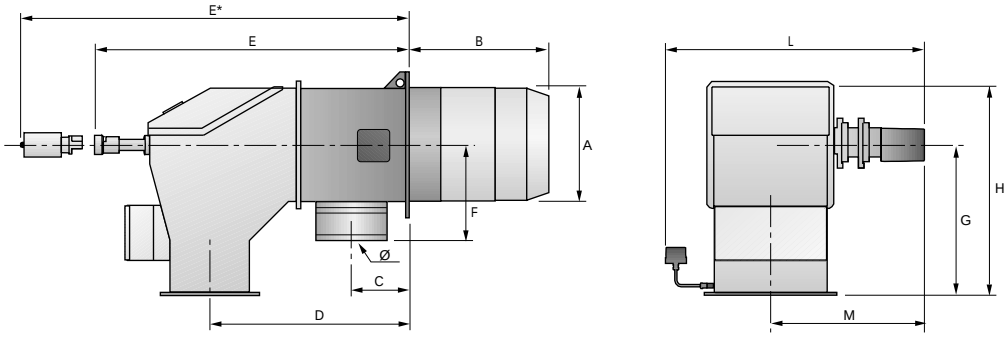
Figure B

OVERALL DIMENSIONS (mm)

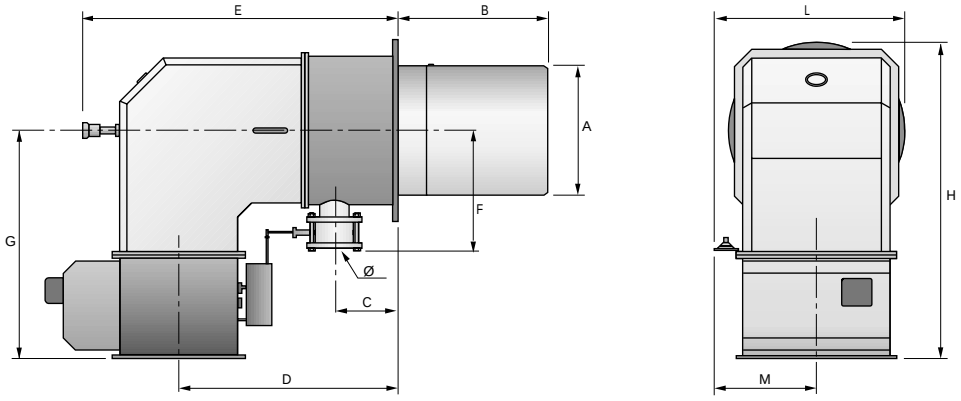
TI 10-11-12



TI 13



TI 14



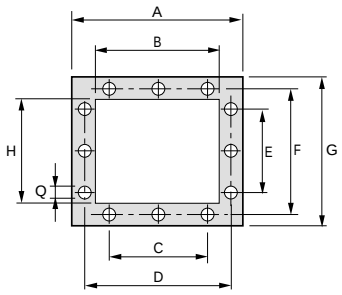
Model	A	B	C	D	E - E*	F	G	H	L	M	Ø
TI 10	336	470	208	604	1080	257	390	590	770	478	DN80
TI 11	336	470	208	604	1080	257	390	590	770	478	DN80
TI 12	386	470	208	604	1080	257	390	590	770	478	DN80
TI 13	416	512	250	720	1140 - 1406	316	546	756	940	558	DN80
TI 14	508	600	250	851	1293 - 1508	478	847	1200	820	400	DN100

E - gas version
E* - oil and dual fuel version

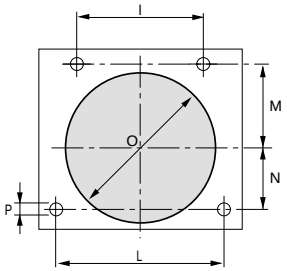
MOUNTING FLANGE

TI 10-11-12

AIR CHANNEL FLANGE

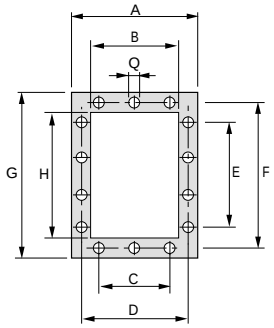


PERFORATION BOILERPLATE

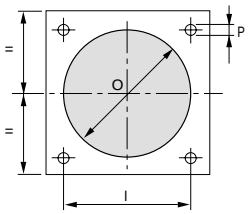


TI 13

AIR CHANNEL FLANGE

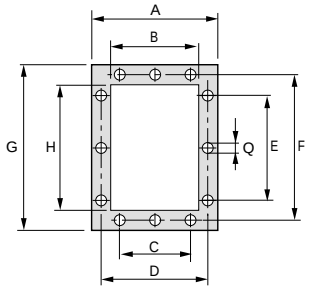


PERFORATION BOILERPLATE

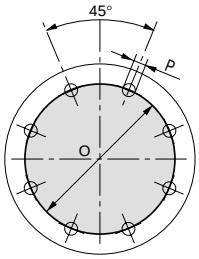


TI 14

AIR CHANNEL FLANGE

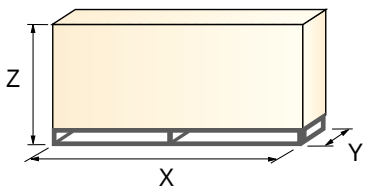


PERFORATION BOILERPLATE



Model	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q
TI 10	368	300	240	340	220	320	348	280	240	350	175	120	350	M16	9
TI 11	368	300	240	340	220	320	348	280	240	350	175	120	350	M16	9
TI 12	368	300	240	340	220	320	348	280	260	390	195	130	400	M16	9
TI 13	360	280	250	332	375	448	480	402	460	-	-	-	430	M18	11
TI 14	542	452	410	510	390	620	652	562	-	-	-	-	645	M14	11

PACKAGING



Model	X	Y	Z	kg
TI 10	1680	960	930	-
TI 11	1680	960	930	-
TI 12	1680	960	930	-
TI 13	2100	1200	1150	-
TI 14	2200	940	1450	-

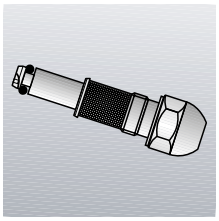
High pressure flexible tubes

In order to facilitate the connection of the burner to the fuel line adduction there are flexible tubes available according to the following table.

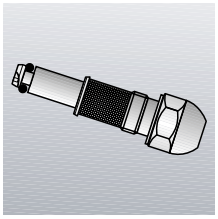
High pressure flexible tube				
Burner	**Tube diameter**	**Tube length (mm)**	**Maximum working pressure (bar)**	**Tube code**
TI 10	1/2”	1500	40	**3094227**
TI 11	1/2”	1500	40	**3094227**
TI 12	1/2”	1500	40	**3094227**
TI 13	3/4”	2000	40	**3094226**
TI 14	3/4”	2000	40	**3094226**

Return nozzles

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



	Nozzles type “B3-30-AA” 30°		**Nozzles type “B3-45-AA” 45°**	
Burner	**Nominal output (kg/h)**	**Nozzle code**	**Nominal output (kg/h)**	**Nozzle code**
TI 10-11-12	150	**3009625**	150	**3009626**
	175	**3009628**	175	**3009629**
	200	**3009631**	200	**3009632**
	225	**3009634**	225	**3009635**
	250	**3009637**	250	**3009638**
	275	**3009640**	275	**3009641**
	300	**3009643**	300	**3009644**
	325	**3009646**	325	**3009647**
	350	**3009649**	350	**3009650**
	375	**3009652**	375	**3009653**
	400	**3009655**	400	**3009656**
	425	**3009658**	425	**3009659**
	450	**3009661**	450	**3009662**
	475	**3009664**	475	**3009665**
	500	**3009667**	500	**3009668**
	525	**3009670**	525	**3009671**
	550	**3009673**	550	**3009674**
	575	**3009676**	575	**3009677**
	600	**3009679**	600	**3009680**
	650	**3009682**	650	**3009683**
	700	**3009685**	700	**3009686**
	750	**3009688**	750	**3009689**
	800	**3009691**	800	**3009692**
	850	**3009694**	850	**3009695**
	900	**3009697**	900	**3009698**



Nozzles type “B5-45-AA” 45°		
Burner	**Nominal output (kg/h)**	**Nozzle code**
TI 13	250	**3009802**
	275	**3009803**
	300	**3009804**
	325	**3009805**
	350	**3009806**
	375	**3009807**
	400	**3009808**
	425	**3009809**
	450	**3009810**
	475	**3009811**
	500	**3009812**
	525	**3009813**
	550	**3009814**
	575	**3009815**
	600	**3009816**
	650	**3009817**
	700	**3009818**
	750	**3009819**
	800	**3009820**
	850	**3009821**
	900	**3009822**
	950	**3009823**

Nozzles type “M14/3” 45°		
Burner	**Nominal output (kg/h)**	**Nozzle code**
TI 14	600	**3009900**
	650	**3009901**
	700	**3009902**
	750	**3009903**
	800	**3009904**
	850	**3009905**
	900	**3009906**
	950	**3009907**
	1000	**3009908**
	1050	**3009909**
	1100	**3009910**
	1150	**3009911**
	1200	**3009912**

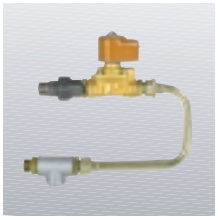
High pressure oil filter

In order to protect the hydraulic circuit of the burner from the possible presence of particles in the combustion line, these following filters are available.

High pressure oil filter			
Burner	**Filter diameter**	**Filtering degree (μ)**	**Filter Code**
TI 10	1/2”	500	In progress
TI 11	1/2”	500	In progress
TI 12	1/2”	500	In progress
TI 13	3/4”	500	In progress
TI 14	3/4”	500	In progress

Circulation group (by-pass valve)

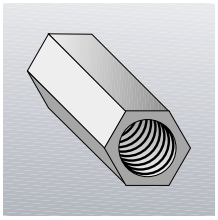
If the burner is far away from the pumping group it is possible to install a circulation group that allows the circulates of the heated fuel during the stand-by phase.



Circulation Group (by-pass valve)		
Burner	**Group diameter**	**Group code**
TI 10	1/2”	In progress
TI 11	1/2”	In progress
TI 12	1/2”	In progress
TI 13	3/4”	In progress
TI 14	3/4”	In progress

Check valve

In order to avoid fuel return, that could damage the hydraulic circuit, “check valve” are available.



Check valve		
Burner	**Valve diameter**	**Valve code**
TI 10	1/2”	In progress
TI 11	1/2”	In progress
TI 12	1/2”	In progress
TI 13	3/4”	In progress
TI 14	3/4”	In progress

Potentiometer kit

Depending on the servomotor fitted to the burner, a three-pole potentiometer (1000 Ω) can be installed to check the position of the servomotor. The KITS available for the various burners are listed below.

Potentiometer kit	
Burner	**Kit code**
TI 10-11-12-13-14	**3010021**

SPECIFICATION

A specific index guides your choice of burner from the various models available in the TI series. Follows a clear and detailed specification description of the product.

DESIGNATION OF TI SERIES BURNERS

Series : TI

Size :
10 - 11 - 12 - 13 - 14

Setting :
P/ progressive (modulating, mechanic cam)
E/ electronic cam

Fuel :

M	Methane	NM	Heavy oil/Methane
G	Light oil	NAM	Heavy oil steam atomising/Methane
N	Heavy oil	GM	Light oil/Methane
NA	Heavy oil steam atomising	GP	Light oil/LPG
P	LPG	NAP	Heavy oil steam atomising/LPG
NP	Heavy oil/LPG		

Head :
TC Standard head
TL Extended head

Air suction supply location :
A-0 below
A-90 right
A-180 above
A-270 left

Flame control system :
FS1 Standard (1 stop every 24 h)
FS2 Continuous working (1 stop every 72 h)

Auxiliary voltage :
230/50-60 230V/50-60Hz
110/50-60 110V/50-60Hz

Air suction temperature :
T50 Room temperature
T150 Preheated at 150°C

Installation :
I Internal
O External

TI	13	P/	M	TC	A-0	FS1	230/50-60	T50	I

BASIC DESIGNATION

EXTENDED DESIGNATION

LIST OF AVAILABLE MODELS

TI	10	P/	M	TC	A0	FS1	230/50	T50	I
TI	10	P/	M	TC	A180	FS1	230/50	T50	I
TI	10	P/	G	TC	AO	FS1	230/50	T50	I
TI	10	P/	G	TC	A180	FS1	230/50	T50	I
TI	10	P/	N	TC	A0	FS1	230/50	T50	I
TI	10	P/	N	TC	A180	FS1	230/50	T50	I
TI	10	P/	P	TC	A0	FS1	230/50	T50	I
TI	10	P/	P	TC	A180	FS1	230/50	T50	I
TI	10	P/	NP	TC	A0	FS1	230/50	T50	I
TI	10	P/	NP	TC	A180	FS1	230/50	T50	I
TI	10	P/	NM	TC	A0	FS1	230/50	T50	I
TI	10	P/	NM	TC	A180	FS1	230/50	T50	I
TI	10	P/	GM	TC	A0	FS1	230/50	T50	I
TI	10	P/	GM	TC	A180	FS1	230/50	T50	I
TI	10	P/	GP	TC	A0	FS1	230/50	T50	I
TI	10	P/	GP	TC	A180	FS1	230/50	T50	I
TI	11	P/	M	TC	A0	FS1	230/50	T50	I
TI	11	P/	M	TC	A180	FS1	230/50	T50	I
TI	11	P/	G	TC	A0	FS1	230/50	T50	I
TI	11	P/	G	TC	A180	FS1	230/50	T50	I
TI	11	P/	N	TC	A0	FS1	230/50	T50	I
TI	11	P/	N	TC	A180	FS1	230/50	T50	I
TI	11	P/	P	TC	A0	FS1	230/50	T50	I
TI	11	P/	P	TC	A180	FS1	230/50	T50	I
TI	11	P/	NP	TC	A0	FS1	230/50	T50	I
TI	11	P/	NP	TC	A180	FS1	230/50	T50	I
TI	11	P/	NM	TC	A0	FS1	230/50	T50	I
TI	11	P/	NM	TC	A180	FS1	230/50	T50	I
TI	11	P/	GM	TC	A0	FS1	230/50	T50	I
TI	11	P/	GM	TC	A180	FS1	230/50	T50	I
TI	11	P/	GP	TC	A0	FS1	230/50	T50	I
TI	11	P/	GP	TC	A180	FS1	230/50	T50	I
TI	12	P/	M	TC	A0	FS1	230/50	T50	I
TI	12	P/	M	TC	A180	FS1	230/50	T50	I
TI	12	P/	G	TC	A0	FS1	230/50	T50	I
TI	12	P/	G	TC	A180	FS1	230/50	T50	I
TI	12	P/	N	TC	A0	FS1	230/50	T50	I
TI	12	P/	N	TC	A180	FS1	230/50	T50	I
TI	12	P/	P	TC	A0	FS1	230/50	T50	I
TI	12	P/	P	TC	A180	FS1	230/50	T50	I
TI	12	P/	NP	TC	A0	FS1	230/50	T50	I
TI	12	P/	NP	TC	A180	FS1	230/50	T50	I
TI	12	P/	NM	TC	A0	FS1	230/50	T50	I
TI	12	P/	NM	TC	A180	FS1	230/50	T50	I
TI	12	P/	GM	TC	A0	FS1	230/50	T50	I
TI	12	P/	GM	TC	A180	FS1	230/50	T50	I
TI	12	P/	GP	TC	A0	FS1	230/50	T50	I
TI	12	P/	GP	TC	A180	FS1	230/50	T50	I
TI	13	P/	M	TC	A0	FS1	230/50	T50	I
TI	13	P/	M	TC	A180	FS1	230/50	T50	I
TI	13	P/	G	TC	A0	FS1	230/50	T50	I
TI	13	P/	G	TC	A180	FS1	230/50	T50	I
TI	13	P/	N	TC	A0	FS1	230/50	T50	I
TI	13	P/	N	TC	A180	FS1	230/50	T50	I
TI	13	P/	NA	TC	A0	FS1	230/50	T50	I
TI	13	P/	NA	TC	A180	FS1	230/50	T50	I
TI	13	P/	P	TC	A0	FS1	230/50	T50	I
TI	13	P/	P	TC	A180	FS1	230/50	T50	I
TI	13	P/	NP	TC	A0	FS1	230/50	T50	I
TI	13	P/	NP	TC	A180	FS1	230/50	T50	I
TI	13	P/	NM	TC	A0	FS1	230/50	T50	I
TI	13	P/	NM	TC	A180	FS1	230/50	T50	I
TI	13	P/	NAM	TC	A0	FS1	230/50	T50	I
TI	13	P/	NAM	TC	A180	FS1	230/50	T50	I
TI	13	P/	GM	TC	A0	FS1	230/50	T50	I
TI	13	P/	GM	TC	A180	FS1	230/50	T50	I
TI	13	P/	GP	TC	A0	FS1	230/50	T50	I
TI	13	P/	GP	TC	A180	FS1	230/50	T50	I
TI	13	P/	NAP	TC	A0	FS1	230/50	T50	I
TI	13	P/	NAP	TC	A180	FS1	230/50	T50	I
TI	14	P/	M	TC	A0	FS1	230/50	T50	I
TI	14	P/	G	TC	A0	FS1	230/50	T50	I
TI	14	P/	N	TC	A0	FS1	230/50	T50	I
TI	14	P/	P	TC	A0	FS1	230/50	T50	I
TI	14	P/	NP	TC	A0	FS1	230/50	T50	I
TI	14	P/	NM	TC	A0	FS1	230/50	T50	I
TI	14	P/	GM	TC	A0	FS1	230/50	T50	I
TI	14	P/	GP	TC	A0	FS1	230/50	T50	I

Other versions are available on request.

PRODUCT SPECIFICATIONS

OIL BURNER

Combustion head:
Forced draught oil burner with two stage progressive or modulating setting, with separate supplies, fully automatic, made up of:
- sheet-steel airlock painted with a cover for access to the internal elements
- air damper for air setting with variable profile cam controlled by a servomotor
- mobile combustion head (except for TI 14 model), that can be set on the basis of required output, fitted with:
    - stainless steel end cone, resistant to corrosion and high temperatures
    - ignition electrodes
    - pilot burner (TI13 - TI14 models)
    - flame stability disk
- photocell for flame detection
- minimum air pressure switch
- nozzle pipe
- safety nozzle valve
- valves group with safety oil valves
- automatic regulator of oil capacity controlled by a servomotor
- maximum oil pressure switch on the return circuit
- pressure gauge on the delivery circuit
- pressure gauge on the return circuit
- flame inspection window
- shunt box with ignition transformer
- IP 54 electric protection level.

Reference directives and norms:
- 89/336/EEC directive (electromagnetic compatibility)
- 73/23/EEC directive (low voltage)
- 98/37/EEC directive (machinery)
- EN 267 (liquid fuel burners).

Standard equipment:
- screws for fixing the burner flange to the boiler
- thermal screen
- instruction handbook for installation, use and maintenance
- spare parts catalogue.

Available accessories to be ordered separately:
- flexible tubes
- return nozzles
- high pressure oil filter
- circulation group (by-pass valve)
- check valve
- potentiometer kit for the servomotor.

GAS BURNER

Combustion Head:
Forced draught gas burner with two stage progressive or modulating setting, with separate supplies, fully automatic, made up of:
- sheet-steel airlock painted with a cover for access to the internal elements
- air damper for air setting with variable profile cam controlled by a servomotor
- mobile combustion head (except for TI 14 model), that can be set on the basis of required output, fitted with:
    - stainless steel end cone, resistant to corrosion and high temperatures
    - ignition electrodes
    - pilot burner (TI13 - TI14 models)
    - ionisation probe
    - flame stability disk
- minimum air pressure switch
- maximum gas pressure switch
- butterfly valve for the dosage of the fuel with a variable profile cam controlled by a servomotor
- flame inspection window
- gas pressure test point to the combustion head
- shunt box with ignition transformer
- IP 54 electric protection level.

Reference directives and norms:
- 89/336/EEC directive (electromagnetic compatibility)
- 73/23/EEC directive (low voltage)
- 90/396/EEC directive (gas)
- EN 676 (gas burners).

Standard equipment:
- screws for fixing the burner flange to the boiler
- thermal screen
- screws for fixing the gas train flange to the burner
- gas train gasket
- instruction handbook for installation, use and maintenance
- spare parts catalogue.

Available accessories to be ordered separately:
- potentiometer kit for the servomotor.

DUAL FUEL BURNER (OIL/GAS)

Combustion Head:
Forced draught dual fuel burner with two stage progressive or modulating setting, with separate supplies, fully automatic, made up of:
- sheet-steel airlock painted with a cover for access to the internal elements
- air damper for air setting with variable profile cam controlled by a servomotor
- mobile combustion head (except for TI 14 model), that can be set on the basis of required output, fitted with:
    - stainless steel end cone, resistant to corrosion and high temperatures
    - ignition electrodes
    - pilot burner (TI13-TI14 models)
    - flame stability disk
- photocell for flame detection
- nozzle pipe
- safety nozzle valve
- valves group with safety oil valves
- automatic regulator of oil capacity controlled by a servomotor
- maximum oil pressure switch on the return circuit
- pressure gauge on the delivery circuit
- pressure gauge on the return circuit
- minimum air pressure switch
- maximum gas pressure switch
- butterfly valve for the dosage of the fuel with a variable profile cam controlled by a servomotor
- flame inspection window
- gas pressure test point to the combustion head
- shunt box with ignition transformer
- IP 54 electric protection level.

Reference directives and norms:
- 89/336/EEC directive (electromagnetic compatibility)
- 73/23/EEC directive (low voltage)
- 98/37/EEC directive (machinery)
- 90/396/ECC directive (gas)
- EN 267 (liquid fuel burners)
- EN 676 (gas burners)

Standard equipment:
- screws for fixing the burner flange to the boiler
- thermal screen
- screws for fixing the gas train flange to the burner
- gas train gasket
- instruction handbook for installation, use and maintenance
- spare parts catalogue.

Available accessories to be ordered separately:
- flexible tubes
- return nozzles
- high pressure oil filter
- circulation group (by-pass valve)
- check valve
- potentiometer kit for the servomotor.

Lineagrafica

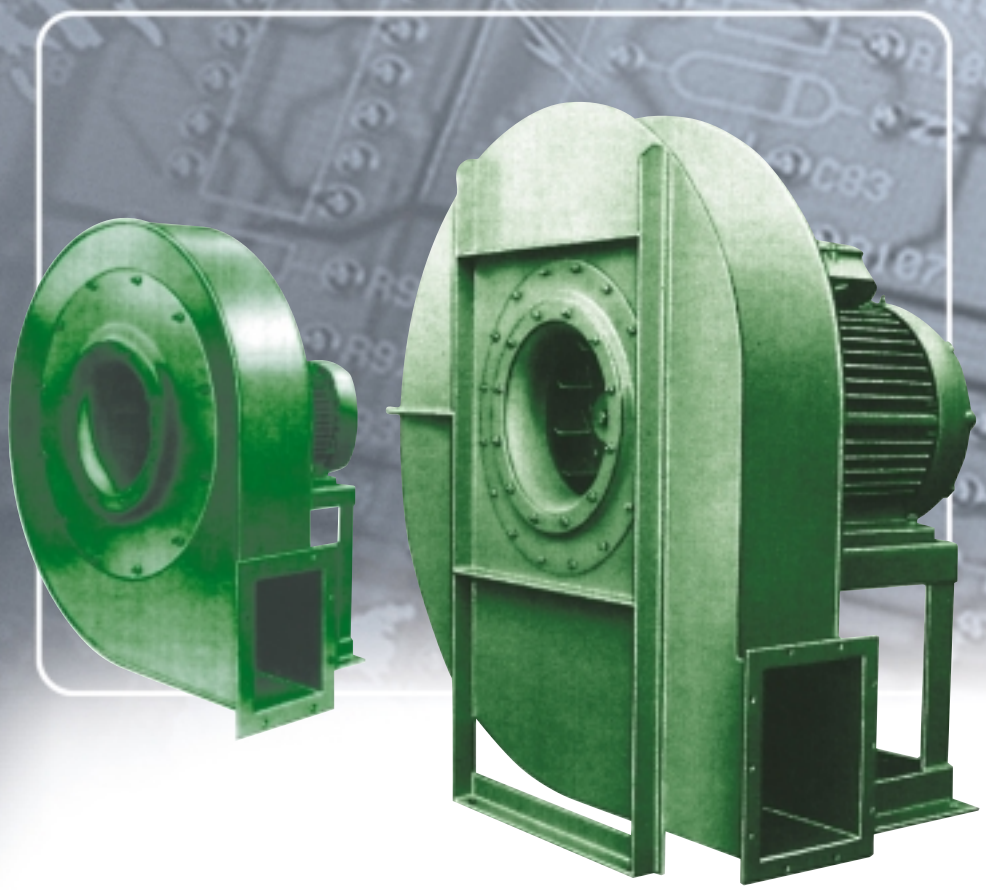
RIELLO S.p.A. - Via degli Alpini, 1 - 37045 LEGNAGO (VR) Italy
Tel. ++39.0442630111 - Fax ++39.044221980
Internet: http://www.riellobumers.com - E-mail: rburners@riellobumers.com

RIELLO BURNERS

CE

CENTRIFUGAL AIR FANS FOR INDUSTRIAL BURNERS

GCH SERIES	800 ÷ 5000 m^3/h	1800 ÷ 4800 Pa
GCM SERIES	4000 ÷ 9500 m^3/h	1800 ÷ 4400 Pa
GBJ SERIES	3500 ÷ 20000 m^3/h	2800 ÷ 10000 Pa



Air supply fans allow to bring comburent air through the adduction channel to the combustion head in pressure and delivery conditions required from the application.
The air delivery processed from the fan is in a correct proportion to the fuel to guarantee the required burner output with a safe combustion. Performance tables help the fan selection among the available models.
All the models are pre-assembled and tested in factory in the respect of existing normatives so to permit the maximum installation facility.

