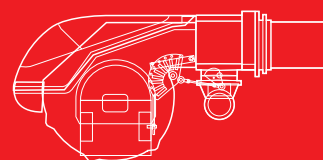




RS/M Series

Modulating Gas Burners

RS 34/M MZ	45/125 ÷ 390	kW
RS 44/M MZ	80/203 ÷ 550	kW
RS 50/M MZ	80/285 ÷ 630	kW
RS 64/M MZ	150/400 ÷ 850	kW
RS 70/M	150/470 ÷ 930	kW
RS 100/M	150/700 ÷ 1340	kW
RS 130/M	240/920 ÷ 1600	kW
RS 150/M	300/900 ÷ 1850	kW
RS 190/M	470/1279 ÷ 2290	kW
RS 250/M MZ	600/1250 ÷ 2650	kW



The RS/M burners series covers a firing range from 45 to 2650 kW, and it has been designed for use in low or medium temperature hot water boilers, hot air or steam boilers, diathermic oil boilers.

Operation can be "two stage progressive" or, alternatively, "modulating" with the installation of a PID logic regulator and respective probes.

RS/M burners series guarantees high efficiency levels in all the various applications, thus reducing fuel consumption and running costs.

The exclusive design ensures reduced dimensions, simple use and maintenance.

A wide range of accessories guarantees elevated working flexibility.

Technical Data

MODEL			RS 34/M MZ	RS 44/M MZ		RS 50/M MZ	RS 64/M MZ	RS 70/M	
Burner operation mode			Modulating (with regulator and probes accessories)						
Modulation ratio at max. output			6 ÷ 1						
Servomotor	type	SQN90						SQN31	
	run time s	24						42	
Heat output	kW	45/125 ÷ 390	80/203 ÷ 550	80/285 ÷ 630		150/400 ÷ 850		150/470 ÷ 930	
	Mcal/h	39/108 ÷ 336	69/175 ÷ 473	69/245 ÷ 542		130/345 ÷ 730		129/404 ÷ 800	
Working temperature	°C min./max.	0/40							
FUEL/AIR DATA									
G20 gas	net calorific value	kWh/Nm³	10						
	gas density	kg/Nm³	0,71						
	gas delivery	Nm³/h	7/13 ÷ 39	10/20 ÷ 55		8,5/29 ÷ 58		15/40 ÷ 85	13,5/46,5 ÷ 81,4
G25 gas	net calorific value	kWh/Nm³	8,6						
	gas density	kg/Nm³	0,78						
	gas delivery	Nm³/h	8/15 ÷ 45	12/24 ÷ 64		10/34 ÷ 68		17/47 ÷ 99	16/54 ÷ 95
LPG gas	net calorific value	kWh/Nm³	25,8						
	gas density	kg/Nm³	2,02						
	gas delivery	Nm³/h	3/5 ÷ 15	4/8 ÷ 21		4/11 ÷ 23		6/16 ÷ 33	5/18 ÷ 32
Fan	type	(02)	(02)	(01)		(02)		(01)	
Air temperature	max °C	60							
ELECTRICAL DATA									
Electrical supply	Ph/Hz/V	(04)	(04)	(06)	(05)		(05)	(05)	
Auxiliary electrical supply	Ph/Hz/V	(04)	(04)		(03)		(03)	(03)	
Control box	type	RMG/M							
Total electrical power	kW	0,6	0,7	0,75	0,75		1,4	1,4	
Auxiliary electrical power	kW	0,3	0,28	0,3	0,12		0,3	0,3	
Protection level	IP	40	40		44		40	44	
Fan motor	electrical power	kW	0,3	0,42	0,45	0,65		1,1	1,1
	rated current	A	3,2	3,5	2 - 1,4	3 - 1,7		4,8 - 2,8	4,8 - 2,8
	start up current	A	15	17	14 - 10	13,8 - 8		22 - 13	33 - 19
	protection level	IP	54						
Ignition transformer	V1 - V2	230V - 1x15 kV	230V - 1x15 kV		230V - 1x8 kV		230V - 1x15 kV	230V-1x8 kV	
	I1 - I2	1A - 25 mA	1A - 25 mA		1A - 20 mA		1A - 25 mA	1A - 20 mA	
Operation			Intermittent (at least one stop every 24 h) - Continuous as optional (at least one stop every 72 h)						
EMISSIONS									
Noise levels	sound pressure	dB(A)	68	70		72		76	75
	sound power		79	81		83		87	86
Gas	CO emission	mg/kWh	< 10	< 3		< 40		< 40	< 40
G20	NOx emission	mg/kWh	< 97	< 95		< 130		< 120	< 130
APPROVAL									
Directive			2006/42 EC - 2009/142 EC- 2014/30 UE - 2014/35 UE						
Conforming to			EN 676						
Certification			CE 0085BR0378		CE 0085AQ0709		CE 0085BR0558	CE 0085AQ0708	
(01)	Centrifugal with reverse curve blades			(04)	1/50-60/220-230~(±10%)				
(02)	Centrifugal with forward curve blades			(05)	3/50/230-400~(±10%)				
(03)	1/50/230~(±10%)			(06)	3/50-60/220-400~(±10%)				

Reference conditions:

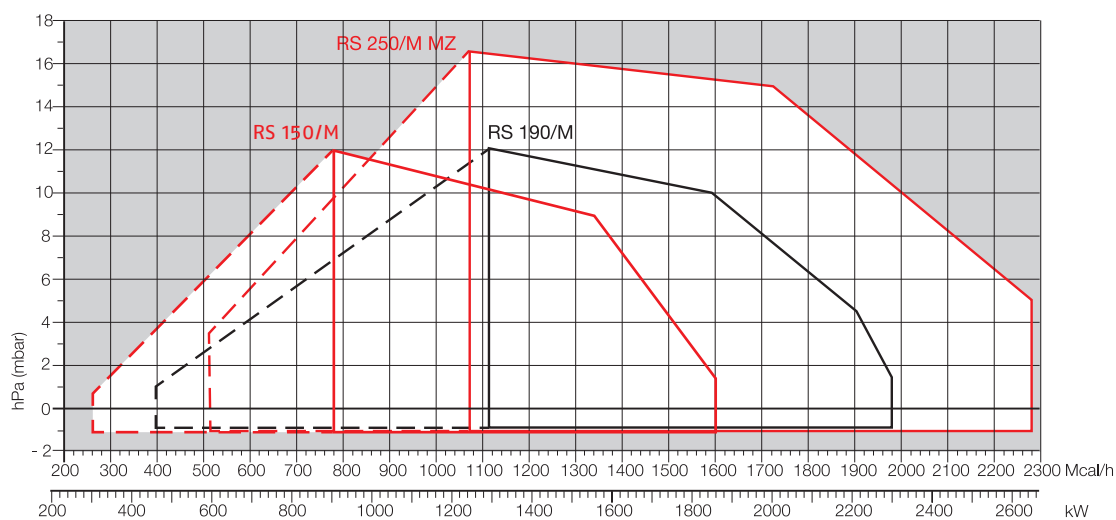
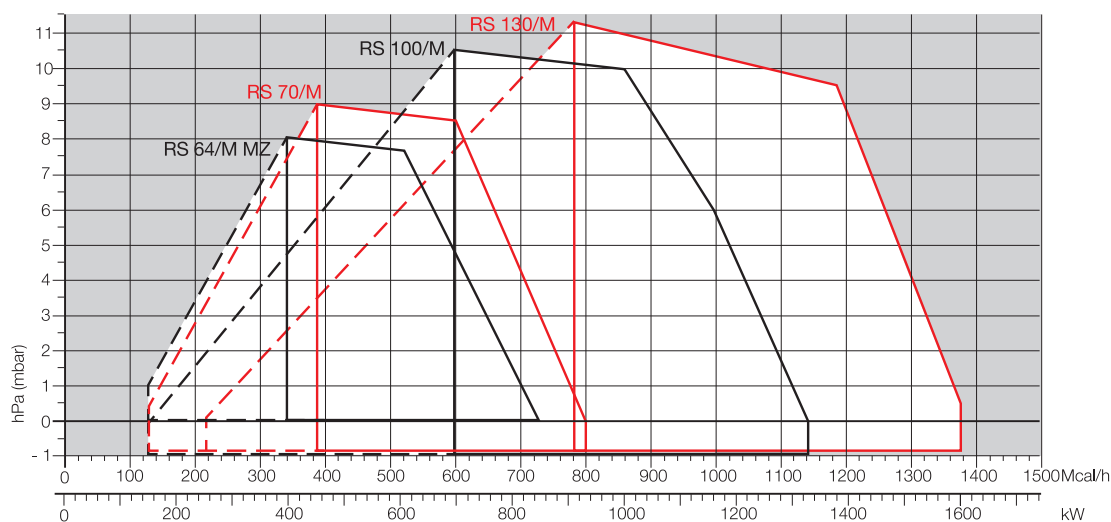
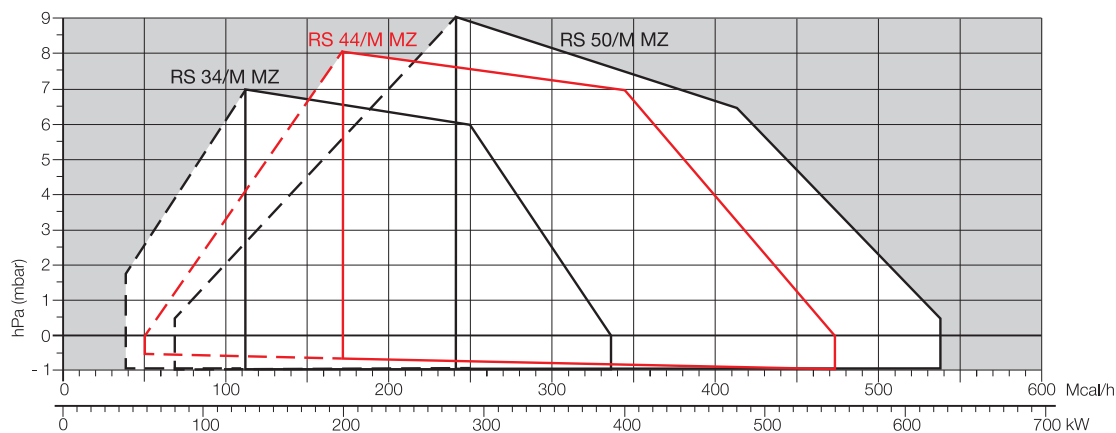
Temperature: 20°C - Pressure: 1013.5 mbar - Altitude: 0 m a.s.l. - Sound pressure measured in manufacturer's combustion laboratory, with burner operating on test boiler and at maximum rated output. The sound power is measured with the "Free Field" method, as per EN 15036, and according to an "Accuracy: Category 3" measuring accuracy, as set out in EN ISO 3746.

MODEL			RS 100/M	RS 130/M	RS 150/M	RS 190/M	RS 250/M
Burner operation mode			Modulating (with regulator and probes accessories)				
Modulation ratio at max. output			6 ÷ 1				
Servomotor	type		SQN31				
	run time s		42				
Heat output	kW		150/700 ÷ 1340	240/920 ÷ 1600	300/900 ÷ 1850	470/1279 ÷ 2290	600/1250 ÷ 2650
	Mcal/h		129/602 ÷ 1152	206/791 ÷ 1376	258/774 ÷ 1590	405/1100 ÷ 1970	516/1075 ÷ 2279
Working temperature	°C min./max.		0/40				
FUEL/AIR DATA							
G20 gas	net calorific value	kWh/Nm ³	10				
	gas density	kg/Nm ³	0,71				
	gas delivery	Nm ³ /h	15/70 ÷ 116	16/93 ÷ 151	30/90 ÷ 185	47/128 ÷ 229	60/125 ÷ 265
G25 gas	net calorific value	kWh/Nm ³	8,6				
	gas density	kg/Nm ³	0,78				
	gas delivery	Nm ³ /h	17/81 ÷ 135	19/108 ÷ 176	35/105 ÷ 215	55/149 ÷ 266	70/145 ÷ 308
LPG gas	net calorific value	kWh/Nm ³	25,8				
	gas density	kg/Nm ³	2,02				
	gas delivery	Nm ³ /h	6/27 ÷ 45	6/36 ÷ 59	12/35 ÷ 72	18/50 ÷ 89	23/48 ÷ 103
Fan	type		(01)	(01)	(01)	(02)	(02)
Air temperature	max °C		60				
ELECTRICAL DATA							
Electrical supply	Ph/Hz/V		(05)	(05)	(07) (08)	(05)	(07) (08)
Auxiliary electrical supply	Ph/Hz/V		(03)	(03)	(03)	(03)	(03)
Control box	type		RMG/M				
Total electrical power	kW		1,8	2,6	4	5,5	6,5
Auxiliary electrical power	kW		0,3	0,4	0,5	1,0	1,0
Protection level	IP		44				
Fan motor	electrical power	kW	1,5	2,2	3,0	4,5	5,5
	rated current	A	5,9 - 3,4	8,8 - 5,1	10,2 5,9	15,8 - 9,1	12,3 21,3
	start up current	A	48 - 28	68 - 39	79 45,8	126 - 73	83 143
	protection level	IP	54				
Ignition transformer	V1 - V2		230V-1x8 kV	230V-1x8 kV	230V-1x8 kV	230V-1x8 kV	230V-1x15 kV
	I1 - I2		1A - 20 mA	1A - 20 mA	1A - 20 mA	1A - 20 mA	1A - 20 mA
Operation			Intermittent (at least one stop every 24 h) - Continuous as optional (at least one stop every 72 h)				
EMISSIONS							
Noise levels	sound pressure	dB (A)	77	78,5	83,1	83,1	83
	sound power	W	--				
Gas	CO emission	mg/kWh	< 40				
	NOx emission	mg/kWh	< 130	< 130	< 130	< 130	< 120
APPROVAL							
Directive			2006/42 EC - 2009/142 EC- 2014/30 UE - 2014/35 UE				
Conforming to			EN 676				
Certification			CE 0085AQ0708	in progress		CE 0085AT0042	CE 0085BS0114
(01)	Centrifugal with reverse curve blades			(05)	3/50/230-400~(±10%)		
(02)	Centrifugal with forward curve blades			(06)	3/50-60/220-400~(±10%)		
(03)	1/50/230~(±10%)			(07)	3/50/400~(±10%)		
(04)	1/50-60/220-230~(±10%)			(08)	3/50/230~(±10%)		

Reference conditions:

Temperature: 20°C - Pressure: 1013.5 mbar - Altitude: 0 m a.s.l. - Sound pressure measured in manufacturer's combustion laboratory, with burner operating on test boiler and at maximum rated output. The sound power is measured with the "Free Field" method, as per EN 15036, and according to an "Accuracy: Category 3" measuring accuracy, as set out in EN ISO 3746.

