



GAS Series

One Stage Gas Burners

GAS 3	130 ÷ 350	kW
GAS 4	185 ÷ 465	kW
GAS 5	325 ÷ 660	kW
GAS 6	525 ÷ 1050	kW



The GAS series of burners cover a firing range from 130 to 1050 kW.

Operation is "one stage"; the combustion head, that can be set on the basis of required output, allows optimal performance ensuring good combustion and reducing fuel consumption.

The GAS series are extremely reliable burners, featured by a simple use and an operation without particular maintenance intervention.

Simplified maintenance is achieved by the slide bar system, which allows easy access to all of the essential components of the combustion head.

All electrical components are easily accessible only by dismounting a protection panel, thus guaranteeing a quick and simple intervention on components.

Technical Data

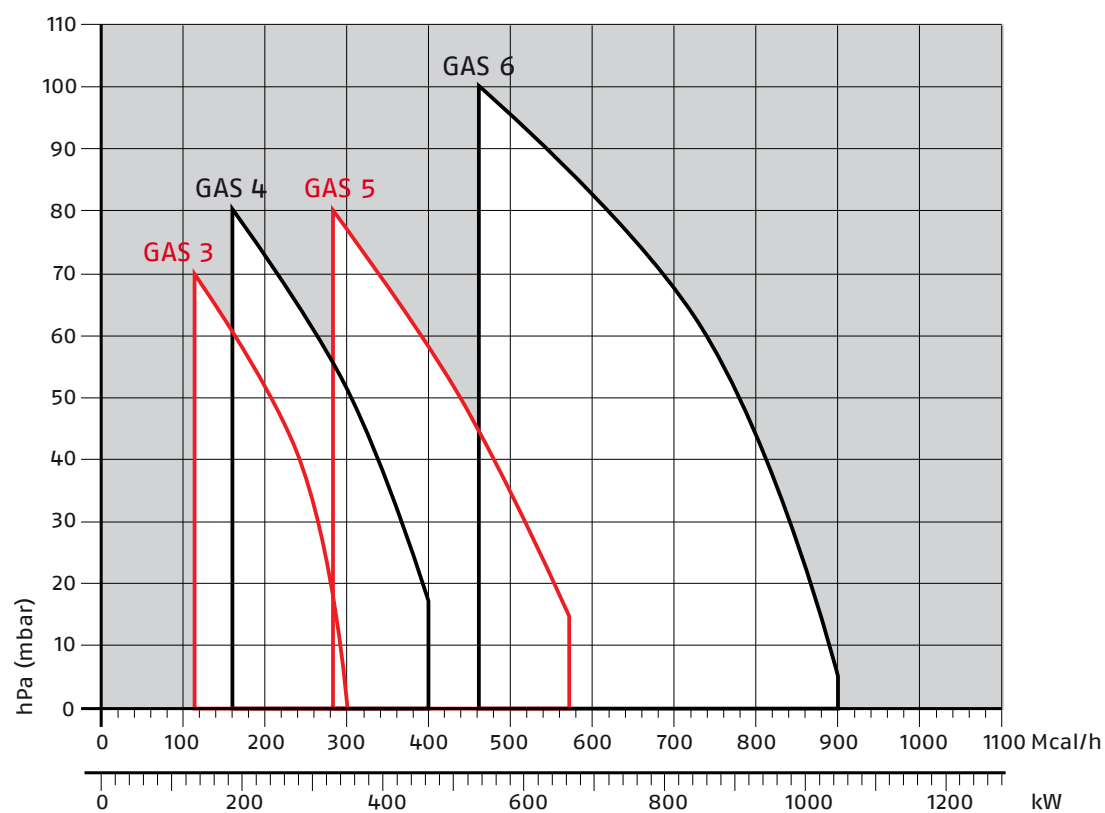
MODEL		GAS 3	GAS 4	GAS 5	GAS 6
Burner operation mode		One stage			
Modulation ratio at max. output		--			
Servomotor	type	--			
run time	s	--			
Heat output	kW	130÷350	185÷465	325÷660	525÷1050
	Mcal/h	112÷301	160÷400	280÷570	450÷900
Working temperature	°C min./max.	0/40			
FUEL/AIR DATA					
Net calorific value G20 gas	kWh/Nm³	10			
G20 density gas	kg/Nm³	0,71			
G20 gas delivery	Nm³/h	13÷35	18.5÷46.5	32.5÷66	52.5÷105
Net calorific value G25 gas	kWh/Nm³	8.6			
G25 density gas	kg/Nm³	0.78			
G25 delivery gas	Nm³/h	15÷41	22÷54	38÷77	61÷122
Net calorific value LPG gas	kWh/Nm³	25.8			
LPG gas density	kg/Nm³	2.02			
LPG gas delivery	Nm³/h	5.8÷14	7÷18	13÷26	20÷41
Fan	type	Centrifugal with forward curve blades			
Air temperature	Max. °C	60			
ELECTRICAL DATA					
Electrical supply	Ph/Hz/V	1/50/230~(±10%)		3N/50/400~(±10%) (star) 3/50/230~(±10%) (delta)	
Auxiliary electrical supply	Ph/Hz/V	1/50/230~(±10%)			
Control box	type	RMG			
Total electrical power	kW	0.4	0.54	0.85	1,7
Auxiliary electrical power	kW	0.15	0.17	0.1	0.2
Protection level	IP	40			
Motor electrical power	kW	0.25	0.37	0.75	1.5
Rated motor current	A	1.8	2.9	2.85÷1.65	5.9÷3.4
Motor start current	A	4.8	9.5	10÷6	22.5÷13
Motor protection level	IP	54			
Ignition transformer	V1 – V2	230V – 1x8 kV			
	I1 – I2	1.8A – 30 mA			
Operation		Intermittent (at least one stop every 24 h)			
EMISSIONS					
Sound pressure	dBA	75	78	83	84
Sound power	W	--			
CO Emission	mg/kWh	< 100			
NOx Emission	mg/kWh	< 170			
APPROVAL					
Directive		2006/42/EC – 2009/142/EC – 2014/30/UE – 2014/35/UE			
Conforming to		EN 676			
Certification		CE 0085A00707			

Reference conditions:

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

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Firing Rates



☐ Useful firing rate for choosing the burner

Test conditions conforming to EN 676:

Temperature: 20°C

Pressure: 1013,5 mbar

Altitude: 0 m a.s.l.

Fuel Supply

GAS TRAIN DESIGNATION

Series: MB

MBC

CB

DMV

Size:

405

407

410

412

415

420

1200

1900

3100

5000

512

-

520

525

5065

5080

50100

50125

50150

Operation:

/1

1st stage mode opening

/2

2nd stage mode opening

Leak detection control:

-

0

CT

leak detection control device installed on the gas train

CQ

equipped with pressure switch for leak detection control

Joint type:

R

threaded joint

F

standard flange ISO

Electrical connection:

T

Terminals - Terminal strip

SD

Domestic plug

SM

Medium voltage plug

Standard output pressure range:

-

without pressure governor

0

with governor and air/gas proportional pressure

2

with governor and output pressure up to 20 mbar

3

with governor and output pressure up to 30 mbar

4

with governor and output pressure up to 40 mbar

5

with governor and output pressure up to 50 mbar

6

with governor and output pressure up to 60 mbar

8

with governor and output pressure up to 80 mbar

15

with governor and output pressure up to 150 mbar

Valve control:

0

shared

2

separate

MBC

1200

/1

CT

R

SM

6

0

BASIC DESIGNATION

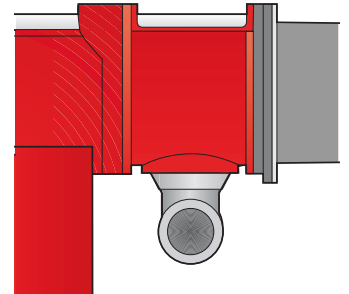
EXTENDED DESIGNATION

GAS TRAINS

Fuel can be supplied either from the right or left hand sides.

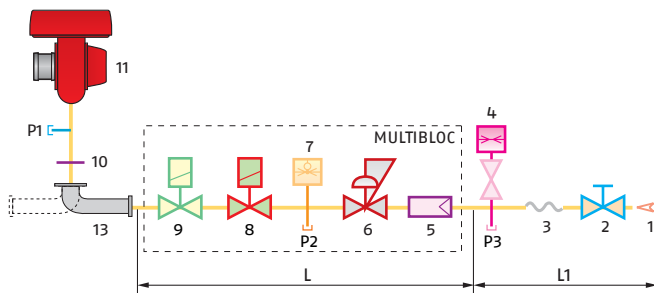
The gas train can be selected to best fit system requirements depending on the fuel output and pressure in the supply line.

The gas train can be "Multibloc " type (containing the main components in a single unit) or "Composed" type (assembly of the single components).

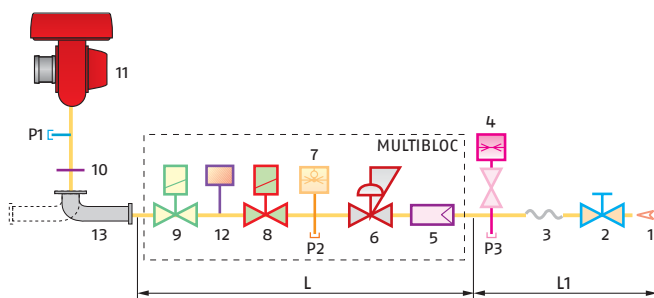


Example of the gas train connection flange of GAS burners.

MULTIBLOC GAS TRAIN WITHOUT SEAL CONTROL

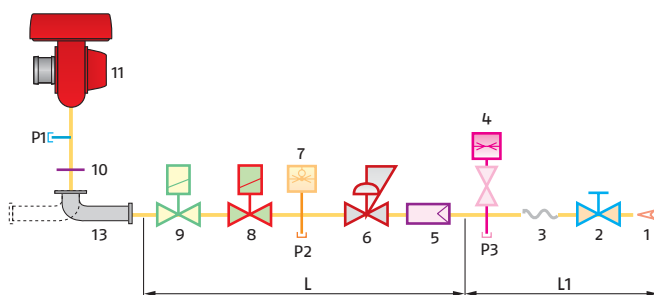


MULTIBLOC GAS TRAIN WITH SEAL CONTROL

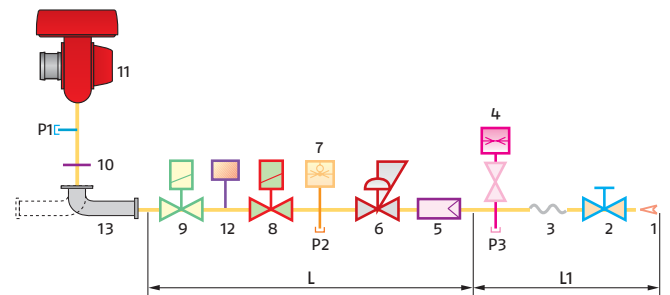


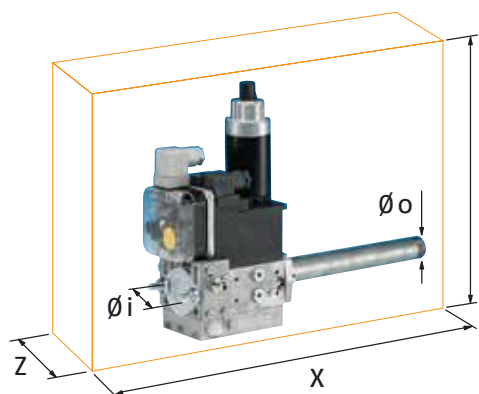
1	Gas input pipework
2	Manual valve
3	Anti-vibration joint
4	Pressure gauge with pushbutton cock
5	Filter
6	Pressure regulator (vertical)
7	Minimum gas pressure switch
8	VS safety solenoid (vertical)
9	VR regulation solenoid (vertical) Two settings: - firing output (rapid opening) - maximum output (slow opening)
10	Gasket and flange supplied with the burner
11	Burner
12	Seal control mechanism for valves 8-9. According to standard EN 676, the seal control is compulsory for burners with maximum output above 1200 kW.
13	Gas train-burner adapter
P1	Combustion head pressure
P2	Pressure downstream from the regulator
P3	Pressure upstream from the filter
L	Gas train supplied separately, with the code given in the table
L1	Installer's responsibility

COMPOSED GAS TRAIN WITHOUT SEAL CONTROL

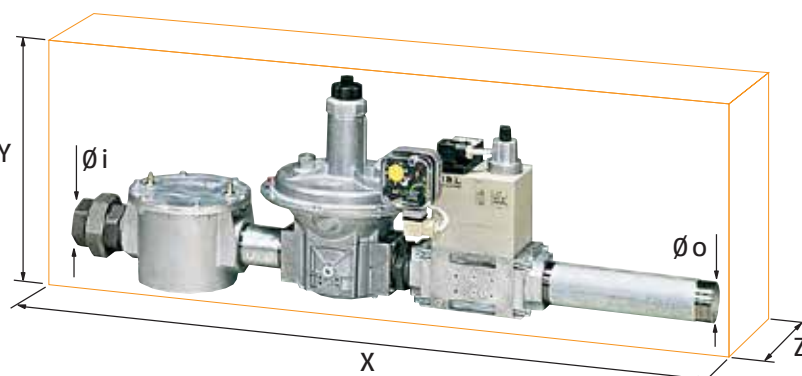


COMPOSED GAS TRAIN WITH SEAL CONTROL





Example of gas train "MULTIBLOC" type
without seal control



Example of gas train "COMPOSED" type
without seal control

Gas trains are approved by standard EN 676 together with the burner.