GENERAL DESCRIPTION

The fans are machines capable of providing energy to a fluid, in the form of an increase in pressure or in velocity, by means of a rotating element. Centrifugal fans comprise a box which contains a keyed fan impeller on a shaft supported by bearings. In centrifugal fans, the type generally installed in dual bloc burners, the air enters along the direction of rotation axis and exits tangentially to the fan impeller. The shaft can be connected directly to the electric motor by means of joints or, indirectly, by means of belts and pulleys. The fan impeller positioned within the box may have differing orientations of the blades and precisely:

- Fan impeller with wing-shaped blades
- Fan impeller with reverse curve blades
- Fan impeller with radial blades
- Fan impeller with forward curve blades.

Example of installation

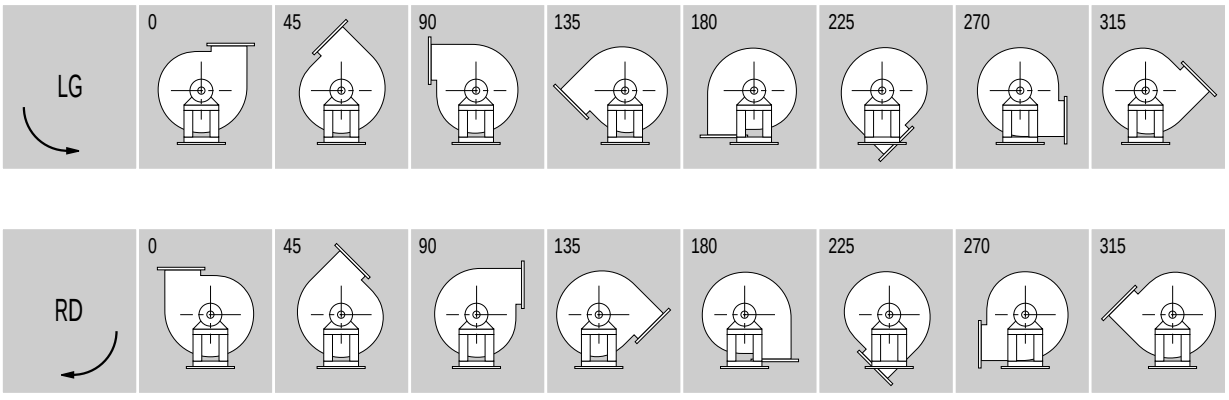
In the different applications, fans are selected on the basis of specific installation needs, and in particular:

- Air delivery;
- Combustion air temperature;
- Backpressure in combustion chamber;
- Maximum sound level accepted.

On request, fans with variable rotation speed in relation to power output can be supplied: in this case the use of inverter allows energy saving.

All the fans can be constructed with the delivery mouth in 16 different positions (8 in clockwise rotations RD and 8 in counterclockwise rotation LG) as indicated on the orientation tables. Please note that the direction of rotation is determined by looking at the fan from the transmission mode. Some sizes of these fans are revolvable always considering the rotation direction. Flange see DIN 24154-24158.

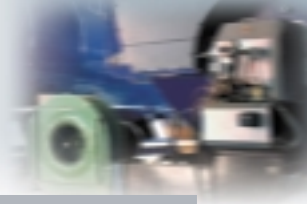
Table of discharge positions:



AVAILABLE MODELS

Fan model	Discharge position	PH/V	Freq.	Installed power kW	Absorbed power kW	Sound pressure dB(A)	Rotation speed rpm	Weight kg	Code
GCH 04020	RD 270	3/400 VΔ	50 Hz	1,5	1,4	72	2850	38	XXX
GCH 04020	LG 270	3/400 VΔ	50 Hz	1,5	1,4	72	2850	38	XXX
GCH 04020	RD 0	3/400 VΔ	50 Hz	1,5	1,4	72	2850	38	XXX
GCH 04020	LG 0	3/400 VΔ	50 Hz	1,5	1,4	72	2850	38	XXX
GCH 04020	RD 270	3/380 VΔ	60 Hz	1,5	1,4	72	2850	38	XXX
GCH 04020	LG 270	3/380 VΔ	60 Hz	1,5	1,4	72	2850	38	XXX
GCH 04020	RD 0	3/380 VΔ	60 Hz	1,5	1,4	72	2850	38	XXX
GCH 04020	LG 0	3/380 VΔ	60 Hz	1,5	1,4	72	2850	38	XXX
GCH 05020	RD 270	3/400 VΔ	50 Hz	5,5	5,2	78	2900	100	XXX
GCH 05020	LG 270	3/400 VΔ	50 Hz	5,5	5,2	78	2900	100	XXX
GCH 05020	RD 0	3/400 VΔ	50 Hz	5,5	5,2	78	2900	100	XXX
GCH 05020	LG 0	3/400 VΔ	50 Hz	5,5	5,2	78	2900	100	XXX
GCH 05020	RD 270	3/380 VΔ	60 Hz	5,5	5,2	78	2900	100	XXX
GCH 05020	LG 270	3/380 VΔ	60 Hz	5,5	5,2	78	2900	100	XXX
GCH 05020	RD 0	3/380 VΔ	60 Hz	5,5	5,2	78	2900	100	XXX
GCH 05020	LG 0	3/380 VΔ	60 Hz	5,5	5,2	78	2900	100	XXX
GCH 05040	RD 270	3/400 VΔ	50 Hz	7,5	7	80	2900	106	XXX
GCH 05040	LG 270	3/400 VΔ	50 Hz	7,5	7	80	2900	106	XXX
GCH 05040	RD 0	3/400 VΔ	50 Hz	7,5	7	80	2900	106	XXX
GCH 05040	LG 0	3/400 VΔ	50 Hz	7,5	7	80	2900	106	XXX
GCH 05040	RD 270	3/380 VΔ	60 Hz	7,5	7	80	2900	106	XXX
GCH 05040	LG 270	3/380 VΔ	60 Hz	7,5	7	80	2900	106	XXX
GCH 05040	RD 0	3/380 VΔ	60 Hz	7,5	7	80	2900	106	XXX
GCH 05040	LG 0	3/380 VΔ	60 Hz	7,5	7	80	2900	106	XXX
GCM 04540	RD 270	3/400 VΔ	50 Hz	7,5	7,1	82	2900	146	3891100
GCM 04540	LG 270	3/400 VΔ	50 Hz	7,5	7,1	82	2900	146	3891101
GCM 04540	RD 0	3/400 VΔ	50 Hz	7,5	7,1	82	2900	146	3891102
GCM 04540	LG 0	3/400 VΔ	50 Hz	7,5	7,1	82	2900	146	3891103
GCM 04540	RD 270	3/440 VΔ	60 Hz	7,5	7,1	82	2900	146	3891104
GCM 04540	LG 270	3/440 VΔ	60 Hz	7,5	7,1	82	2900	146	3891105
GCM 04540	RD 0	3/440 VΔ	60 Hz	7,5	7,1	82	2900	146	3891106
GCM 04540	LG 0	3/440 VΔ	60 Hz	7,5	7,1	82	2900	146	3891107
GCM 04540	RD 270	3/380 VΔ	60 Hz	7,5	7,1	82	2900	146	3891108
GCM 04540	LG 270	3/380 VΔ	60 Hz	7,5	7,1	82	2900	146	3891109
GCM 04540	RD 0	3/380 VΔ	60 Hz	7,5	7,1	82	2900	146	3891110
GCM 04540	LG 0	3/380 VΔ	60 Hz	7,5	7,1	82	2900	146	3891111
GCM 05020	RD 270	3/400 VΔ	50 Hz	9	8,7	83	2900	185	3891112
GCM 05020	LG 270	3/400 VΔ	50 Hz	9	8,7	83	2900	185	3891113
GCM 05020	RD 0	3/400 VΔ	50 Hz	9	8,7	83	2900	185	3891114
GCM 05020	LG 0	3/400 VΔ	50 Hz	9	8,7	83	2900	185	3891115
GCM 05020	RD 270	3/440 VΔ	60 Hz	9	8,7	83	2900	185	3891116
GCM 05020	LG 270	3/440 VΔ	60 Hz	9	8,7	83	2900	185	3891117
GCM 05020	RD 0	3/440 VΔ	60 Hz	9	8,7	83	2900	185	3891118
GCM 05020	LG 0	3/440 VΔ	60 Hz	9	8,7	83	2900	185	3891119
GCM 05020	RD 270	3/380 VΔ	60 Hz	9	8,7	83	2900	185	3891120
GCM 05020	LG 270	3/380 VΔ	60 Hz	9	8,7	83	2900	185	3891121
GCM 05020	RD 0	3/380 VΔ	60 Hz	9	8,7	83	2900	185	3891122
GCM 05020	LG 0	3/380 VΔ	60 Hz	9	8,7	83	2900	185	3891123
GCM 05040	RD 270	3/400 VΔ	50 Hz	11	10,5	84	2930	220	3891124

Fan model	Discharge position	PH/V	Freq.	Installed power kW	Absorbed power kW	Sound pressure dB(A)	Rotation speed rpm	Weight kg	Code
GCM 05040	LG 270	3/400 VΔ	50 Hz	11	10,5	84	2930	220	3891125
GCM 05040	RD 0	3/400 VΔ	50 Hz	11	10,5	84	2930	220	3891126
GCM 05040	LG 0	3/400 VΔ	50 Hz	11	10,5	84	2930	220	3891127
GCM 05040	RD 270	3/440 VΔ	60 Hz	11	10,5	84	2930	220	3891128
GCM 05040	LG 270	3/440 VΔ	60 Hz	11	10,5	84	2930	220	3891129
GCM 05040	RD 0	3/440 VΔ	60 Hz	11	10,5	84	2930	220	3891130
GCM 05040	LG 0	3/440 VΔ	60 Hz	11	10,5	84	2930	220	3891131
GCM 05040	RD 270	3/380 VΔ	60 Hz	11	10,5	84	2930	220	3891132
GCM 05040	LG 270	3/380 VΔ	60 Hz	11	10,5	84	2930	220	3891133
GCM 05040	RD 0	3/380 VΔ	60 Hz	11	10,5	84	2930	220	3891134
GCM 05040	LG 0	3/380 VΔ	60 Hz	11	10,5	84	2930	220	3891135
GBJ H05630	RD 270	3/400 VΔ	50 Hz	11	10,5	88	2900	175	3891136
GBJ H05630	LG 270	3/400 VΔ	50 Hz	11	10,5	88	2900	175	3891137
GBJ H05630	RD 0	3/400 VΔ	50 Hz	11	10,5	88	2900	175	3891138
GBJ H05630	LG 0	3/400 VΔ	50 Hz	11	10,5	88	2900	175	3891139
GBJ H05630	RD 270	3/440 VΔ	60 Hz	11	10,5	88	2900	175	3891140
GBJ H05630	LG 270	3/440 VΔ	60 Hz	11	10,5	88	2900	175	3891141
GBJ H05630	RD 0	3/440 VΔ	60 Hz	11	10,5	88	2900	175	3891142
GBJ H05630	LG 0	3/440 VΔ	60 Hz	11	10,5	88	2900	175	3891143
GBJ H05630	RD 270	3/380 VΔ	60 Hz	11	10,5	88	2900	175	3891144
GBJ H05630	LG 270	3/380 VΔ	60 Hz	11	10,5	88	2900	175	3891145
GBJ H05630	RD 0	3/380 VΔ	60 Hz	11	10,5	88	2900	175	3891146
GBJ H05630	LG 0	3/380 VΔ	60 Hz	11	10,5	88	2900	175	3891147
GBJ H06320	RD 270	3/400 VΔ	50 Hz	15	14,5	91	2900	205	3891148
GBJ H06320	LG 270	3/400 VΔ	50 Hz	15	14,5	91	2900	205	3891149
GBJ H06320	RD 0	3/400 VΔ	50 Hz	15	14,5	91	2900	205	3891150
GBJ H06320	LG 0	3/400 VΔ	50 Hz	15	14,5	91	2900	205	3891151
GBJ H06320	RD 270	3/440 VΔ	60 Hz	15	14,5	91	2900	205	3891152
GBJ H06320	LG 270	3/440 VΔ	60 Hz	15	14,5	91	2900	205	3891153
GBJ H06320	RD 0	3/440 VΔ	60 Hz	15	14,5	91	2900	205	3891154
GBJ H06320	LG 0	3/440 VΔ	60 Hz	15	14,5	91	2900	205	3891155
GBJ H06320	RD 270	3/380 VΔ	60 Hz	15	14,5	91	2900	205	3891156
GBJ H06320	LG 270	3/380 VΔ	60 Hz	15	14,5	91	2900	205	3891157
GBJ H06320	RD 0	3/380 VΔ	60 Hz	15	14,5	91	2900	205	3891158
GBJ H06320	LG 0	3/380 VΔ	60 Hz	15	14,5	91	2900	205	3891159
GBJ I06310	RD 270	3/400 VΔ	50 Hz	15	14,5	90	2950	220	3891160
GBJ I06310	LG 270	3/400 VΔ	50 Hz	15	14,5	90	2950	220	3891161
GBJ I06310	RD 0	3/400 VΔ	50 Hz	15	14,5	90	2950	220	3891162
GBJ I06310	LG 0	3/400 VΔ	50 Hz	15	14,5	90	2950	220	3891163
GBJ I06310	RD 270	3/440 VΔ	60 Hz	15	14,5	90	2950	220	3891164
GBJ I06310	LG 270	3/440 VΔ	60 Hz	15	14,5	90	2950	220	3891165
GBJ I06310	RD 0	3/440 VΔ	60 Hz	15	14,5	90	2950	220	3891166
GBJ I06310	LG 0	3/440 VΔ	60 Hz	15	14,5	90	2950	220	3891167
GBJ I06310	RD 270	3/380 VΔ	60 Hz	15	14,5	90	2950	220	3891168
GBJ I06310	LG 270	3/380 VΔ	60 Hz	15	14,5	90	2950	220	3891169
GBJ I06310	RD 0	3/380 VΔ	60 Hz	15	14,5	90	2950	220	3891170
GBJ I06310	LG 0	3/380 VΔ	60 Hz	15	14,5	90	2950	220	3891171
GBJ H06330	RD 270	3/400 VΔ	50 Hz	18,5	18	92	2900	225	3891172
GBJ H06330	LG 270	3/400 VΔ	50 Hz	18,5	18	92	2900	225	3891173
GBJ H06330	RD 0	3/400 VΔ	50 Hz	18,5	18	92	2900	225	3891174
GBJ H06330	LG 0	3/400 VΔ	50 Hz	18,5	18	92	2900	225	3891175
GBJ H06330	RD 270	3/440 VΔ	60 Hz	18,5	18	92	2900	225	3891176
GBJ H06330	LG 270	3/440 VΔ	60 Hz	18,5	18	92	2900	225	3891177
GBJ H06330	RD 0	3/440 VΔ	60 Hz	18,5	18	92	2900	225	3891178



Fan model	Discharge position	PH/V	Freq.	Installed power kW	Absorbed power kW	Sound pressure dB(A)	Rotation speed rpm	Weight kg	Code
GBJ H06330	LG 0	3/440 VΔ	60 Hz	18,5	18	92	2900	225	3891179
GBJ H06330	RD 270	3/380 VΔ	60 Hz	18,5	18	92	2900	225	3891180
GBJ H06330	LG 270	3/380 VΔ	60 Hz	18,5	18	92	2900	225	3891181
GBJ H06330	RD 0	3/380 VΔ	60 Hz	18,5	18	92	2900	225	3891182
GBJ H06330	LG 0	3/380 VΔ	60 Hz	18,5	18	92	2900	225	3891183
GBJ I06320	RD 270	3/400 VΔ	50 Hz	18,5	18	90	2950	230	3891184
GBJ I06320	LG 270	3/400 VΔ	50 Hz	18,5	18	90	2950	230	3891185
GBJ I06320	RD 0	3/400 VΔ	50 Hz	18,5	18	90	2950	230	3891186
GBJ I06320	LG 0	3/400 VΔ	50 Hz	18,5	18	90	2950	230	3891187
GBJ I06320	RD 270	3/440 VΔ	60 Hz	18,5	18	90	2950	230	3891188
GBJ I06320	LG 270	3/440 VΔ	60 Hz	18,5	18	90	2950	230	3891189
GBJ I06320	RD 0	3/440 VΔ	60 Hz	18,5	18	90	2950	230	3891190
GBJ I06320	LG 0	3/440 VΔ	60 Hz	18,5	18	90	2950	230	3891191
GBJ I06320	RD 270	3/380 VΔ	60 Hz	18,5	18	90	2950	230	3891192
GBJ I06320	LG 270	3/380 VΔ	60 Hz	18,5	18	90	2950	230	3891193
GBJ I06320	RD 0	3/380 VΔ	60 Hz	18,5	18	90	2950	230	3891194
GBJ I06320	LG 0	3/380 VΔ	60 Hz	18,5	18	90	2950	230	3891195
GBJ I06360	RD 270	3/400 VΔ	50 Hz	22	21	92	2950	250	3891196
GBJ I06360	LG 270	3/400 VΔ	50 Hz	22	21	92	2950	250	3891197
GBJ I06360	RD 0	3/400 VΔ	50 Hz	22	21	92	2950	250	3891198
GBJ I06360	LG 0	3/400 VΔ	50 Hz	22	21	92	2950	250	3891199
GBJ I06360	RD 270	3/440 VΔ	60 Hz	22	21	92	2950	250	3891200
GBJ I06360	LG 270	3/440 VΔ	60 Hz	22	21	92	2950	250	3891201
GBJ I06360	RD 0	3/440 VΔ	60 Hz	22	21	92	2950	250	3891202
GBJ I06360	LG 0	3/440 VΔ	60 Hz	22	21	92	2950	250	3891203
GBJ I06360	RD 270	3/380 VΔ	60 Hz	22	21	92	2950	250	3891204
GBJ I06360	LG 270	3/380 VΔ	60 Hz	22	21	92	2950	250	3891205
GBJ I06360	RD 0	3/380 VΔ	60 Hz	22	21	92	2950	250	3891206
GBJ I06360	LG 0	3/380 VΔ	60 Hz	22	21	92	2950	250	3891207
GBJ H06380	RD 270	3/400 VΔ	50 Hz	22	21	93	2950	250	3891208
GBJ H06380	LG 270	3/400 VΔ	50 Hz	22	21	93	2950	250	3891209
GBJ H06380	RD 0	3/400 VΔ	50 Hz	22	21	93	2950	250	3891210
GBJ H06380	LG 0	3/400 VΔ	50 Hz	22	21	93	2950	250	3891211
GBJ H06380	RD 270	3/440 VΔ	60 Hz	22	21	93	2950	250	3891212
GBJ H06380	LG 270	3/440 VΔ	60 Hz	22	21	93	2950	250	3891213
GBJ H06380	RD 0	3/440 VΔ	60 Hz	22	21	93	2950	250	3891214
GBJ H06380	LG 0	3/440 VΔ	60 Hz	22	21	93	2950	250	3891215
GBJ H06380	RD 270	3/380 VΔ	60 Hz	22	21	93	2950	250	3891216
GBJ H06380	LG 270	3/380 VΔ	60 Hz	22	21	93	2950	250	3891217
GBJ H06380	RD 0	3/380 VΔ	60 Hz	22	21	93	2950	250	3891218
GBJ H06380	LG 0	3/380 VΔ	60 Hz	22	21	93	2950	250	3891219
GBJ H0712	RD 270	3/400 VΔ	50 Hz	30	28	95	2950	335	3891220
GBJ H0712	LG 270	3/400 VΔ	50 Hz	30	28	95	2950	335	3891221
GBJ H0712	RD 0	3/400 VΔ	50 Hz	30	28	95	2950	335	3891222
GBJ H0712	LG 0	3/400 VΔ	50 Hz	30	28	95	2950	335	3891223
GBJ H0712	RD 270	3/440 VΔ	60 Hz	30	28	95	2950	335	3891224
GBJ H0712	LG 270	3/440 VΔ	60 Hz	30	28	95	2950	335	3891225
GBJ H0712	RD 0	3/440 VΔ	60 Hz	30	28	95	2950	335	3891226
GBJ H0712	LG 0	3/440 VΔ	60 Hz	30	28	95	2950	335	3891227
GBJ H0712	RD 270	3/380 VΔ	60 Hz	30	28	95	2950	335	3891228
GBJ H0712	LG 270	3/380 VΔ	60 Hz	30	28	95	2950	335	3891229

Fan model	Discharge position	PH/V	Freq.	Installed power kW	Absorbed power kW	Sound pressure dB(A)	Rotation speed rpm	Weight kg	Code
GBJ H0712	RD 0	3/380 VΔ	60 Hz	30	28	95	2950	335	3891230
GBJ H0712	LG 0	3/380 VΔ	60 Hz	30	28	95	2950	335	3891231
GBJ H0717	RD 270	3/400 VD	50 Hz	37	35	95	2950	350	3891232
GBJ H0717	LG 270	3/400 VΔ	50 Hz	37	35	95	2950	350	3891233
GBJ H0717	RD 0	3/400 VΔ	50 Hz	37	35	95	2950	350	3891234
GBJ H0717	LG 0	3/400 VΔ	50 Hz	37	35	95	2950	350	3891235
GBJ H0717	RD 270	3/440 VΔ	60 Hz	37	35	95	2950	350	3891236
GBJ H0717	LG 270	3/440 VΔ	60 Hz	37	35	95	2950	350	3891237
GBJ H0717	RD 0	3/440 VΔ	60 Hz	37	35	95	2950	350	3891238
GBJ H0717	LG 0	3/440 VΔ	60 Hz	37	35	95	2950	350	3891239
GBJ H0717	RD 270	3/380 VΔ	60 Hz	37	35	95	2950	350	3891240
GBJ H0717	LG 270	3/380 VΔ	60 Hz	37	35	95	2950	350	3891241
GBJ H0717	RD 0	3/380 VΔ	60 Hz	37	35	95	2950	350	3891242
GBJ H0717	LG 0	3/380 VΔ	60 Hz	37	35	95	2950	350	3891243
GBJ I0710	RD 270	3/400 VΔ	50 Hz	37	35	94	2950	400	3891244
GBJ I0710	LG 270	3/400 VΔ	50 Hz	37	35	94	2950	400	3891245
GBJ I0710	RD 0	3/400 VΔ	50 Hz	37	35	94	2950	400	3891246
GBJ I0710	LG 0	3/400 VΔ	50 Hz	37	35	94	2950	400	3891247
GBJ I0710	RD 270	3/440 VΔ	60 Hz	37	35	94	2950	400	3891248
GBJ I0710	LG 270	3/440 VΔ	60 Hz	37	35	94	2950	400	3891249
GBJ I0710	RD 0	3/440 VΔ	60 Hz	37	35	94	2950	400	3891250
GBJ I0710	LG 0	3/440 VΔ	60 Hz	37	35	94	2950	400	3891251
GBJ I0710	RD 270	3/380 VΔ	60 Hz	37	35	94	2950	400	3891252
GBJ I0710	LG 270	3/380 VΔ	60 Hz	37	35	94	2950	400	3891253
GBJ I0710	RD 0	3/380 VΔ	60 Hz	37	35	94	2950	400	3891254
GBJ I0710	LG 0	3/380 VΔ	60 Hz	37	35	94	2950	400	3891255
GBJ I0712	RD 270	3/400 VΔ	50 Hz	45	42	94	2950	310	3891256
GBJ I0712	LG 270	3/400 VΔ	50 Hz	45	42	94	2950	310	3891257
GBJ I0712	RD 0	3/400 VΔ	50 Hz	45	42	94	2950	310	3891258
GBJ I0712	LG 0	3/400 VΔ	50 Hz	45	42	94	2950	310	3891259
GBJ I0712	RD 270	3/440 VΔ	60 Hz	45	42	94	2950	310	3891260
GBJ I0712	LG 270	3/440 VΔ	60 Hz	45	42	94	2950	310	3891261
GBJ I0712	RD 0	3/440 VΔ	60 Hz	45	42	94	2950	310	3891262
GBJ I0712	LG 0	3/440 VΔ	60 Hz	45	42	94	2950	310	3891263
GBJ I0712*	RD 270	3/380 VΔ	60 Hz	45	42	94	2950	310	3891264
GBJ I0712*	LG 270	3/380 VΔ	60 Hz	45	42	94	2950	310	3891265
GBJ I0712*	RD 0	3/380 VΔ	60 Hz	45	42	94	2950	310	3891266
GBJ I0712*	LG 0	3/380 VΔ	60 Hz	45	42	94	2950	310	3891267
GBJ I0800A	RD 270	3/400 VΔ	50 Hz	55	50	95	2950	340	3891268
GBJ I0800A	LG 270	3/400 VΔ	50 Hz	55	50	95	2950	340	3891269
GBJ I0800A	RD 0	3/400 VΔ	50 Hz	55	50	95	2950	340	3891270
GBJ I0800A	LG 0	3/400 VΔ	50 Hz	55	50	95	2950	340	3891271
GBJ I0800A	RD 270	3/440 VΔ	60 Hz	55	50	95	2950	340	3891272
GBJ I0800A	LG 270	3/440 VΔ	60 Hz	55	50	95	2950	340	3891273
GBJ I0800A	RD 0	3/440 VΔ	60 Hz	55	50	95	2950	340	3891274
GBJ I0800A	LG 0	3/440 VΔ	60 Hz	55	50	95	2950	340	3891275
GBJ I0800A*	RD 270	3/380 VΔ	60 Hz	55	50	95	2950	340	3891276
GBJ I0800A*	LG 270	3/380 VΔ	60 Hz	55	50	95	2950	340	3891277
GBJ I0800A*	RD 0	3/380 VΔ	60 Hz	55	50	95	2950	340	3891278
GBJ I0800A*	LG 0	3/380 VΔ	60 Hz	55	50	95	2950	340	3891279

* Motor size 45-55 kW voltage supply 3/380 V/60 Hz are rewinded. Other electrical supply are available on request.