Firing Rates



□ Useful working field for choosing the burner

--- Modulation range

Test conditions conforming to EN 676:

Temperature: 20°C

Pressure: 1013,5 mbar

Altitude: 0 m a.s.l.

Gas train

GAS TRAIN DESIGNATION

Series:	MB
	MBC
	DMV
	DMV12
	VGD
	CB
	CBH
	MV
	CG

Size:	405	407	410	412	415	420						
		65	120	300	700	1200	–	1900	3100	5000		
	505	507	510	512	–	520	525	5065	5080	50100	50125	50150
10	15	20	32	40	–	50	–	65	80	100	125	150
		120	220									

Operation:	/S	only ON-OFF function
	/1	stage mode opening
	/2	2nd stage mode opening
	/P	1st stage mode opening with air/gas proportional regulator

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
	F1	square flange BS1
	F2	square flange BS2
	F3	square flange BS3 - BS4

Electrical connection:	T	Terminals - Terminal strip
	SD	Domestic plug
	SM	Medium voltage plug

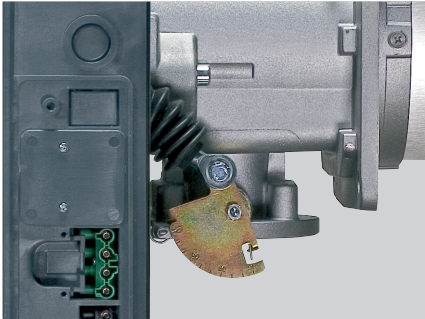
Standard output pressure range:	-	without pressure governor
	0	with governor and air/gas proportional pressure
	2	with governor and output pressure up to 20 mbar
	3	with governor and output pressure up to 30 mbar
	4	with governor and output pressure up to 40 mbar
	5	with governor and output pressure 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

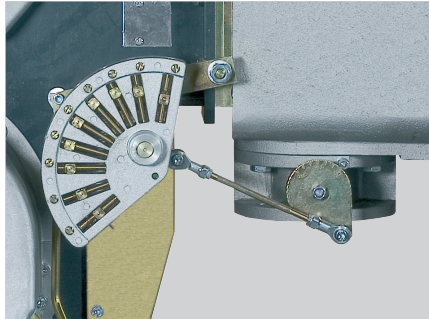
CB	5065	/1	CT	F	SM	3	0
BASIC DESIGNATION				EXTENDED DESIGNATION			

GAS TRAINS

The burners are fitted with a butterfly valve to regulate the fuel, controlled by a variable profile cam servomotor. Fuel can be supplied either from the right or left hand sides. A maximum gas pressure switch stops the burner in case of excess pressure in the fuel line (as accessory on RS 34-44/M MZ). The gas train can be selected to best fit system requirements depending on the fuel output and pressure in the supply line.

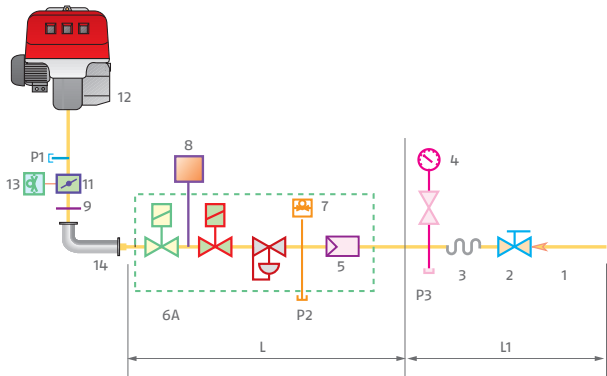


Example of the variable profile cam on RS 34-44/M MZ burners.



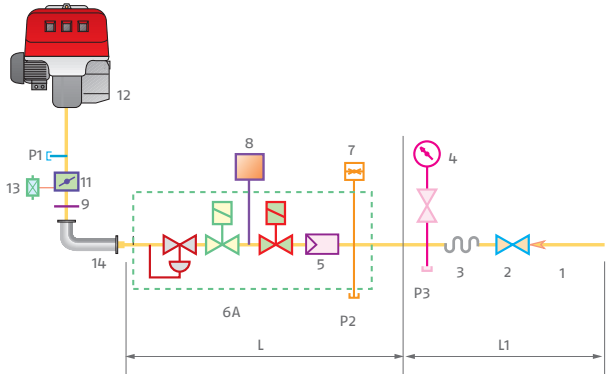
Example of the variable profile cam on RS 250/M MZ burners.

MB "THREADED"

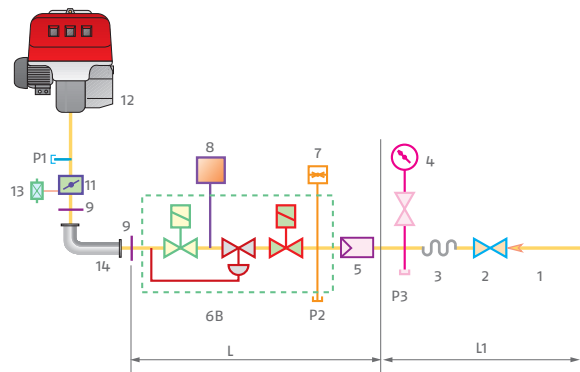


1	Gas input pipework
2	Manual valve
3	Anti-vibration joint
4	Pressure gauge with pushbutton cock
5	Filter
6A	Includes:
	- filter
	- operation valve
	- safety valve
	- pressure adjuster
7	Minimum gas pressure switch
8	Leak detection device, supplied as an accessory or incorporated, based on the gas train code
9	Gasket, for "flanged" versions only
10	Pressure adjuster
11	Gas adjuster butterfly valve
12	Burner
13	Maximum gas pressure switch
14	Gas train-burner adaptor, supplied separately
P1	Combustion head pressure
P2	Upstream pressure of valves
P3	Upstream pressure of the filter
L	Gas train supplied separately, with the code given in the table
L1	Installer's responsibility

MBC "THREADED"

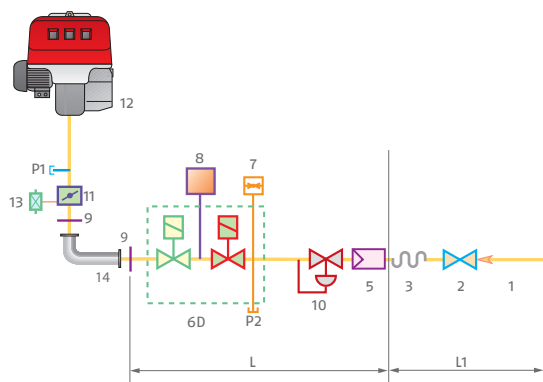


MBC "FLANGED"

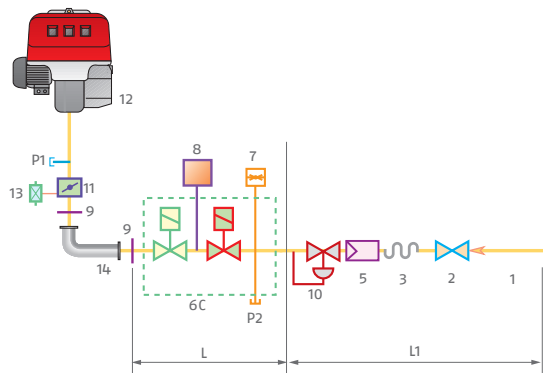


1	Gas input pipework
2	Manual valve
3	Anti-vibration joint
4	Pressure gauge with pushbutton cock
5	Filter
6B	Includes:
	- operation valve
	- safety valve
	- pressure adjuster
6C	Includes:
	- operation valve
	- safety valve
6D	Includes:
	- operation valve
	- safety valve
7	Minimum gas pressure switch
8	Leak detection device, supplied as an accessory or incorporated, based on the gas train code
9	Gasket, for "flanged" versions only
10	Pressure adjuster
11	Gas adjuster butterfly valve
12	Burner
13	Maximum gas pressure switch
14	Gas train-burner adaptor, supplied separately
P1	Combustion head pressure
P2	Upstream pressure of valves
P3	Upstream pressure of the filter
L	Gas train supplied separately, with the code given in the table
L1	Installer's responsibility

CB "FLANGED OR THREADED"



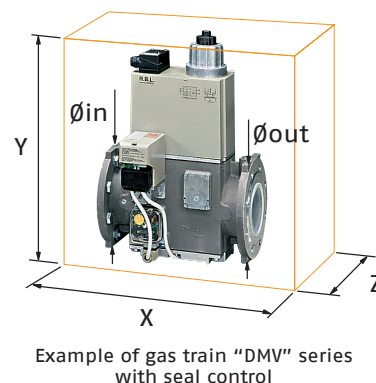
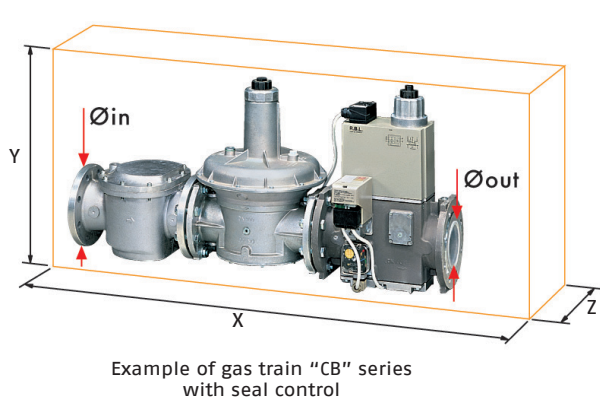
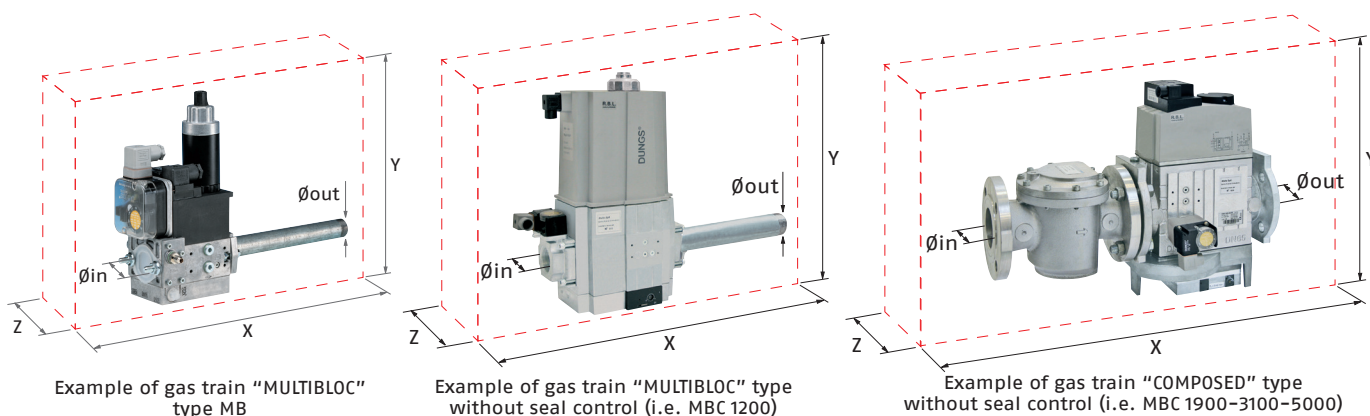
DMV "FLANGED OR THREADED"



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 RS/M burners, 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 360 mbar, and that one of gas train "Composed" type is 500 mbar. The range of pressure in the MULTIBLOC with flange can be modified choosing the stabiliser spring (see gas train accessory).