The overall dimensions of the gas train depends on how they are constructed. The following table shows the maximum dimensions of the gas trains that can be fitted to the burners of GAS series, intake and outlet diameters and seal control if fitted.

Please note that the seal control can be installed as an accessory, if not already installed on the gas train.

The maximum gas pressure of gas train "Multibloc" type is 300 mbar, and that one of gas train "Composed" type is 500 mbar.

GAS TRAIN						
MODEL	CODE	Ø in	Ø out	X mm	Y mm	Z mm
MB 405/1 - RT 20	3970500	Rp 3/4"	Rp 3/4"	371	186	92
MB 405/2 - RSD 20	3970084	Rp 3/4"	Rp 3/4"	371	186	92
MB 407/1 - RT 20	3970553	Rp 3/4"	Rp 3/4"	371	196	92
MB 407/1 - RT 52	3970599	Rp 3/4"	Rp 3/4"	371	196	92
MB 407/1 - RSM 20	3970229	Rp 3/4"	Rp 3/4"	371	196	92
MB 407/2 - RSD 20	3970537	Rp 3/4"	Rp 3/4"	371	196	92
MB 407/2 - RT 20	3970556	Rp 3/4"	Rp 3/4"	371	196	92
MB 410/1 - RT 52	3970258	Rp 1" 1/2	Rp 1" 1/2	405	217	116
MB 410/1 - RT 20	3970554	Rp 3/4"	Rp 3/4"	405	217	116
MB 410/1 - RT 52	3970600	Rp 3/4"	Rp 3/4"	405	217	116
MB 410/1 - RSM 20	3970230	Rp 3/4"	Rp 3/4"	405	221	116
MB 410/2 - RSD 20	3970534	Rp 3/4"	Rp 3/4"	405	221	116
MB 410/2 - RT 20	3970557	Rp 3/4"	Rp 3/4"	405	221	116
MB 412/1 - RT 52	3970256	Rp 1" 1/2	Rp 1" 1/2	433	217	116
MB 412/1 - RT 20	3970144	Rp 1" 1/2	Rp 1" 1/2	433	217	116
MB 412/1 CT RT 20	3970197	Rp 1" 1/2	Rp 1" 1/2	523	217	116
MB 412/1 - RSM 20	3970231	Rp 1" 1/2	Rp 1" 1/2	433	217	116
MB 412/2 - RT 20	3970152	Rp 1" 1/2	Rp 1" 1/2	433	217	116
MB 415/1 - RT 30	3970180	Rp 1" 1/2	Rp 1" 1/2	433	217	116
MB 415/1 CT RT 30	3970198	Rp 1" 1/2	Rp 1" 1/2	433	217	116
MB 415/1 - RT 52	3970250	Rp 1" 1/2	Rp 1" 1/2	523	250	100
MB 415/1 CT RT 52	3970253	Rp 1" 1/2	Rp 1" 1/2	523	250	229
MB 415/1 RSM 30	3970232	Rp 1" 1/2	Rp 1" 1/2	523	250	100
MB 415/2 - RT 20	3970183	Rp 1" 1/2	Rp 1" 1/2	523	250	100
MB 420/1 - RT 30	3970181	Rp 2"	Rp 2"	523	300	229
MB 420/1 CT RT 30	3970182	Rp 2"	Rp 2"	523	300	229
MB 420/1 - RT 52	3970257	Rp 2"	Rp 2"	523	300	229
MB 420/1 CT RT 52	3970252	Rp 2"	Rp 2"	523	300	229
MB 420/1 RSM 30	3970233	Rp 2"	Rp 2"	523	300	100
MB 420/1 CT RSM 30	3970234	Rp 2"	Rp 2"	523	300	229
MB 420/2 - RT 20	3970184	Rp 2"	Rp 2"	523	300	229
MB 420/2 CT RT 20	3970185	Rp 2"	Rp 2"	523	300	229

GAS TRAIN						
MODEL	CODE	Ø in	Ø out	X mm	Y mm	Z mm
MBC 1200/1 - RSM 60	3970221	Rp 2"	Rp 2"	528	424	161
MBC 1200/1 CT RSM 60	3970225	Rp 2"	Rp 2"	528	424	290
MBC 1900/1 - FSM 40	3970222	DN 65	DN 65	613	430	237
MBC 1900/1 CT FSM 40	3970226	DN 65	DN 65	613	430	298
MBC 3100/1 - FSM 40	3970223	DN 80	DN 80	633	500	240
MBC 3100/1 CT FSM 40	3970227	DN 80	DN 80	633	500	319

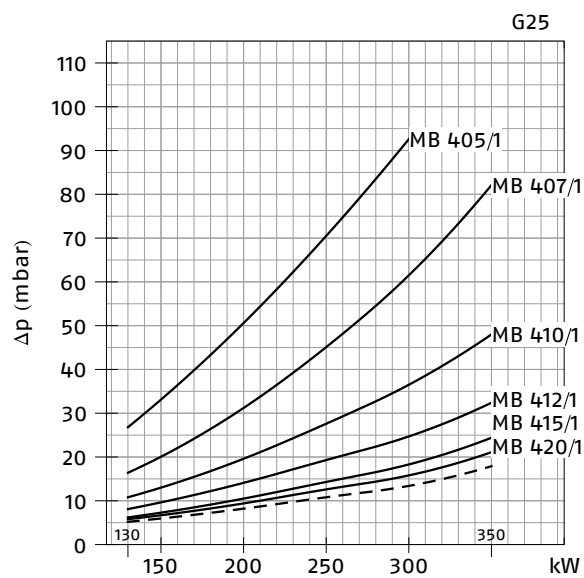
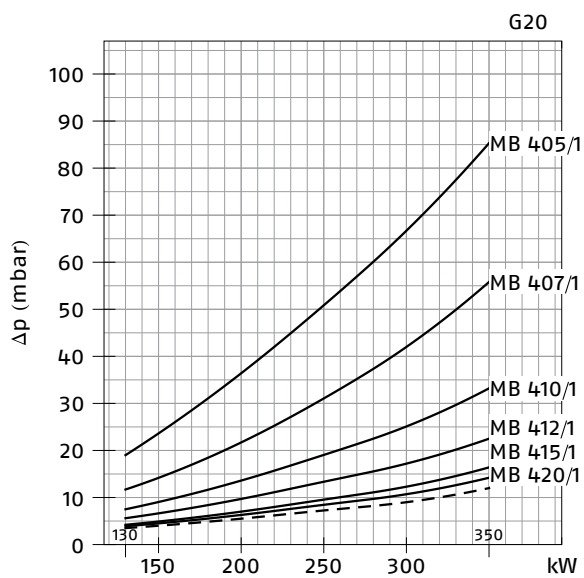
GAS TRAIN						
MODEL	CODE	Ø in	Ø out	X mm	Y mm	Z mm
CB 512/1 - RSM 30	3970145	Rp 1-1/2"	Rp 1-1/2"	891	261	245
CB 512/1 - CT RSM 30	20045589	Rp 1-1/2"	Rp 1-1/2"	891	261	245
CB 512/2 - RT 32	3970153	Rp 1-1/2"	Rp 1-1/2"	891	261	245
CB 512/2 CT RT 32	20045590	Rp 1-1/2"	Rp 1-1/2"	891	261	245
CB 520/1 - RSM 30	3970146	Rp 2"	Rp 2"	986	328	255
CB 520/1 - CT RSM 30	3970160	Rp 2"	Rp 2"	986	328	255
CB 520/2 - RT 32	3970154	Rp 2"	Rp 2"	986	328	255
CB 520/2 CT RT 32	20045591	Rp 2"	Rp 2"	986	328	255
CB 525/1 - RSM 30	20044659	Rp 2"	Rp 2"	1025	356	285
CB 525/1 - CT RSM 30	20044660	Rp 2"	Rp 2"	1025	356	285
CB 5065/1 - FSM 30	3970147	DN 65	DN 65	906	356	285
CB 5065/1 CT FSM 30	3970161	DN 65	DN 65	906	356	285
CB 5065/2 - FT 32	3970155	DN 65	DN 65	906	356	285
CB 5065/2 CT FT 32	3970167	DN 65	DN 65	906	356	285
CB 5080/1 - FSM 30	3970148	DN 80	DN 80	934	416	285
CB 5080/1 CT FSM 30	3970162	DN 80	DN 80	934	416	285
CB 5080/2 - FT 32	3970156	DN 80	DN 80	934	416	285
CB 5080/2 CT FT 32	3970168	DN 80	DN 80	934	416	285
CB 50100/1 - FSM 30	3970149	DN 100	DN 100	1054	501	350
CB 50100/1 CT FSM 30	3970163	DN 100	DN 100	1054	501	350
CB 50125/1 - FSM 30	20015871	DN 125	DN 125	1164	780	400
CB 50125/1 CT FSM 30	3970196	DN 125	DN 125	1164	780	400

GAS TRAIN						
MODEL	CODE	Ø in	Ø out	X mm	Y mm	Z mm
DMV 512/1 - RSM - 0	20043035	Rp 1-1/2"	Rp 1-1/2"	490	292	245
DMV 512/1 - CT RSM - 0	20043036	Rp 1-1/2"	Rp 1-1/2"	490	292	245
DMV 512/1 - CQ RSM - 2	20043037	Rp 1-1/2"	Rp 1-1/2"	490	292	245
DMV 520/1 - RSM - 0	20043038	Rp 2"	Rp 2"	490	292	255
DMV 520/1 CT RSM - 0	20043039	Rp 2"	Rp 2"	490	292	255
DMV 520/1 CQ RSM - 2	20043040	Rp 2"	Rp 2"	490	292	255
DMV 525/1 - RSM - 0	20043053	Rp 2"	Rp 2"	530	338	270
DMV 525/1 CT RSM - 0	20043054	Rp 2"	Rp 2"	530	338	270
DMV 525/1 CQ RSM - 2	20043055	Rp 2"	Rp 2"	530	338	270
DMV 5065/1 - FSM - 0	20043041	DN 65	DN 65	290	338	270
DMV 5065/1 CT FSM - 0	20043042	DN 65	DN 65	290	338	270
DMV 5065/1 CQ FSM - 2	20043043	DN 65	DN 65	290	338	270
DMV 5080/1 - FSM - 0	20043044	DN 80	DN 80	310	397	290
DMV 5080/1 CT FSM - 0	20043045	DN 80	DN 80	310	397	290
DMV 5080/1 CQ FSM - 2	20043046	DN 80	DN 80	310	397	290
DMV 50100/1 - FSM - 0	20043047	DN 100	DN 100	350	449	307
DMV 50100/1 CT FSM - 0	20043048	DN 100	DN 100	350	449	307
DMV 50100/1 CQ FSM - 2	20043049	DN 100	DN 100	350	449	307

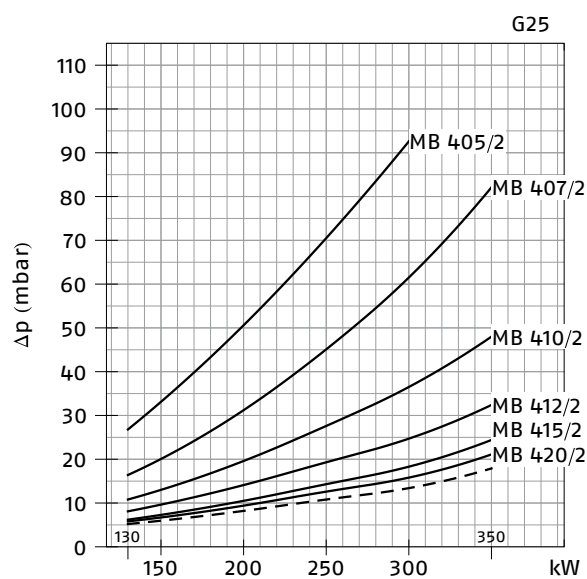
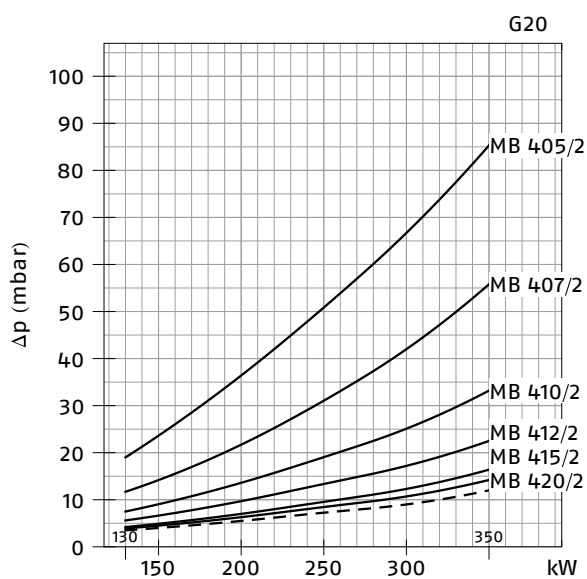
Pressure Drop Diagram

The diagrams indicate the minimum pressure drop of the burners with the various gas trains that can be matched with them; at the value of these pressure drop add the combustion chamber pressure. The value thus calculated represents the minimum required input pressure to the gas train.