Noise level tolerance: + 3 dB

TECHNICAL DATA
DELIVERY AND STATIC PRESSURE

Fan model	GCH			GCM			GBJ												
	04020	05020	05040	04540	05020	05040	H05630	H06320	I06310	H06330	I06320	I06360	H06380	H0712	H0717	I0710	I0712	I0800A	
Air delivery in m³/min																			Air delivery in m³/s
10	277																		0,2
14	268																		0,2
18	254																		0,3
22	228																		0,4
25	209	452																	0,4
28	188	449	489																0,5
31	162	447	487																0,5
35		443	483																0,6
40		433	473																0,7
45		418	463																0,8
50		396	451																0,8
56		373	433	348			583												0,9
63		341	396	341	380		568												1,1
71				329	373	433	547	642		642									1,2
80				311	361	427	525	641	656	641	656		691						1,3
90				287	344	419	500	626	632	626	632	727	681						1,5
100				258	326	396	455	606	608	606	608	703	666						1,7
112				222	298	368	411	583	587	583	587	672	648	842	942	942			1,9
125				176	263	338	344	554	551	554	551	646	619	826	926	926	898		2,1
140				132	213	293	277			518	522	612	583	807	907	907	883		2,3
160					165	250				470	464	569	525	764	864	864	855	1028	2,7
180						180					399	514	466	709	809	809	825	1012	3,0
200											332	457	383	652	752	752	785	995	3,3
225												363		568	658		735	956	3,8
250															562		684	916	4,2
280															427		592	862	4,7
315																	493	789	5,3
355																	356		5,9

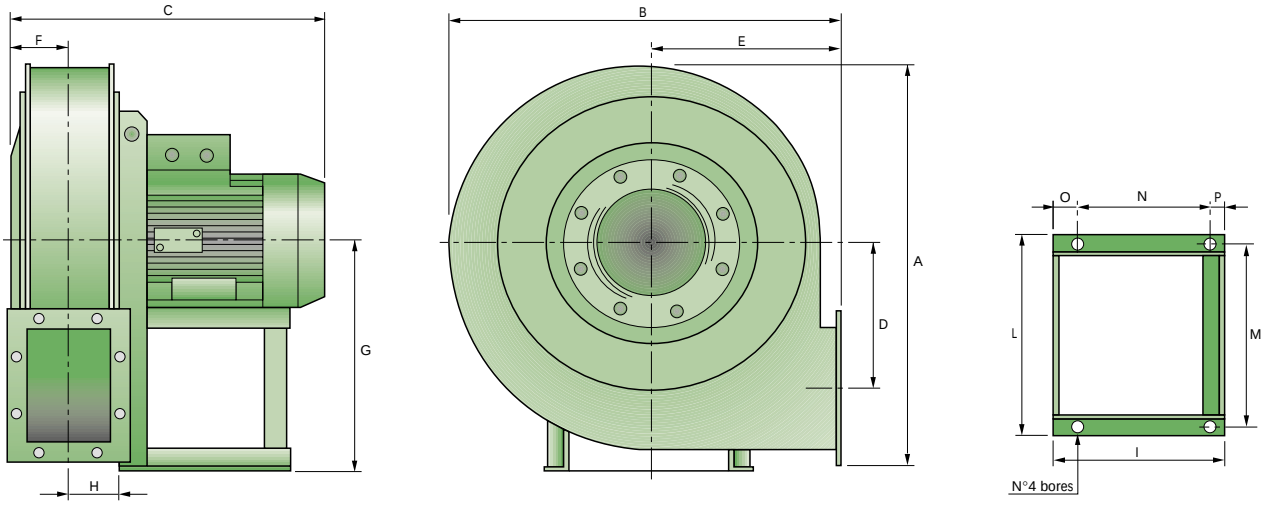
Static pressure (mmH_2O)

The features listed are referred to air at the temperature of +15°C and at the barometrical pressure of 760 mmHg with specific gravity 1,226 kg/m³
Capacity tolerance: ± 5 %

OVERALL DIMENSIONS (mm)

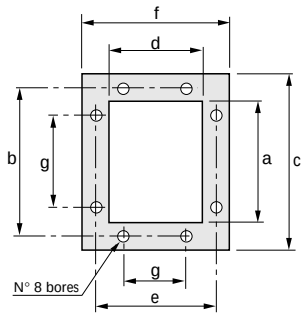
GCH SERIES

Fan and basement



Model	A	B	C	D	E	F	G	H	I	L	M	N	O	P
GCH 04020	660	580	400	230	280	80	375	67	215	270	245	137	60	18
GCH 05020	800	735	570	290	355	100	450	85	320	392	360	250	45	25
GCH 05040	800	735	570	290	355	100	450	85	320	392	360	250	45	25

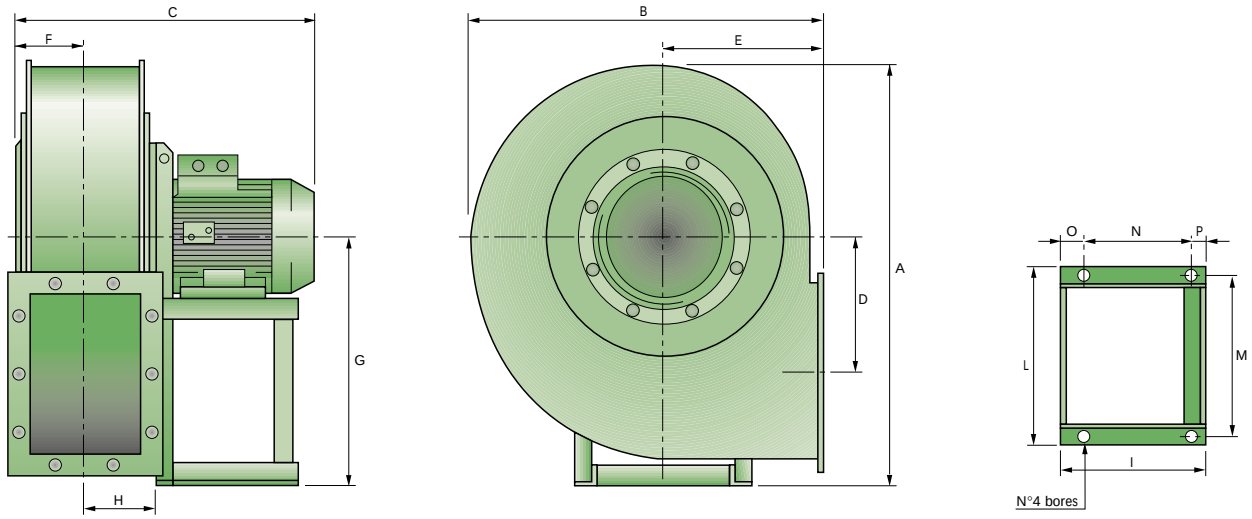
Outlet flange



Model	a	b	c	d	e	f	g
GCH 04020	180	219	250	125	167	195	112
GCH 05020	224	265	294	160	200	230	112
GCH 05040	224	265	294	160	200	230	112

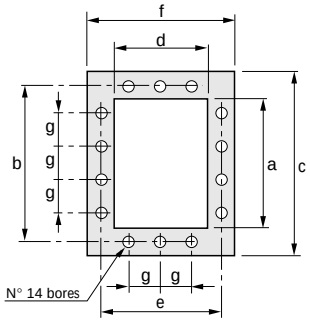
GCM SERIES

Fan and basement



Model	A	B	C	D	E	F	G	H	I	L	M	N	O	P
GCM 04540	930	750	720	328	335	140	560	132	320	392	360	250	45	25
GCM 05020	1010	840	750	365	355	160	630	148	320	392	360	250	45	25
GCM 05040	1010	840	820	365	355	160	630	148	425	440	400	340	55	30

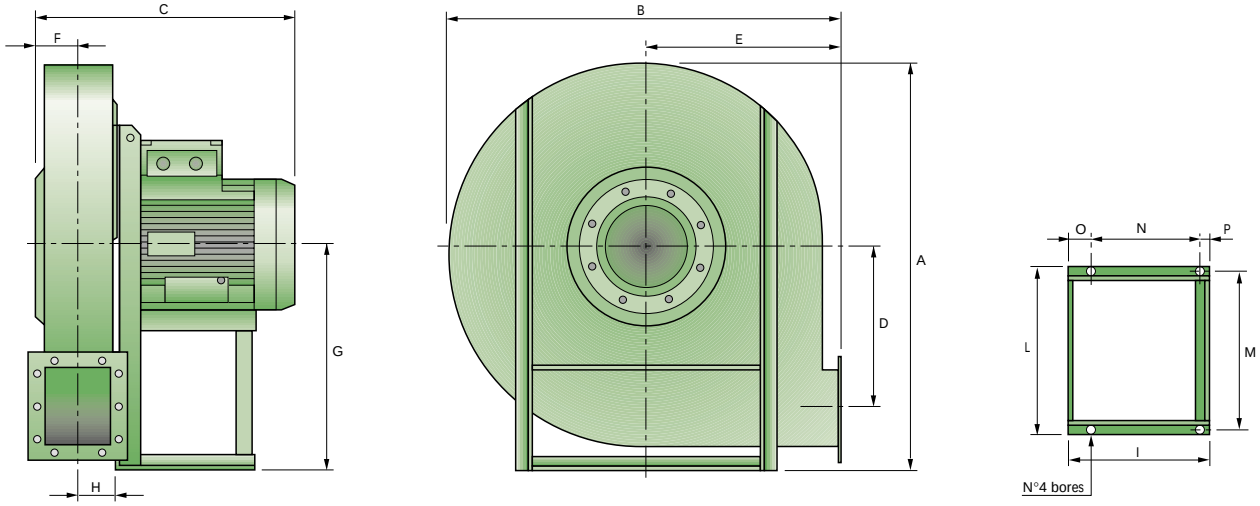
Outlet flange



Model	a	b	c	d	e	f	g
GCM 04540	355	405	435	250	300	330	125
GCM 05020	400	448	480	280	332	360	125
GCM 05040	400	448	480	280	332	360	125

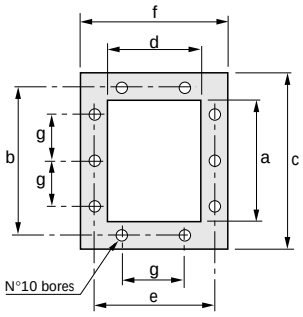
GBJ SERIES

Fan and basement



Model	A	B	C	D	E	F	G	H	I	L	M	N	O	P
GBJ H05630	900	825	680	310	400	120	500	110	425	440	360	250	45	30
GBJ H06320	1000	930	700	342	425	135	560	120	425	440	400	340	55	30
GBJ H06330	1000	930	750	342	425	135	560	120	425	440	400	340	55	30
GBJ H06380	1000	930	775	342	425	135	560	120	470	500	450	340	55	35
GBJ H0712	1120	1000	825	382	475	145	630	135	500	570	510	385	75	40
GBJ H0717	1120	1000	825	382	475	145	630	135	500	570	510	385	75	40
GBJ I06310	1000	930	820	322	425	145	560	135	425	440	400	340	55	30
GBJ I06320	1000	930	820	322	425	145	560	135	425	440	400	340	55	35
GBJ I06360	1000	930	820	322	425	145	560	135	470	500	450	370	65	35
GBJ I0710	1120	1000	1000	360	475	160	630	150	550	626	565	425	85	40
GBJ I0712	1120	1000	710	360	475	160	630	150	320	392	360	250	45	25
GBJ I0800A	1250	1120	750	405	530	180	710	170	320	320	392	360	45	25

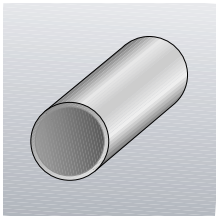
Outlet flange



Model	a	b	c	d	e	f	g
GBJ H05630	280	332	260	200	249	280	125
GBJ H06320	315	366	395	224	273	304	125
GBJ H06330	315	366	395	224	273	304	125
GBJ H06380	315	366	395	224	273	304	125
GBJ H0712	355	405	435	250	300	330	125
GBJ H0717	355	405	435	250	300	330	125
GBJ I06310	355	405	435	250	300	330	125
GBJ I06320	355	405	435	250	300	330	125
GBJ I06360	355	405	435	250	300	330	125
GBJ I0710	400	448	480	280	332	360	125
GBJ I0712	400	448	480	280	332	360	125
GBJ I0800A	450	497	530	315	366	395	125

Fan silencers for GCM and GBJ models

Cylindrical silencers in zinc sheet full of circular flange for mounting on the fans aspiration mouths.

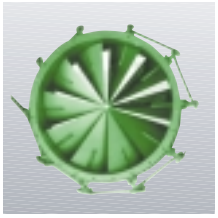


Fan silencers for GCM models					
Silencer	**Suction flange**	**Outlet flange**	**Fan models**	**Lenght (m)**	**Noise reduction (dBA)**
GXS A 1032	GXS B32	GWA 0321L	GCM 04540	1	3-4
GXS A 1035	GXS B35	GWA 0361L	GCM 05020	1	3-4
GXS A 1035	GXS B35	GWA 0361L	GCM 05040	1	3-4

Fan silencers for GBJ models					
Silencer	**Suction flange**	**Outlet flange**	**Fan models**	**Lenght (m)**	**Noise reduction (dBA)**
GXS A 1028	GXS B28	GWA 0286L	GBJ H05630	1	3-4
GXS A 1032	GXS B32	GWA 0321L	GBJ H06320	1	3-4
GXS A 1032	GXS B32	GWA 0321L	GBJ H06330	1	3-4
GXS A 1032	GXS B32	GWA 0321L	GBJ H06380	1	3-4
GXS A 1035	GXS B35	GWA 0361L	GBJ H0712	1	3-4
GXS A 1035	GXS B35	GWA 0361L	GBJ H0717	1	3-4
GXS A 1035	GXS B35	GWA 0361L	GBJ I06310	1	3-4
GXS A 1035	GXS B35	GWA 0361L	GBJ I06320	1	3-4
GXS A 1035	GXS B35	GWA 0361L	GBJ I06360	1	3-4
GXS A 1040 P	GXS B41	GWA 0405L	GBJ I0710	1	3-4
GXS A 1040 P	GXS B41	GWA 0405L	GBJ I0712	1	3-4
GXS A 1050	GXS B50	GWA 0506P	GBJ I0800A	1	3-4

Circular DAPO' flow regulators for GCM and GBJ models

Flow rate regulators are used to vary the fan flow rate, so as to keep the efficiency high even during the operation. Available with manual and motor-driven operation.

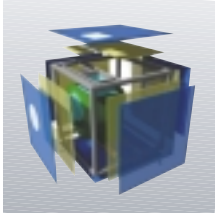


Circular DAPO' flow regulators for GCM models			
Type	**Bores n°**	**Weight (kg)**	**Fan models**
GXH _0315	8	19	GCM 04540
GXH _0355	8	21	GCM 05020
GXH _0355	8	21	GCM 05040

Circular DAPO' flow regulators for GBJ models			
Type	**Bores n°**	**Weight (kg)**	**Fan models**
GXH _0280	8	17	GBJ H05630
GXH _0315	8	19	GBJ H06320
GXH _0315	8	19	GBJ H06330
GXH _0315	8	19	GBJ H06380
GXH _0355	8	21	GBJ H0712
GXH _0355	8	21	GBJ H0717
GXH _0355	8	21	GBJ I06310
GXH _0355	8	21	GBJ I06320
GXH _0355	8	21	GBJ I06360
GXH _0400	12	23	GBJ I0710
GXH _0400	12	23	GBJ I0712
GXH _0450	12	26	GBJ I0800A

Sound proofing box

Used to dampen the fan noise during operation. In the standard version they are provided with:
- vibration-damping joints between the fan panels and the suction and delivery flanges
- flexible supports between the fan and the base
- silenced circulation air intakes
- lifting eyebolts
- self-bearing chassis
- removable inspection panels.



Sound proofing box			
Type	**Dimensions (mm)**	**Noise reduction**	**Fan models**
GXB 5H	1150x1110x1120	10-15 dB(A) at 2 m	GBJ H05630
GXB 6H	1250x1250x1220	10-15 dB(A) at 2 m	GBJ H06320
GXB 6H	1250x1250x1220	10-15 dB(A) at 2 m	GBJ H06330
GXB 6H	1250x1250x1220	10-15 dB(A) at 2 m	GBJ H06380
GXB 6I	1250x1250x1220	10-15 dB(A) at 2 m	GBJ I06310
GXB 6I	1250x1250x1220	10-15 dB(A) at 2 m	GBJ I06320
GXB 6I	1250x1250x1220	10-15 dB(A) at 2 m	GBJ I06360
GXB 7H	1320x1250x1340	10-15 dB(A) at 2 m	GBJ H0712
GXB 7H	1320x1250x1340	10-15 dB(A) at 2 m	GBJ H0717
GB 7I	1320x1430x1340	10-15 dB(A) at 2 m	GBJ I0710
GB 7I	1320x1430x1340	10-15 dB(A) at 2 m	GBJ I0712
GXB 8I	1440x1500x1470	10-15 dB(A) at 2 m	GBJ I0800A

For all the fan models it is possible to predispose electrical motor for the application of inverter so to have variable fan rotation speed by varying frequency.

DESIGNATION OF AIR FANS MODELS

Series : GCH, GCM, GBJ

Model 04020 ..... I0800A

Discharge position :
RD 0 45 90 135 180 225 270 315
LG 0 45 90 135 180 225 270 315

Electrical supply :
3Ph / 380 VΔ / 60 Hz
Ph / 400 VΔ / 50 Hz
3Ph / 440 VΔ / 60 Hz
3Ph / 220 VΔ / 60 Hz
3Ph / 230 VΔ / 50 Hz

Installation :
I Indoor
O Outdoor

Motor certification :
CE
EEX PROOF
RINA (Naval approval)
...

GBJ	H05630	LG 0	3Ph / 380 VΔ / 50 Hz	I	CE

BASIC DESIGNATION

EXTENDED DESIGNATION

STATE OF SUPPLY

Air fan models of GBJ, GCM and GCH series are provided, already assembled and tested in the factory, packaged on pallets with protective plastic films.
The issue includes:
- centrifugal fan made up of a spiral-box which contains the fan wheel fitted on drive shaft
- three phases electrical motor
- intake protection grid
- vibration damping coupling outflow-end
- terminals for electrical connection
- handbook for installation, use and maintenance.

Lineagrafica

RIELLO S.p.A. - Via degli Alpini, 1 - 37045 LEGNAGO (VR) Italy
Tel. ++39.0442630111 - Fax ++39.044221980
Internet: http://www.rielloburners.com - E-mail: rburners@rielloburners.com

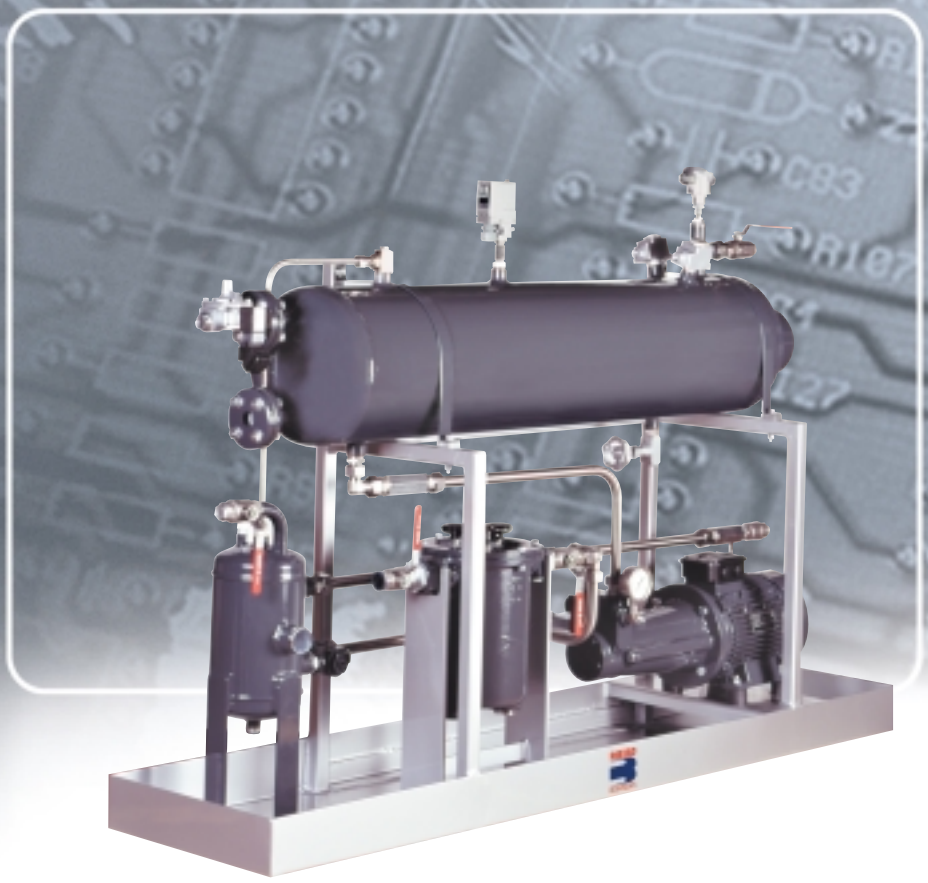
ISO 9001 Cert. n. 0061

RIELLO BURNERS

CE

LIGHT OIL PUMPING UNIT SKIDS
HEAVY OIL HEATING AND PUMPING UNIT SKIDS
FOR INDUSTRIAL BURNERS

SG and DG SERIES*	380 ÷ 3600 l/h
	* pre - set at 28 bar
SN and DN SERIES**	540 ÷ 3600 l/h
	** pre - set at 30 bar



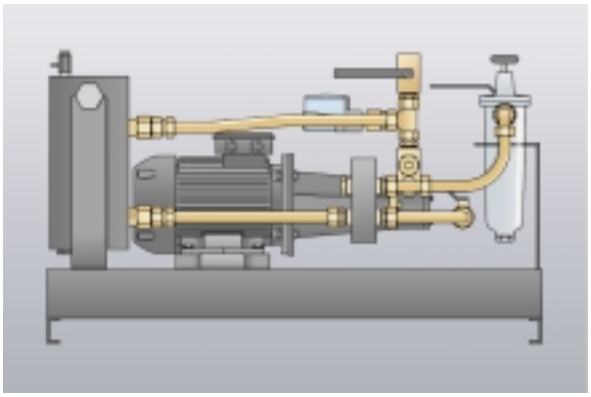
The unit skids of SG,DG,SN and DN series to treat and prepare fuel are an integral part of the industrial burners. The system, designed for oil fuel with max viscosity 65°E at 50°C, consists mainly of a filter, a heater, a pump and a vent valve. Electric or steam/electric heaters may be used and a double system with backup filter and pump is also available. The unit skids come ready assembled and tested for fast installation and the wide range of models available makes the system suitable for many different application.

INDEX OF CONTENTS

The following index, divided in sections, allows search of interest arguments inside the present brochure.

LIGHT OIL PUMPING UNIT SKIDS

The unit skids of SG and DG series are designed to treat and prepare light oil; they consists mainly of a filter, a pump and a vent valve.
The unit skids come ready assembled and tested for fast installation and the wide range of models available makes the system suitable for many different application.



Example of light oil pumping unit skid of SG series

B	Gas separator bottle
F	Selfcleaning filter
PO	Minimum oil pressure switch
P	Pumping group with pressure regulator
MP	Pump electric motor
VR	Pressure regolator valve of degasing unit
VC	Drainage valve (normally closed)
MM	Pressure gauge on the delivery circuit

SG Models

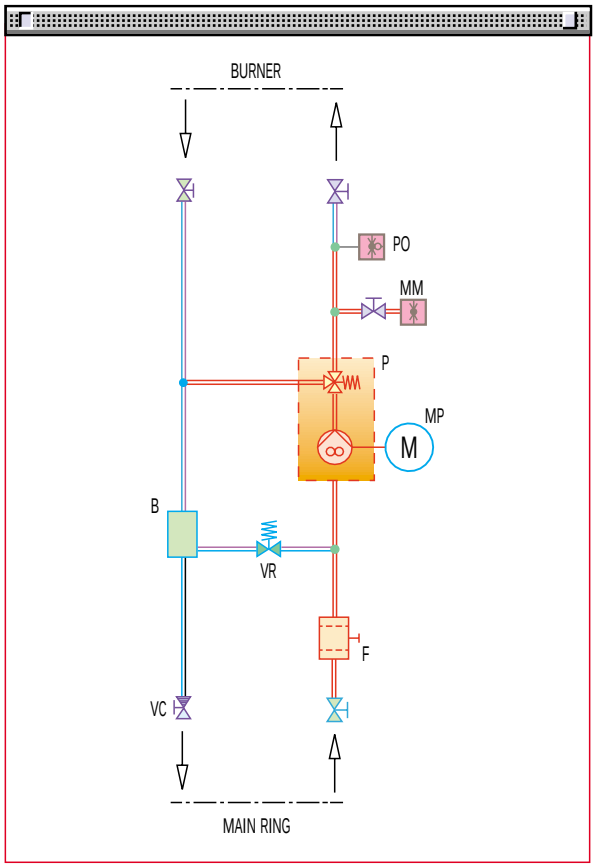


Figure A

DG Models

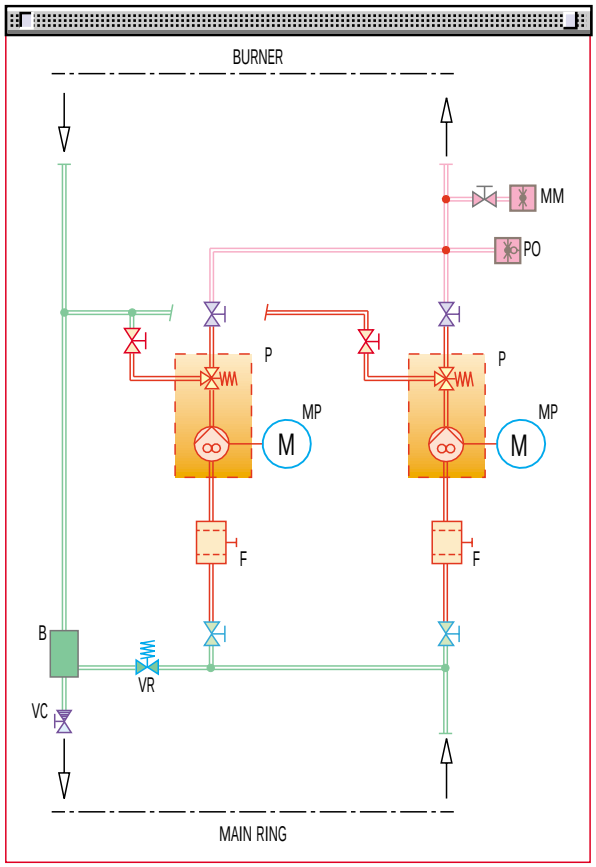


Figure B

LIGHT OIL PUMPING UNIT SKIDS - TECHNICAL DESCRIPTION

The unit skids of SG and DG series are an integral part of the industrial burners; they are equipped with:
- a self-cleaning filter for a treatment of fuel (see F fig. A-B)
- a motorised pumping group with pressure regulator (see P and MP fig. A-B)
- a pressure gauge on the delivery circuit (see MM fig. A-B)
- a minimum oil pressure switch on the delivery circuit to check the supply pressure to the burner (see PO fig. A-B)
- a gas separator bottle to prevent problem of air in the oil circuit (see B fig. A-B)
- a pressure regulator valve of gas separator bottle to maintain the correct value of pressure in the degasing unit (see VR fig. A)
- a drainage valve (normally closed) to facilitate the start-up and maintenance (see VC fig. A-B).