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 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 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 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 415/1 - RT 30	3970180	Rp 1-1/2"	Rp 1-1/2"	523	250	100
MB 415/1 CT RT 30	3970198	Rp 1-1/2"	Rp 1-1/2"	523	250	229
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 420/1 RT 30	3970181	Rp 2"	Rp 2"	523	300	100
MB 420/1 CT RT 30	3970182	Rp 2"	Rp 2"	523	300	229

GAS TRAIN						
MODEL	CODE	Ø in	Ø out	X mm	Y mm	Z mm
MB 420/1 RT 52	3970257	Rp 2"	Rp 2"	523	300	100
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

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
MBC 5000/1 - FSM 80	3970224	DN 100	DN 100	733	576	280
MBC 5000/1 CT FSM 80	3970228	DN 100	DN 100	733	576	348

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 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 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 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 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

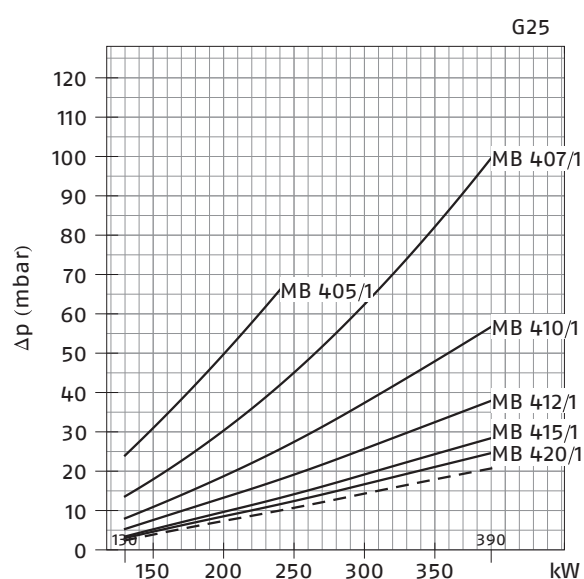
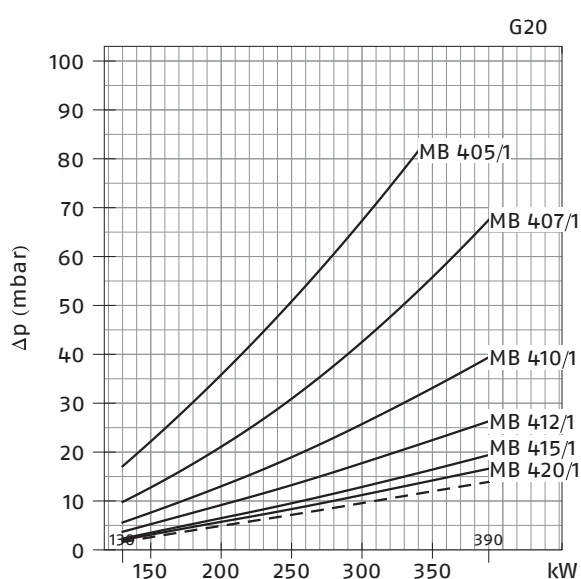
GAS TRAIN						
MODEL	CODE	Ø in	Ø out	X mm	Y mm	Z mm
DMV 512/1 - RSM - 0	20043035	Rp 1-1/2"	Rp 1-1/2"	490	292	245
DMV 512/1 - CT RSM - 0	20043036	Rp 1-1/2"	Rp 1-1/2"	490	292	245
DMV 512/1 - CQ RSM - 2	20043037	Rp 1-1/2"	Rp 1-1/2"	490	292	245
DMV 520/1 - RSM - 0	20043038	Rp 2"	Rp 2"	490	292	255
DMV 520/1 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
DMV 50125/1 - FSM - 0	20043050	DN 125	DN 125	400	554	333
DMV 50125/1 CT FSM - 0	20043051	DN 125	DN 125	400	554	333
DMV 50125/1 CQ FSM - 2	20043052	DN 125	DN 125	400	554	333

Pressure Drop Diagram

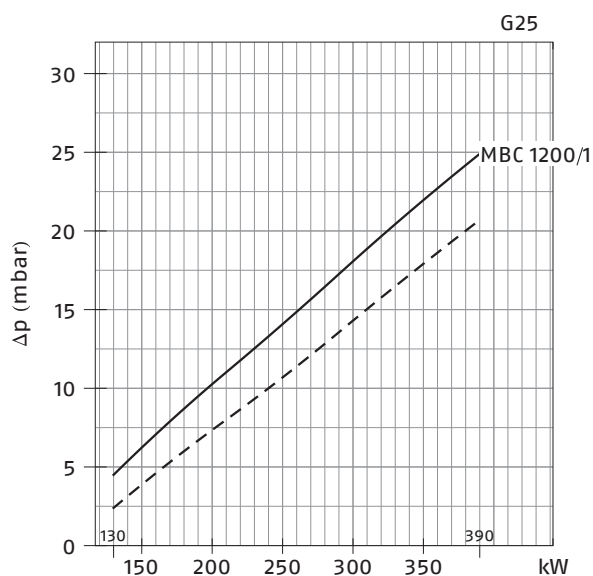
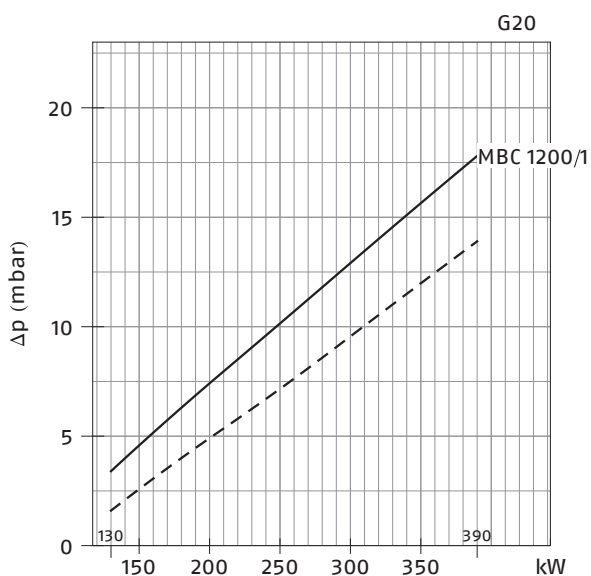
The diagrams indicate the minimum pressure drop of the burners with the various gas trains that can be matched with them; at the value of these pressure drop add the combustion chamber pressure. The value thus calculated represents the minimum required input pressure to the gas train.

The minimum input gas pressure required is 15 mbar while burner operating. In particular, the pressure difference between gas train upstream and downstream has to remain always over pressure drop values indicated below.

RS 34/M (NATURAL GAS)

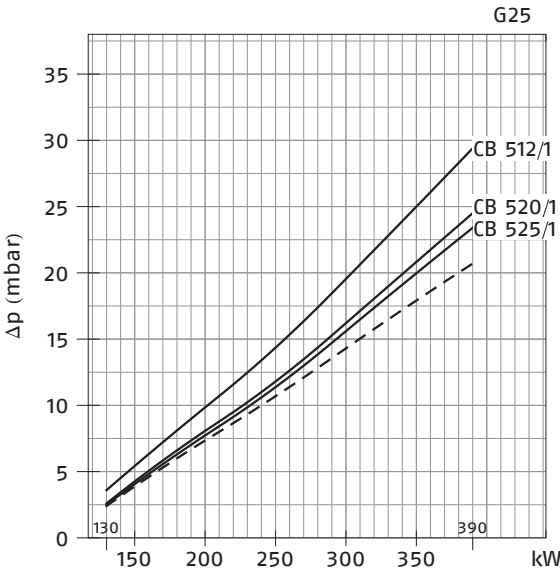
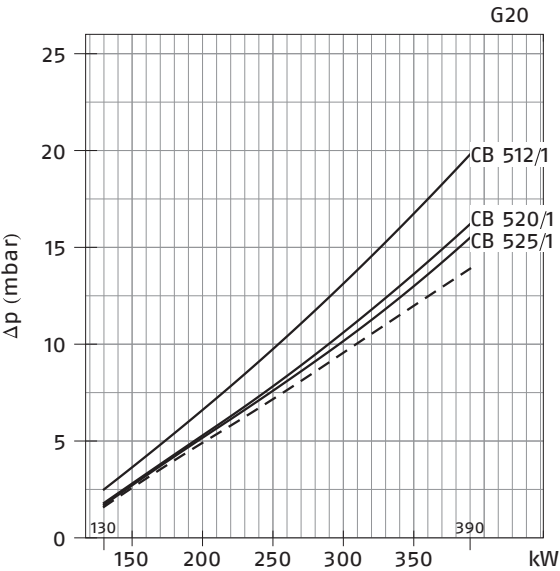


RS 34/M (NATURAL GAS)

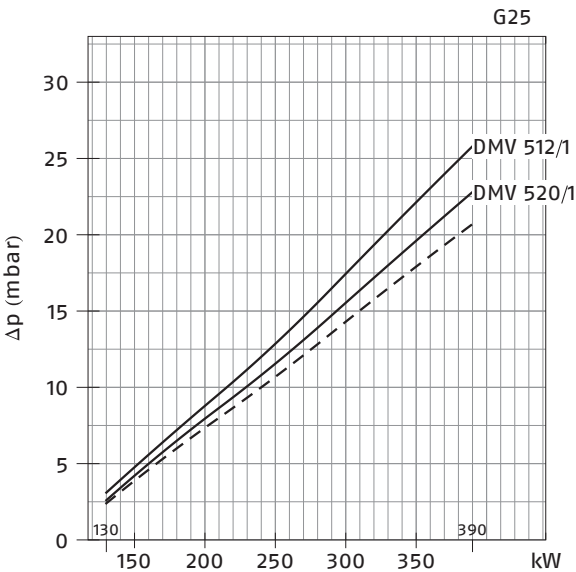
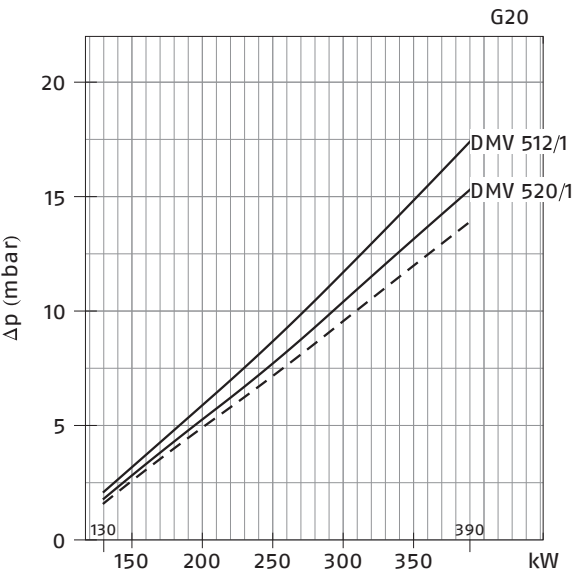


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 34/M (NATURAL GAS)

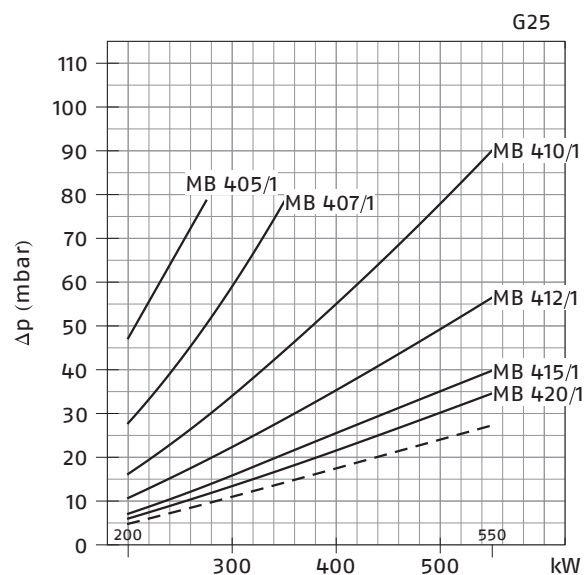
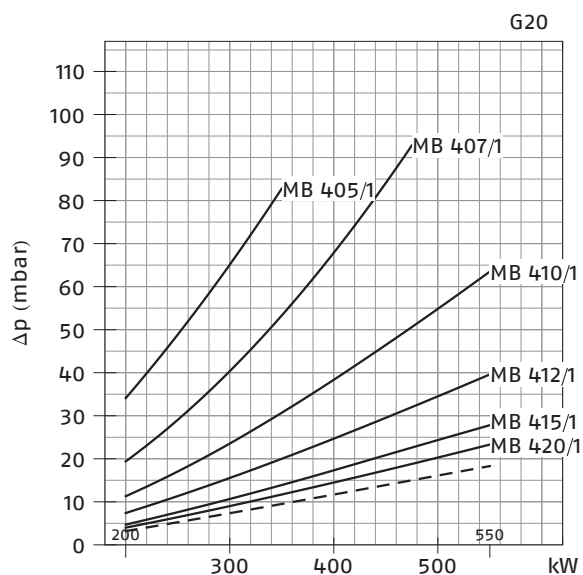