GAS 3 (NATURAL GAS)

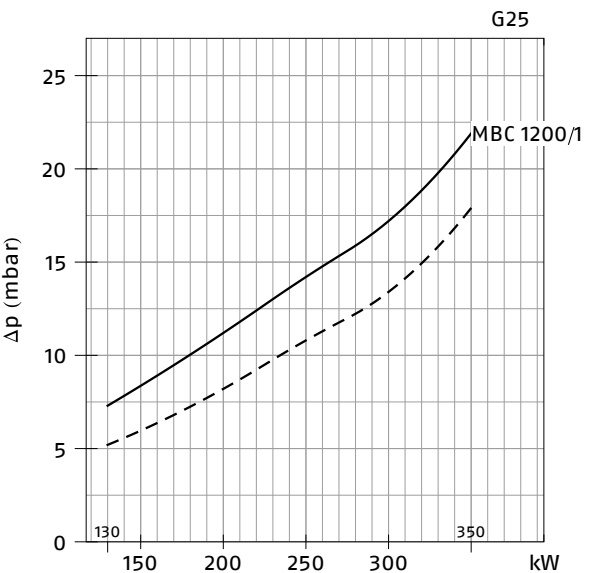
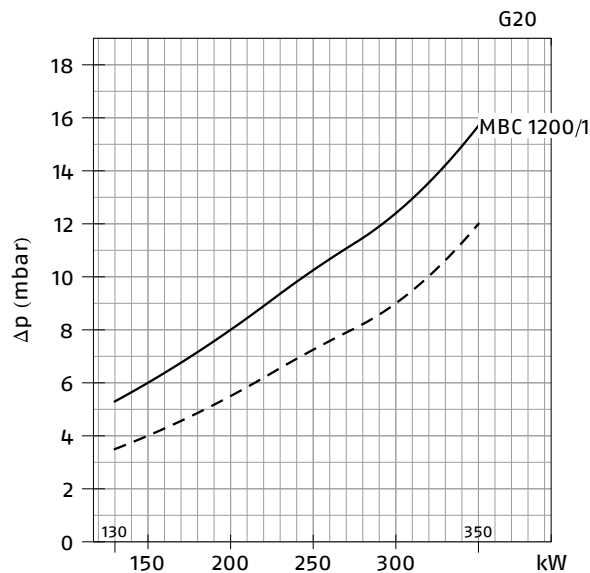


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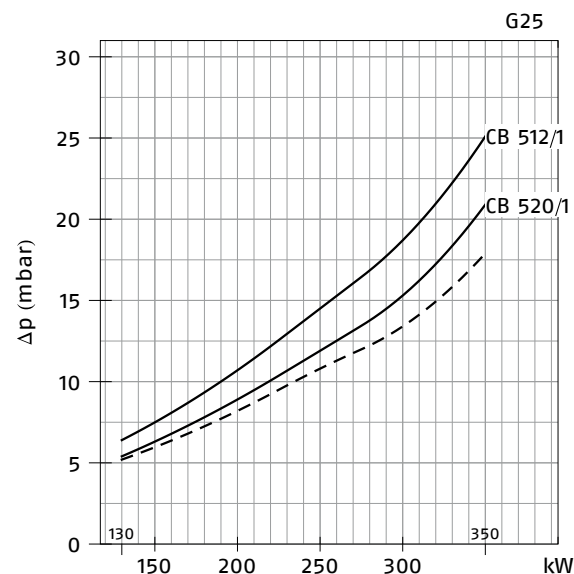
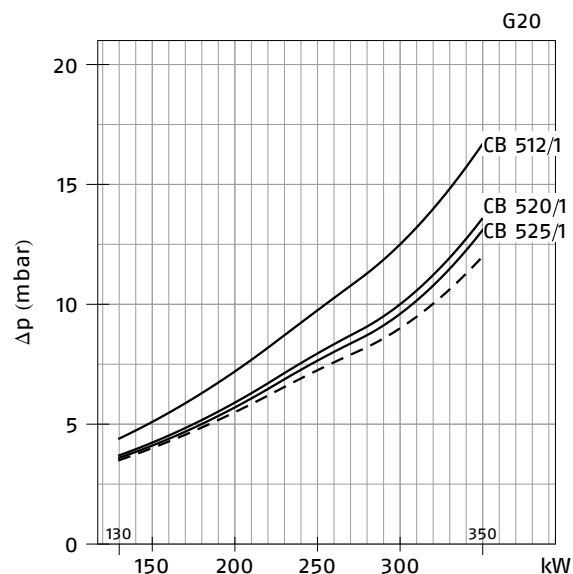


- Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

GAS 3 (NATURAL GAS)

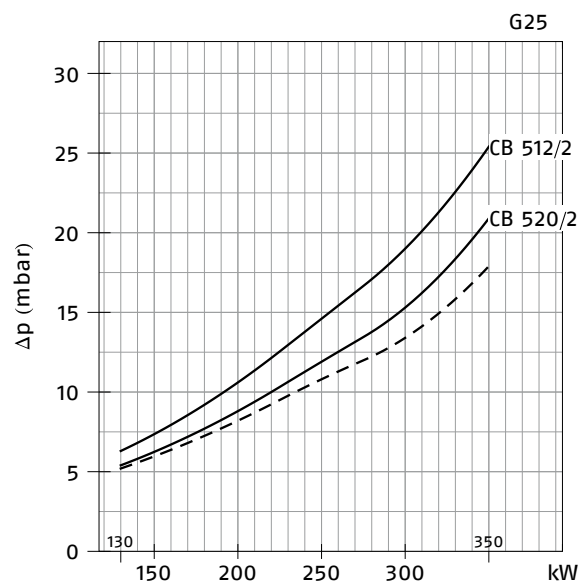
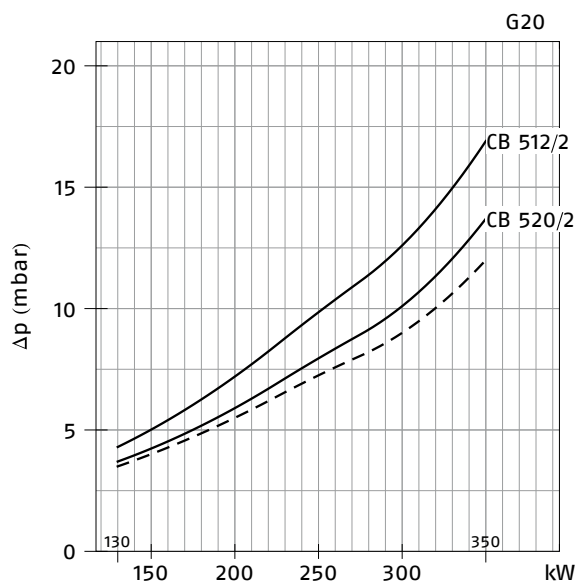


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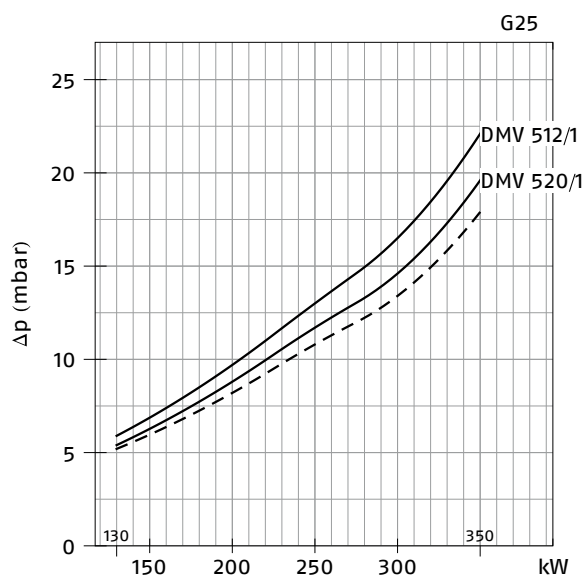
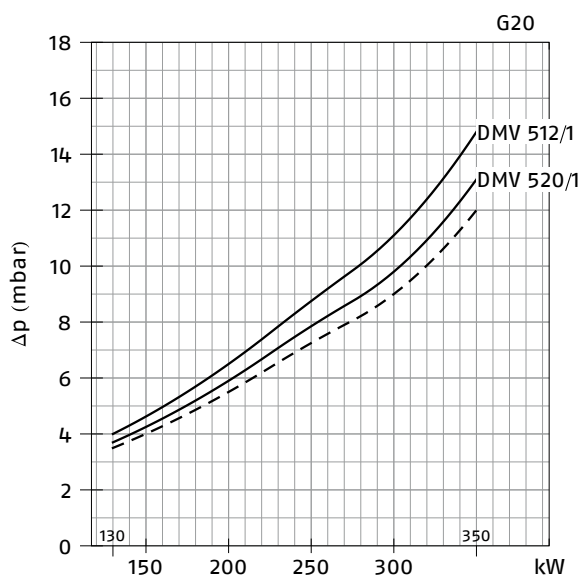


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

GAS 3 (NATURAL GAS)

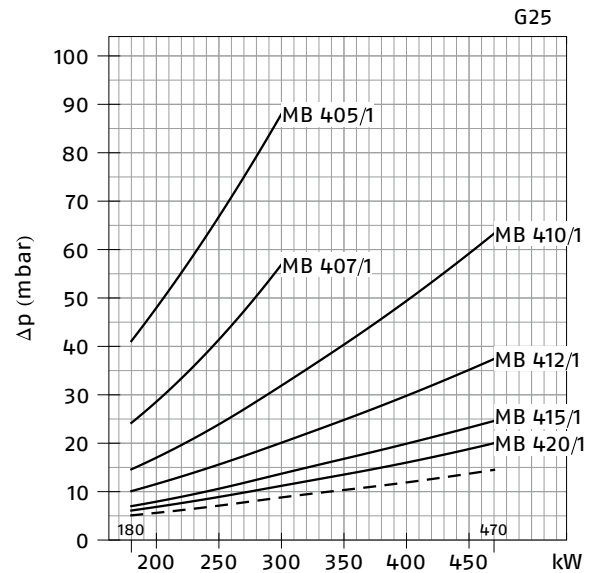
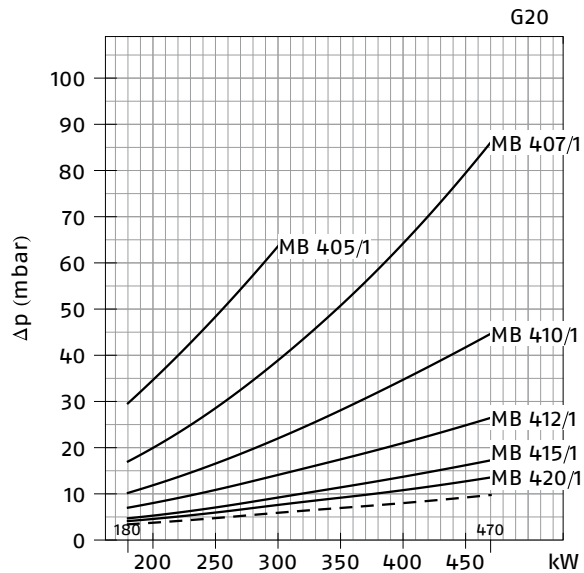


GAS 3 (NATURAL GAS)