The unit skids of DG series have a double pumping group with filter to enable operation during maintenance or break-down phases (see fig. B).

With light oil fuel, the supply circuit from the tank to the unit skids of the burner can be of two types:
- by suction
- pump assisted main ring (typical supply condition: 1 bar)

LIGHT OIL PUMPING UNIT SKIDS - TECHNICAL DATA

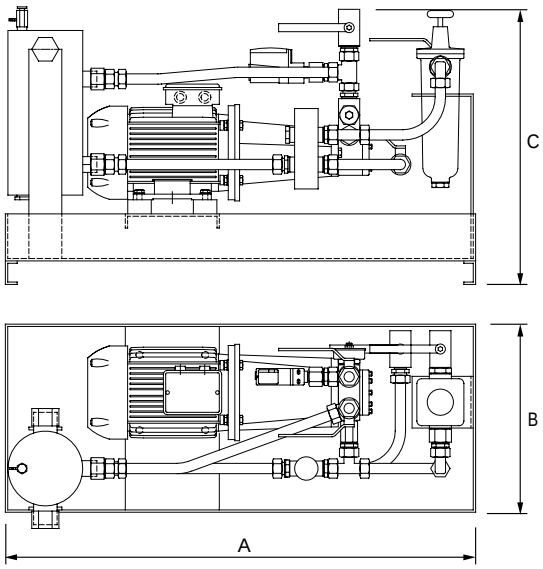
Model	Electrical supply Ph/V/Hz	Connection IN/OUT	Delivery at 15 bar [l/h]	Delivery at 28 bar [l/h]	Aspiration pressure min/max [bar]	Electric motor power [kW]	Motor speed [rpm]	Max delivery * [kg/h]
SG 160	3/400/50	R 1/2	430	380	-0,6 / 5	1,1	2800	160
SG 250	3/400/50	R 1/2	690	610	-0,6 / 5	1,5	2800	280
SG 320	3/400/50	R 1/2	910	810	-0,6 / 5	1,5	2800	360
SG 400	3/400/50 3/440/60	R 1/2	1270 1520	1140 1370	-0,6 / 5	2,2 2,5	2800 3400	510 610
SG 500	3/400/50 3/440/60	R 3/4	1440 1730	1200 1440	-0,6 / 5	2,2 2,5	1400 1700	540 650
SG 800	3/400/50 3/440/60	R 3/4	1960 2350	1700 2040	-0,6 / 5	3 3,5	1400 1700	810 960
SG 1000	3/400/50 3/440/60	R 1	2800 3360	2200 2640	-0,6 / 5	4 4,4	1400 1700	1060 1220
SG 1500	3/400/50 3/440/60	R 1	4000 4800	3600 4320	-0,6 / 5	5,5 6,3	1400 1700	1620 1950
DG 160	3/400/50	R 1/2	430	380	-0,6 / 5	1,1+1,1	2800	160
DG 250	3/400/50	R 1/2	690	610	-0,6 / 5	1,5+1,5	2800	280
DG 320	3/400/50	R 1/2	910	810	-0,6 / 5	1,5+1,5	2800	360
DG 400	3/400/50 3/440/60	R 1/2	1270 1520	1140 1370	-0,6 / 5	2,2+2,2 2,5+2,5	2800 3400	510 610
DG 500	3/400/50 3/440/60	R 3/4	1440 1730	1200 1440	-0,6 / 5	2,2+2,2 2,5+2,5	1400 1700	540 650
DG 800	3/400/50 3/440/60	R 3/4	1960 2350	1700 2040	-0,6 / 5	3+3 3,5+3,5	1400 1700	810 960
DG 1000	3/400/50 3/440/60	R 1	2800 3360	2200 2640	-0,6 / 5	4+4 4,4+4,4	1400 1700	1060 1220
DG 1500	3/400/50 3/440/60	R 1	4000 4800	3600 4320	-0,6 / 5	5,5+5,5 6,3+6,3	1400 1700	1620 1950

* at 28 bar

note *Please contact the Riello Burners Technical Office for different necessity of operation from those above indicated.*

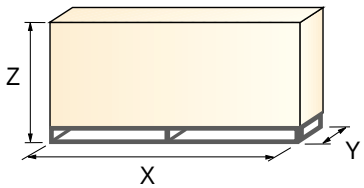
OVERALL DIMENSIONS (mm)

LIGHT OIL PUMPING UNIT SKIDS



Model	A	B	C
SG 160	1000	400	600
SG 250	1000	400	600
SG 320	1000	400	600
SG 400	1000	400	600
SG 500	1000	400	600
SG 800	1000	400	600
SG 1000	1300	400	650
SG 1500	1300	400	650
DG 160	1000	600	600
DG 250	1000	600	600
DG 320	1000	600	600
DG 400	1000	600	600
DG 500	1000	600	600
DG 800	1000	600	600
DG 1000	1300	800	650
DG 1500	1300	800	650

PACKAGING



Model	X	Y	Z
SG 160	1260	640	840
SG 250	1260	640	840
SG 320	1260	640	840
SG 400	1260	640	840
SG 500	1260	640	840
SG 800	1260	640	840
SG 1000	1560	640	890
SG 1500	1560	640	890
DG 160	1260	840	840
DG 250	1260	840	840
DG 320	1260	840	840
DG 400	1260	840	840
DG 500	1260	840	840
DG 800	1260	840	840
DG 1000	1560	1040	890
DG 1500	1560	1040	890

LIGHT OIL PUMPING UNIT SKIDS - LIST OF AVAILABLE MODELS

Single pumping unit				Double pumping unit			
SG 160	SB	3/400/50	230/50-60	DG 160	SB	3/400/50	230/50-60
SG 250	SB	3/400/50	230/50-60	DG 250	SB	3/400/50	230/50-60
SG 320	SB	3/400/50	230/50-60	DG 320	SB	3/400/50	230/50-60
SG 400	SB	3/400/50-3/440/60	230/50-60	DG 400	SB	3/400/50-3/440/60	230/50-60
SG 500	SB	3/400/50-3/440/60	230/50-60	DG 500	SB	3/400/50-3/440/60	230/50-60
SG 800	SB	3/400/50-3/440/60	230/50-60	DG 800	SB	3/400/50-3/440/60	230/50-60
SG 1000	SB	3/400/50-3/440/60	230/50-60	DG 1000	SB	3/400/50-3/440/60	230/50-60
SG 1500	SB	3/400/50-3/440/60	230/50-60	DG 1500	SB	3/400/50-3/440/60	230/50-60

Other versions are available on request.

LIGHT OIL PUMPING UNIT SKIDS - STATE OF SUPPLY

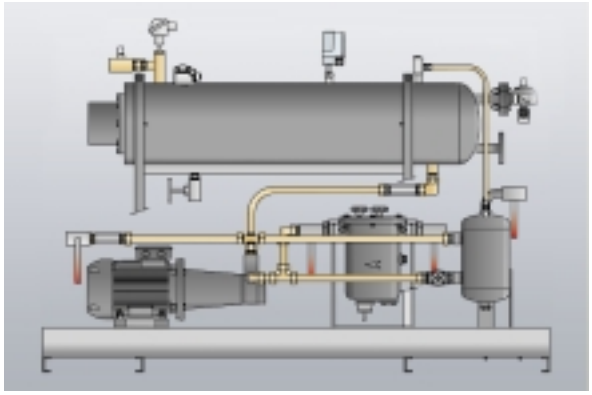
Pumping unit skids supplied, in function of model, for filtering and to pressurize light oil, made up of:
- Base in painted steel sheet
- Manual shut off valve on the output circuit
- Self-cleaning filter (double on the D version)
- Gas separator group
- Pressure regulator valve of gas separator bottle
- Pumping group with pressure regulator (double on the D version)
- Pressure gauge
- Minimum oil pressure switch
- Drainage valve
- Shunt box.

Available accessories to be ordered separately:
- Pumping unit for main ring
- Automatic gas separator
- Line filter
- Pressure regulator.

(See accessories section).

HEAVY OIL HEATING AND PUMPING UNIT SKIDS

The unit skids of SN-EP, DN-EP, SN-EV and DN-EV series are designed to treat and prepare heavy oil with max viscosity 65°E at 50°C; they consists mainly of a filter, a heater, a pump and a vent valve. The heater can be Electrical or Electrical/Steam type.
The unit skids come ready assembled and tested for fast installation and the wide range of models available makes the system suitable for many different application.



Example of heavy oil Heating and Pumping unit skid of SN-EV series

B	Gas separator bottle
F	Selfcleaning filter
PO	Minimum oil pressure switch
RS	Heating cartridge
P	Pumping group with pressure regulator
MP	Pump electric motor
PS	Heavy oil heater
TM	Maximum thermostat
Tm	Minimum thermostat
VR	Pressure regolator valve of degasing unit
VC	Drainage valve (normally closed)
VV	Steam circuit solenoid valve
MM	Pressure gauge on the delivery circuit
TP	Temperature probe
VS	Safety valve

SN EP Models

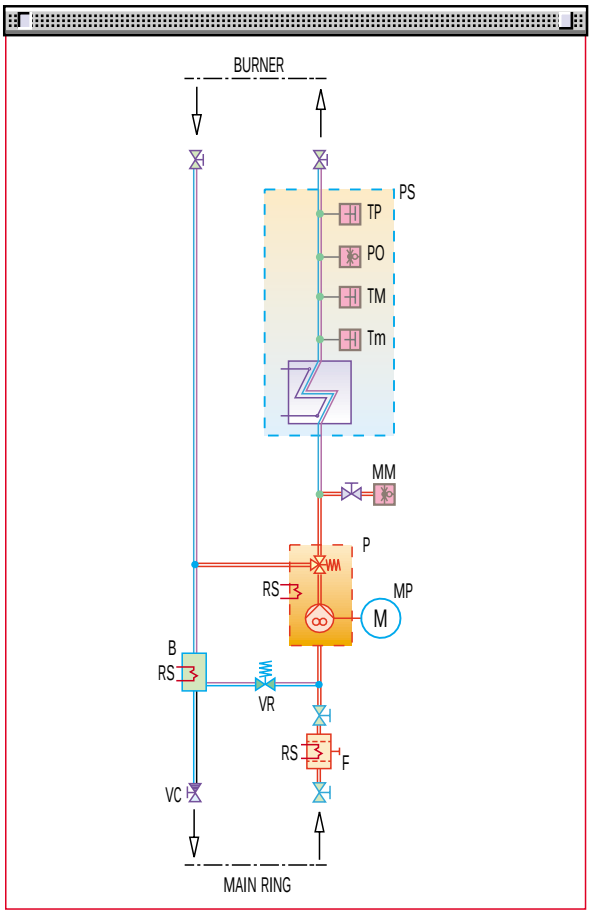


Figure C

DN EP Models

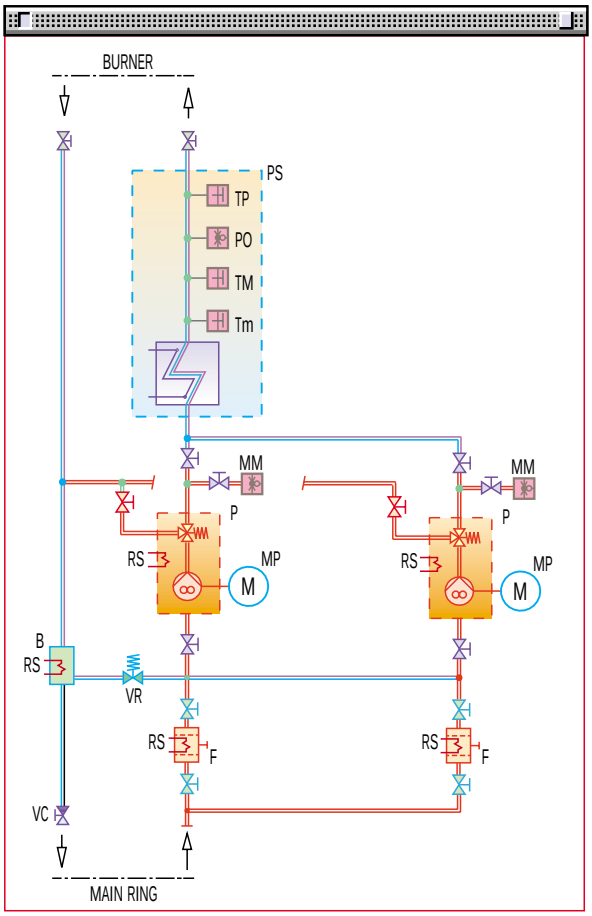


Figure D

SN EV Models

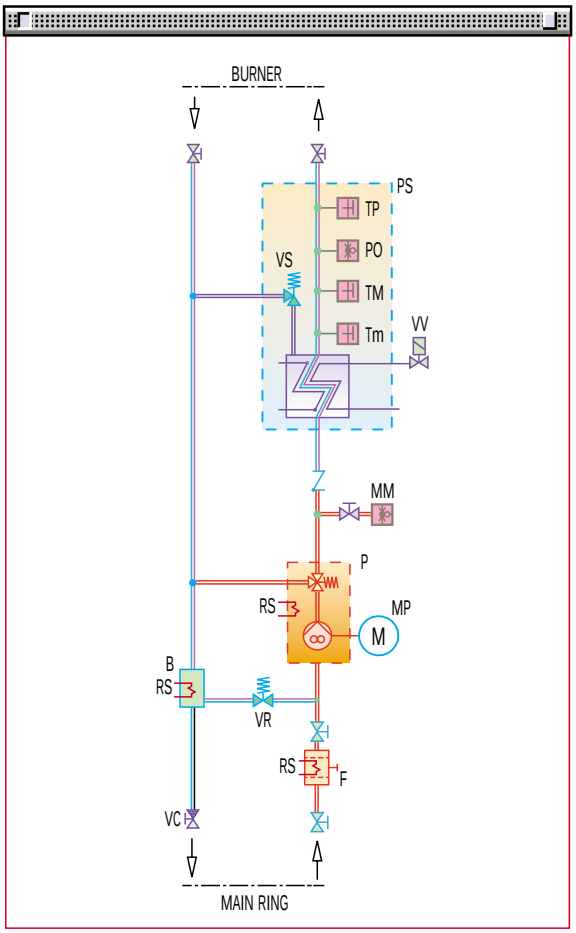


Figure E

DN EV Models

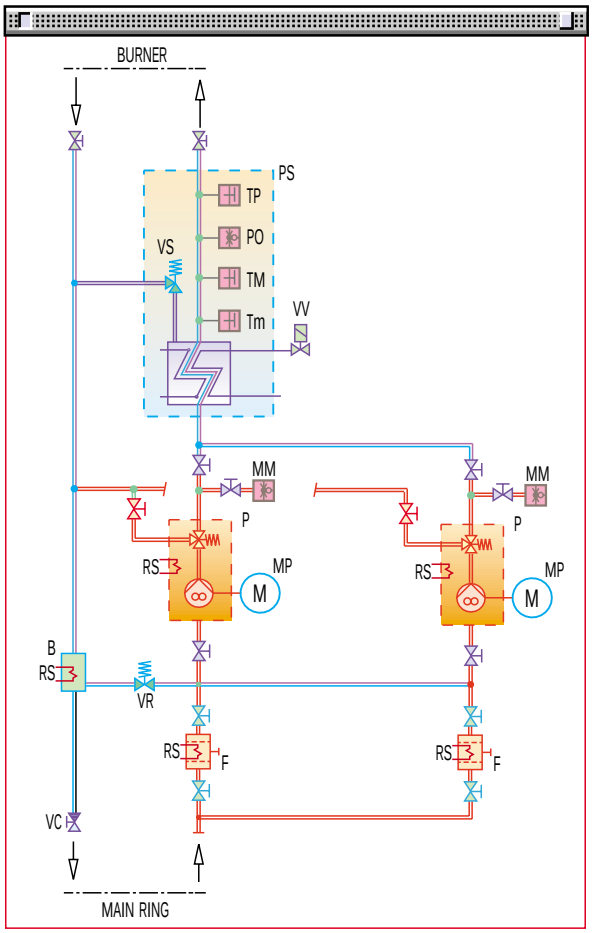


Figure F

HEAVY OIL HEATING AND PUMPING UNIT SKIDS - TECHNICAL DESCRIPTION

The unit skids of SN-EP, DN-EP, SN-EV and DN-EV series are an integral part of the industrial burners; they are equipped with:
- a self-cleaning filter, heated by electrical resistance, for a treatment of fuel (see F fig. C-D-E-F)
- a motorised pumping group with pressure regulator, heated by electrical resistance (see P and MP fig. C-D-E-F)
- a pressure gauge on the delivery circuit (see MM fig. C-D-E-F)
- an electrical or electrical/steam heavy oil heaters (see PS fig. C-D-E-F)
- a minimum and a maximum thermostat to check the oil supply temperature to the burner (see Tm and TM fig. C-D-E-F)
- a minimum oil pressure switch on the delivery circuit to check the oil supply pressure to the burner (see PO fig. C-D-E-F)
- a temperature probe for the electronic control (see TP fig. C-D-E-F)
- a gas separator bottle, heated by electrical resistance, to prevent problem of air in the oil circuit (see B fig C-D-E-F)
- a pressure regulator valve of gas separator bottle to maintain the correct value of pressure in the degasing unit (see VR fig. C-D-E-F)
- a drainage valve (normally closed) to facilitate the start-up and maintenance (see VC fig. C-D-E-F).

The electrical/steam heaters of SN-EV and DN-EV series are furthermore equipped with:
- a steam circuit solenoid valve to allow steam passage trough the heater
- a safety valve

An electronic control device on the basis of required heat, regulates steam circuit solenoid valve opening and electrical resistances energising to maintain heavy oil temperature at the correct value.

The unit skids of DN-EP and DN-EV series have a double pumping group with filter and pressure gauge to enable operation during maintenance or break-down phases (see fig. D-F).

With heavy oil fuel, the supply circuit from the tank to the unit skids of the burner is a pump assisted main ring (typical supply condition: 1,5 bar – 60°C)

HEAVY OIL HEATING AND PUMPING UNIT SKIDS - TECHNICAL DATA

Model	Electrical supply Ph/V/Hz	Connection IN/OUT	Delivery at 15 bar [l/h]	Delivery at 30 bar [l/h]	Aspiration pressure min/max [bar]	Electric motor power [kW]	Motor speed [rpm]	Max delivery * [kg/h]	Heating electrical power [kW]	Total electrical power [kW]
SN 250 EP	3/400/50 3/440/60	R 1/2	580 700	540 648	-0,6 / 5	1,1 1,27	1400 1700	265 290	14	15
SN 320 EP	3/400/50 3/440/60	R 3/4	950 1140	700 840	-0,6 / 5	1,5 1,8	1400 1700	350 430	20	22,5
SN 400 EP	3/400/50 3/440/60	R 3/4	1400 1680	1200 1440	-0,6 / 5	2,2 2,5	1400 1700	540 600	28	31
SN 650 EP	3/400/50 3/440/60	R 3/4	1400 1680	1200 1440	-0,6 / 5	2,2 2,5	1400 1700	590 700	40	43
SN 800 EP	3/400/50 3/440/60	R 3/4	1900 2280	1700 2040	-0,6 / 5	3 3,5	1400 1700	810 810	40	44
SN 1000 EP	3/400/50 3/440/60	R 1	2700 3240	2200 2640	-0,6 / 5	5,5 6,3	1400 1700	1085 1290	60	67
SN 1500 EP	3/400/50 3/440/60	R 1	5400 6480	3600 4320	-0,6 / 5	7,5 8,6	1400 1700	1550 1640	80	89
DN 250 EP	3/400/50 3/440/60	R 1/2	580 700	540 648	-0,6 / 5	1,1+1,1 1,27+1,27	1400 1700	265 290	14	15
DN 320 EP	3/400/50 3/440/60	R 3/4	950 1140	700 840	-0,6 / 5	1,5+1,5 1,8+1,8	1400 1700	350 430	20	22,5
DN 400 EP	3/400/50 3/440/60	R 3/4	1400 1680	1200 1440	-0,6 / 5	2,2+2,2 2,5+2,5	1400 1700	540 600	28	31
DN 650 EP	3/400/50 3/440/60	R 3/4	1400 1680	1200 1440	-0,6 / 5	2,2+2,2 2,5+2,5	1400 1700	590 700	40	43
DN 800 EP	3/400/50 3/440/60	R 3/4	1900 2280	1700 2040	-0,6 / 5	3+3 3,5+3,5	1400 1700	810 810	40	44
DN 1000 EP	3/400/50 3/440/60	R 1	2700 3240	2200 2640	-0,6 / 5	5,5+5,5 6,3+6,3	1400 1700	1085 1290	60	67
DN 1500 EP	3/400/50 3/440/60	R 1	5400 6480	3600 4320	-0,6 / 5	7,5+7,5 8,6+8,6	1400 1700	1550 1640	80	89
SN 250 EV	3/400/50 3/440/60	R 1/2	580 700	540 648	-0,6 / 5	1,1 1,27	1400 1700	265 300	15	16,5 16,8
SN 320 EV	3/400/50 3/440/60	R 3/4	950 1140	700 840	-0,6 / 5	1,5 1,8	1400 1700	345 400	15	17 17,5
SN 400 EV	3/400/50 3/440/60	R 3/4	1400 1680	1200 1440	-0,6 / 5	2,2 2,5	1400 1700	415 415	15	18 18,3
SN 500 EV	3/400/50 3/440/60	R 3/4	1400 1680	1200 1440	-0,6 / 5	2,2 2,5	1400 1700	590 700	20	22,5 22,8
SN 650 EV	3/400/50 3/440/60	R 3/4	1900 2280	1700 2040	-0,6 / 5	3 3,5	1400 1700	700 800	25	28,5 29
SN 800 EV	3/400/50 3/440/60	R 3/4	1900 2280	1700 2040	-0,6 / 5	3 3,5	1400 1700	800 800	30	33,5 34
SN 1000 EV	3/400/50 3/440/60	R 1	2700 3240	2200 2640	-0,6 / 5	5,5 6,3	1400 1700	1083 1300	40	46 47
SN 1500 EV	3/400/50 3/440/60	R 1	5400 6480	3600 4320	-0,6 / 5	7,5 8,6	1400 1700	1500 1500	50	58 59
SN 2000 EV	3/400/50 3/440/60	R 1	5400 6480	3600 4320	-0,6 / 5	7,5 8,6	1400 1700	2000 2000**	60	68 69
DN 250 EV	3/400/50 3/440/60	R 1/2	580 700	540 648	-0,6 / 5	1,1 + 1,1 1,27+1,27	1400 1700	265 300	15	16,5 16,8
DN 320 EV	3/400/50 3/440/60	R 3/4	950 1140	700 840	-0,6 / 5	1,5 + 1,5 1,8+1,8	1400 1700	345 400	15	17 17,5
DN 400 EV	3/400/50 3/440/60	R 3/4	1400 1680	1200 1440	-0,6 / 5	2,2 + 2,2 2,5+2,5	1400 1700	415 415	15	18 18,3
DN 500 EV	3/400/50 3/440/60	R 3/4	1400 1680	1200 1440	-0,6 / 5	2,2 + 2,2 2,5+2,5	1400 1700	590 700	20	22,5 22,8
DN 650 EV	3/400/50 3/440/60	R 3/4	1900 2280	1700 2040	-0,6 / 5	3 +3 3,5+3,5	1400 1700	700 800	25	28,5 29
DN 800 EV	3/400/50 3/440/60	R 3/4	1900 2280	1700 2040	-0,6 / 5	3 +3 3,5+3,5	1400 1700	800 800	30	33,5 34
DN 1000 EV	3/400/50 3/440/60	R 1	2700 3240	2200 2640	-0,6 / 5	5,5 +5,5 6,3+6,3	1400 1700	1083 1300	40	46 47
DN 1500 EV	3/400/50 3/440/60	R 1	5400 6480	3600 4320	-0,6 / 5	7,5 +7,5 8,6+8,6	1400 1700	1500 1500	50	58 59
DN 2000 EV	3/400/50 3/440/60	R 1	5400 6480	3600 4320	-0,6 / 5	7,5 +7,5 8,6+8,6	1400 1700	2000 2000**	60	68 69