RS 34/M (NATURAL GAS)

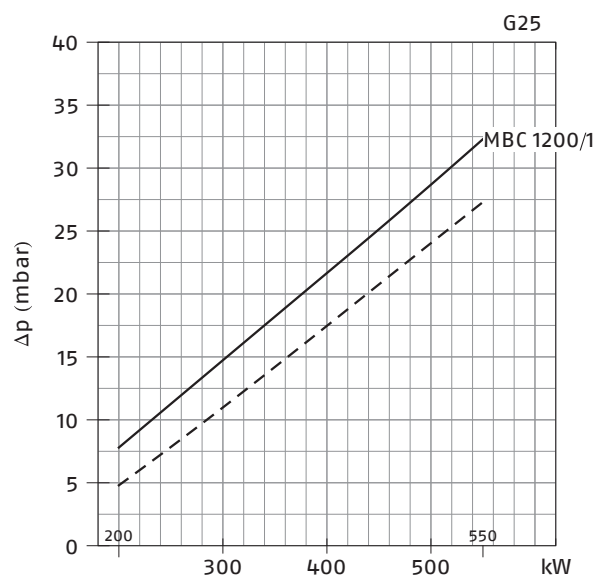
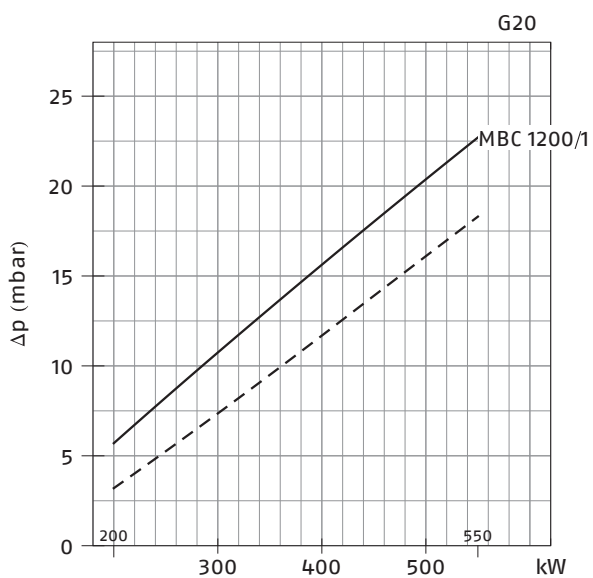


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 44/M (NATURAL GAS)

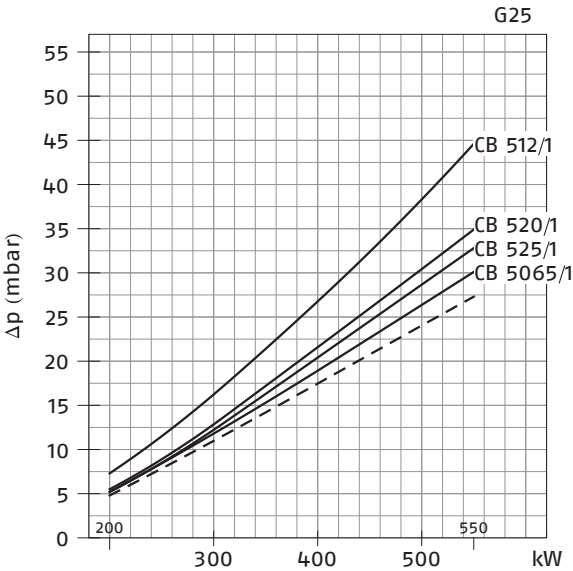
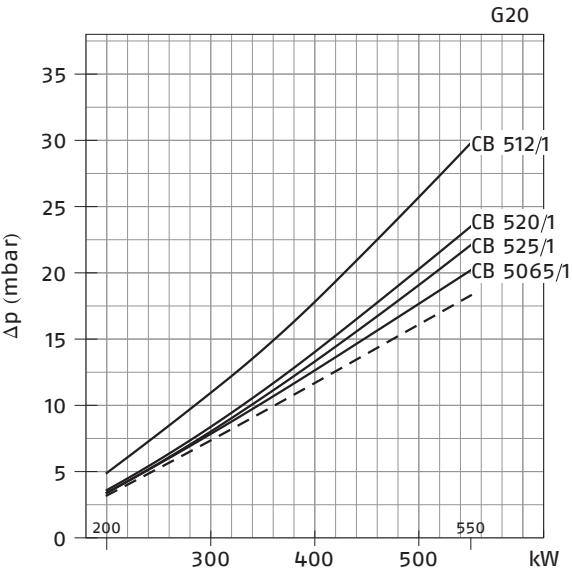


RS 44/M (NATURAL GAS)

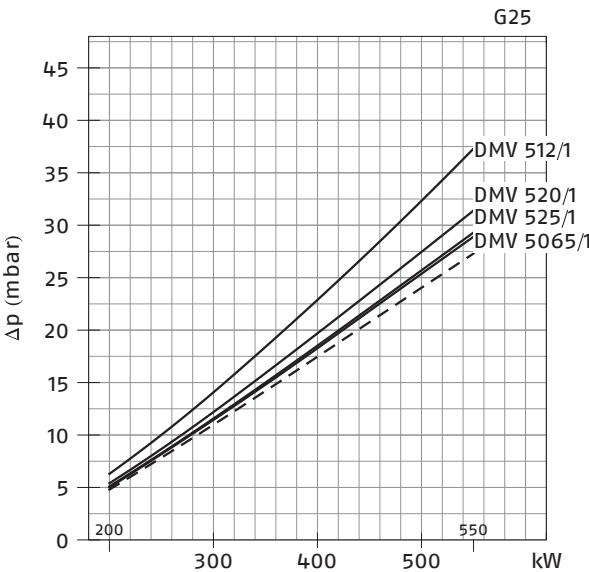
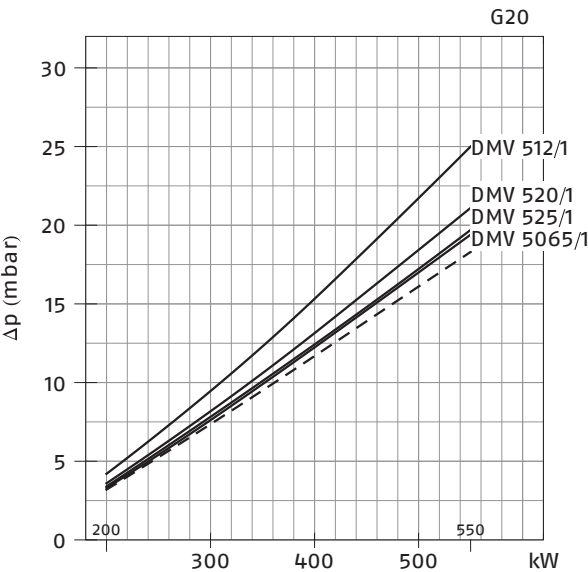


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 44/M (NATURAL GAS)

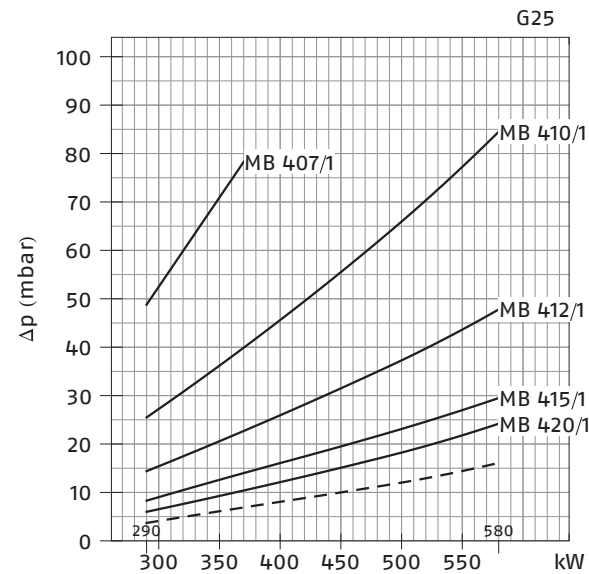
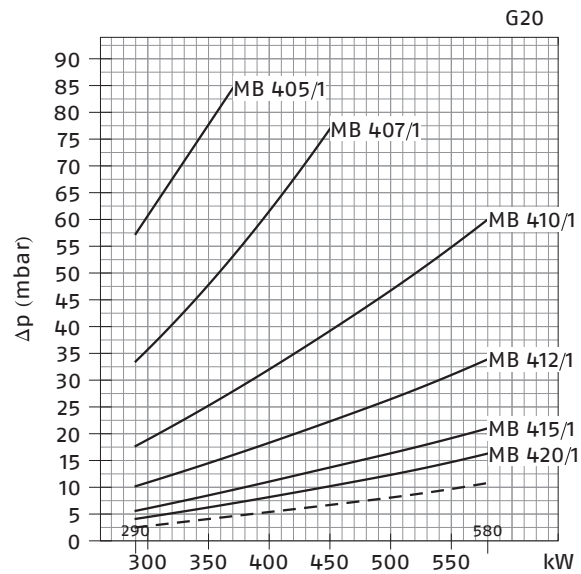


RS 44/M (NATURAL GAS)

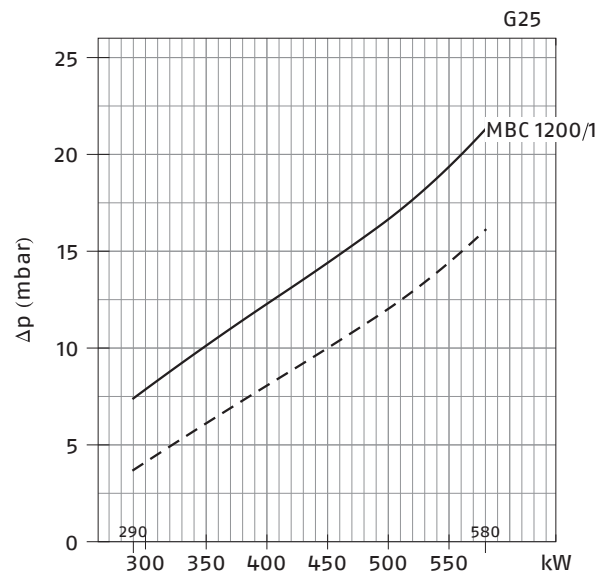
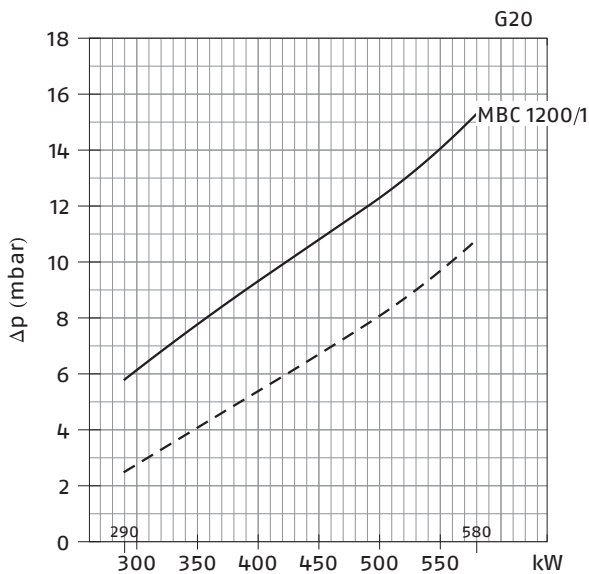


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 50/M (NATURAL GAS)