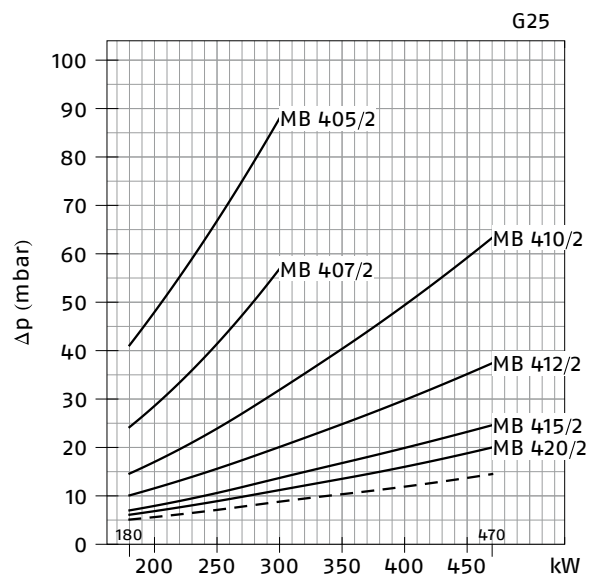
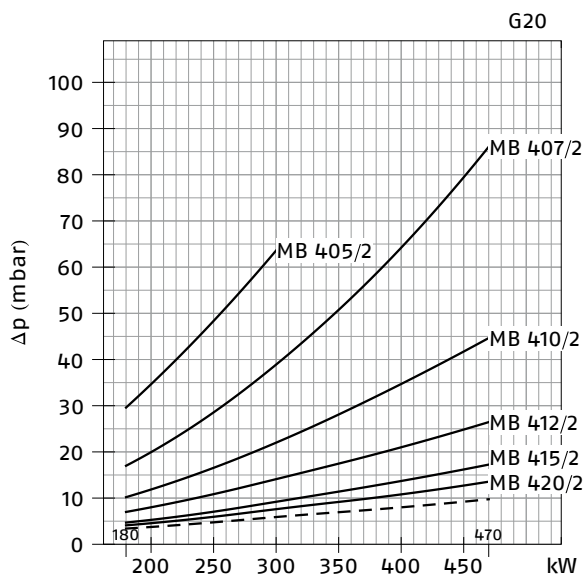


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

GAS 4 (NATURAL GAS)

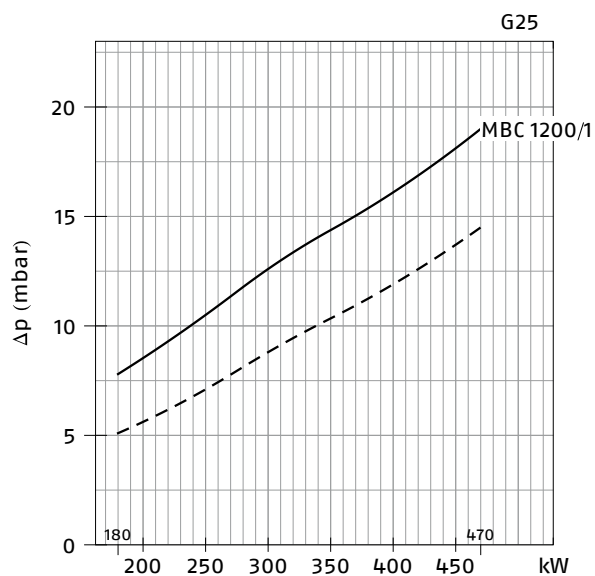
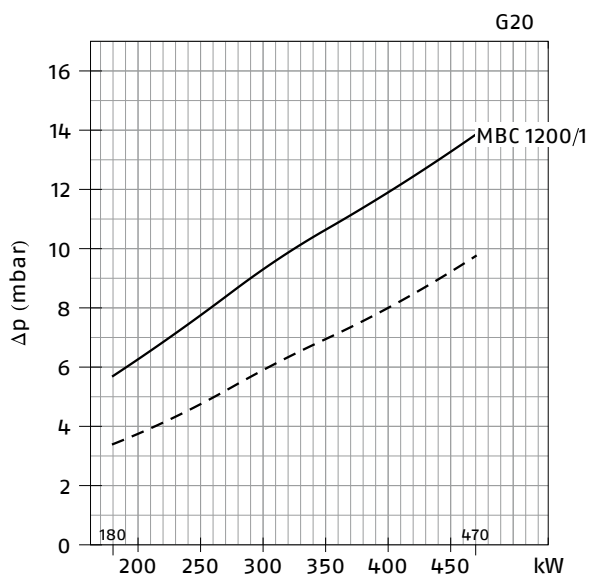


GAS 4 (NATURAL GAS)

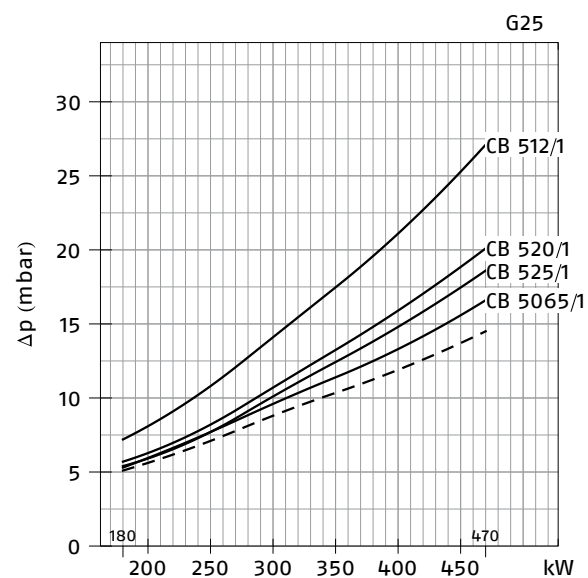
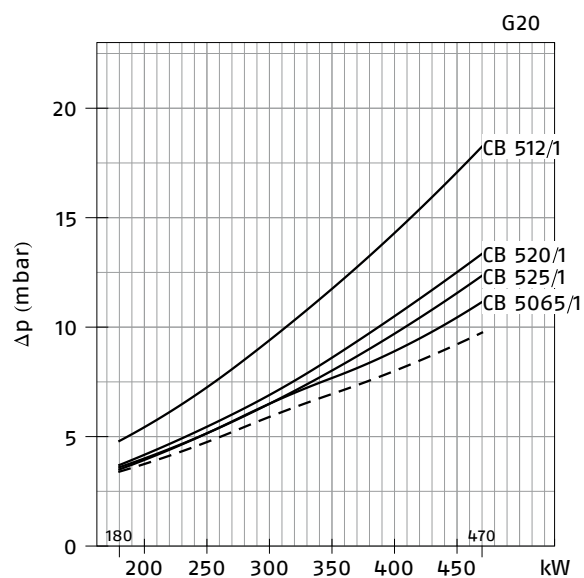


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

GAS 4 (NATURAL GAS)

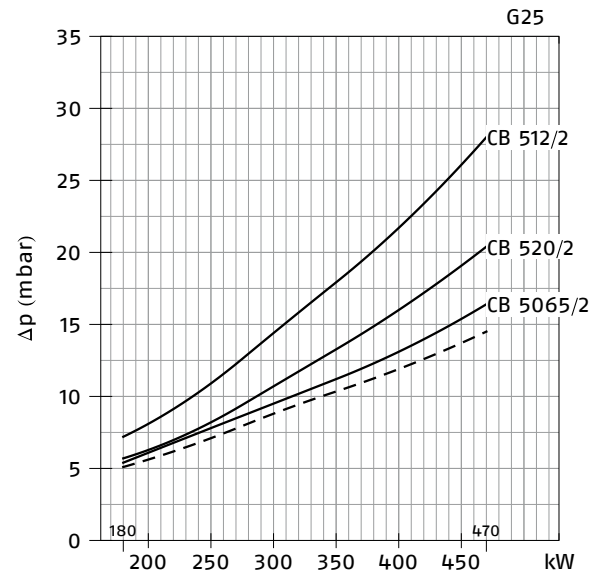
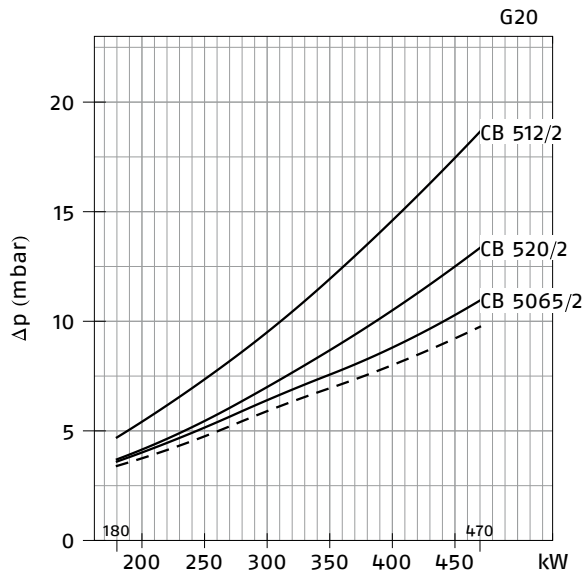


GAS 4 (NATURAL GAS)

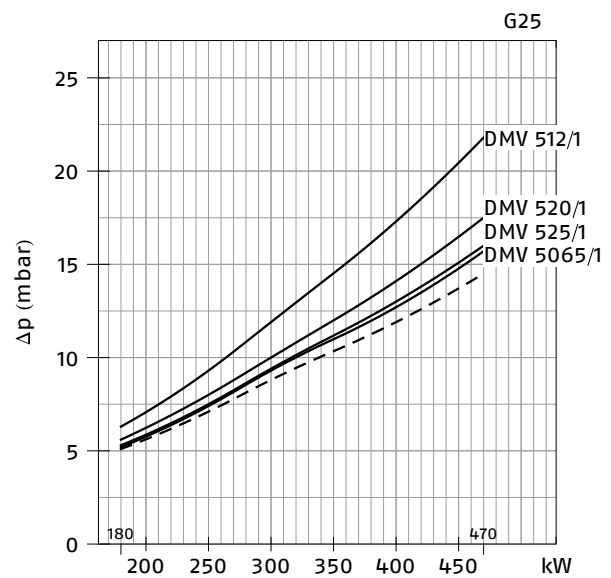
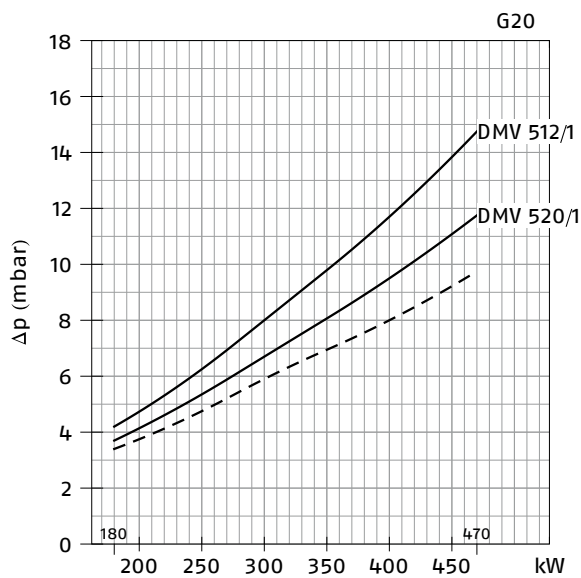


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

GAS 4 (NATURAL GAS)

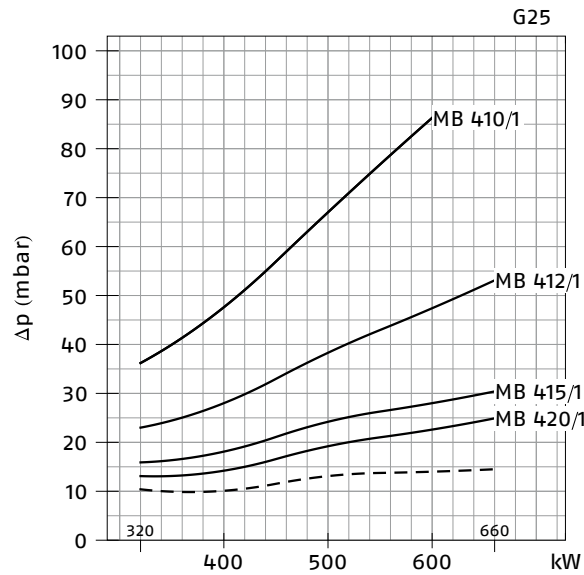
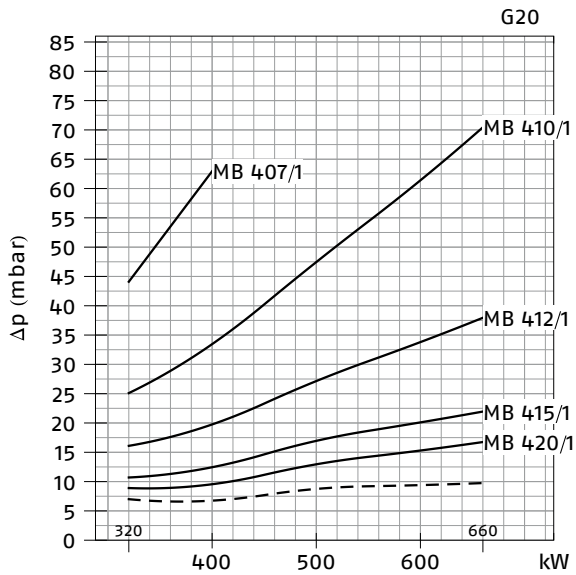