* at 30 bar

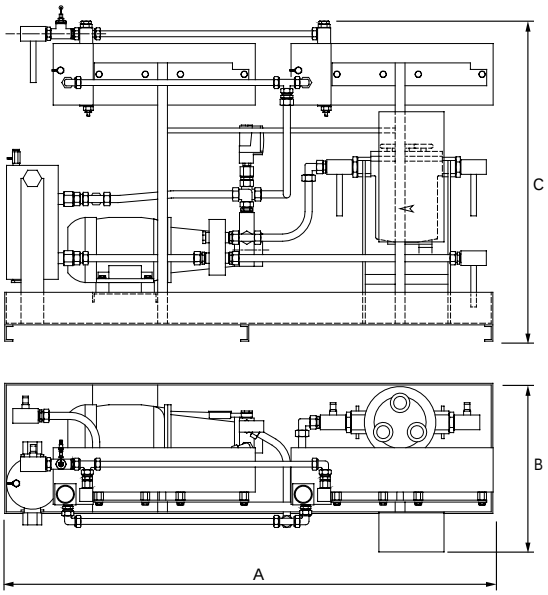
** in steam heating operation 30% of required output is electrical integrated.

note *Please contact the Riello Burners Technical Office for different necessity of operation from those above indicated.*

OVERALL DIMENSIONS (mm)

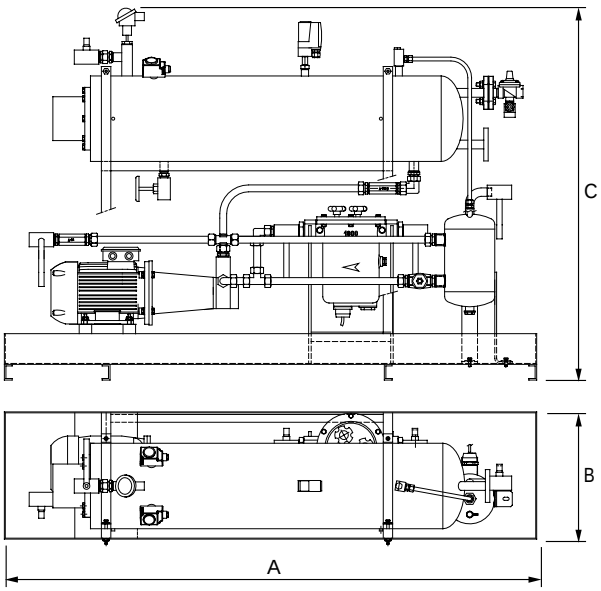
HEAVY OIL HEATING AND PUMPING UNIT SKIDS

Electrical heater



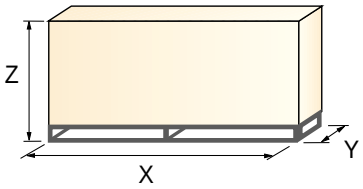
Model	A	B	C
SN 250 EP	1400	400	985
SN 320 EP	1400	400	985
SN 400 EP	1500	400	1100
SN 500 EP	1500	400	1100
SN 650 EP	1500	400	1100
SN 800 EP	1500	600	1100
SN 1000 EP	1500	600	1100
SN 1500 EP	1500	600	1100
DN 250 EP	1400	700	985
DN 320 EP	1400	700	985
DN 400 EP	1500	700	1100
DN 500 EP	1500	700	1100
DN 650 EP	1500	700	1100
DN 800 EP	1500	900	1100
DN 1000 EP	1500	900	1100
DN 1500 EP	1500	900	1100

Electrical/steam heater



Model	A	B	C
SN 250 EV	1700	400	1105
SN 320 EV	1700	400	1200
SN 400 EV	1700	400	1200
SN 500 EV	1700	400	1200
SN 650 EV	1700	400	1200
SN 800 EV	1700	400	1200
SN 1000 EV	1900	600	1300
SN 1500 EV	1900	600	1300
SN 2000 EV	1900	600	1300
DN 250 EV	1700	700	1105
DN 320 EV	1700	700	1200
DN 400 EV	1700	700	1200
DN 500 EV	1700	700	1200
DN 650 EV	1700	700	1200
DN 800 EV	1700	700	1200
DN 1000 EV	1900	900	1300
DN 1500 EV	1900	900	1300
DN 2000 EV	1900	900	1300

PACKAGING



Model	X	Y	Z
SN 250 EP	1660	640	1450
SN 320 EP	1660	640	1450
SN 400 EP	1660	640	1450
SN 500 EP	1660	640	1450
SN 650 EP	1660	640	1450
SN 800 EP	1660	840	1450
SN 1000 EP	1660	840	1450
SN 1500 EP	1660	840	1450
DN 250 EP	1660	940	1450
DN 320 EP	1660	940	1450
DN 400 EP	1660	940	1450
DN 500 EP	1660	940	1450
DN 650 EP	1660	940	1450
DN 800 EP	1660	1140	1450
DN 1000 EP	1660	1140	1450
DN 1500 EP	1660	1140	1450

Model	X	Y	Z
SN 250 EV	1860	640	1450
SN 320 EV	1860	640	1450
SN 400 EV	1860	640	1450
SN 500 EV	1860	640	1450
SN 650 EV	1860	640	1450
SN 800 EV	1860	640	1450
SN 1000 EV	1995	840	1550
SN 1500 EV	1995	840	1550
SN 2000 EV	1995	840	1550
DN 250 EV	1860	940	1450
DN 320 EV	1860	940	1450
DN 400 EV	1860	940	1450
DN 500 EV	1860	940	1450
DN 650 EV	1860	940	1450
DN 800 EV	1860	940	1450
DN 1000 EV	1995	1140	1550
DN 1500 EV	1995	1140	1550
DN 2000 EV	1995	1140	1550

HEAVY OIL HEATING AND PUMPING UNIT SKIDS - LIST OF AVAILABLE MODELS

Electrical heater

Single pumping unit

SN	250	EP	SB	3/400/50-3/440/60	230/50-60
SN	320	EP	SB	3/400/50-3/440/60	230/50-60
SN	400	EP	SB	3/400/50-3/440/60	230/50-60
SN	650	EP	SB	3/400/50-3/440/60	230/50-60
SN	800	EP	SB	3/400/50-3/440/60	230/50-60
SN	1000	EP	SB	3/400/50-3/440/60	230/50-60
SN	1500	EP	SB	3/400/50-3/440/60	230/50-60

Double pumping unit

DN	250	EP	SB	3/400/50-3/440/60	230/50-60
DN	320	EP	SB	3/400/50-3/440/60	230/50-60
DN	400	EP	SB	3/400/50-3/440/60	230/50-60
DN	650	EP	SB	3/400/50-3/440/60	230/50-60
DN	800	EP	SB	3/400/50-3/440/60	230/50-60
DN	1000	EP	SB	3/400/50-3/440/60	230/50-60
DN	1500	EP	SB	3/400/50-3/440/60	230/50-60

Electrical/Steam heater

Single pumping unit

SN	250	EV	SB	3/400/50-3/440/60	230/50-60
SN	320	EV	SB	3/400/50-3/440/60	230/50-60
SN	400	EV	SB	3/400/50-3/440/60	230/50-60
SN	500	EV	SB	3/400/50-3/440/60	230/50-60
SN	650	EV	SB	3/400/50-3/440/60	230/50-60
SN	800	EV	SB	3/400/50-3/440/60	230/50-60
SN	1000	EV	SB	3/400/50-3/440/60	230/50-60
SN	1500	EV	SB	3/400/50-3/440/60	230/50-60
SN	2000	EV	SB	3/400/50-3/440/60	230/50-60

Double pumping unit

DN	250	EV	SB	3/400/50-3/440/60	230/50-60
DN	320	EV	SB	3/400/50-3/440/60	230/50-60
DN	400	EV	SB	3/400/50-3/440/60	230/50-60
DN	500	EV	SB	3/400/50-3/440/60	230/50-60
DN	650	EV	SB	3/400/50-3/440/60	230/50-60
DN	800	EV	SB	3/400/50-3/440/60	230/50-60
DN	1000	EV	SB	3/400/50-3/440/60	230/50-60
DN	1500	EV	SB	3/400/50-3/440/60	230/50-60
DN	2000	EV	SB	3/400/50-3/440/60	230/50-60

Other versions are available on request.

HEAVY OIL HEATING AND PUMPING UNIT SKIDS - STATE OF SUPPLY

Heating and pumping unit skids supplied, in function of model, for filtering, heating and to pressurize heavy oil, made up of:
- Base in painted steel sheet
- Manual shut off valve on the output circuit
- Self-cleaning filter (double on the D version)
- Gas separator group
- Pressure regulator valve of gas separator bottle
- Pumping group with pressure regulator (double on the D version)
- Pressure gauge
- Electrical heater (on the EP models)
- Mixed heating: electrical/steam (on the EV models)
- Minimum oil pressure switch
- Maximum thermostat
- Minimum thermostat
- Shunt box
- Steam circuit solenoid valve
- Temperature probe
- Safety valve
- Heating cartridge
- Drainage valve.

Available accessories to be ordered separately:
- Pumping unit for main ring
- Automatic gas separator
- Heating cartridge
- Line filter
- Pressure regulator.

(See accessories section).

SPECIFICATION

A specific index guides your choice of pumping unit from the various models available in the SG, DG, SN and DN series.
Below is a clear and detailed specification description of the product.

DESIGNATION OF SERIES

Series : S single pumping and filtering unit
D double pumping and filtering unit

Fuel : G Light oil
K Kerosene
N Heavy oil

Type : 160 - 250 - 320 - 400 - 500 - 650 - 800 - 1000 - 1500 - 2000

Heating type :
EP electrical heating
EV mixed heating: electrical/steam
V steam heating
AS superheated water heating

Electrical connection :
SB Shunt box (standard)
SC direct connection

Electrical supply :
3/400/50 3/440/60 3/380/60
3/230/50 3/254/60 3/220/60

Control circuit electrical supply :
230/50-60Hz 110/50-60 Hz

Output meter :
CL local meter
CI impulses emitter meter

Emulsion kit :
D1 n° 1 distributor
D2 n° 2 distributors

Motorized filter :
MF

Installation :
I internal
O external

S	N	500	EV	SB	3/400/50	230/50/60	-	-	-	I

BASIC DESIGNATION

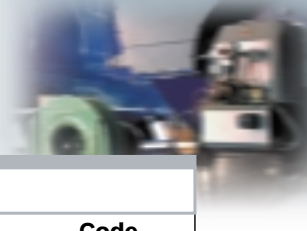
EXTENDED DESIGNATION | **OPTIONS AVAILABLE ON REQUEST**

ACCESSORIES

Pumping unit for main ring						
Model	**Electrical supply Ph/V/Hz**	**Connection IN/OUT**	**Output at 9 bar [l/h]**	**Electric motor power [kW]**	**Motor speed [rpm]**	**Code**
Max viscosity 12° E at 50°C						
RG 600	3/400/50 3/440/60	Rp 1/2	600 720	0,37 0,43	1400 1700	**3093220**
RG 1000	3/400/50 3/440/60	Rp 3/4	1000 1200	0,55 0,65	1400 1700	**3093221**
RG 1500	3/400/50 3/440/60	Rp 3/4	1500 1800	0,75 0,88	1400 1700	**3093222**
RG 2000	3/400/50 3/440/60	Rp 3/4	2000 2400	1,1 1,27	1400 1700	**3093223**
RG 3000	3/400/50 3/440/60	Rp 1	3000 3600	1,5 1,8	1400 1700	**3093224**
RG 4500	3/400/50 3/440/60	Rp 1	4500 5400	2,2 2,5	1400 1700	**3093225**
RG 6000	3/400/50 3/440/60	Rp 1	6000 7200	3 3,5	1400 1700	**3093226**
Max viscosity 65° E at 50°C						
RGS 670	3/400/50 3/440/60	Rp 1	670 800	0,75 0,88	950 1100	**In progress**
RGS 1000	3/400/50 3/440/60	Rp 1	1000 1200	1,1 1,27	950 1100	**3093227**
RGS 1330	3/400/50 3/440/60	Rp 1	1330 1600	1,5 1,8	950 1100	**3093228**
RGS 2000	3/400/50 3/440/60	Rp 1 1/4	2000 2400	2,2 2,5	950 1100	**3093229**
RGS 3000	3/400/50 3/440/60	Rp 1 1/4	3000 3600	3 3,5	950 1100	**3093230**
RGS 4000	3/400/50 3/440/60	Rp 1 1/4	4000 4800	4 4,8	950 1100	**3093231**

Automatic gas separator			
Type	**Connection IN/OUT**	**Max working delivery [l/h]**	**Code**
GS 150	1" 1/2 x 1"	1000	**3000248**
GS 250	1" 1/2 x 1"1/2	2000	**3010012**

Heating cartridge		
Type	**Electrical power [W]**	**Code**
HC 100	100	**3090620**
HC 160	160	**3090621**
HC 280	280	**3090622**



Line filter				
Type	**Electrical power [W]**	**Connection IN / OUT**	**Max output [l/h]**	**Code**
Cartridge filter 100 µm (light oil)				
LOCF 3800	-	Rp 1	3800	**3090236**
Selfcleaning filter 300 µm				
SCOF 2000	80	Rp 1 1/2	2000	**3000790**
SCOF 4000	80 -300	Rp 1 1/2	4000	**3010022**

Pressure regolator				
Type	**Setting range [bar]**	**Connection IN / OUT**	**Max output [l/h]**	**Code**
BGH 3/4	1 - 4	Rp 3/4	2000	**3090569**
BGHG 1	1 - 4	Rp 1	6000	**3090316**
BGHG 1 1/4	1 - 4	Rp 1 1/4	10000	**3090852**

Manual shut off valve		
Type	**Port size**	**Code**
Light oil		
LOBV 1/2	Rp 1/2	**in progress**
LOBV 3/4	Rp 3/4	**in progress**
LOBV 1	Rp 1	**in progress**
Heavy oil		
HOBV 1/2	Rp 1/2	**in progress**
HOBV 3/4	Rp 3/4	**in progress**
HOBV 1	Rp 1	**in progress**
HOBV 1 1/4	Rp 1 1/4	**in progress**
HOBV 1 1/2	Rp 1 1/2	**in progress**

Minimum ring pressure switch kit
in progress

Steam pressure regulator
in progress

Condensation drainage kit
in progress

Output meter
in progress

Emulsion kit
in progress

Motorized filter
in progress

Lineagrafica

RIELLO S.p.A. - Via degli Alpini, 1 - 37045 LEGNAGO (VR) Italy
Tel. ++39.0442630111 - Fax ++39.044221980
Internet: http://www.riellobumers.com - E-mail: rburners@riellobumers.com

RIELLO BURNERS

CE

PRESSURE REGULATING/REDUCING UNITS
SAFETY/REGULATING GAS TRAINS
SAFETY SHUT-OFF VALVES

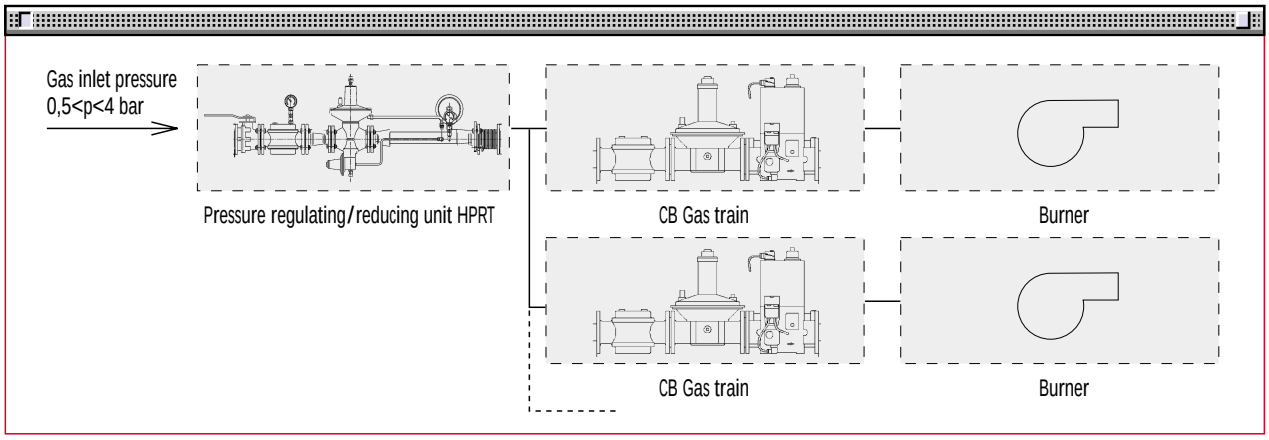
▸ HPRT ...	▸ from Rp 1 1/2 to DN 125 Pin 0,5÷4 bar
▸ LPRT ...	▸ from Rp 1 1/2 to DN 125 Pin 0,5÷4 bar
▸ CB ...	▸ from Rp 1 1/2 to DN 125 Pin <= 0,5 bar
▸ DMV ...	▸ from Rp 1 1/2 to DN 125 Pin <= 0,5 bar

Pressure reduction and regulation groups allow to bring gas pressure available in the line to values suited to the specific application.
Gas trains include a series of safety and control devices for gas feeding to the burner. They are constructed and supplied with two different selection options (separated or assembled units). The selection has to be made on various considerations about the specific application (available pressure, installation chances,…).
This permits to reach the best flexibilty in the application using pre-assembled units, which are also tested in the factory in the respect of existing normatives and projected for a simple installation procedure.

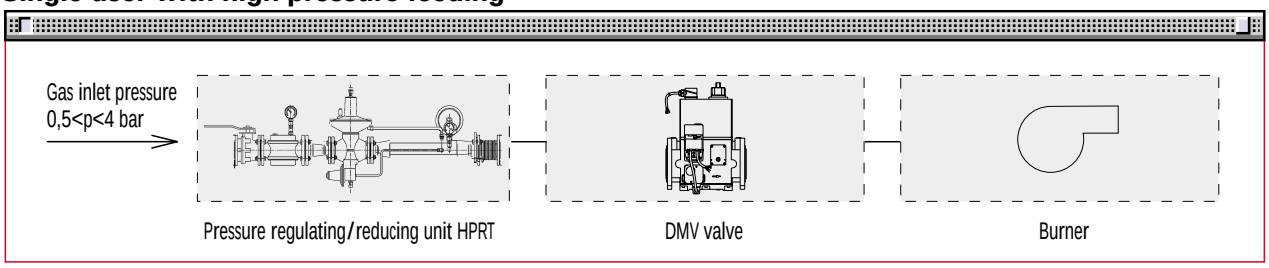
AVAILABLE LAYOUT FOR GAS SUPPLY

The following schemes show the main functional layout for gas supply to the combustion system in relation to gas pressure and project considerations.

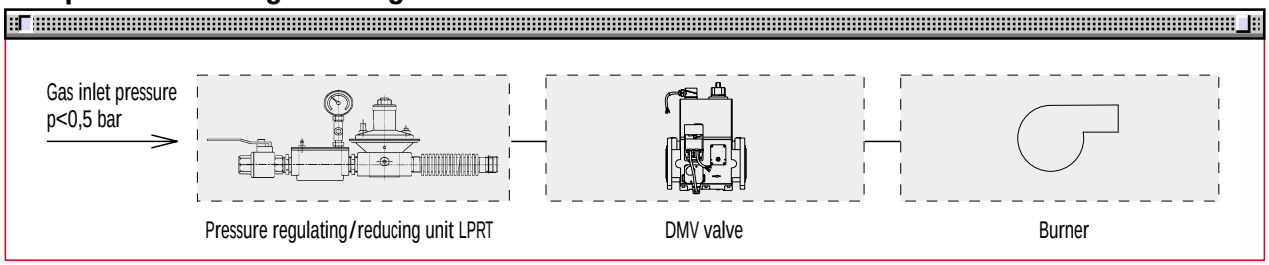
More users with high pressure feeding



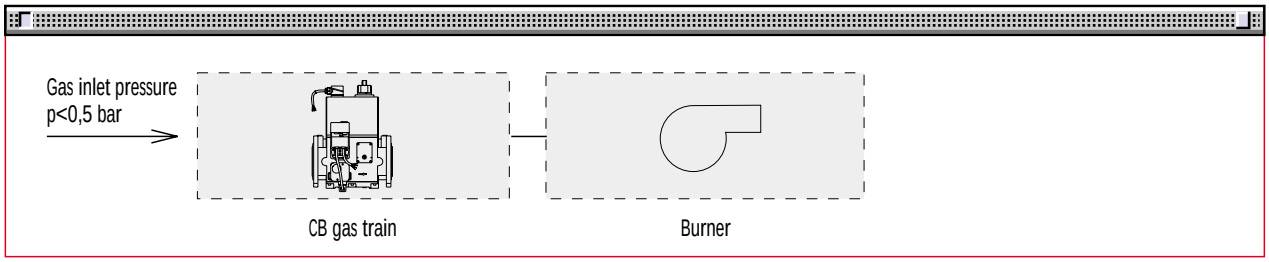
Single user with high pressure feeding



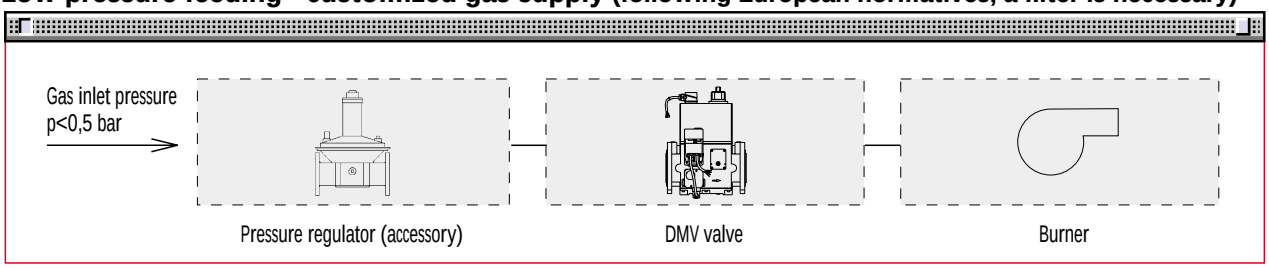
Low pressure feeding - linear gas line



Low pressure feeding - branched gas line



Low pressure feeding - customized gas supply (following European normatives, a filter is necessary)



Since the Company is constantly engaged in the production improvement, the aesthetic and dimensional features, the technical data, the equipment and the accessories can be changed.

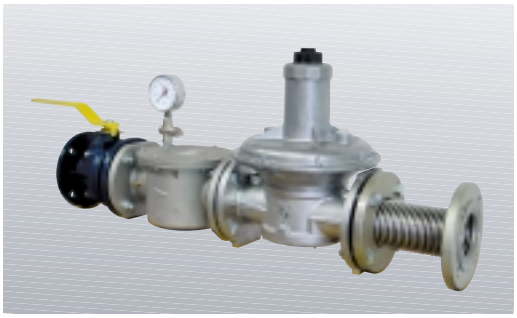
INDEX OF CONTENTS

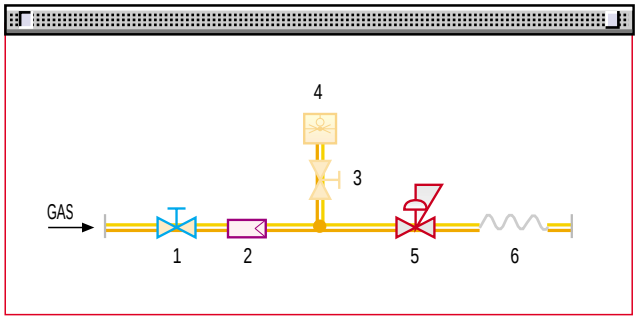
The following index, divided in sections, allows search of arguments of interest inside the present sheet.

PRESSURE REGULATING/REDUCING UNITS

LPRT and HPRT series units are systems for reduction and regulation of gas pressure assembled and tested in the factory to guarantee the maximum safety in operation and an easy installation. They are classified in low pressure and high pressure systems and are used when it is necessary to regulate gas pressure available in the line to obtain values suited to the application. Pressure regulating/reducing units are integrating part of the burner and together they compose a single system for gas combustion.

LOW PRESSURE REGULATING/REDUCING UNITS (Max inlet pressure = 0,5 bar) - LPRT series





1	Manual shut-off valve (ball-valve)	
2	Gas filter GF type characterized by:	Filtering degree ≤ = 50 µm Ambient temperature: -15 +80°C Gas family 1 - 2 - 3 (EN161) Filter replacement is possible without removing the armature
3	Shut-off cock	
4	Gas pressure gauge upstream to the stabilizer	
5	Pressure regulator-stabilizer FRS type characterized by:	Class A, group 2 (EN88) Ambient temperature: -15 +70°C Gas family 1 - 2 - 3 (EN161)
6	Antivibrating joint	

Low pressure regulating/reducing units of LPRT series are available in “thread ports” versions with diameter from 3/4” to 2” and in “flanged” versions for with diameter from DN65 to DN150.

Technical data of available models of LPRT series

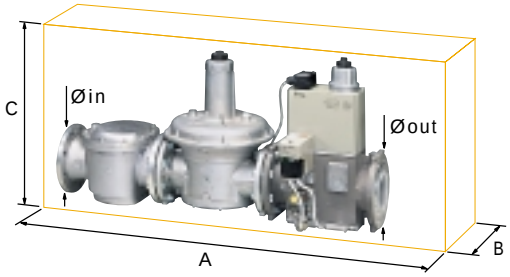
			Inlet press. = 500 mbar Outlet press. = 100 mbar		Inlet press. = 300 mbar Outlet press. = 100 mbar		Inlet press. = 150 mbar Outlet press. = 100 mbar			
Model	**MAX Inlet pressure [mbar]**	**Adjust. range Out. press. [mbar]**	**MAX delivery METHANE [Nmc/h]**	**MAX delivery LPG [Nmc/h]**	**MAX delivery METHANE [Nmc/h]**	**MAX delivery LPG [Nmc/h]**	**MAX delivery METHANE [Nmc/h]**	**MAX delivery LPG [Nmc/h]**	**Port Ø IN**	**Port Ø OUT**
LPRT 40	500	60÷110	68	41	68	41	60	37	Rp 3/4”	R 3/4”
LPRT 80	500	60÷110	125	76	125	76	98	60	Rp 1”	R 1”
LPRT 160	500	60÷110	186	113	186	113	188	115	Rp 1”1/2	R 1”1/2
LPRT 250	500	60÷110	310	189	310	189	305	186	Rp 2”	R 2”
LPRT 500	500	60÷110	500	305	500	305	441	269	DN 65	DN 65
LPRT 750	500	60÷110	600	366	600	366	567	346	DN 80	DN 80
LPRT 1000	500	60÷110	1000	610	1000	610	955	583	DN 100	DN 100
LPRT 1500	500	60÷110	1800	1098	1800	1098	1400	854	DN 125	DN 125
LPRT 2000	500	60÷110	2800	1708	2800	1708	2100	1281	DN 150	DN 150

note

Regulators are equipped with BLU springs (pressure range 10-30 mbar).
For higher pressure ranges, it is necessary to match springs selecting them from the ones available in the accessories section.
For industrial applications, it is advised the use of springs with pressure range of 60-110 mbar.
For an inlet pressure ranges different from the ones indicated, it is necessary to contact Riello Burners Technical Department.