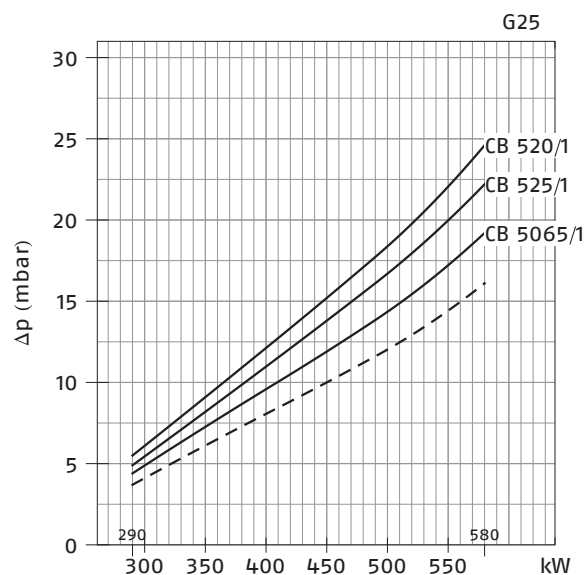
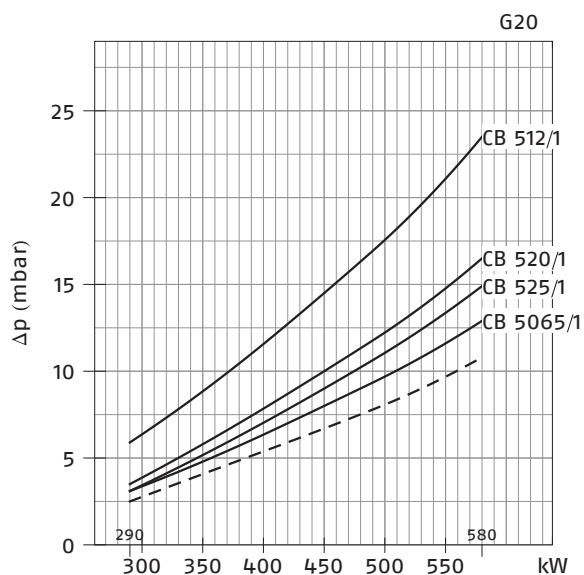


RS 50/M (NATURAL GAS)

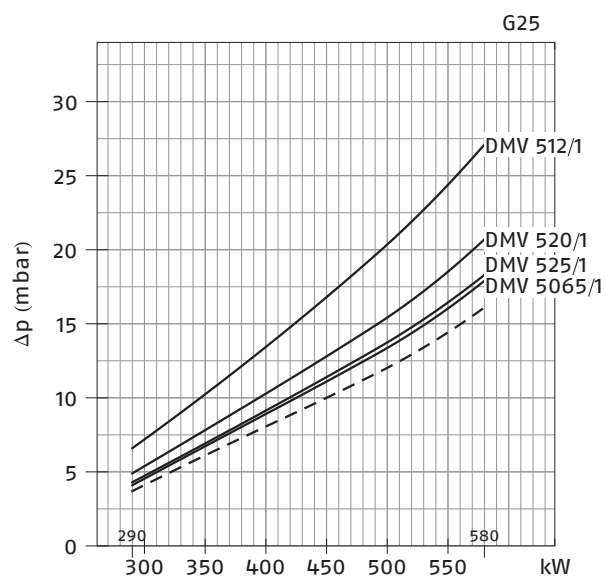
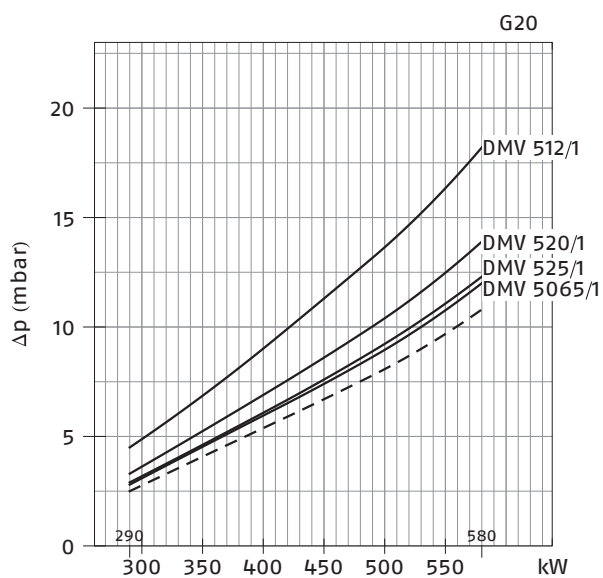


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 50M (NATURAL GAS)

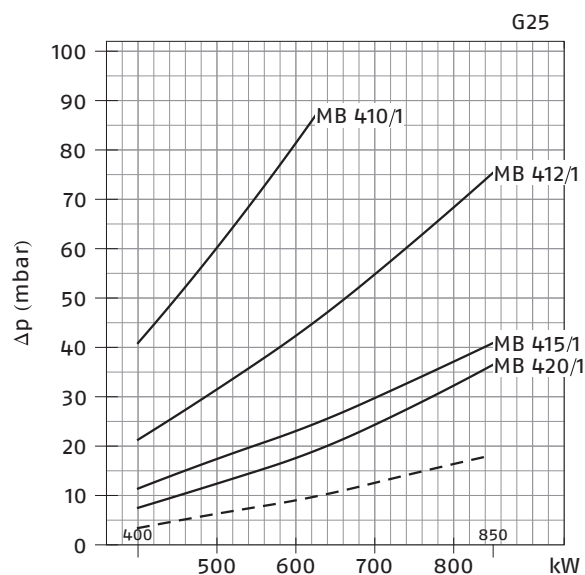
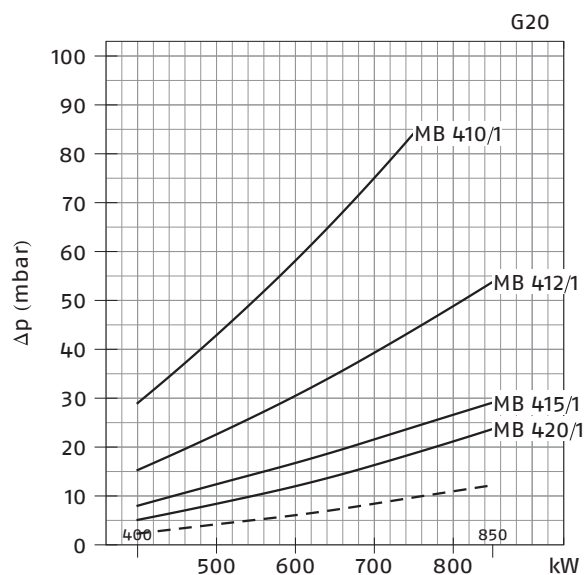


RS 50/M (NATURAL GAS)

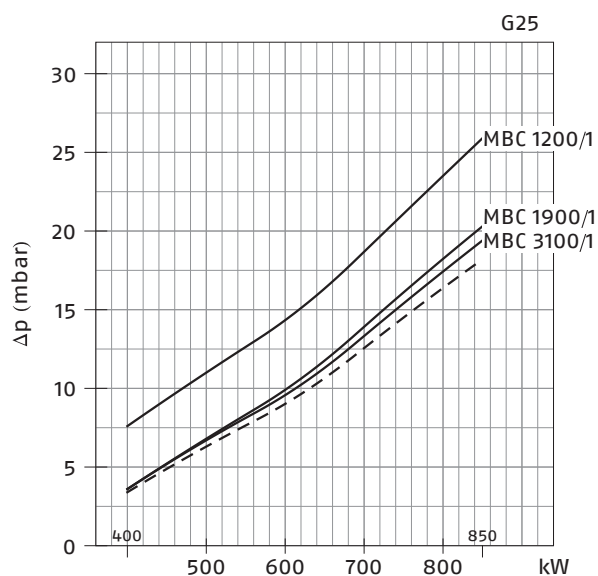
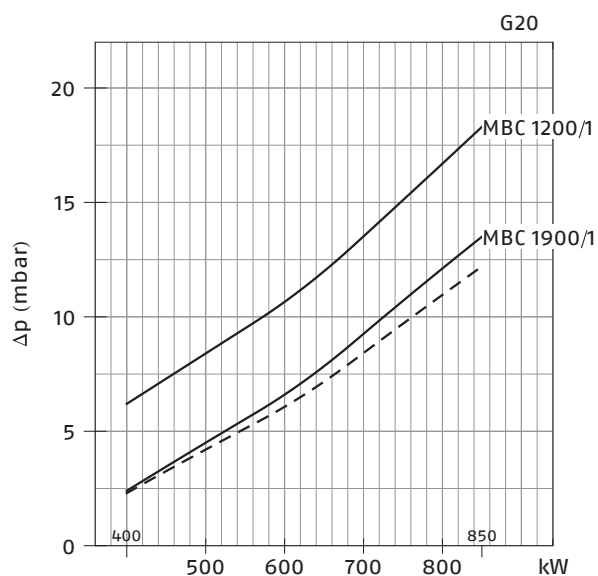


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 64/M (NATURAL GAS)

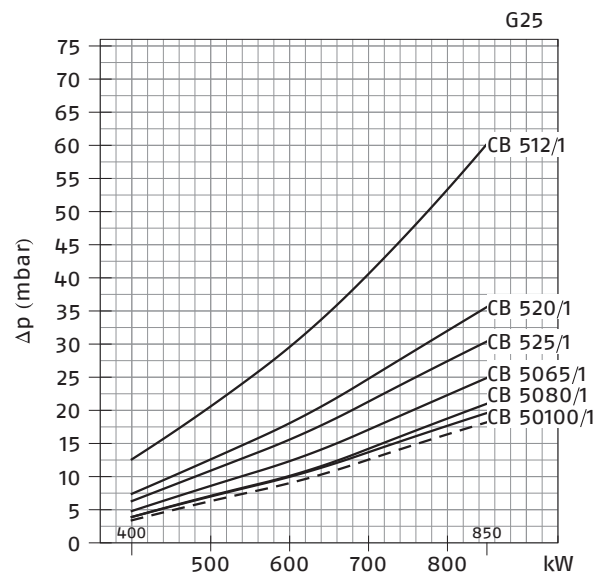
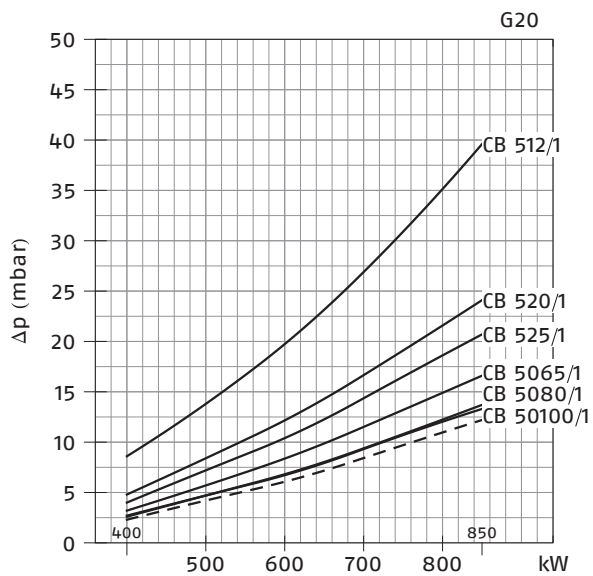


RS 64/M (NATURAL GAS)

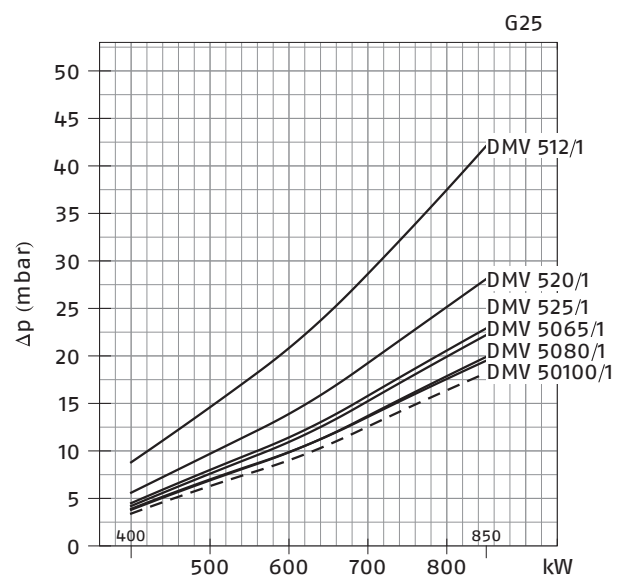
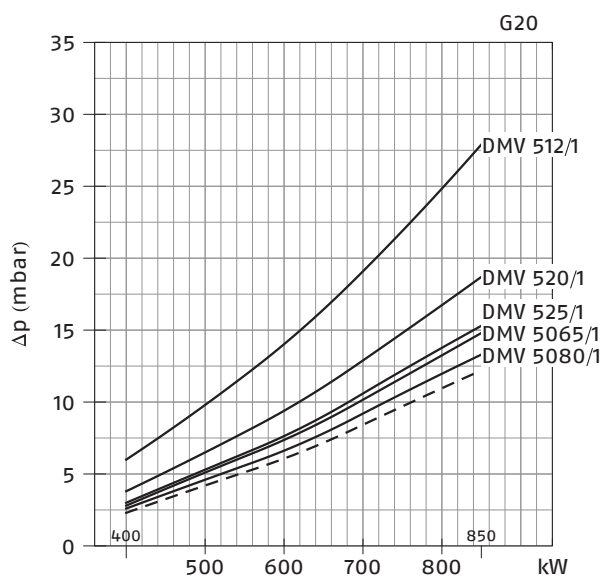


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 64/M (NATURAL GAS)