GAS 4 (NATURAL GAS)

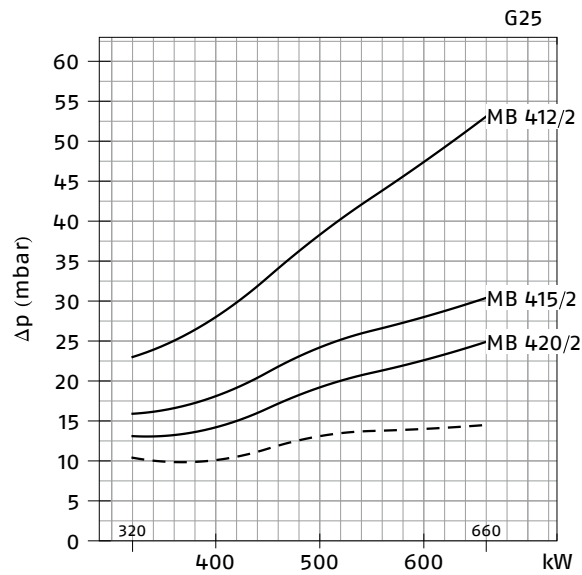
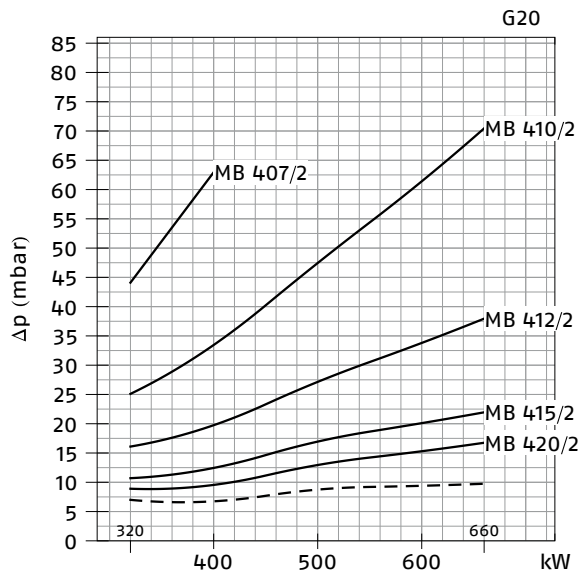


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

GAS 5 (NATURAL GAS)

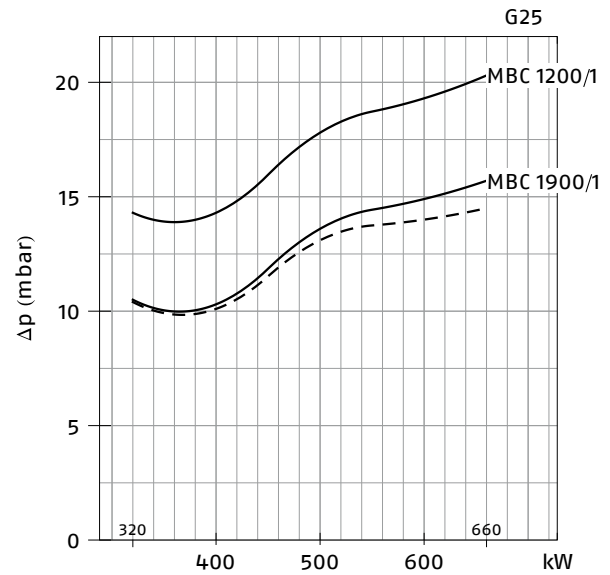
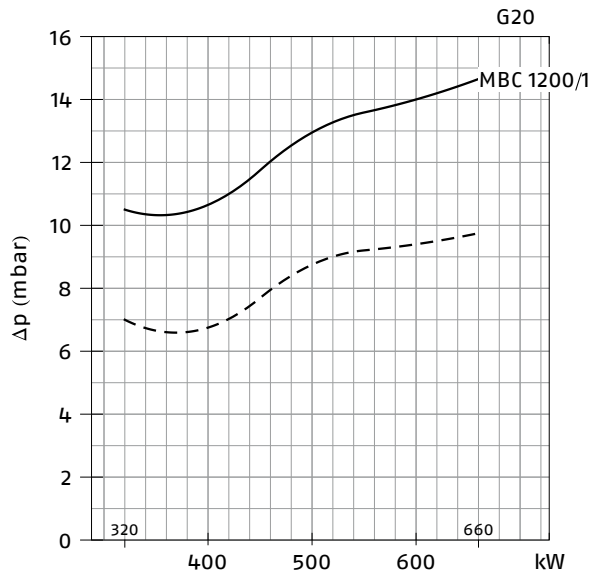


GAS 5 (NATURAL GAS)

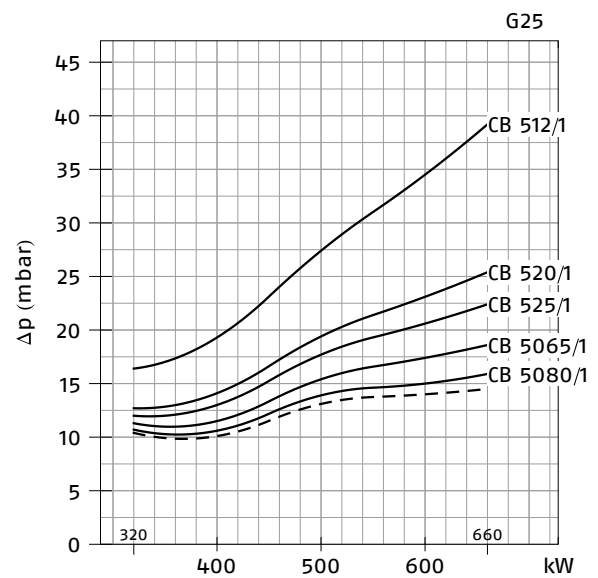
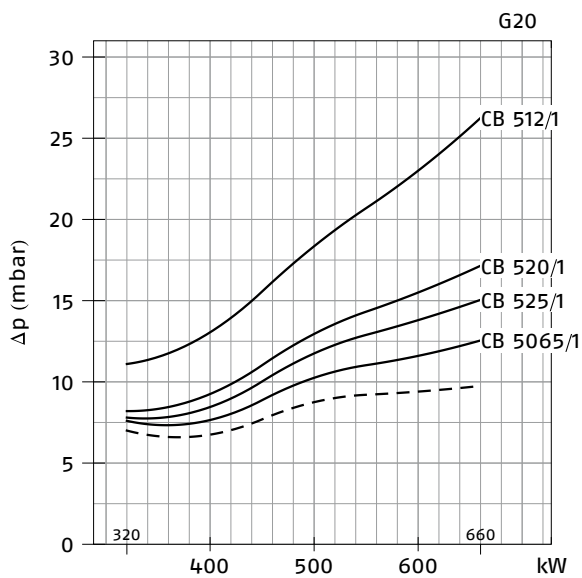


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

GAS 5 (NATURAL GAS)

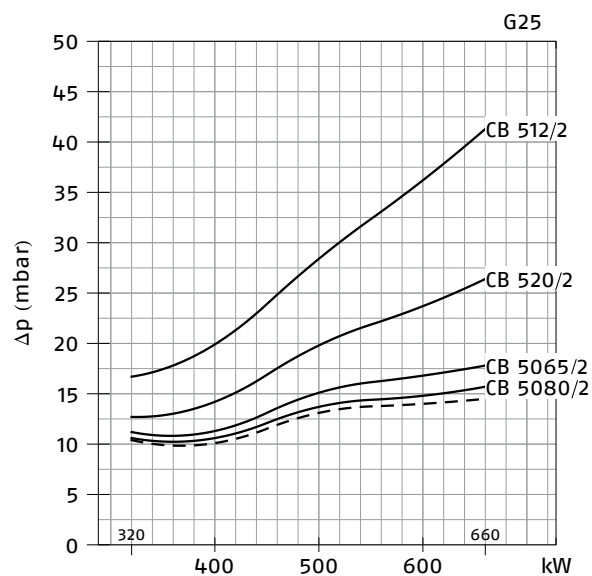
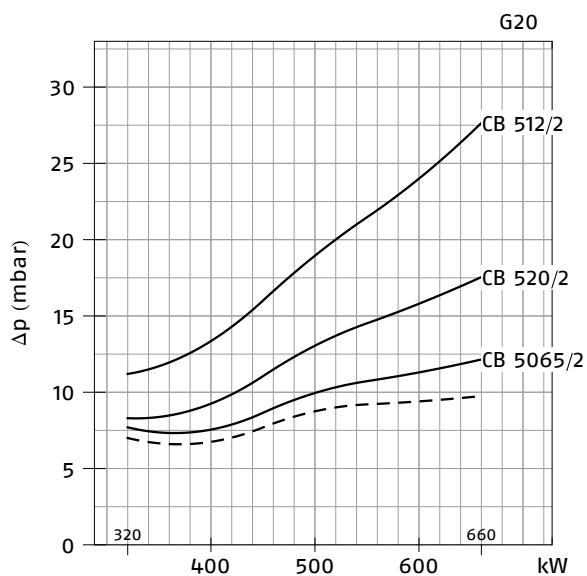


GAS 5 (NATURAL GAS)

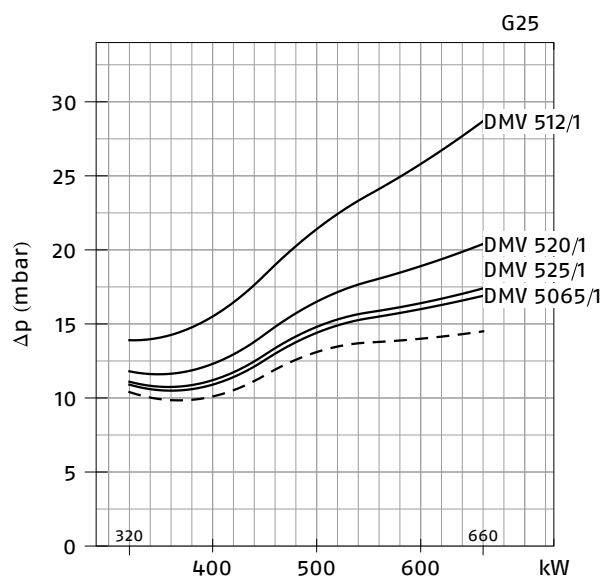
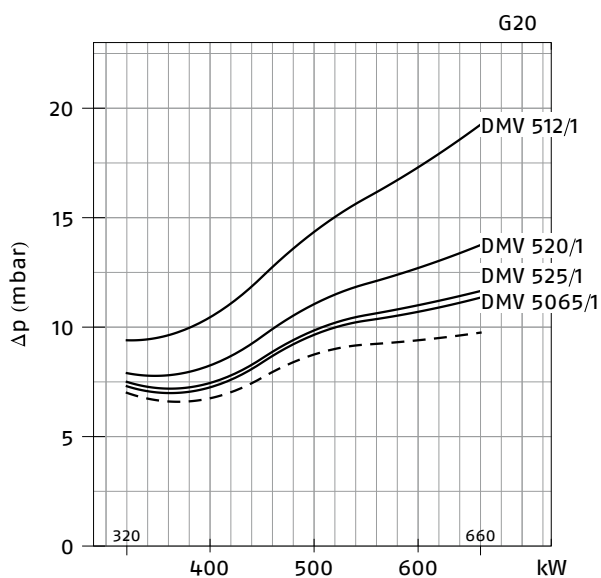


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

GAS 5 (NATURAL GAS)