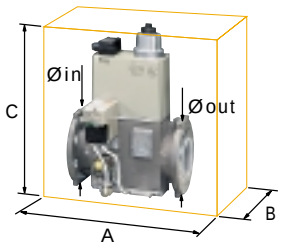
OVERALL DIMENSIONS (mm)

CB SERIES SAFETY/REGULATING GAS TRAINS



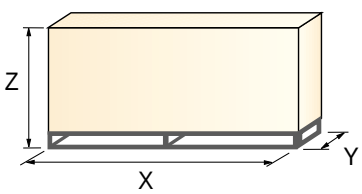
Model	A	B	C	Ø IN	Ø OUT
CB 40/1	891	195	261	Rp 1 1/2	R 1 1/2
CB 50/1	986	250	328	Rp 2	R 2
CBF 65/1	874	285	356	DN 65	DN 65
CBF 80/1	934	285	416	DN 80	DN 80
CBF 100/1	1054	350	501	DN 100	DN 100
CBF 125/1	1164	400	780	DN 125	DN 125
CB 50/1 CT	986	250	328	Rp 2	R 2
CBF 65/1 CT	874	285	356	DN 65	DN 65
CBF 80/1 CT	934	285	416	DN 80	DN 80
CBF 100/1 CT	1054	350	501	DN 100	DN 100
CBF 125/1 CT	1164	400	780	DN 125	DN 125

DMV SERIES SAFETY SHUT-OFF VALVES



Model	A	B	C	Ø IN	Ø OUT
DMV 40/1 CT	532	245	292	Rp 1 1/2	Rp 1 1/2
DMV 50/1 CT	535	255	292	Rp 2	Rp 2
DMV 65/1 CT	290	270	338	DN 65	DN 65
DMV 80/1 CT	310	290	397	DN 80	DN 80
DMV 100/1 CT	350	307	449	DN 100	DN 100
DMV 125/1 CT	400	333	554	DN 125	DN 125
DMV 40/1 CQ	532	150	292	Rp 1 1/2	Rp 1 1/2
DMV 50/1 CQ	535	165	292	Rp 2	Rp 2
DMV 65/1 CQ	290	185	338	DN 65	DN 65
DMV 80/1 CQ	310	200	397	DN 80	DN 80
DMV 100/1 CQ	350	220	449	DN 100	DN 100
DMV 125/1 CQ	400	255	554	DN 125	DN 125

PACKAGING

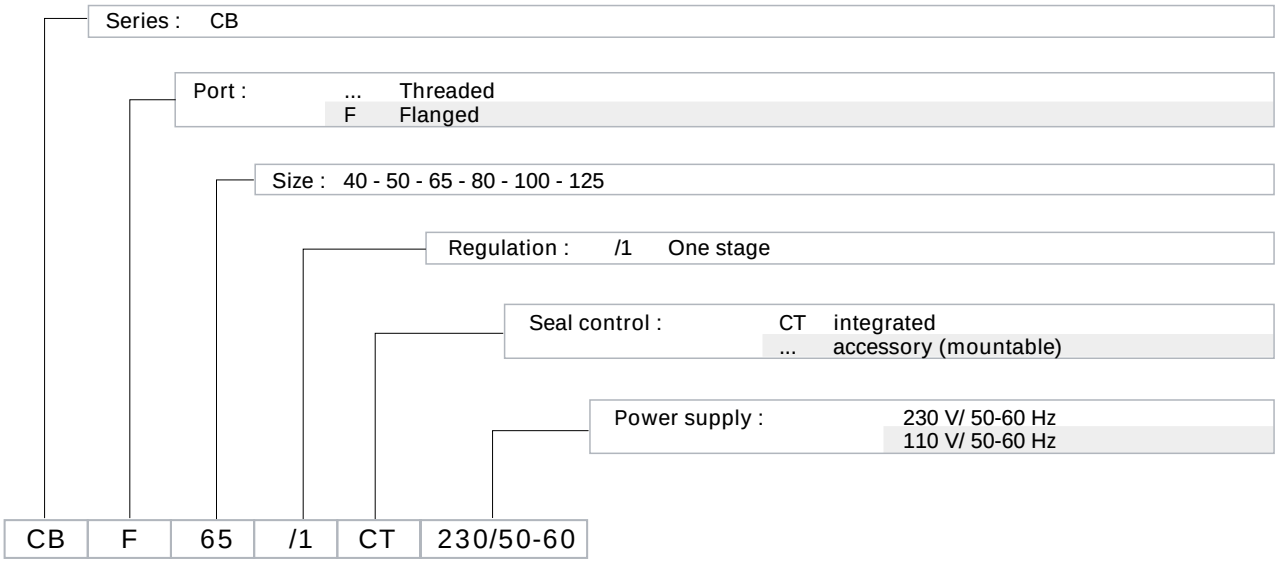


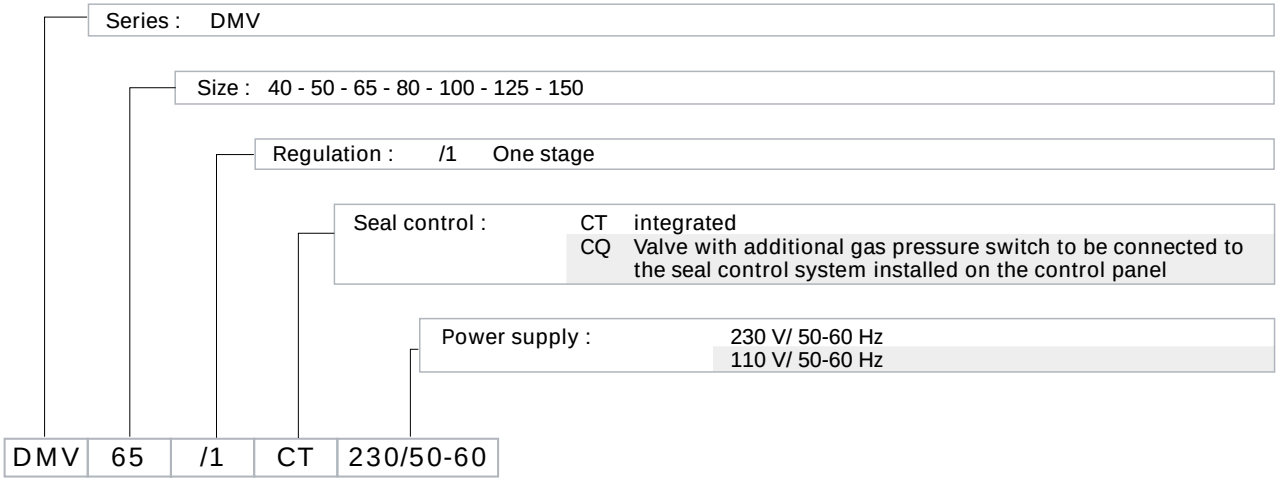
Model	X	Y	Z
CB 40/1	1050	370	320
CB 50/1	1050	370	320
CBF 65/1	940	480	530
CBF 80/1	1120	570	580
CBF 100/1	1120	570	580
CBF 125/1	1390	710	795
CB 50/1 CT	1050	370	320
CBF 65/1 CT	940	480	530
CBF 80/1 CT	1120	570	580
CBF 100/1 CT	1120	570	580
CBF 125/1 CT	1390	710	795

Model	X	Y	Z
DMV 40/1 CT	940	480	530
DMV 50/1 CT	940	480	530
DMV 65/1 CT	940	480	530
DMV 80/1 CT	940	480	530
DMV 100/1 CT	940	480	530
DMV 125/1 CT	940	480	530
DMV 40/1 CQ	500	380	200
DMV 50/1 CQ	500	380	200
DMV 65/1 CQ	500	380	200
DMV 80/1 CQ	500	380	200
DMV 100/1 CQ	940	480	530
DMV 125/1 CQ	940	480	530

SPECIFICATION

A specific index guides your choice of gas train and valve from the various models available in the CB and DMV series. A clear and detailed specification description of the product follows.





LIST OF AVAILABLE MODELS

CB 40/1
CB 50/1
CBF 65/1
CBF 80/1
CBF 100/1
CBF 125/1
CB 50/1 CT
CBF 65/1 CT
CBF 80/1 CT
CBF 100/1 CT
CBF 125/1 CT

DMV 40/1 CT
DMV 50/1 CT
DMV 65/1 CT
DMV 80/1 CT
DMV 100/1 CT
DMV 125/1 CT
DMV 40/1 CQ
DMV 50/1 CQ
DMV 65/1 CQ
DMV 80/1 CQ
DMV 100/1 CQ
DMV 125/1 CQ

1	Gas filter GF type:	- filtering degree < = 50 μm - ambient temperature -15 ÷ 80°C - gas family 1 - 2 - 3 (EN161) - filter replacement is possible without removing the armature
2	Pressure regulator-stabilizer FRS type:	- class A, group 2 (EN88) - ambient temperature -15 ÷ 70°C - gas family 1 – 2 – 3 (EN161)
3	Anti-dust filter	
4	Seal control VPS type:	- according to EN 1643 - voltage supply: ~AC 230/240V –15% + 10%, 50-60Hz; AC 110V, 50Hz; ~AC 110/120 V, 60Hz; other voltage supplies available on request - ambient temperature: ~AC 50hz 230V –15 ÷ 70°C ~AC 50Hz 110/120V –15 ÷ 60°C - gas family 1- 2 - 3 - electrical protection degree IP 40 (IEC 529) - release time 10÷26s depending on test volumes and inlet pressure (according to EN 676 seal control is compulsory for burners with max. output more than 1200kW).
5	Gas pressure switch at simple action GW type:	- operation without outside power - temperature ranges - ambient temperature -15 ÷ 60°C - electrical protection degree IP54 - adjustment tolerance ±15% switch point deviation based on the setpoint
6	Gas safety solenoid valve normally closed DMV-DLE type:	- automatic lock valve class A, group 2 EN161 - ambient temperature -15 ÷ 60°C - voltage supply: AC 230/240V -15% +10%, 50-60Hz; other voltage supplies available on request - electrical protection degree IP 54 - double diaphragm valve technology - slow opening with adjustable fast stroke for starting gas volume, adjustable up to approximatively 70% of total stroke - opening time of approximatively 20s at 20°C ambient temperature and without rapid stroke - fast closing (closing time <1s) - DC solenoid - compact, light-weight
7	Gas regulating solenoid valve normally closed DMV-DLE type:	- automatic lock valve class A, group 2 EN161 - ambient temperature -15 ÷ 60°C - voltage supply: ~AC 220/240V -15% +10%, 50-60Hz; other voltage supplies available on request - electrical protection degree IP 54 - double diaphragm valve technology - slow opening (opening time of approximatively 20s at ambient temperature of 20°C) - fast closing (closing time <1s) - DC solenoid - compact, light-weight - adjustable main volume - mountable closed position signal contact

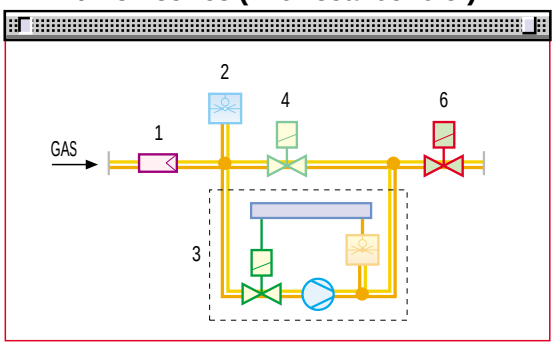
Technical data available models CB series

Model	MAX inlet pressure [mbar]	Voltage supply [V/Hz]	Port Ø IN	Port Ø OUT
CB 40/1	500	230/50-60	Rp 1 1/2	R 1 1/2
CB 50/1	500	230/50-60	Rp 2	R 2
CBF 65/1	500	230/50-60	DN 65	DN 65
CBF 80/1	500	230/50-60	DN 80	DN 80
CBF 100/1	500	230/50-60	DN 100	DN 100
CBF 125/1	500	230/50-60	DN 125	DN 125
CB 50/1 CT	500	230/50-60	Rp 2	R 2
CBF 65/1 CT	500	230/50-60	DN 65	DN 65
CBF 80/1 CT	500	230/50-60	DN 80	DN 80
CBF 100/1 CT	500	230/50-60	DN 100	DN 100
CBF 125/1 CT	500	230/50-60	DN 125	DN 125

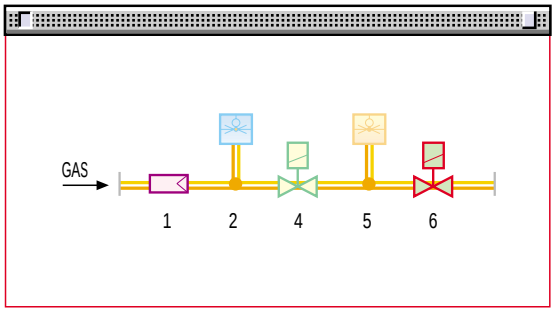
note *Regulators are equipped with BLU springs (pressure range 10-30 mbar).*
For higher pressure ranges, springs have to be selected from the ones available listed in accessories section.

SAFETY SHUT-OFF VALVES - DMV series

DMV /1 CT series (with seal control)



DMV/1 CQ series (with pressure switch for seal control)



1	Anti-dust filter
2	Gas minimum pressure switch at simple action GW type: - operation without outside power - temperature ranges - ambient temperature: -15° ÷ 60°C - electrical protection degree IP54 - adjustment tolerance ±15% switch point deviation based on the setpoint
3	Seal control VPS type: - according to EN 1643 - voltage supply: ~AC 230/240V -15% + 10%, 50-60Hz; AC 110V, 50Hz; ~AC 110/120 V, 60Hz; other voltage supplies available on request - ambient temperature: ~AC 50hz 230V –15 ÷ 70°C ~AC 50Hz 110/120V –15 ÷ 60°C - gas family 1 - 2 - 3 - electrical protection degree IP 40 (IEC 529) - release time 10÷26s depending on test volumes and inlet pressure (according to EN 676 seal control is compulsory for burners with max. output more than 1200kW).
4	Gas safety solenoid valve normally closed DMV-DLE type: - automatic lock valve class A, group 2 EN161 - ambient temperature -15 ÷ 60°C - voltage supply: AC 230/240V -15% +10%, 50-60Hz; other voltage supplies available on request - electrical protection degree IP 54 - double diaphgram valve technology - slow opening with adjustable fast stroke for starting gas volume, adjustable up to approximatively 70% of total stroke - opening time of approximatively 20s at 20°C ambient temperature and without rapid stroke - fast closing (closing time <1s) - DC solenoid - compact, light-weight
5	Gas pressure switch at simple action GW type: - operation without outside power - temperature ranges - ambient temperature -15 ÷ 60°C - electrical protection degree IP54 - adjustment tolerance ±15% switch point deviation based on the setpoint
6	Gas regulating solenoid valve normally closed DMV-DLE type: - automatic lock valve class A, group 2 EN161 - ambient temperature -15 ÷ 60°C - voltage supply: AC 220/240V -15% +10%, 50-60Hz; other voltage supplies available on request - electrical protection degree IP 54 - double diaphragm valve technology - slow opening (opening time of approximatively 20s at ambient temperature of 20°C) - fast closing (closing time <1s) - DC solenoid - compact, light-weight - adjustable main volume - mountable closed position signal contact

SELECTION DIAGRAMS OF SAFETY/REGULATING GAS TRAINS (CB series) AND SAFETY SHUT-OFF VALVES (DMV series)

The following diagrams allow to select gas train or shut-off valve that best suit to the application requirments.
On the horizontal axis air and fuel delivery is represented, while on the vertical axis pressure drop in mbar is represented.

Selection diagram use:
For a correct use of the diagrams it is necessary to evaluate fuel delivery, pressure drop referred to all the components downstream to the gas train (combustion head, butterfly valve, combustion chamber backpressure) and available inlet pressure, remembering that CB gas trains and DMV valves permit a MAX inlet pressure of 500 mbar.
Available inlet pressure, reduced of pressure drops of components downstream to the gas train, represent the maximum pressure drop permitted to the gas train.
Intersection point between horizontal line correspondant to pressure drop of gas train and vertical line correspondant to requested fuel delivery, has now to be individuated.
Selected gas train, or shut-off valve, is the one correspondant to the line located above the previously defined intersection point.

Example (see diagram 17):

Gas delivery (Vn):	350 Nmc/h (Natural gas G20)
Pressure drop downstream to the gas train:	30 mbar (11 combustion head + 2 butt. valve + 5 safety + 12 backpressure)
Inlet gas pressure:	50 mbar
MAX pressure drop og the gas train:	ΔP = 50-30 = 20 mbar

CB series selction diagram
Lines intersection point is below the curve correspondant to CBF 100.
Selected gas train: CBF 100.

Safety/regulating gas trains CB series

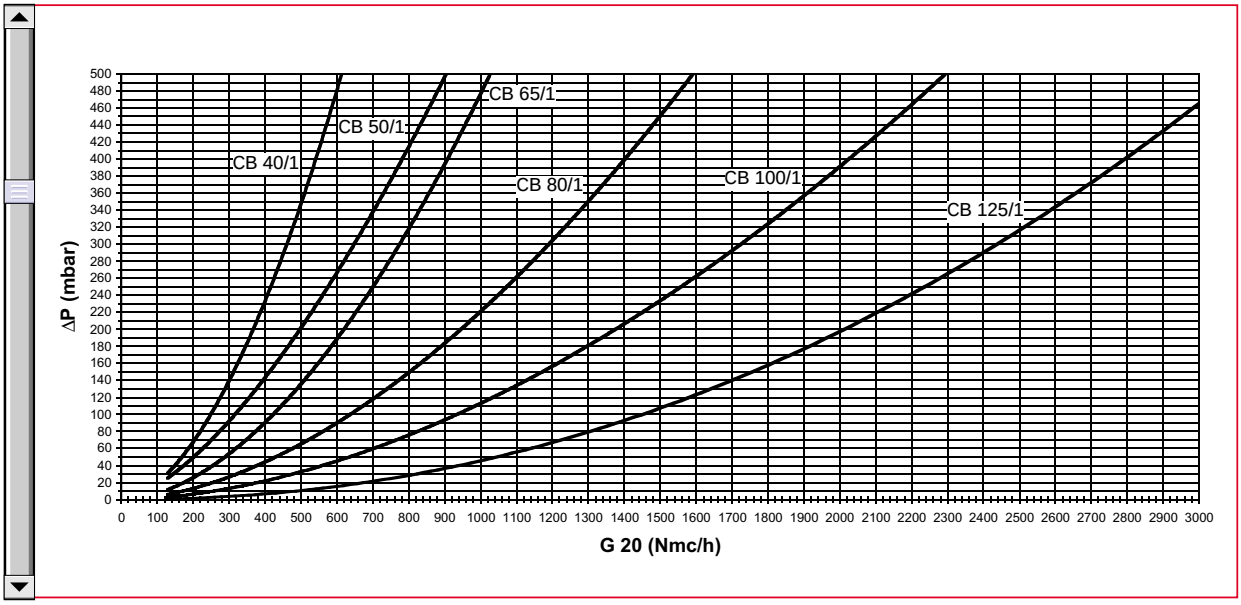


Diagram 17

note *To read G25 pressure drop enter on horizontal axis with delivery modified as follows: G20 (Nmc/h) = 0,95 G25 (Nmc/h).*
To read LPG drop pressure enter on horizontal axis with delivery modified as follows: G20 (Nmc/h) = 0,62 LPG (Nmc/h).

Safety shut-off valves DMV series

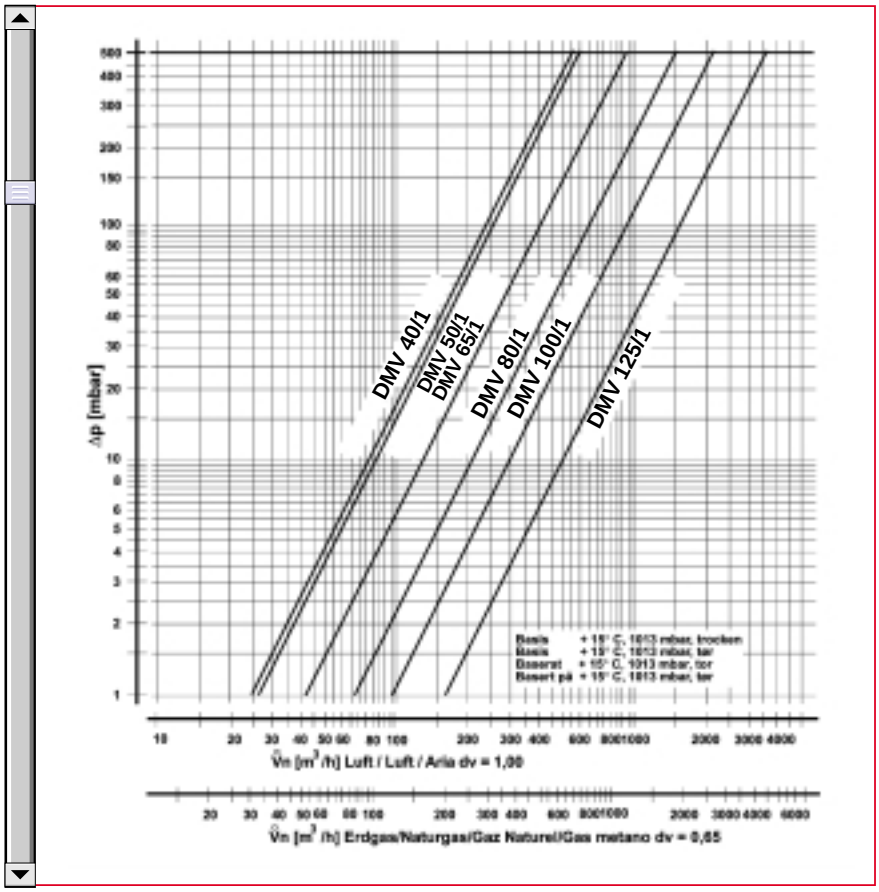


Diagram 18

INSTALLATION - START-UP - ADJUSTMENT (CB, DMV series)

Installation of safety/regulating gas trains of CB series and safety shut-off valves of DMV series is a very simple and quick procedure because units are pre-assembled and tested in the factory. Connection to the gas distribution system takes place through threaded ports and must be realized with an appropprate hermetic material, so to gaurantee junctions seal (Teflon, Loctite,ect...). Connection through flanges must be effectuated with gaskets; fixing screws must be held with crossed sequence.

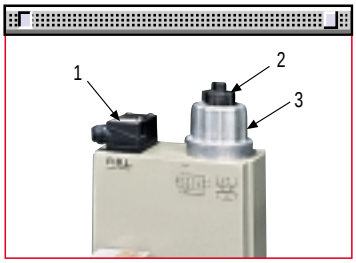


Diagram 19

Electrical connection of valves and seal control is made by means of terminals (pos. 1 fig. 19). At start-up it is necessary to verify that inlet pressure does not exceed the max. admitted to avoid damages to the regulation devices.
CB trains and DMV valves aloow regulation of opening time with adjustable fast stroke for starting gas volume, by acting on the appropriate screw (pos. 2 fig. 19) that is located at the top of the gas train.
Main delivery regulation is made by acting on adjustment knob that is also located at the top of the gas train (pos. 3 fig. 19).
Pressure regulator-stabilizer in CB trains allow outlet pressure regulation by acting on adjustment knob that is located at the top of the regulator.
Regulation range of outlet pressure depends on the selected spring.
VPS seal control doesn't need any regulation; an operation check could be realized by opening the screw of pressure port during testing time (or pumping time) so to simulate a pressure drop and verify seal control correct working.

Safety shut-off valves of DMV series are available in threaded ports versions with a diameter from 1”1/2 to 2” and in flanged versions with a diameter from DN65 to DN125.

Technical data of available models - DMV series

Model	MAX inlet pressure [mbar]	Electrical supply [V/Hz]	Port Ø IN	Port Ø OUT
DMV 40/1 CT	500	230/50-60	Rp 1 1/2	Rp 1 1/2
DMV 50/1 CT	500	230/50-60	Rp 2	Rp 2
DMV 65/1 CT	500	230/50-60	DN 65	DN 65
DMV 80/1 CT	500	230/50-60	DN 80	DN 80
DMV 100/1 CT	500	230/50-60	DN 100	DN 100
DMV 125/1 CT	500	230/50-60	DN 125	DN 125
DMV 40/1 CQ	500	230/50-60	Rp 1 1/2	Rp 1 1/2
DMV 50/1 CQ	500	230/50-60	Rp 2	Rp 2
DMV 65/1 CQ	500	230/50-60	DN 65	DN 65
DMV 80/1 CQ	500	230/50-60	DN 80	DN 80
DMV 100/1 CQ	500	230/50-60	DN 100	DN 100
DMV 125/1 CQ	500	230/50-60	DN 125	DN 125

TECHNICAL DESCRIPTION - OPERATION (CB-DMV series)

Safety/regulating gas trains of CB series and safety shut-off valves of DMV series are very compact and with a light weight; the maximum value of inlet pressure is 500 mbar.
CB gas trains are equipped with a filter (pos.1 fig. 13-14) for a preliminary treatment of gas. Pressure regulator (pos. 2 fig. 13-14) works according to the force comparison principle between the following forces:
- the differential pressure at the working diaphragm
- the force due to weight of the moving parts.