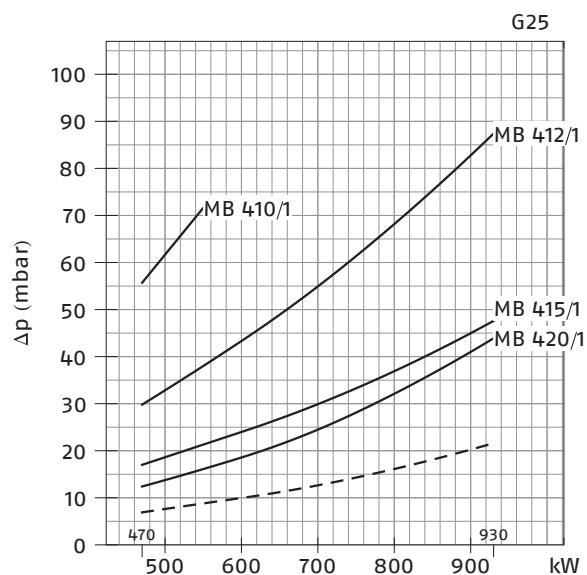
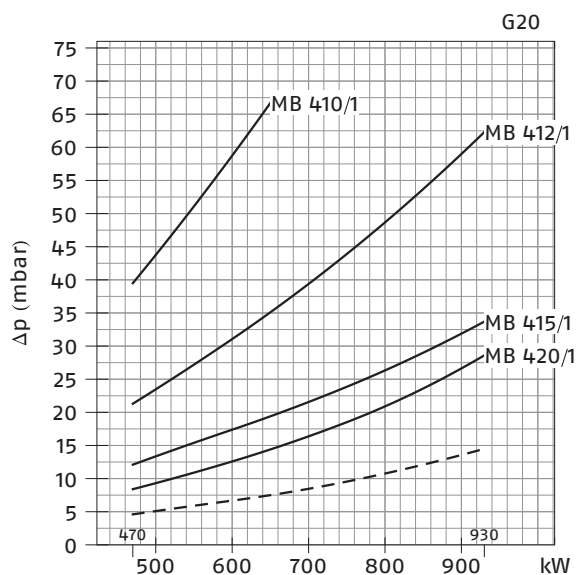


RS 64/M (NATURAL GAS)

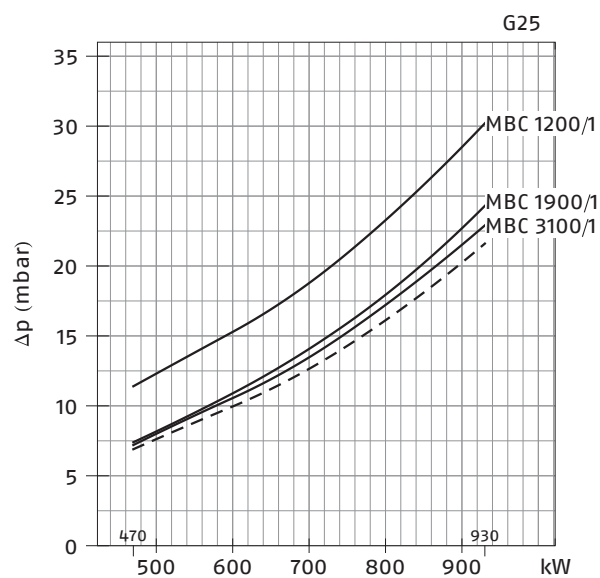
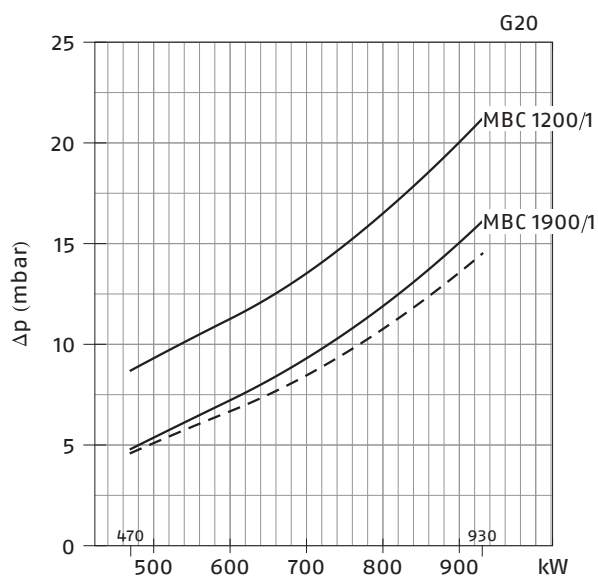


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 70/M (NATURAL GAS)

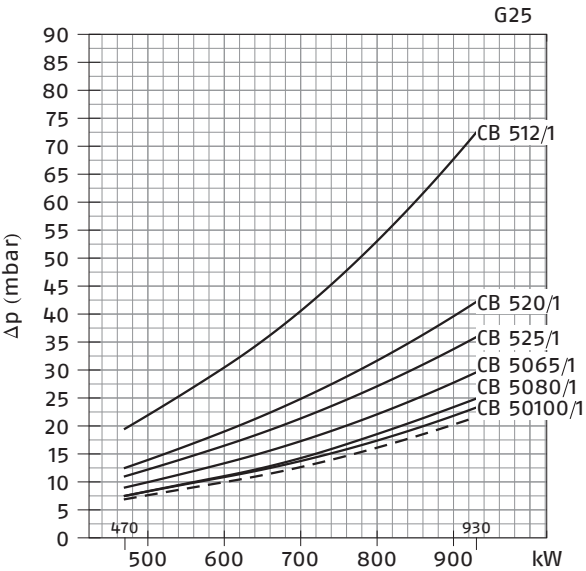
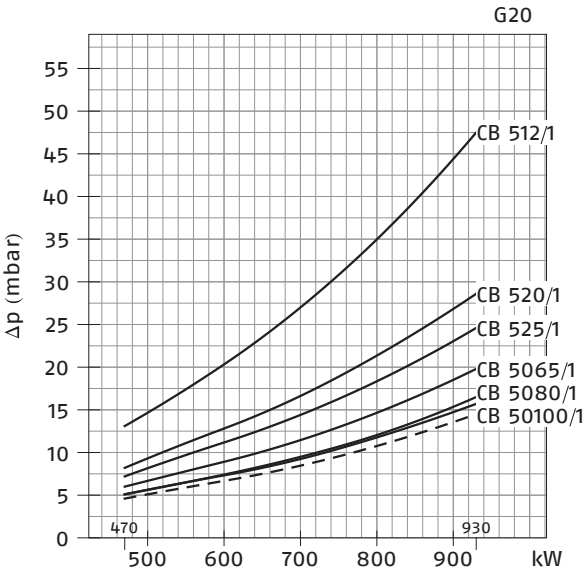


RS 70/M (NATURAL GAS)

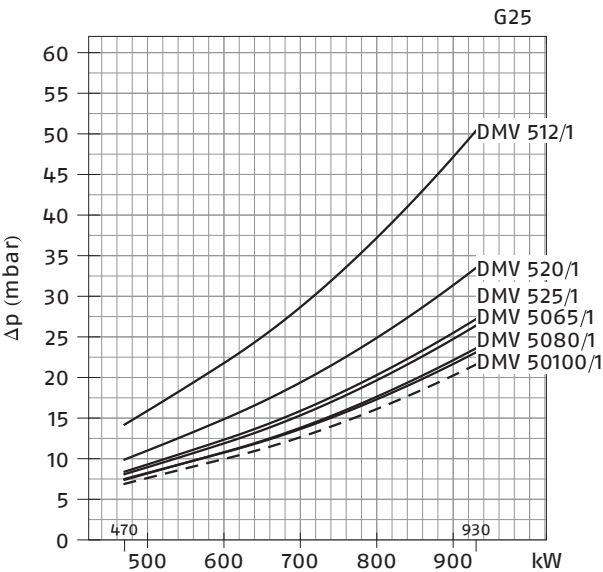
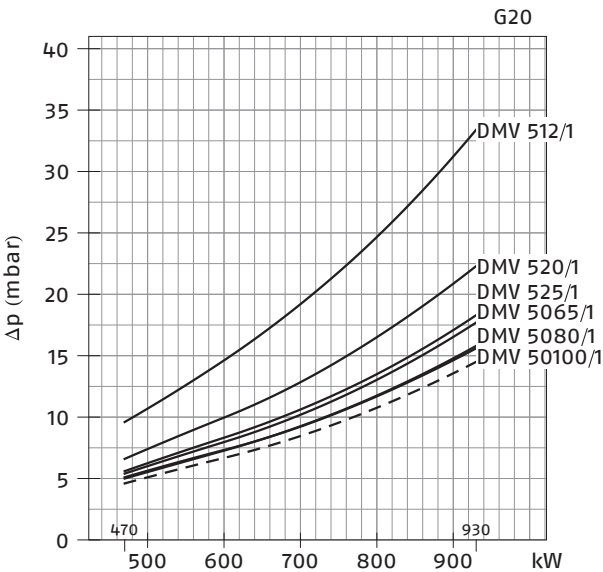


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 70/M (NATURAL GAS)

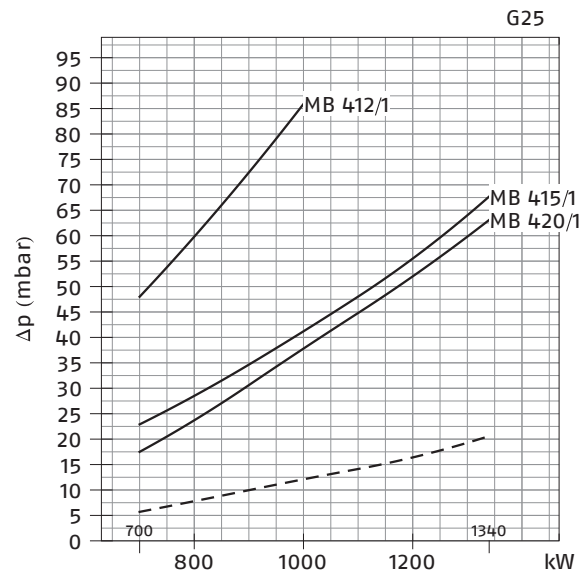
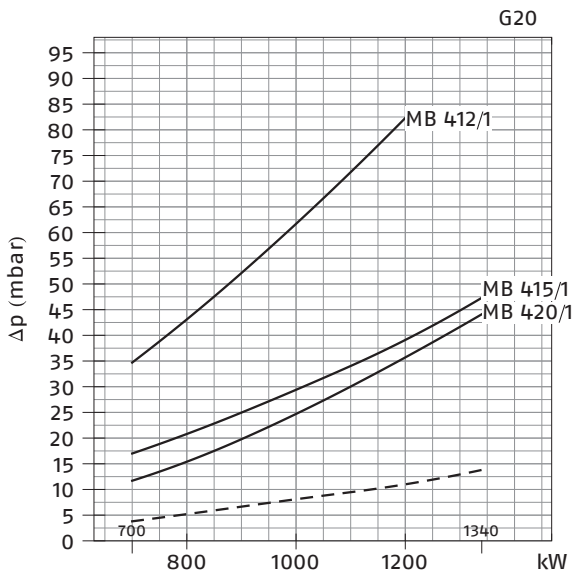


RS 70/M (NATURAL GAS)

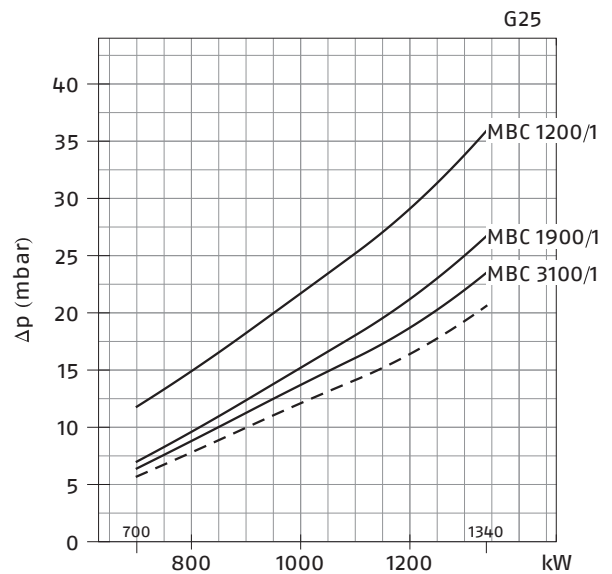
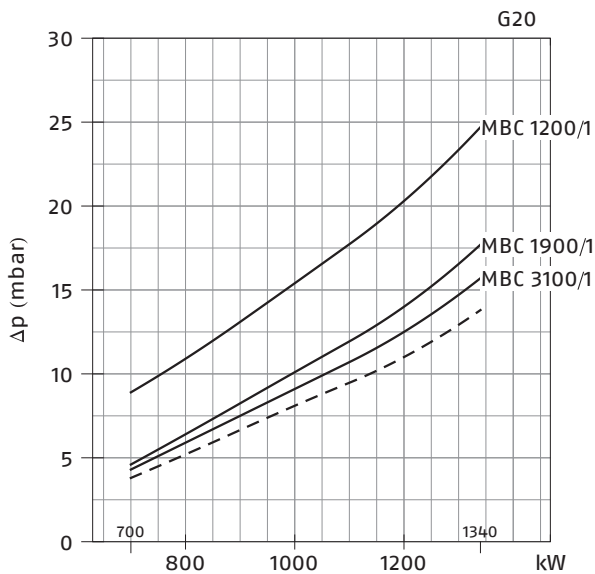