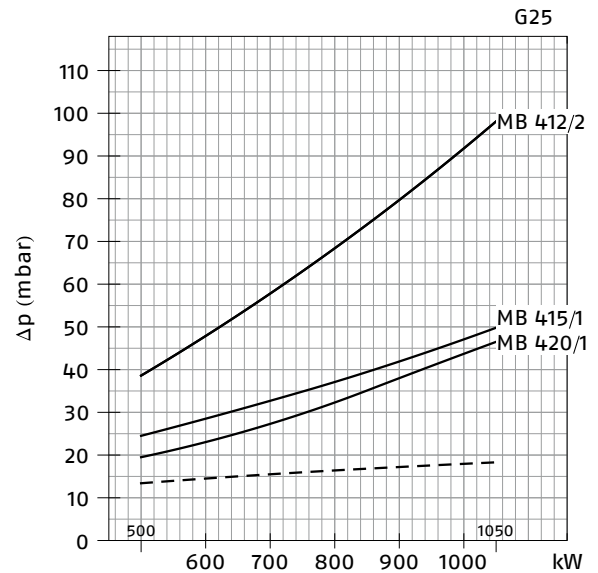
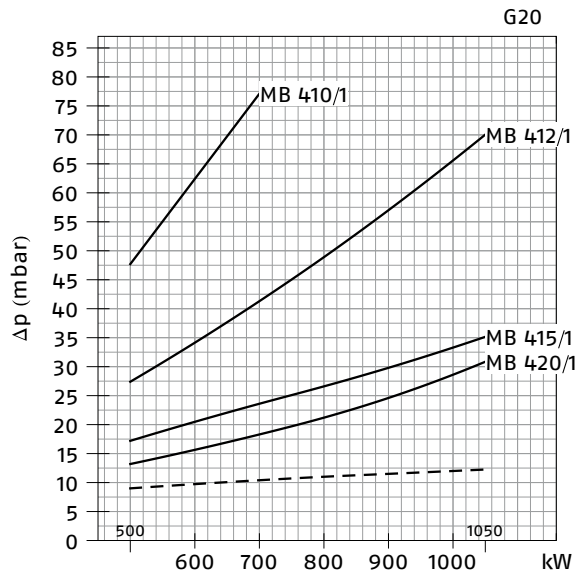


GAS 5 (NATURAL GAS)

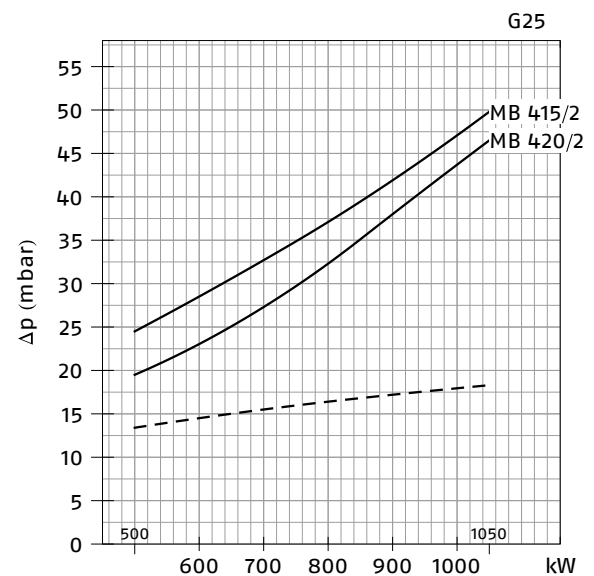
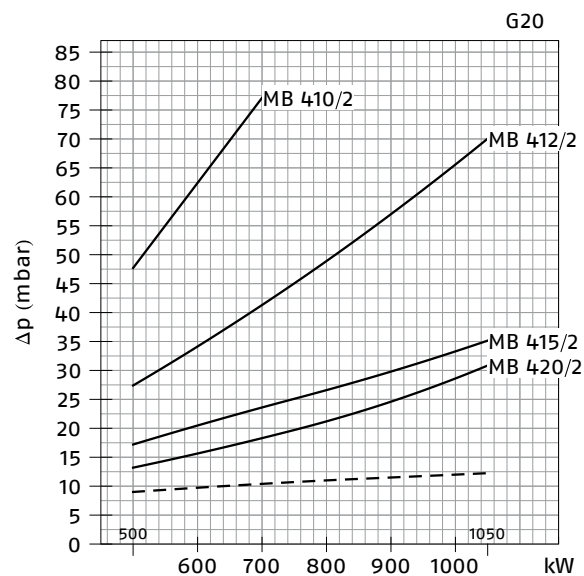


- Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

GAS 6 (NATURAL GAS)

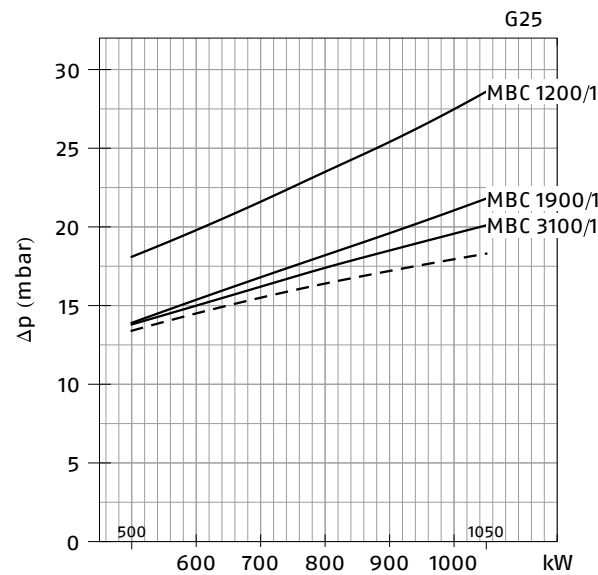
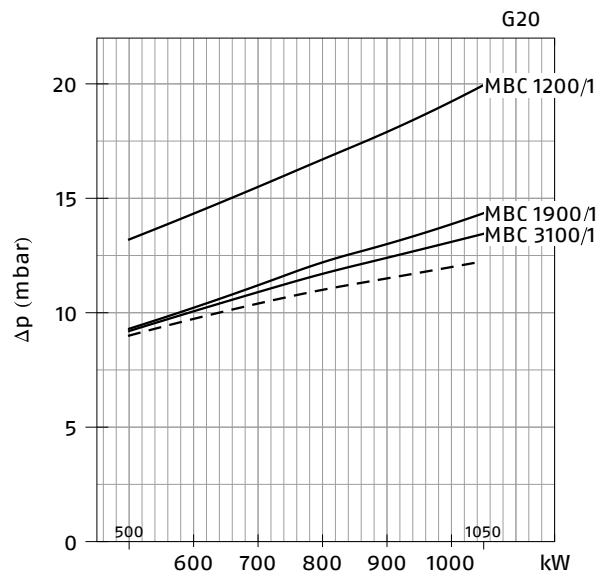


GAS 6 (NATURAL GAS)

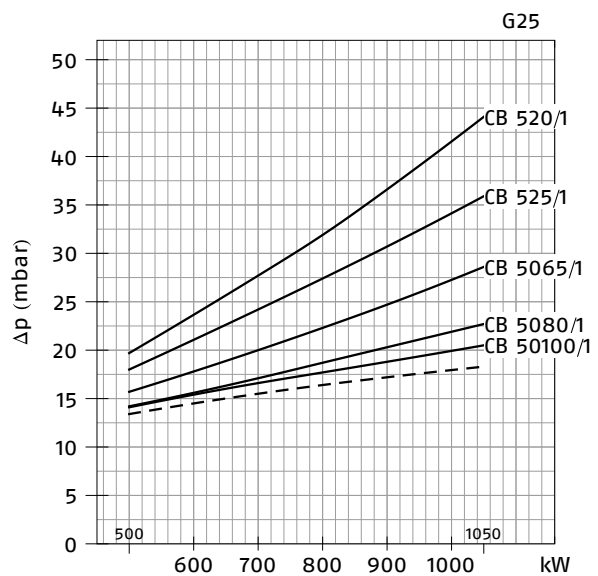
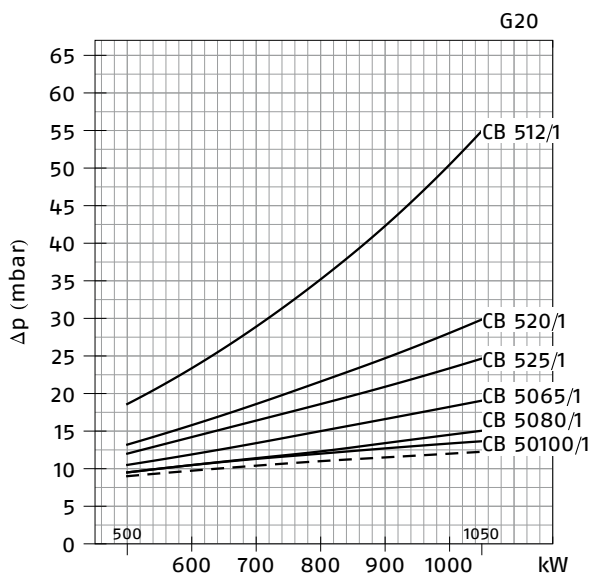


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

GAS 6 (NATURAL GAS)

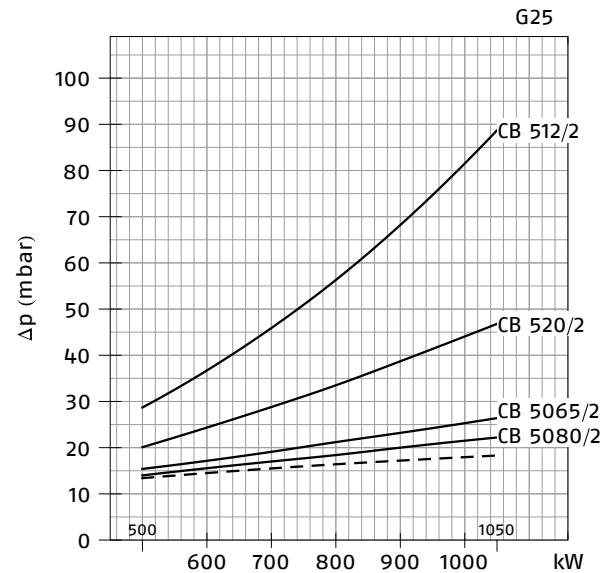
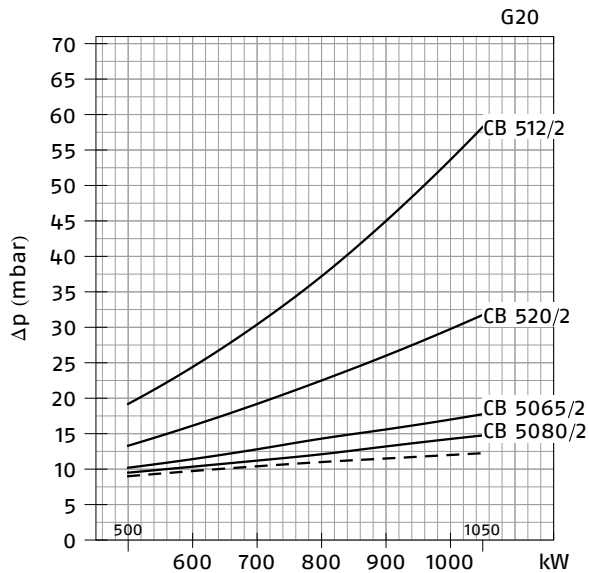


GAS 6 (NATURAL GAS)

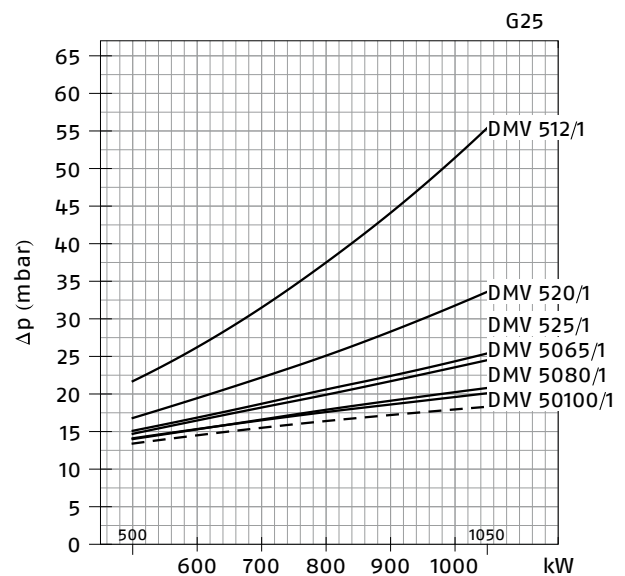
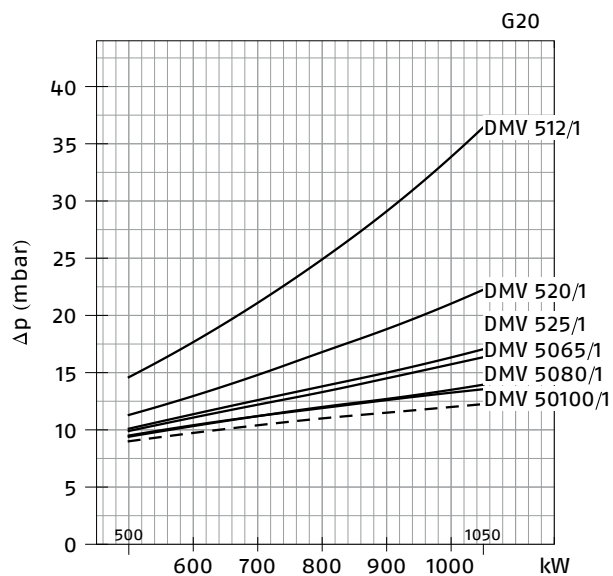


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

GAS 6 (NATURAL GAS)



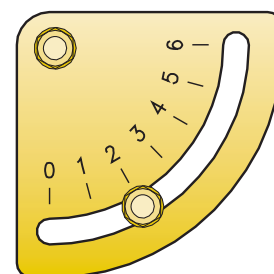
GAS 6 (NATURAL GAS)



— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

Ventilation

The ventilation circuit produces low noise levels with high performance pressure and air output, in spite of the compact dimensions. The air damper is easy to set; when fitted, it makes no difference to air delivery.