The output pressure is adjusted depending on the pretension of the adjustable spring and the installation position and is kept stable thanks to a proper diaphragm which counterbalance inlet pressure variations.
Anti-dust filter, used for an additional fuel treatment, is located upstream to the gas valves.
In safety/regulating gas trains of CB series and in safety shut-off valves of DMV series, valves group is composed from two solenoid valves (electromagnetic), class A, integrated in one unit (pos. 6 fig. 13-14-15-16), comprising also a minimum gas pressure switch (pos. 5 fig. 13-14-15-16) which allows system operation only with a correct value of gas pressure in the distribution line.
Safety and regulating valves, constructed with a double diaphragm technology, are normally closed with slow opening and fast closing.
Safety valve has a slow opening with setting time regulable by fast stroke adjustment for starting gas volume, adjustable up to approximatively 70% of total stroke.
Regulation valve permits main delivery adjustment.
VPS control device (pos. 4 fig. 14-15) tests valves seal; its programmer starts working at closing of thermostat electric switch or at closing of regulator.
Release time, which is the time necessary to the device for a complete test cycle, is very short, between 10 and 26 seconds, depending from test volume and inlet pressure.

Seal control operates according to the pressure build-up principle: internal pump increases gas pressure in test circuit 20 mbar more than input pressure. During the test time, the integrated differential pressure sensor monitors the test sections for leaks. When the test pressure is attained, the motor pump switches off.
If the test section has no leaks, the contact is released to the control box after approximatively 26 seconds and the yellow Led lights up.
If the test section is leaky or if the pressure increase by 20 mbar is not attained during the test period, the VPS generates a fault, maintaining it as long as long as the contact is released by the regulator (heat requirment).
After a short voltage drop during testing or during burner operation, an automatic restart is performed.
The device is suited to systems which must be according to TRD normatives (for steam boilers).
Gas pressure switch mounted on DMV series valves permit the application of a remote seal conrtrol.

Gas train CB/1 (without seal control)

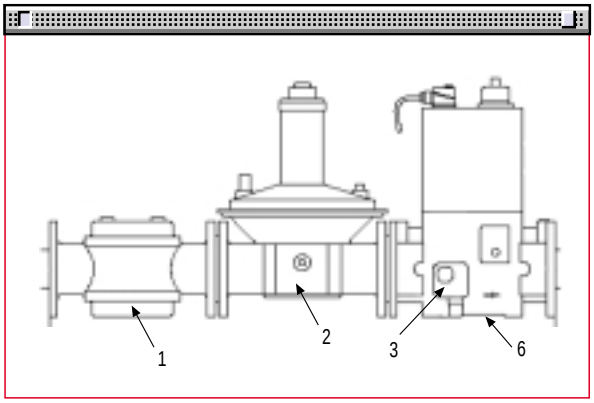


Figure 13

Gas valve DMV/1 CT (with seal control)

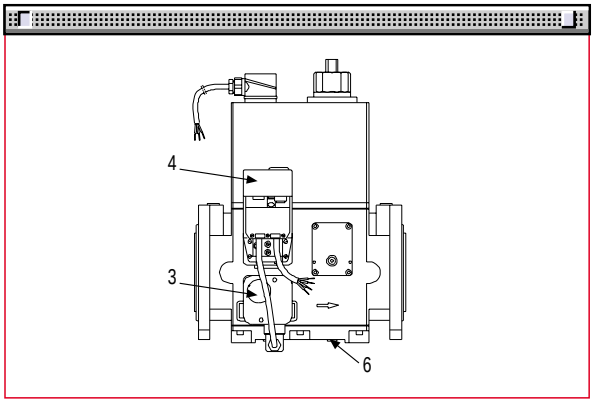


Figure 15

Gas train CB/1 CT (with seal control)

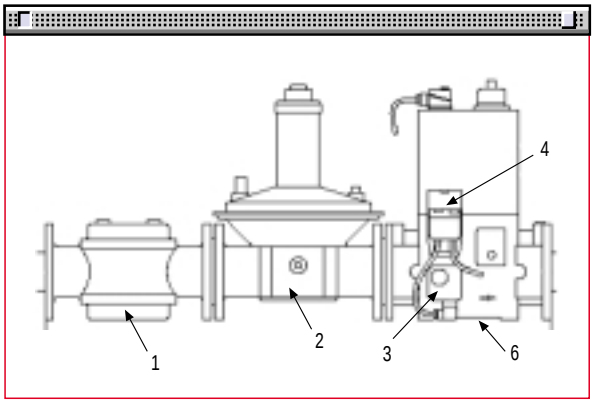


Figure 14

Gas valve DMV/1 CQ
(with pressure switch for seal control)

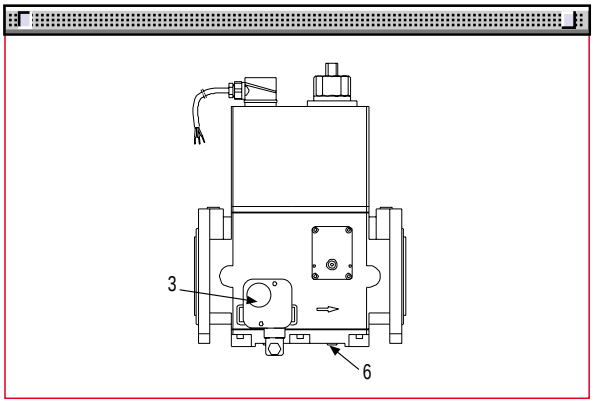


Figure 16

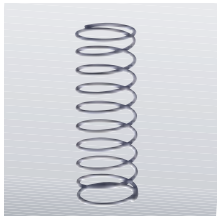
1	Gas filter
2	Pressure regulator-stabilizer
3	Seal control
4	VPS control device
5	Minimum gas pressure switch
6	Gas regulating/safety solenoid valve

ACCESSORIES FOR PRESSURE REGULATING/REDUCING UNITS - SAFETY/REGULATING GAS TRAINS - SAFETY SHUT-OFF VALVES

Pressure regulating/reducing units and safety/regulating gas trains have common accessories. The following section shows a wide description of available accessories.

Springs for pressure regulator

Accessories springs are available for varying pressure range of the regulator-stabilizer included in the regulating/reducing unit or in CB train.
In the following table, the springs are listed with their application range.



Springs for pressure regulators CB and LPRT series					
Type	**Type**	**Spring**	**Port**	**Outlet pressure [mbar]**	**Code**
	LPRT 40	Red	Rp 3/4”	25÷55	
	LPRT 40	Yellow	Rp 3/4”	30÷70	
	LPRT 40	Black	Rp 3/4”	60÷110	
	LPRT 40	Pink	Rp 3/4”	90÷150	
	LPRT 80	Red	Rp 1”	25÷55	
	LPRT 80	Yellow	Rp 1”	30÷70	
	LPRT 80	Black	Rp 1”	60÷110	
	LPRT 80	Pink	Rp 1”	90÷150	
CB 40	LPRT 160	Red	Rp 1”1/2	25÷55	**3010131**
CB 40	LPRT 160	Yellow	Rp 1”1/2	30÷70	
CB 40	LPRT 160	Black	Rp 1”1/2	60÷110	**3010157**
CB 40	LPRT 160	Pink	Rp 1”1/2	90÷150	**3090486**
CB 50	LPRT 250	Red	Rp 2”	25÷55	**3010132**
CB 50	LPRT 250	Yellow	Rp 2”	30÷70	
CB 50	LPRT 250	Black	Rp 2”	60÷110	**3010158**
CB 50	LPRT 250	Pink	Rp 2”	90÷150	**3090487**
CBF 65/80	LPRT 500/750	Red	DN 65/80	25÷55	**3010133**
CBF 65/80	LPRT 500/750	Yellow	DN 65/80	30÷70	
CBF 65/80	LPRT 500/750	Black	DN 65/80	60÷110	**3010135**
CBF 65/80	LPRT 500/750	Pink	DN 65/80	90÷150	**3090456**
CBF 65/80	LPRT 500/750	Grey	DN 65/80	140÷200	
CBF 100	LPRT 1000	Red	DN 100	25÷55	**3010134**
CBF 100	LPRT 1000	Yellow	DN 100	30÷70	
CBF 100	LPRT 1000	Black	DN 100	60÷110	**3010136**
CBF 100	LPRT 1000	Pink	DN 100	90÷150	**3090489**
CBF 100	LPRT 1000	Grey	DN 100	140÷200	
CBF 125	LPRT 1500	Red	DN 125	25÷55	
CBF 125	LPRT 1500	Yellow	DN 125	30÷70	
CBF 125	LPRT 1500	Black	DN 125	60÷110	
CBF 125	LPRT 1500	Pink	DN 125	90÷150	
	LPRT 2000	Red	DN 150	25÷55	
	LPRT 2000	Yellow	DN 150	30÷70	
	LPRT 2000	Black	DN 150	60÷110	
	LPRT 2000	Pink	DN 150	90÷150	

TECHNICAL DESCRIPTION - OPERATION (LPRT - HPRT series)

Pressure regulating/reducing units of LPRT and HPRT series are equipped with a shut-off ball valve (pos.1 fig. 1-2-3-4) and a filter (pos.2 fig. 1-2-3-4) for a preliminary treatment of inlet gas. Pressure regulators installed on LPRT series units (pos.3 fig. 1-2) works according to the force comparison principle between the following forces:
- the differential pressure at the working diaphragm
- the force due to weight of the moving parts

The output pressure is adjusted depending on the pretension of the adjustable spring and the installation position.
Pressure regulators installed on HPRT series units (pos.3 fig. 3-4) are direct action devices, controlled by a diaphragm and counterspring.
Safety slam-shut valve (pos.8 fig. 3-4) is a device which blocks gas flow when the downstream pressure modifies, increasing or decreasing, up to the intervention set-point, or if it is actuated manually.
The pressure relief valve (pos.7 fig. 3-4) is a device mounted to avoid that small leak (when there is no flow required) or sudden and temporary overpressures (such as deriving from rapid switching or overheating of the gas) cause intervention of the slam shut.
Pressure gauges with shut-off cock mounted upstream (pos.5-6 fig.1-2-3-4) or downstream (pos.6-9 fig. 3-4) to the regulator allow pressure monitoring.
Antivibrating joint (pos.4 fig. 1-2-3-4) permits to damp vibrations and a simple connection to the gas distribution circuit.

LPRT 40-80-160-250

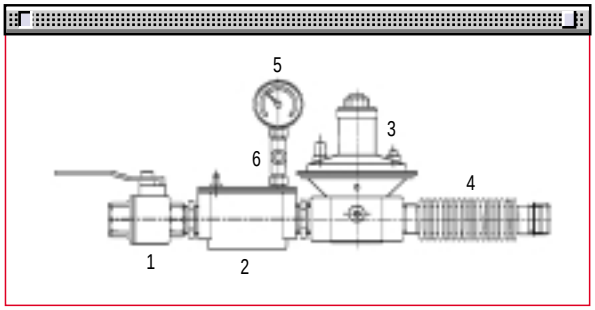


Figure 1

LPRT 500-750-1000-1500-2000

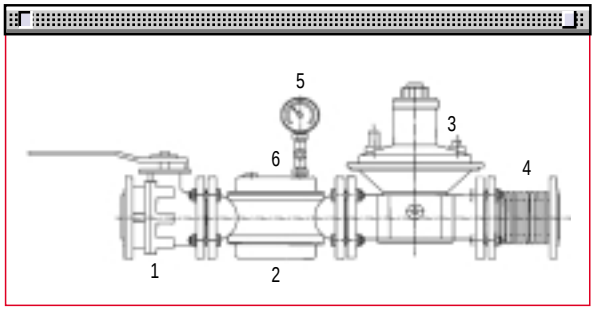


Figure 2

HPRT 80-160-250-500-750

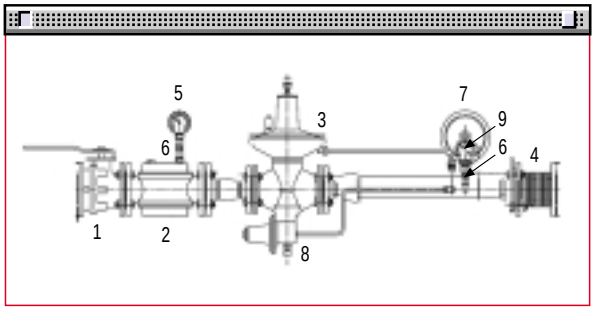


Figure 3

HPRT 1000-1500-2000

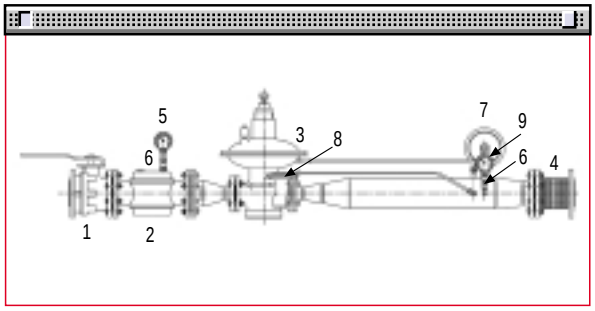


Figure 4

1	Shut-off ball valve
2	Gas filter
3	Pressure regulator
4	Anti-vibrating joint
5	Pressure gauge upstream to the regulator
6	Shut-off cock
7	Pressure relief valve
8	Safety slam-shut valve
9	Pressure gauge downstream to the regulator

PRODUCT CONSTRUCTIVE SPECIFICATION

CB series
Safety/regulating gas train for gas of 1st - 2nd - 3rd family, with MAX supply pressure of 500 mbar composed from:
- 1 gas filter with filtering degree lower than 50 μm
- 1 pressure regulator-stabilizer, for stabilizing gas inlet pressure to the burner with a ±5% max. tolerance respect the fixed value
- 1 valves unit composed from two automatic closing valves EN 161, class A, group 2, realized with double diaphragm technology, comprised in a single body and featured by:
    - fast closing and slow opening with adjustable fast stroke for initial gas volume
    - adjustable main delivery
    - ant-dust filter with net
- 1 minimum gas pressure switch that allows system working only with a suited pressure in the gas distribution line
- 1 automatic seal control with a release time of 10÷26 seconds (when equipped)
- nipples (in threaded version)
- gaskets (in flanged version)
- fixing screws (in flanged version).

DMV series
Safety shut-off valve for gas of 1st - 2nd - 3rd family, with MAX supply pressure of 500 mbar composed from:
- 1 valves unit composed from two automatic closing valves EN 161, class A, group 2, realized with double diaphragm technology, comprised in a single body and featured by:
    - fast closing and slow opening with adjustable fast stroke for initial gas volume
    - adjustable main delivery
    - ant-dust filter with net
- 1 automatic seal control with a release time of 10÷26 seconds (when equipped)
- nipples (in threaded version)
- gaskets (in flanged version)
- fixing screws (in flanged version).

Standard equipment:
- instruction handbook for installation, use and maintenance
- gaskets (in flanged version)
- fixing screws (in flanged version)
- electrical connection terminals.

Available accessories to be ordered separately (see accessories section):
- spring for pressure regulator
- manual shut-off valve (ball valve from 3/4" to 2", from DN65 to DN150)
- anti-vibrating joint (from 3/4" to 2", from DN65 to DN150)
- filter (1"1/2, 2", DN65, DN100, DN125)
- pressure regulator (1"1/2, 2", DN65, DN100, DN125)
- pressure gauge kit with push-button (for pressure of 60, 150, 300, 500 mbar, 1-4 bar)
- connection adaptor
- gas pressure switch for seal control
- seal control kit

STATE OF SUPPLY

Safety/regulating gas trains of CB series anf safety shut-off valves of DMV series are supplied pre-assembled and tested in the factory, packaged in carton boxes or wood cases.

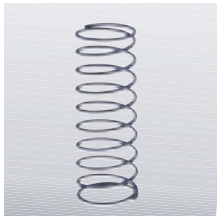
The supply includes:
- gas train or safety shut-off valve
- seal control pre-assembled (when equipped)
- instruction handbook for installation, use and maintenance
- gaskets (in flanged version)
- fixing screws (in flanged version)
- electrical connection terminals

ACCESSORIES FOR PRESSURE REGULATING/REDUCING UNITS - SAFETY/REGULATING GAS TRAINS - SAFETY SHUT-OFF VALVES

Pressure regulating/reducing units and safety/regulating gas trains have common accessories. The following section shows a wide description of available accessories.

Springs for pressure regulator

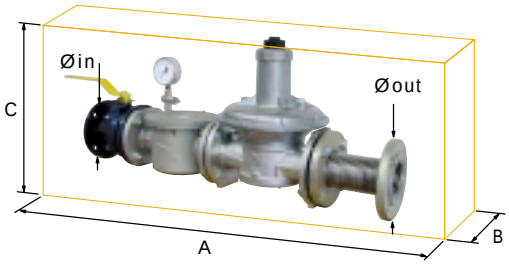
Accessories springs are available for varying pressure range of the regulator-stabilizer included in the regulating/reducing unit or in CB train.
In the following table, the springs are listed with their application range.



Springs for pressure regulators CB and LPRT series					
Type	**Type**	**Spring**	**Port**	**Outlet pressure [mbar]**	**Code**
	LPRT 40	Red	Rp 3/4”	25÷55	
	LPRT 40	Yellow	Rp 3/4”	30÷70	
	LPRT 40	Black	Rp 3/4”	60÷110	
	LPRT 40	Pink	Rp 3/4”	90÷150	
	LPRT 80	Red	Rp 1”	25÷55	
	LPRT 80	Yellow	Rp 1”	30÷70	
	LPRT 80	Black	Rp 1”	60÷110	
	LPRT 80	Pink	Rp 1”	90÷150	
CB 40	LPRT 160	Red	Rp 1”1/2	25÷55	**3010131**
CB 40	LPRT 160	Yellow	Rp 1”1/2	30÷70	
CB 40	LPRT 160	Black	Rp 1”1/2	60÷110	**3010157**
CB 40	LPRT 160	Pink	Rp 1”1/2	90÷150	**3090486**
CB 50	LPRT 250	Red	Rp 2”	25÷55	**3010132**
CB 50	LPRT 250	Yellow	Rp 2”	30÷70	
CB 50	LPRT 250	Black	Rp 2”	60÷110	**3010158**
CB 50	LPRT 250	Pink	Rp 2”	90÷150	**3090487**
CBF 65/80	LPRT 500/750	Red	DN 65/80	25÷55	**3010133**
CBF 65/80	LPRT 500/750	Yellow	DN 65/80	30÷70	
CBF 65/80	LPRT 500/750	Black	DN 65/80	60÷110	**3010135**
CBF 65/80	LPRT 500/750	Pink	DN 65/80	90÷150	**3090456**
CBF 65/80	LPRT 500/750	Grey	DN 65/80	140÷200	
CBF 100	LPRT 1000	Red	DN 100	25÷55	**3010134**
CBF 100	LPRT 1000	Yellow	DN 100	30÷70	
CBF 100	LPRT 1000	Black	DN 100	60÷110	**3010136**
CBF 100	LPRT 1000	Pink	DN 100	90÷150	**3090489**
CBF 100	LPRT 1000	Grey	DN 100	140÷200	
CBF 125	LPRT 1500	Red	DN 125	25÷55	
CBF 125	LPRT 1500	Yellow	DN 125	30÷70	
CBF 125	LPRT 1500	Black	DN 125	60÷110	
CBF 125	LPRT 1500	Pink	DN 125	90÷150	
	LPRT 2000	Red	DN 150	25÷55	
	LPRT 2000	Yellow	DN 150	30÷70	
	LPRT 2000	Black	DN 150	60÷110	
	LPRT 2000	Pink	DN 150	90÷150	

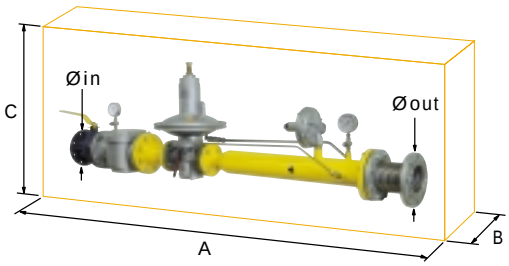
OVERALL DIMENSIONS (mm)

LOW PRESSURE REGULATING/REDUCING UNITS (LPRT series)



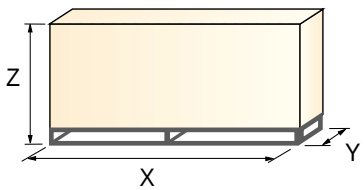
Model	A	B	C	Ø IN	Ø OUT
LPRT 40	532	245	292	Rp 3/4	R 3/4
LPRT 80	310	290	397	Rp 1	R 1
LPRT 160	350	307	449	Rp 1 1/2	R 1 1/2
LPRT 250	400	333	554	Rp 2	R 2
LPRT 500	532	150	292	DN 65	DN 65
LPRT 750	535	165	292	DN 80	DN 80
LPRT 1000	290	185	338	DN 100	DN 100
LPRT 1500	310	200	397	DN 125	DN 125
LPRT 2000	350	220	449	DN 150	DN 150

HIGH PRESSURE REGULATING/REDUCING UNITS (HPRT series)



Model	A	B	C	Ø IN	Ø OUT
HPRT 80	1223	180	400	Rp 1 1/2	R 1 1/2
HPRT 160	1275	180	410	Rp 1 1/2	R 2
HPRT 250	1200	280	560	Rp 2	DN 65
HPRT 500	1750	280	560	DN 65	DN 65
HPRT 750	1890	280	560	DN 80	DN 80
HPRT 1000	2070	380	560	DN 100	DN 100
HPRT 1500	2120	500	650	DN 100	DN 100
HPRT 2000	2150	500	650	DN 125	DN 125

PACKAGING



Model	X	Y	Z
LPRT 40	532	245	292
LPRT 80	310	290	397
LPRT 160	350	307	449
LPRT 250	400	333	554
LPRT 500	532	150	292
LPRT 750	535	165	292
LPRT 1000	290	185	338
LPRT 1500	310	200	397
LPRT 2000	350	220	449

Model	X	Y	Z
HPRT 80	1230	460	560
HPRT 160	1230	460	560
HPRT 250	1230	460	560
HPRT 500	1300	530	590
HPRT 750	1300	530	590
HPRT 1000	1300	530	590
HPRT 1500	1390	710	795
HPRT 2000	1390	710	795

SPECIFICATION

A specific index guides your choice of pressure regulating/reducing unit from the various models available in the LPRT and HPRT series.
A clear and detailed specification description of the product follows.

Series :	LPRT	Low pressure regulating/reducing unit
	HPRT	High pressure regulating/reducing unit

Size : 40 - 80 - 160 - 250 - 500 - 750 - 1000 - 1500 - 2000

LPRT 160

LIST OF AVAILABLE MODELS

LPRT 40	HPRT 80
LPRT 80	HPRT 160
LPRT 160	HPRT 250
LPRT 250	HPRT 500
LPRT 500	HPRT 750
LPRT 750	HPRT 1000
LPRT 1000	HPRT 1500
LPRT 1500	HPRT 2000
LPRT 2000	

PRODUCT CONSTRUCTIVE SPECIFICATION

LPRT series
Low pressure regulating/reducing unit, for gas of 1 - 2 - 3 family, with max. inlet pressure of 500 mbar composed by:
- 1 manual shut-off valve (ball valve)
- 1 gas filter with filtering degree lower than 50 mm
- 1 gas pressure gauge, with shut-off push-button cock, located upstraem to the regulator
- 1 pressure regulator-stabilizer
- 1 anti-vibrating joint
- nipples (in threaded version)
- gaskets (in flanged version)
- fixing screws (in flanged version).

HPRT series
High pressure regulating/reducing unit, for gas of 1 - 2 - 3 family, with max. inlet pressure of 4 bar composed by:
- 1 manual shut-off valve (ball valve)
- 1 gas filter with filtering degree lower than 50 mm
- 1 gas pressure gauge, with shut-off push-button cock, located upstrem to the regulator
- 2 connection stubs
- 1 pressure regulator-stabilizer
- 1 slam-shut valve
- 1 gas pressure gauge, with shut-off push-button cock, located downstrem to the regulator
- 2 pipelines for sensing line
- 1 vent valve
- 1 antivibrating joint
- nipples (in threaded version)
- gaskets (in flanged version)
- fixing screws (in flanged version).