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 100/M (NATURAL GAS)

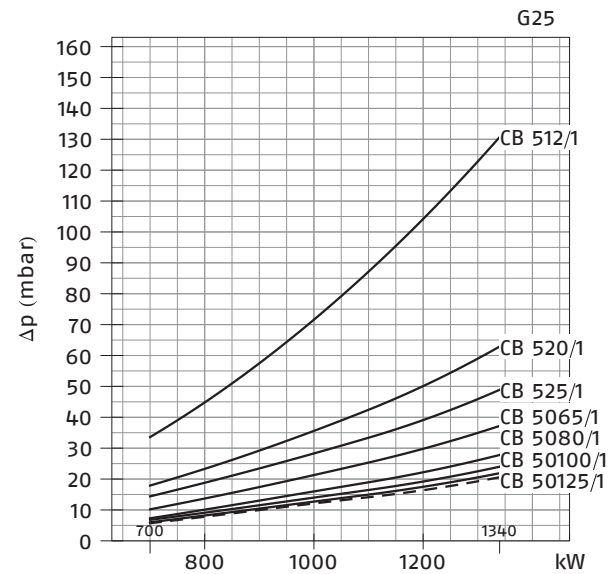
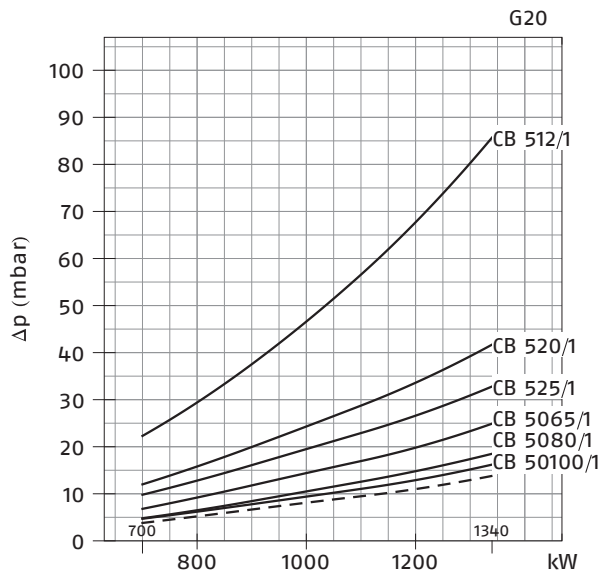


RS 100/M (NATURAL GAS)

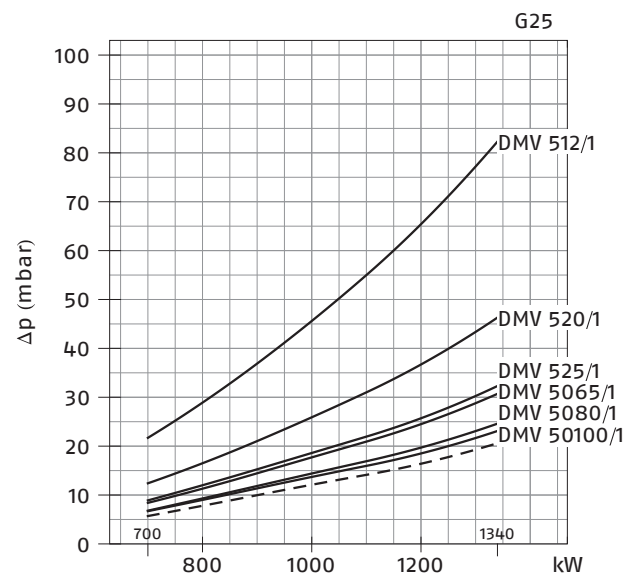
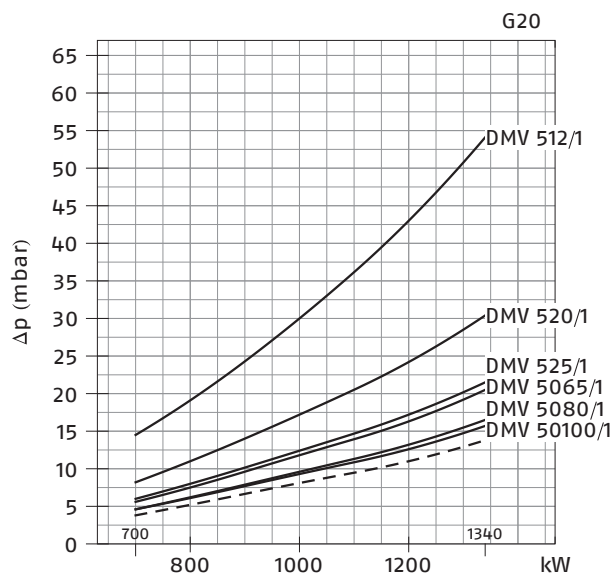


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 100/M (NATURAL GAS)

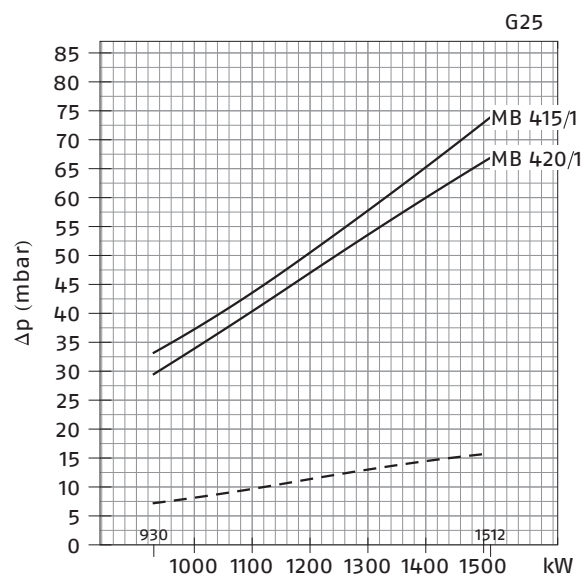
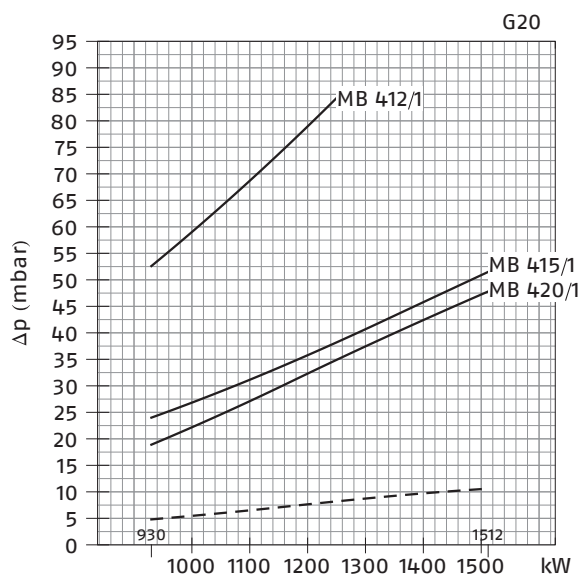


RS 100/M (NATURAL GAS)

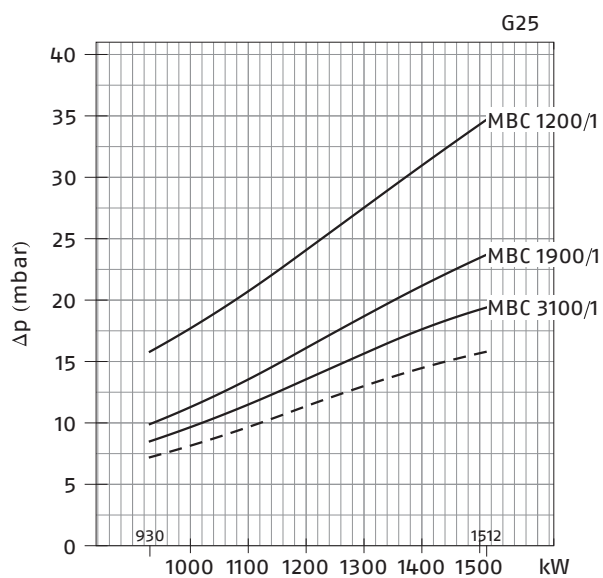
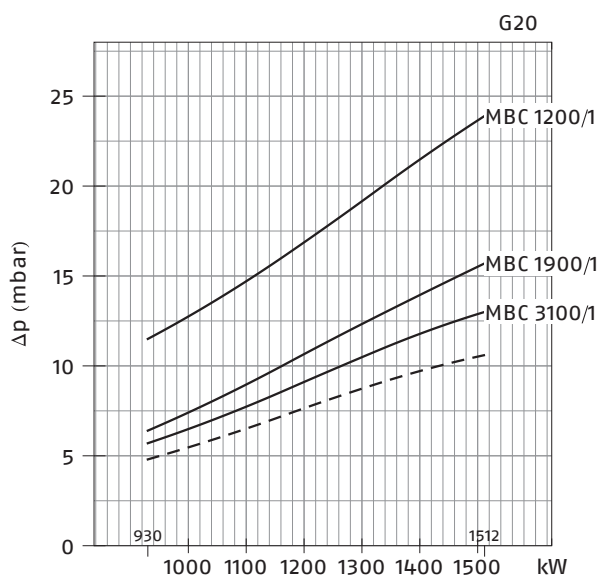


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 130/M (NATURAL GAS)

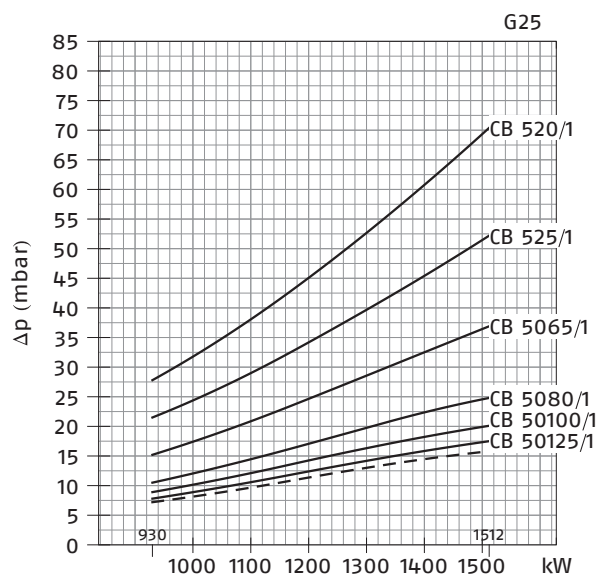
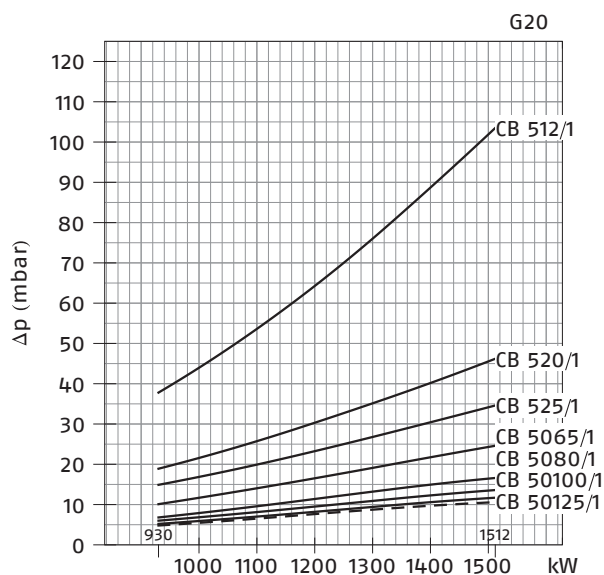


RS 130/M (NATURAL GAS)