Example of fan air gate valve indexed selector of GAS burner

Combustion Head

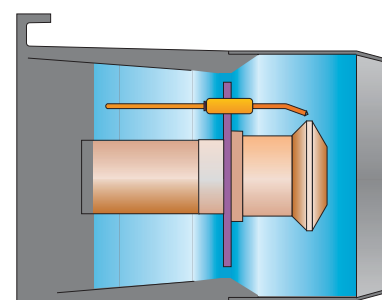
Different combustion head length can be selected for the various models of GAS series of burners.

The choice depends on the thickness of the front panel and type of boiler. Correct head penetration into the combustion chamber depends on the type of heat generator.

These burners are equipped with adjustable combustion head.

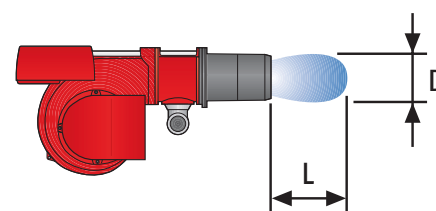
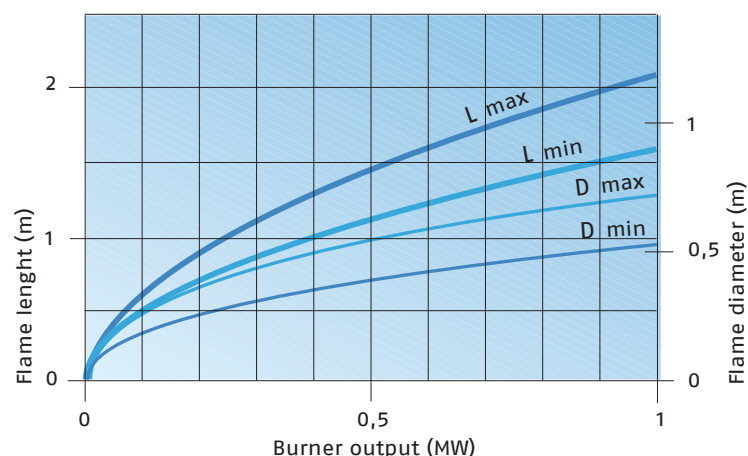
This enables optimum combustion performance throughout the working field, ensuring peak combustion efficiency thus saving on fuel consumption.

The following diagram shows the flame dimensions in relation to the burner output. The lengths and diameter shown in the diagram below should be employed for a preliminary check: if combustion chamber dimensions are different from the values in the diagram, further tests need to be done.



Example of a GAS burner combustion head

DIMENSIONS OF THE FLAME



Example:
 Burner thermal output = 500 kW;
 L flame (m) = 1.3 m (medium value);
 D flame (m) = 0.45 m (medium value)

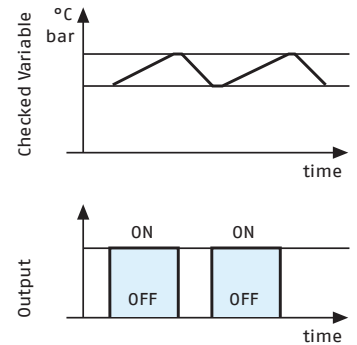
Operation

BURNER OPERATION MODE

The burner of GAS series is one stage working.

On "one stage" operation, the burner adjusts output to the requested level, by varying between on-off phases.

ONE STAGE OPERATION



All GAS series burners are fitted with a new microprocessor control panel for the supervision during intermittent operation. For helping the commissioning and maintenance work, there are two main elements:



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



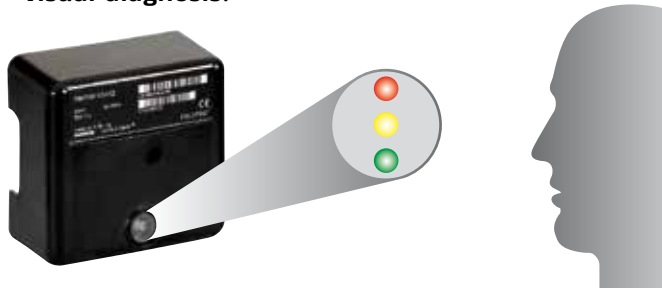
The multi-color LED is the central **indication element** for visual diagnosis and interface diagnosis.

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

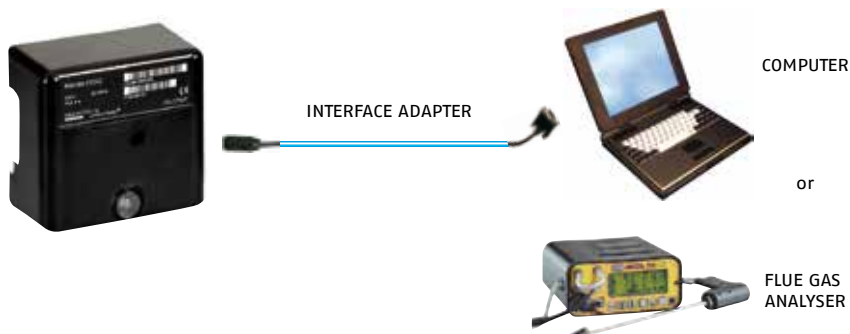


There are two diagnostic choices, for indication of operation and diagnosis of fault cause:

- visual diagnosis:



- interface diagnosis:



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

Indication of operation:

In normal operation, the various status are indicated in the form of colour codes according to the table below. The interface diagnosis (with adapter) can be activated by pressing the lock-out button for > 3 seconds.

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

○ LED off

Diagnosis of fault causes:

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

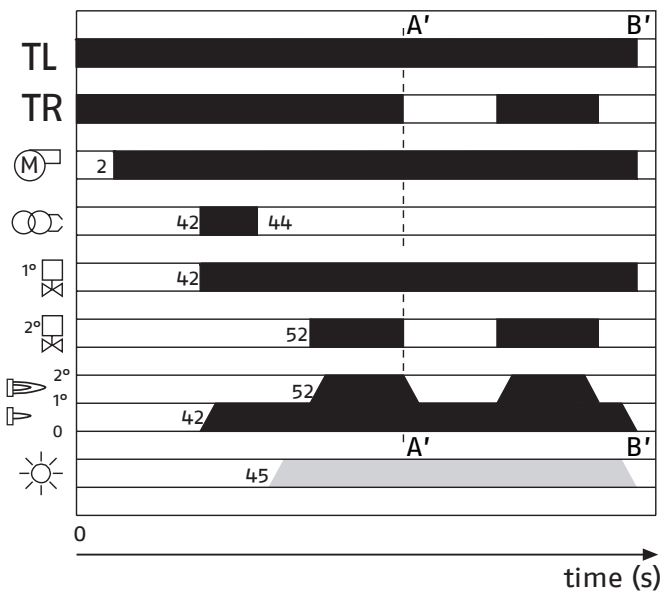
The blinkers of red LED are a signal with this sequence:

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



Error code table	
Blink code	Possible cause of fault
2 blinks ☀ ☀	No flame at the end of safety time: - faulty or soiled fuel valves - faulty or soiled flame detector - poor adjustment of burner, no fuel - faulty ignition equipment
3 blinks ☀ ☀ ☀	Faulty air pressure monitor
4 blinks ☀ ☀ ☀ ☀	Simulation of flame on burner start up
7 blinks ☀ ☀ ☀ ☀ ☀ ☀ ☀	Loss of flame during operation : - faulty or soiled fuel valves - faulty or soiled flame detector - poor adjustment of burner
10 blinks ☀ ☀ ☀ ☀ ☀ ☀ ☀ ☀ ☀ ☀	Wiring error or internal fault

START UP CYCLE

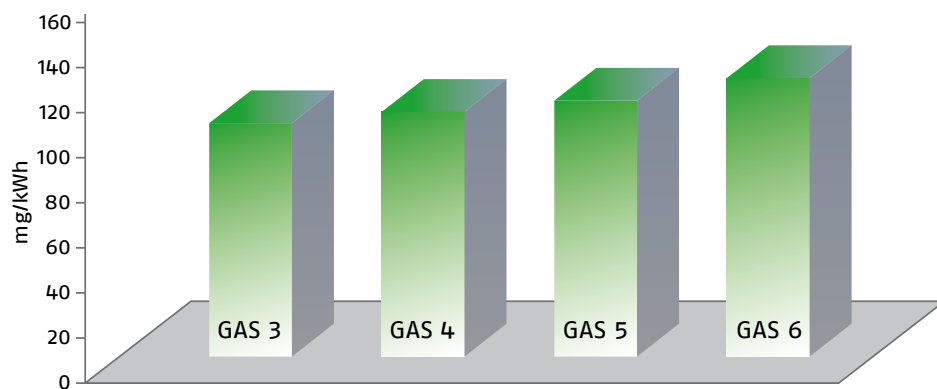


0 s The burner begins the firing cycle
2 s The motor starts: pre-purge phase
42 s Ignition electrode sparks; the safety valve VS and the firing delivery valve opens
45 s Lock out signal is activated if flame is not revealed by the flame detector
53 s The working valve opens; the start up cycle is concluded

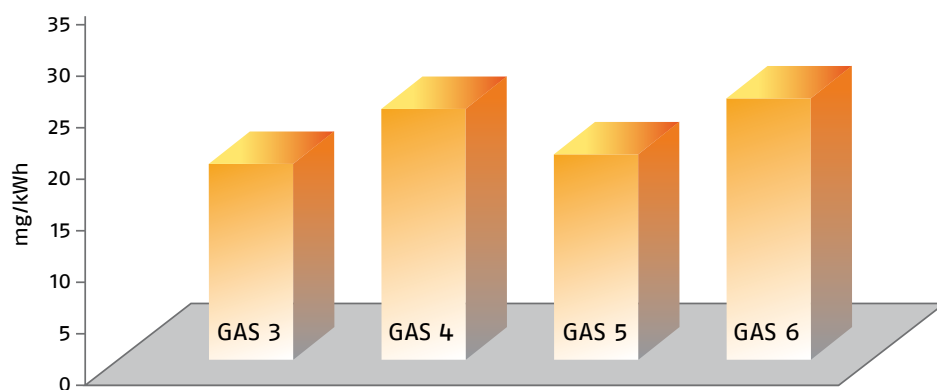
Emissions

The emission data has been measured in the various models at maximum output, according to EN 676 standard.