HPRT series - Outlet pressure 60 mbar

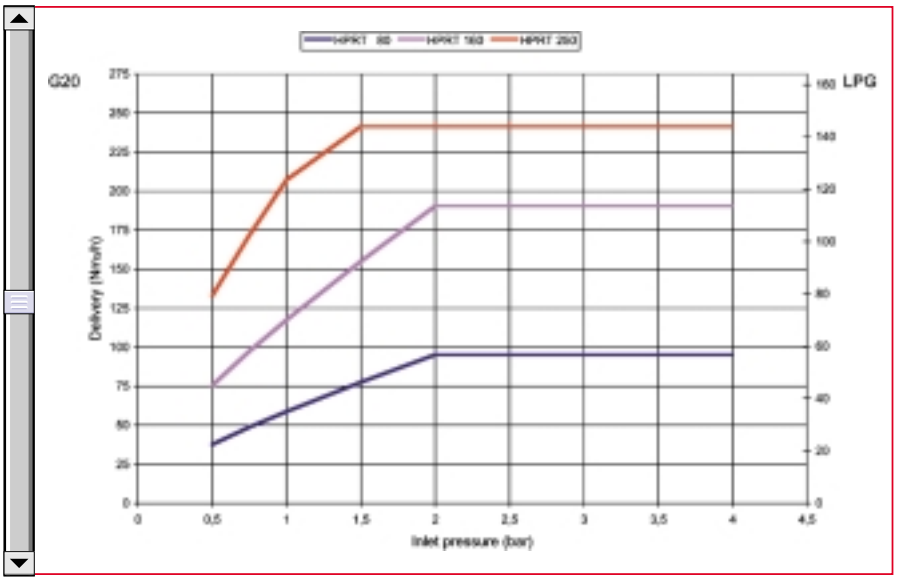


Diagram 9

Reference conditions:
Gas temperature 20°C
G20 density: 0,71 kg/m^3
G25 density: 0,78 kg/m^3
LPG density: 1,98 kg/m^3

HPRT series - Outlet pressure 110 mbar

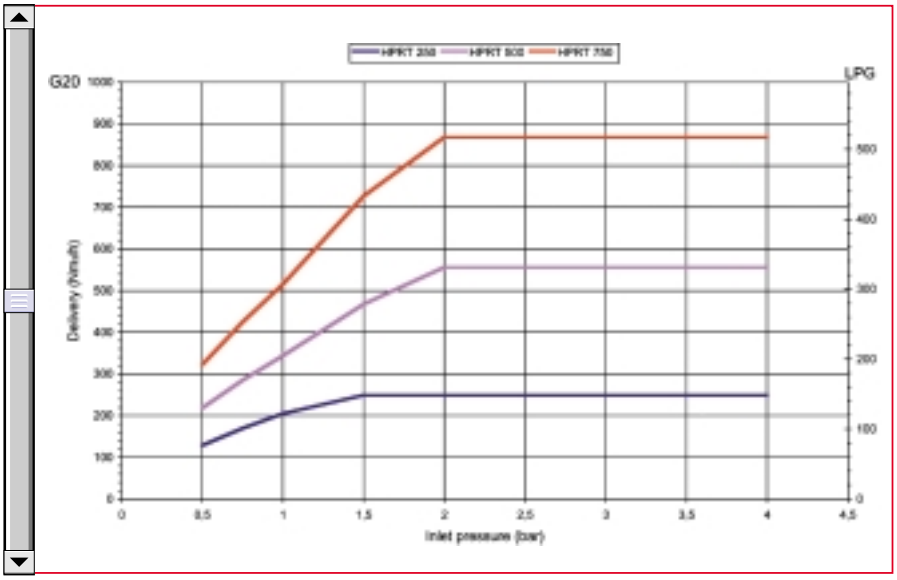


Diagram 10

Reference conditions:
Gas temperature 20°C
G20 density: 0,71 kg/m^3
G25 density: 0,78 kg/m^3
LPG density: 1,98 kg/m^3

HPRT series - Outlet pressure 150 mbar

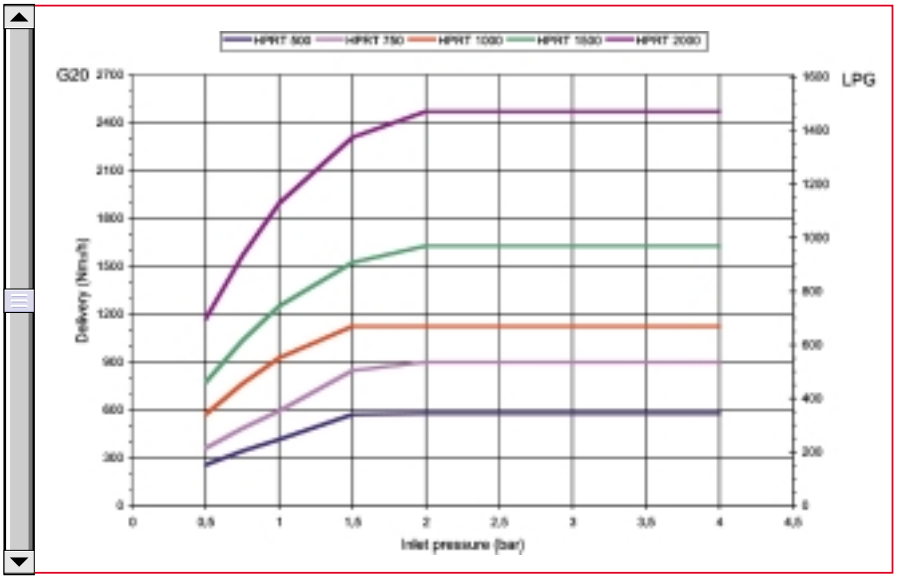
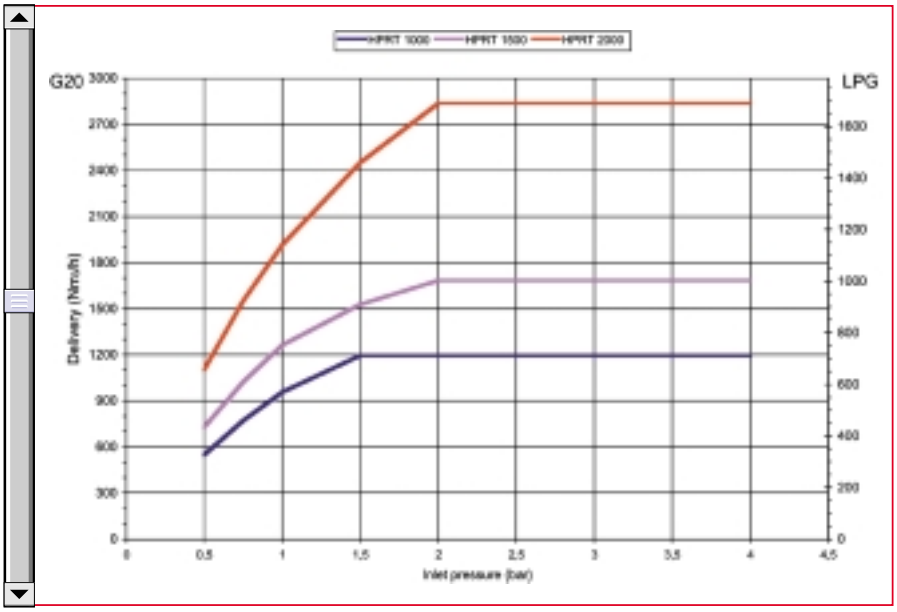


Diagram 11

Reference conditions:
Gas temperature 20°C
G20 density: 0,71 kg/m^3
G25 density: 0,78 kg/m^3
LPG density: 1,98 kg/m^3

HPRT series - Outlet pressure 220 mbar



Reference conditions:
Gas temperature 20°C
G20 density: 0,71 kg/m^3
G25 density: 0,78 kg/m^3
LPG density: 1,98 kg/m^3

Diagram 12

INSTALLATION - START UP - ADJUSTMENT (LPRT - HPRT series)

Pressure regulating/reducing units of LPRT and HPRT series installation is a very simple and quick procedure because units are pre-assembled and tested in the factory.
Connection to the gas distribution system takes place through threaded ports and must be realized with an appropriate hermetic material, so to gaurantee junctions seal (Teflon, Loctite,ect...). Connection through flanges must be effectuated with gaskets; fixing screws must be held with crossed sequence.

At start-up, keeping in close position the valves downstream to the regulating/reducing unit, open slowly the manual shut-off valve (ball valve - pos.1 fig. 1-2-3-4) and verify, through the pressure gauge upstream to the regulator, that inlet pressure do not exceed the maximum accepted from the regulating/reducing unit.
In case of a too high pressure value, close immediately the manual shut-off valve so to avoid damages to the regulation devices.
Once inlet pressure has been found correct, it is possible to regulate outlet pressure by intervening on the regulation device which is at the top of pressure regulating/reducing unit.
Outlet pressure regulation range is in relation to the selected spring.

Standard equipment:
- instruction handbook for installation, use and maintenance
- gaskets (in flanged version)
- fixing screws (in flanged version).

Available accessories to be ordered separately (see accessories section):
- spring for pressure regulator
- manual shut-off valve (ball valve from 3/4" to 2", from DN65 to DN150)
- anti-vibrating joint (from 3/4" to 2", from DN65 to DN150)
- filter (1"1/2, 2", DN65, DN100, DN125)
- pressure regulator (1"1/2, 2", DN65, DN100, DN125)
- pressure gauge kit with push-button (for pressure of 60, 150, 300, 500 mbar, 1-4 bar).

STATE OF SUPPLY

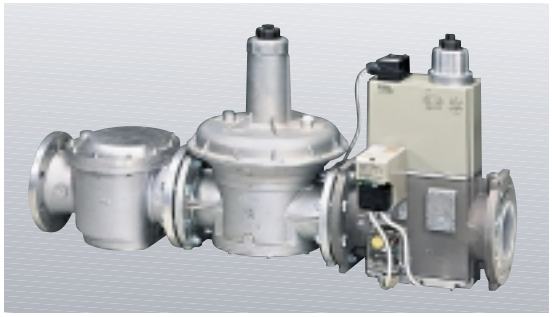
Pressure regulating/reducing units of LPRT/HPRT series are supplied pre-assembled and tested in the factory, protected from a nylon cover and packaged in carton boxes or wood cases.

The supply includes:
- pressure regulating/reducing unit
- gaskets (in flanged version)
- fixing screws (in flanged version)
- instruction handbook for installation, use and maintenance

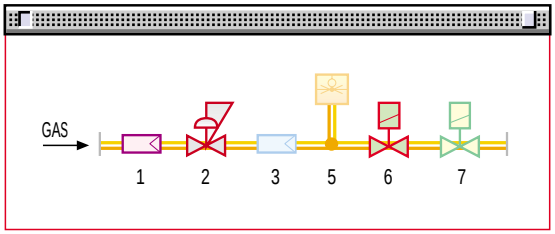
SAFETY/REGULATING GAS TRAINS
SAFETY SHUT-OFF VALVES

Gas trains include a series of safety devices capable of monitoring fuel adduction to the burner. They are manufactured and supplied with two available selection opportunities (composed or separated units) to be matched on the basis of the different applications requests (gas distribution pressure, installation features, ect…).
This allows to reach the best flexibilty in the application using pre-assembled units, which are also tested in the factory in the respect of existing normatives and projected for a simple installation procedure.
Gas trains are integrating part of the burner and together they compose a single system for gas combustion.

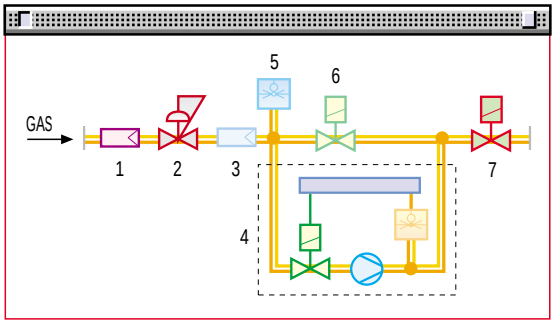
SAFETY/REGULATING GAS TRAINS - CB series



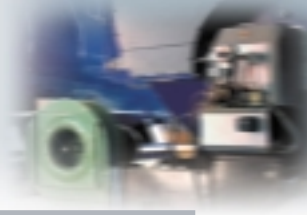
CB/1 series (without seal control)



CB/1 CT series (with seal control)



CB series gas trains are available in two different versions. The first one is equipped with threaded ports with diameters from 1”1/2 to 2” and the second version has flanged ports with a diameter from DN65 to DN125.



SELECTION DIAGRAMS FOR PRESSURE REGULATING/REDUCING UNITS

The following diagrams allow to select the pressure regulating/reducing unit which best suit to the application.
For units of LPRT series two diagrams are available: they correspond to a gas outlet pressure of 100 mbar and 150 mbar (diagrams 5 and 6), while for units of HPRT series four diagrams are available. At the same manner, these diagrams correspond to different values of gas outlet pressure: 60 mbar, 110 mbar, 150 mbar and 220 mbar (diagrams 7-8-9-10).

Use of selection diagram:
A first choice of the pressure regulating/reducing unit is made on the basis of inlet gas pressure:
- if inlet pressure is lower than 500 mbar, it is possible to use a LPRT series unit;
- if inlet pressure is comprised between 500 mbar and 4 bar, it is necessary to use an unit of HPRT series.

Once one of the two series has been selected, fuel delivery and pressure needed from to the gas safety shut-off valve have to be evaluated; when these parameters are known, the diagram relative to the desired outlet pressure has to be selected, remembering that outlet pressure shouldn't be lower than necessary.

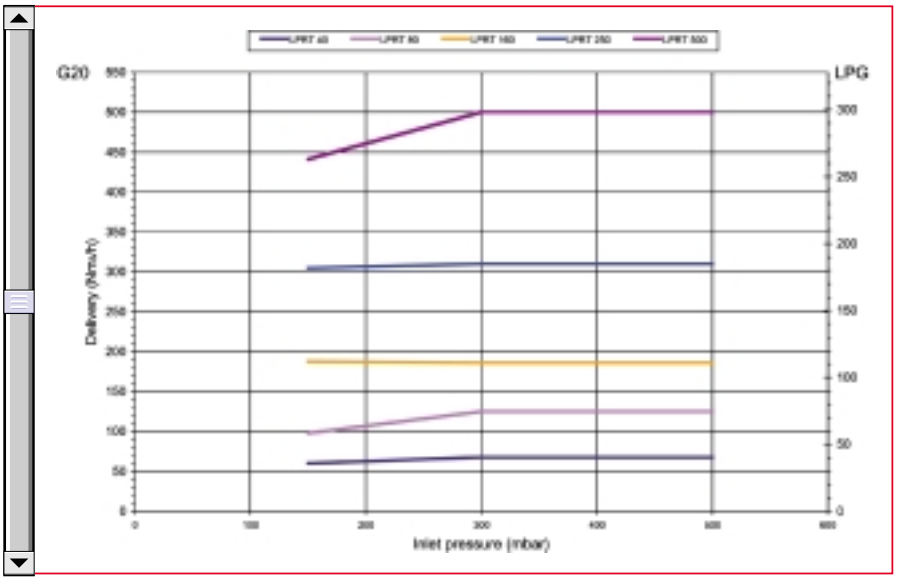
Once inlet gas pressure has been signed on the horizontal axis of the diagram, drawing a vertical line, intersection with the horizontal line determined by the gas delivery on the vertical axis is individuated.
The pressure regulatin/reducing unit that satisfy the requirments is the one correspondant to the curve upon intersection point.

Example (see diagram 5):

Gas pressure upstream to the regulating/reducing unit:	400 mbar
Gas delivery (G20):	250 Nm³/h
Minimum pressure necessary upstream to the gas valve:	90 mbar
Series suited to the application:	LPRT
Selection diagram relative to 100 mbar outlet pressure:	5
Lines intersection point is below the curve correspondant to	LPRT 250.
Pressure regulating/reducing unit selected:	LPRT 250.

For calculating G25 delivery in the following diagrams it is sufficient apply a coefficient of K=1,05 to G20 delivery.
For example for LPRT 500, with an inlet pressure of 300 mbar and an outlet pressure of 150 mbar, G25 delivery resultss 500*1,05 = 525 Nm³/h.

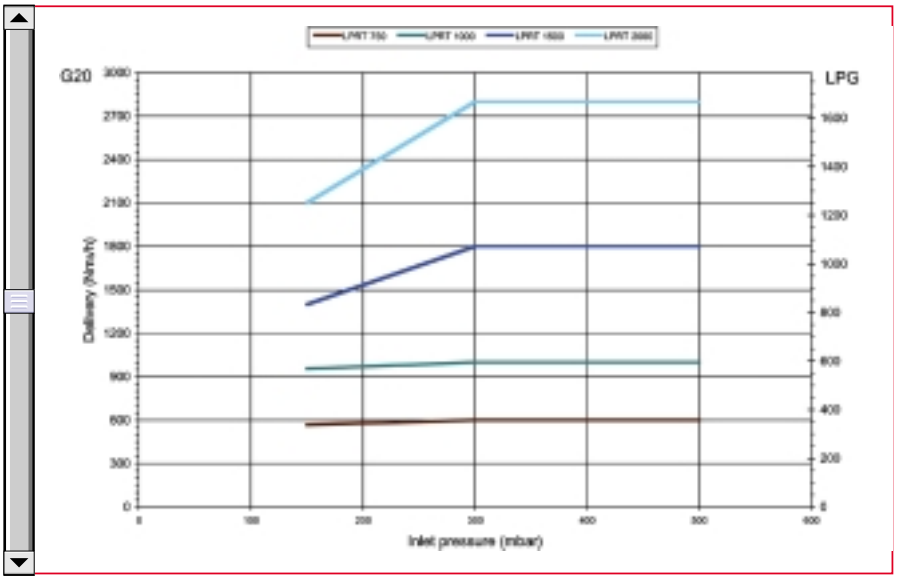
LPRT series - Outlet pressure 100 mbar



Reference conditions:
Gas temperature 20°C
G20 density: 0,71 kg/m³
G25 density: 0,78 kg/m³
LPG density: 1,98 kg/m³

Diagram 5

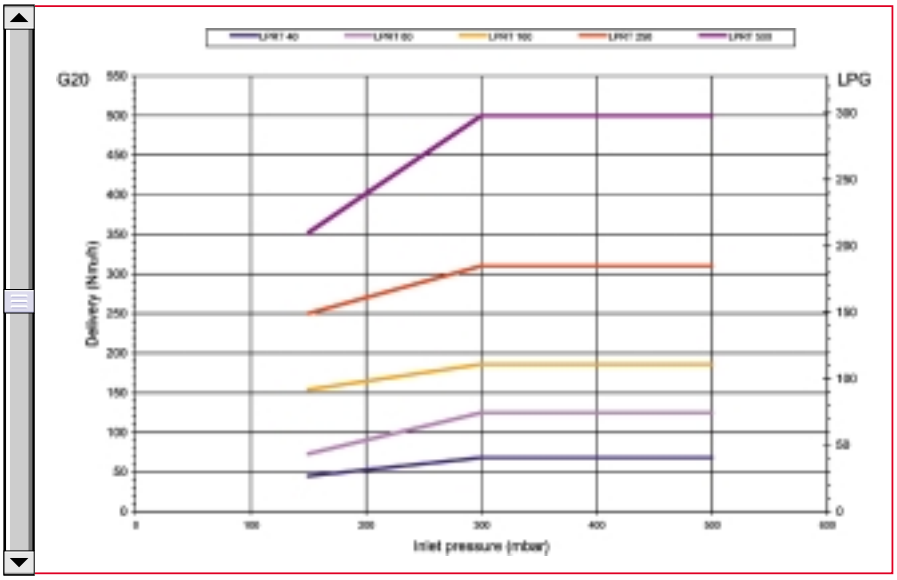
LPRT series - Outlet pressure 100 mbar



Reference conditions:
Gas temperature 20°C
G20 density: 0,71 kg/m^3
G25 density: 0,78 kg/m^3
LPG density: 1,98 kg/m^3

Diagram 6

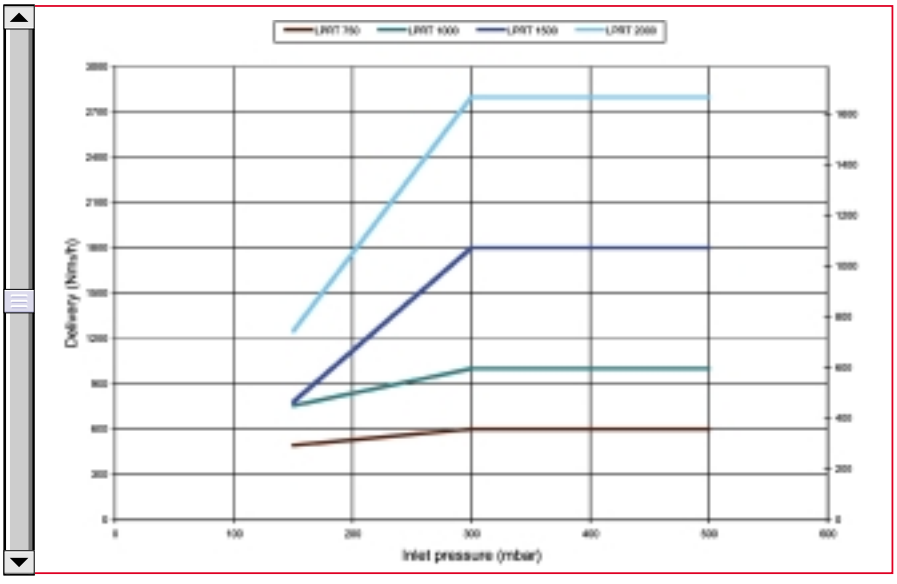
LPRT series - Outlet pressure 150 mbar



Reference conditions:
Gas temperature 20°C
G20 density: 0,71 kg/m^3
G25 density: 0,78 kg/m^3
LPG density: 1,98 kg/m^3

Diagram 7

LPRT series - Outlet pressure 150 mbar

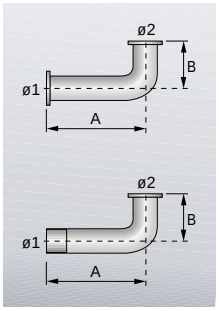


Reference conditions:
Gas temperature 20°C
G20 density: 0,71 kg/m^3
G25 density: 0,78 kg/m^3
LPG density: 1,98 kg/m^3

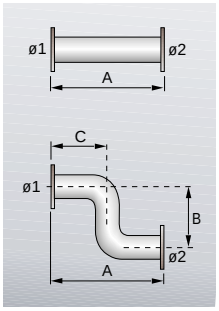
Diagram 8

Connection adapters

In some cases, an adapter must be fitted between the gas train and the burner, when the diameter of the gas train is different from the set diameter of the burner.
Below the available adapters that can be fitted are listed.



Connection adapters					
Type	**Ø 1**	**Ø 2**	**A**	**B**	**Code**
L 65/80 - 320	DN 65	DN 80	320	174	**3000831**
L 65/65 - 320	DN 65	DN 65	320	174	**3090788**
L 80/80 - 320	DN 80	DN 80	320	174	**3000832**
L 80/65 - 320	DN 80	DN 65	320	174	**3090787**
L 100/80 - 320	DN 100	DN 80	320	174	**3010127**
L 2”/80	2”	DN 80	540	174	**3010128**
L 100/100	DN 100	DN 100	320	174	**3090680**
L125/100 - 320	DN 125	DN 100	320	174	**3090679**
L 125/80 - 320	DN 125	DN 80	320	174	



Connection adapters						
Type	**Ø 1**	**Ø 2**	**A**	**B**	**C**	**Code**
I 65/80 - 320	80	65	320	-	-	**3010221**
I 80/80 - 320	80	80	320	-	-	**3010222**
I 100/80 - 320	80	100	320	-	-	**3010223**
I 125/80 - 320	80	125	320	-	-	**3010224**
Z 65/80 - 400/480/225	80	65	400	480	225	**3010225**
Z 80/80 - 400/480/225	80	80	400	480	225	**3010226**
Z 100/80 - 400/480/225	80	100	400	480	225	**3010227**
Z 125/80 - 500/480/300	80	125	500	480	225	**3010228**

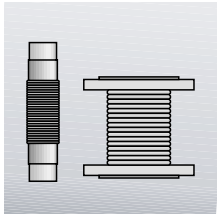
Manual valve

Ball shut-off manual valves are available in different sizes and listed in the following table.

Manual valve			
Type	Max operating pressure (bar)	**Port**	**Code**
GBV 1/2”	8	1/2”	
GBV 3/4”	8	3/4”	
GBV 1”	8	1”	
GBV 1”1/2	8	1”1/2	
GBV 2”	8	2”	
GBV DN65	16	DN 65	
GBV DN80	16	DN 80	
GBV DN100	16	DN 100	
GBV DN125	16	DN 125	
GBV DN150	16	DN 150	

Anti-vibrating joints

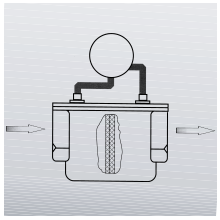
Anti-vibrating joints to damp vibrations and facilitate application of the gas train to the gas distribution line are available in different sizes listed in the table below:



Anti-vibrating joints			
Type	Port size	Inlet max pressure (bar)	**Code**
GA 20	1/2”	6	**3891033**
GA 25	1”	6	**3891043**
GA 40	1”1/2	6	**3891053**
GA 50	2”	6	**3891053**
GAF 65	DN 65	6	**3891013**
GAF 80	DN 80	6	**3891003**
GAF 100	DN 100	6	**3891023**
GAF 125	DN 125	6	

Filters

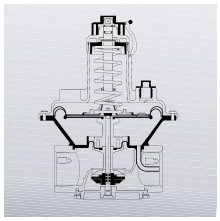
A series of gas filters of different sizes are avilable and listed in the following table.



Filters			
Type	**Port IN/OUT**	**Inlet max pressure (bar)**	**Code**
GF 515/1	1”1/2	0,5	
GF 520/1	2”	0,5	
GF 400 65/3	DN 65	4	
GF 400 80/3	DN 80	4	
GF 400 100/3	DN 100	4	

Pressure regulators

A series of pressure regulators of different sizes are avilable and listed in the following table.



Pressure regulators			
Type	**Port IN/OUT**	**Inlet max pressure (bar)**	**Code**
FRS 515	1”1/2	0,5	**3012203**
FRS 520	2”	0,5	**3012204**
FRS 5065	DN 65	0,5	**3012205**
FRS 5080	DN 80	0,5	**3012206**
FRS 5100	DN 100	0,5	**3012207**

Pressure gauge kit + push-buttom cock

A kit composed from a pressure gauge and a push-button cock for measuring gas pressure is available in different sizes following the table.

Pressure gauge kit + push-buttom cock		
Model	**Max pressure (mbar)**	**Code**
NGPG 1	60	**3090062**
NGPG 2	100	
NGPG 3	300	
NGPG 4	500	**3090099**
NGPG 5	1000	
NGPG 6	2000	
NGPG 7	3000	
NGPG 8	4000	

Gas pressure switch for seal control installed on the control panel

A gas pressure switch is available as seal control accessory to be installed on the control panel.

Gas pressure switch for seal control installed on the control panel		
Type	**Setting range DP (mbar)**	**Code**
GW 1500	300-1500	
GW 6000	1000-6000	

Seal control kit

A seal control kit is available as assessory to be installed on the gas train to verify seal control.

Seal control kit	
Type	**Code**
VPS 504 (mounting on gas train)	**3012220**

Lineagrafica

RIELLO S.p.A. - Via degli Alpini, 1 - 37045 LEGNAGO (VR) Italy
Tel. ++39.0442630111 - Fax ++39.044221980
Internet: http://www.riellobumers.com - E-mail: rburners@riellobumers.com