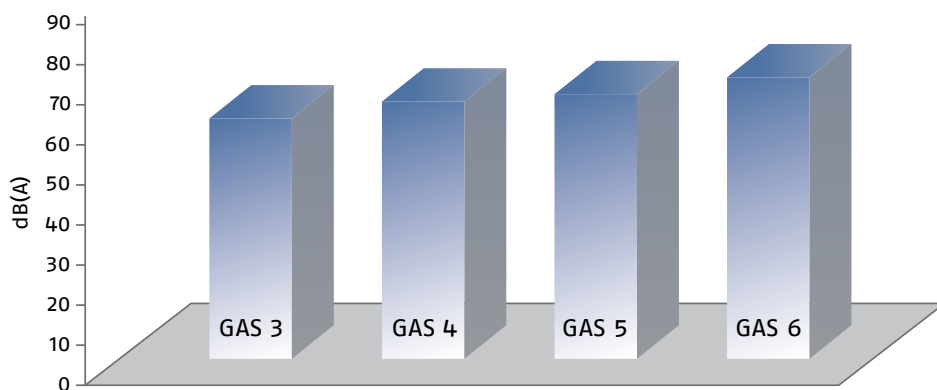
NO₂ EMISSIONS



CO EMISSIONS (gas G20)

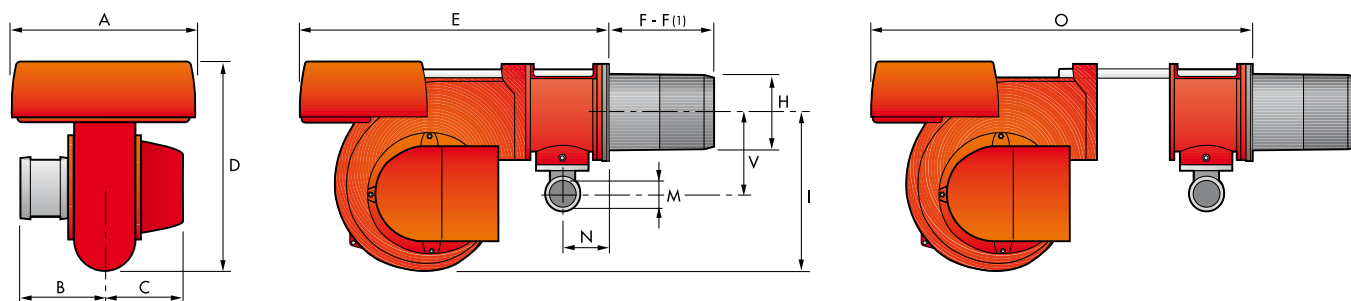


NOISE EMISSIONS



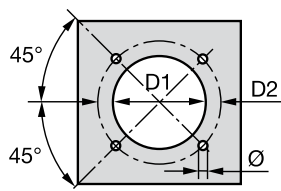
Overall Dimensions (mm)

BURNERS



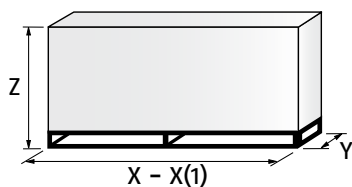
MODEL	A	B	C	D	E	F - F(1)	H	I	M	N	O	V
GAS 3	410	205	205	397	610	185 - 320	140	292	1" 1/2	97	775	165
GAS 4	410	205	205	397	610	187 - 320	150	292	1" 1/2	97	775	165
GAS 5	431	226	205	437	645	207 - 365	155	332	1" 1/2	97	810	165
GAS 6	463	258	205	485	770	227 - 360	175	370	2"	131	966	195

BURNER - BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
GAS 3	155	226	M10
GAS 4	165	226	M10
GAS 5	165	226	M10
GAS 6	185	276	M12

PACKAGING



MODEL	X - X(1)	Y	Z	kg
GAS 3	850	545	473	32
GAS 4	850	545	473	38
GAS 5	895	543	520	41
GAS 6	1045	543	555	58

Installation Description

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

BURNER SETTING

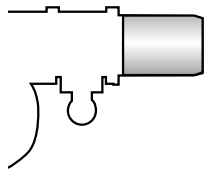
- All the burners have slide bars, for easier installation and maintenance.
- After drilling the boilerplate, using the supplied gasket as a template, dismantle the blast tube from the burner and fix it to the boiler.
- Adjust the combustion head.
- Fit the gas train, choosing this on the basis of the maximum output of the boiler and considering the enclosed diagrams.
- Refit the burner casing to the slide bars.
- Close the burner, sliding it up to the flange.

ELECTRICAL CONNECTIONS AND START UP

- Make the electrical connections to the boiler following the wiring diagrams included in the instruction handbook.
- Perform a first ignition calibration on the gas train.
- On start up, check:
 - Gas pressure at the combustion head (to max. and min. output)
 - Combustion quality, in terms of unburned substances and excess air.

Burner Accessories

Extended head kit



“Standard head” burners can be transformed into “extended head” versions, by using the special kit. The KITS available for the various burners, giving the original and the extended lengths, are listed below.

MODEL	Standard head length (mm)	Extended head length (mm)	Kit code
GAS 3	185	320	3000605
GAS 4	187	320	3000606
GAS 5	207	365	3000607
GAS 6	227	360	3000608

Spacer kit



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

MODEL	Spacer thickness S (mm)	Kit code
GAS 3 - 4 - 5 - 6	142	3000755

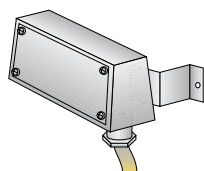
Continuous ventilation kit



If the burner requires continuous ventilation in the stages without flame, a special kit is available as given in the following table.

MODEL	Kit code
GAS 3 - 4 - 5 - 6	3010030

Post-ventilation kit



To prolong ventilation for approximately 5 seconds after opening of thermostats chain, a special kit is available.

MODEL	Kit code
GAS 3 - 4 - 5 - 6	3010004

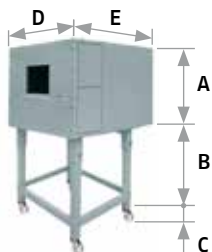
PC interface kit



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

MODEL	Kit code
GAS 3 - 4 - 5 - 6	3002719

Sound proofing box



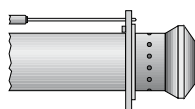
If noise emission needs reducing even further, sound-proofing boxes are available. In case of generator heights, where a lower dimension "B" is required, ask for the Box Support Kit code 20065135.

The useful dimensions are 40 mm less than the total dimensions indicated in the table (A, D, E). Not suitable for outdoor use.

MODEL	Box type	A (mm)	B (mm) min-max	C (mm)	D (mm)	E (mm)	[dB(A)] (*)	Kit code
GAS 3 - 4 - 5 - 6	C1/3	650	372-980	110	690	770	10	3010403

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

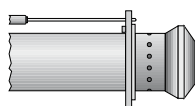
LPG kit



For burning LPG gas, a special kit is available to be fitted to the combustion head on the burner, as given in the following table.

MODEL	Kit code for Standard head	Kit code for Extended head
GAS 3	3000657	3000807
GAS 4	3000658	3000808
GAS 5	3000659	3000809
GAS 6	3000753	3000810

Town gas kit



For burning LPG gas, a special kit is available to be fitted to the combustion head on the burner, as given in the following table.

MODEL	Kit code for Standard head (*)
GAS 3	3000742
GAS 4	3000754
GAS 5	3000759
GAS 6	3000768

(*) Without CE certification

Protection kit (electromagnetic interferences)

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

MODEL	Kit code
GAS 3 - 4 - 5 - 6	3010386

Gas Train Accessories

Adapters

In certain 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 are given the available adapters; please see on the Gas Train list the correct adapter codes to select.

ADAPTER	Length (mm)	Adapter code
2"  1" 1/2	70	3000822
3/4"  1" 1/2	31	3000824
DN 65  2" 1/2  2"	300	3000825
DN 80  2" 1/2  1" 1/2	300	3000826
1" 1/2  2"	35	3000843
1/2"  1" 1/2	31	20044756

Seal control kit



To test the valve seals on the gas train, a special "seal control kit" is available.

MODEL	Gas train	Kit code for 50 Hz operation	Kit code for 60 Hz operation
GAS 3	MB 407/2 - 410/2 - 412/2 - 415/2	3010123	20050030
	CB 512/2	3010125	20050033
GAS 4	MB 410/2 - 412/2 - 415/2 - 420/2	3010123	20050030
	CB 512/2 - 520/2	3010125	20050033
GAS 5	MB 410/2 - 412/2 - 415/2 - 420/2	3010123	20050030
	CB 512/2 - 520/2	3010125	20050033
GAS 6	MB 410/2 - 412/2 - 415/2 - 420/2	3010123	20050030
	CB 512/2 - 520/2 - 5065/2	3010125	20050033

Stabiliser spring



Accessory springs are available to vary the pressure range of the gas train stabilisers.

GAS TRAIN	Spring colour	Spring pressure range mbar	Spring code
CB 512/2	Red	25 - 55	3010131
	Black	60 - 110	3010157
	Pink	90 - 150	3090486
CB 520/2	Red	25 - 55	3010132
	Black	60 - 110	3010158
	Pink	100 - 150	3090487
CB 5065/2 - 5080/2	Red	25 - 55	3010133
	Black	60 - 110	3010135
	Pink	100 - 150	3090456
	Grey	140 - 200	3090992

Specification

DESIGNATION OF SERIES

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

Series: GAS									
Size									
Operation: ... One stage									
/2 Two stage									
P/M Modulating									
Emission: ... Class 1 EN676									
Head: TC Standard head									
TL Extended head									
Flame control system: FS1 Standard (1 stop every 24 h)									
FS2 Continuous working (1 stop every 72 h)									
Electrical supply to the system: 1/230/50 1/230V/50Hz									
1/240/50 1/240V/50Hz									
1/220/60 1/220V/60Hz									
1/200/50/60 1/220V/50-60Hz									
3/230-400/50 3/230V/50Hz - 3N/400V/50Hz									
3/220-380/60 3/220-380V/60Hz - 3N/380V/60Hz									
3/200/50-60 3/200V/50-60Hz									
Auxiliary voltage: 230/50 230V/50Hz									
240/50 240V/50Hz									
220/60 220V/60Hz									
200/50-60 200V/50-60Hz									
GAS	3			TC	FS1	3/230-400/50	230/50		
BASIC DESIGNATION									
EXTENDED DESIGNATION									

AVAILABLE BURNER MODELS

BURNER MODELS			ELECTRICAL SUPPLY		HEAT OUTPUT (kW)	NATURAL GAS (Nm ³ /h)	TOTAL ELECTRICAL POWER (kW)	CERTIFICATION	NOTE
GAS 3	TC	FS1	1/200/50-60	200/50-60	130-350	13-35	0.48-0.6	-	
GAS 3	TC	FS1	1/220/60	220/60	130-350	13-34	0.4	-	
GAS 3	TC	FS1	1/230/50	230/50	130-350	13-35	0.4	CE 0085AQ0707	
GAS 3	TC	FS1	1/240/50	240/50	130-350	13-35	0.4		
GAS 3	TL	FS1	1/240/50	240/50	130-350	13-36	0.4		
GAS 4	TC	FS1	1/230/50	230/50	185-465	18.5-46.5	0.54	-	
GAS 4	TC	FS1	3/200/50-60	200/50-60	180-470	18-47	0.6	-	
GAS 4	TC	FS1	3/220-380/60	220/60	180-470	18-47	0.6	-	
GAS 5	TC	FS1	3/200/50-60	200/50-60	320-660	32-66	0.85	-	
GAS 5	TC	FS1	3/220-380/60	220/60	320-660	32-66	1.1	-	
GAS 5	TC	FS1	3/230-400/50	230/50	325-660	32.5-66	0.85	-	
GAS 6	TC	FS1	3/200/50-60	200/50-60	525-1050	52-105	1.7	-	
GAS 6	TC	FS1	3/220-380/60	220/60	525-1050	52-105	1.7	-	
GAS 6	TC	FS1	3/230-400/50	230/50	525-1050	52.5-105	1.7	-	

Natural gas G20 net calorific value: 10 kWh/Nm³ - Density gas G20: 0,71 kg/Nm³

The burners of GAS series are in according to 2006/42/EC - 2009/142/EC - 2014/30/UE - 2014/35/UE Directive and EN 676 Norm.

PRODUCT SPECIFICATION

Burner

Monoblock forced draught gas burner, one stage operation, made up of:

- Air suction circuit
- Fan with forward curved blades
- Air damper for air setting
- Combustion head, that can be set on the basis of required output, fitted with:
 - stainless steel end cone, resistant to corrosion and high temperatures
 - ignition electrodes
 - flame stability disk
- Minimum air pressure switch
- Single phase or three phases electrical motor
- Microprocessor-based burner safety control box, with diagnostic function
- Flame inspection window
- Slide bars for easier installation and maintenance
- Protection filter against radio interference
- IP X0D (IP 40) protection level.

Gas train:

Fuel supply line, in the MULTIBLOC configuration (from a diameter of 3/4" until a diameter 2") or COMPOSED configuration (from a diameter of DN 40 until a diameter of DN 65), fitted with:

- Filter
- Stabiliser
- Minimum gas pressure switch
- Safety valve
- One stage or two stage working valve with ignition gas output regulator.

Standard equipment:

- 1 gas train gasket
- 1 flange gasket
- 4 screws for fixing the flange
- 1 thermal screen
- 4 screws for fixing the burner flange to the boiler
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue

Conforming to:

- 2014/30 UE Directive (electromagnetic compatibility)
- 2014/35 UE Directive (low voltage)
- 2009/142 EC Directive (gas)
- 2006/42 EC Directive (machine)
- EN 676 (gas burners)

Available accessories to be ordered separately:

- Extended head kit
- Spacer kit
- Continuous ventilation kit
- Post-ventilation kit
- Sound-proofing box
- LPG kit
- Town gas kit
- PC interface kit
- Gas train adapter
- Stabiliser spring
- Seal control kit

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

05/2016

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[1]



[2]

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

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

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

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

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

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

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

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