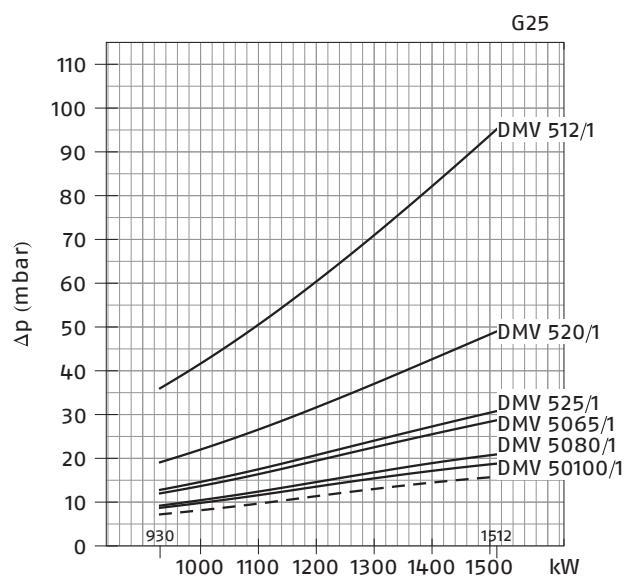
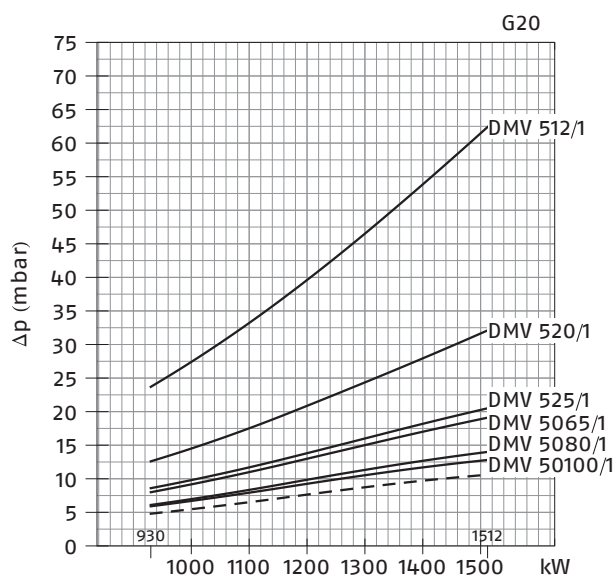


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 130/M (NATURAL GAS)

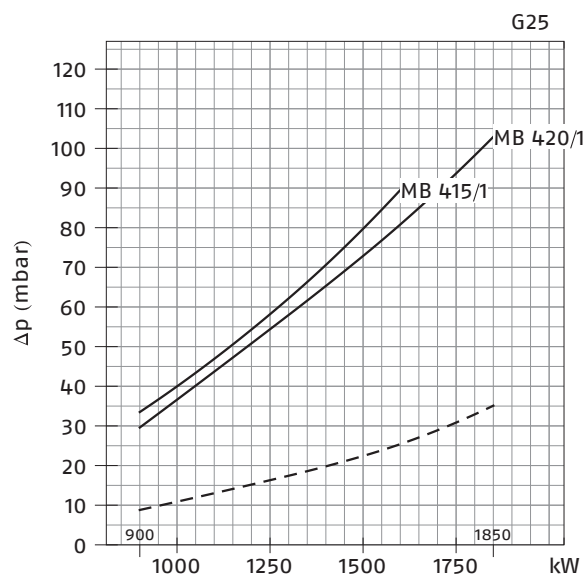
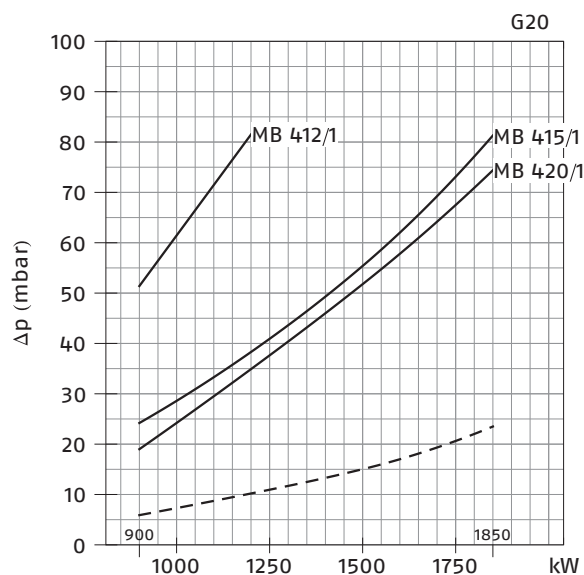


RS 130/M (NATURAL GAS)

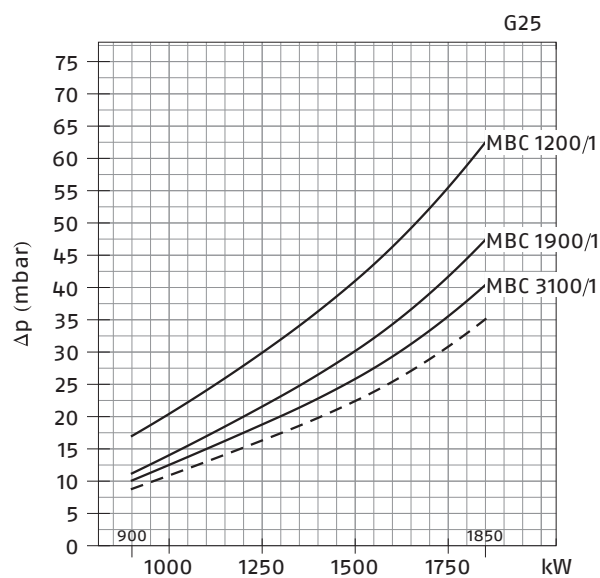
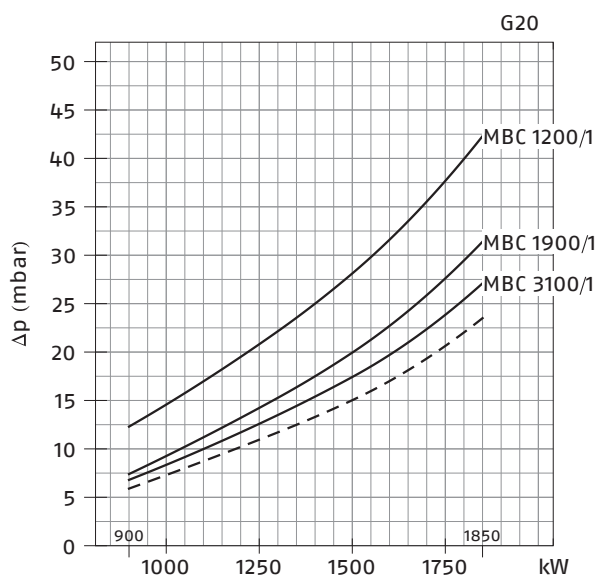


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 150/M (NATURAL GAS)

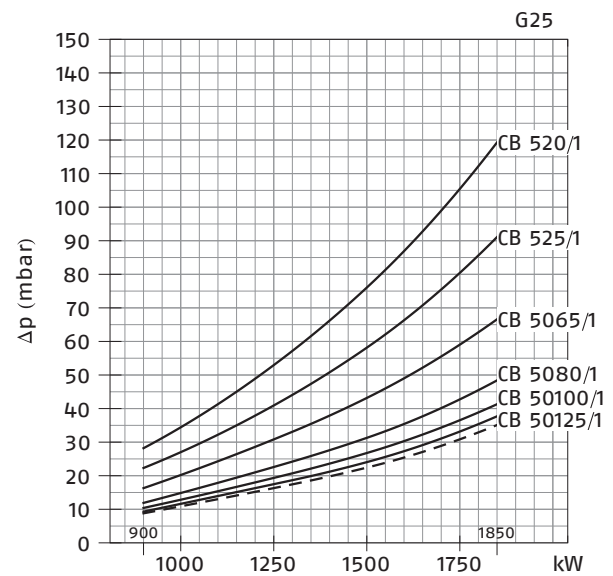
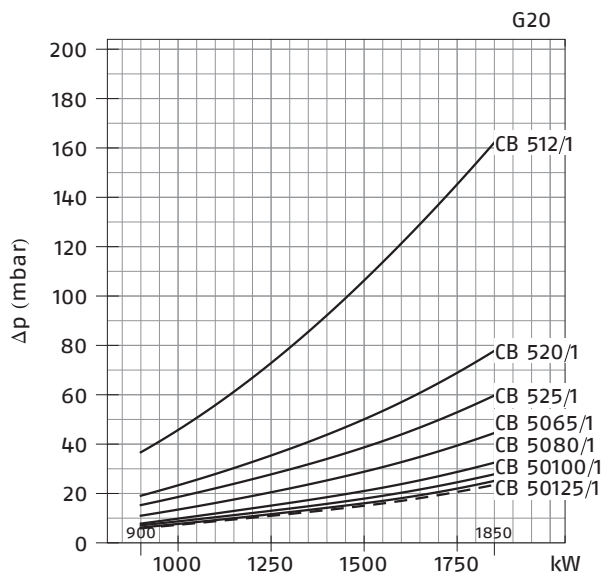


RS 150/M (NATURAL GAS)

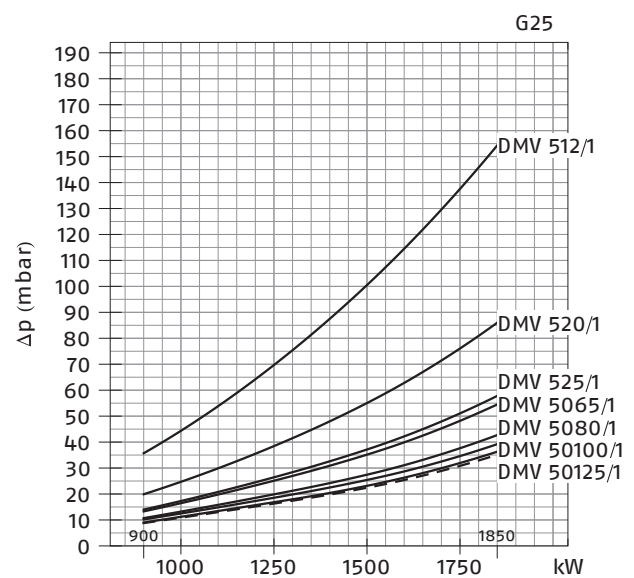
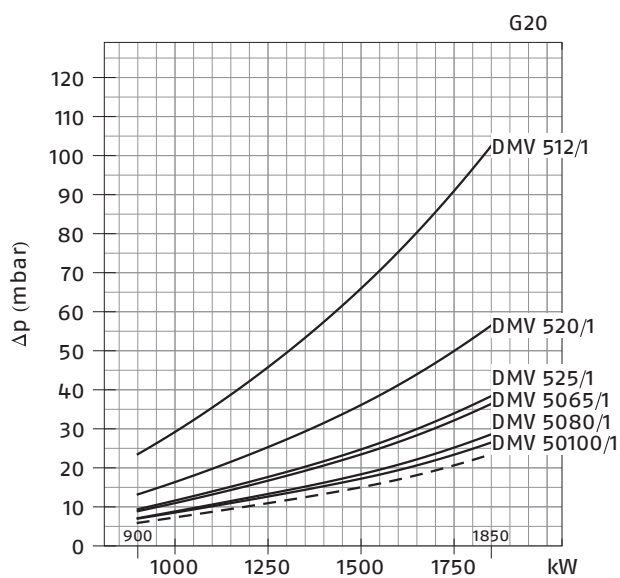


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 150/M (NATURAL GAS)

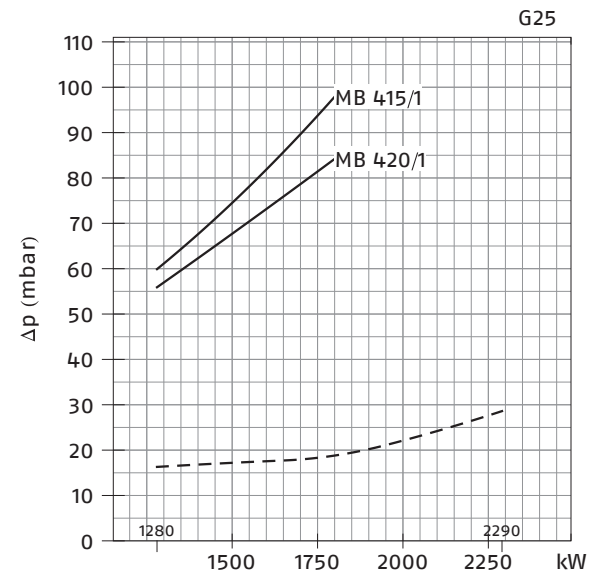
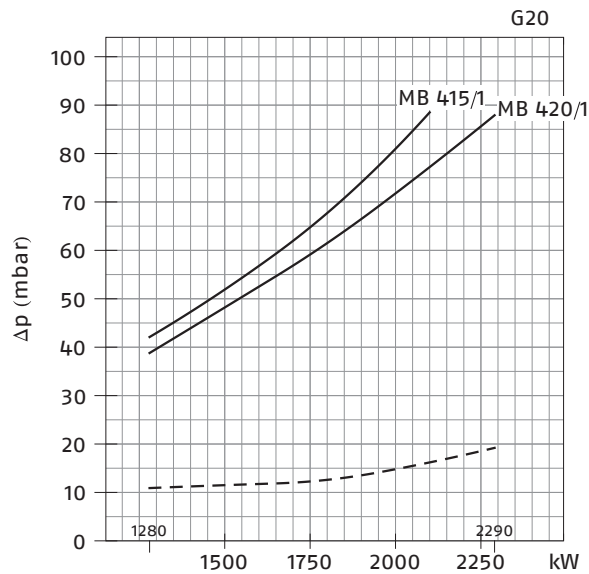


RS 150/M (NATURAL GAS)

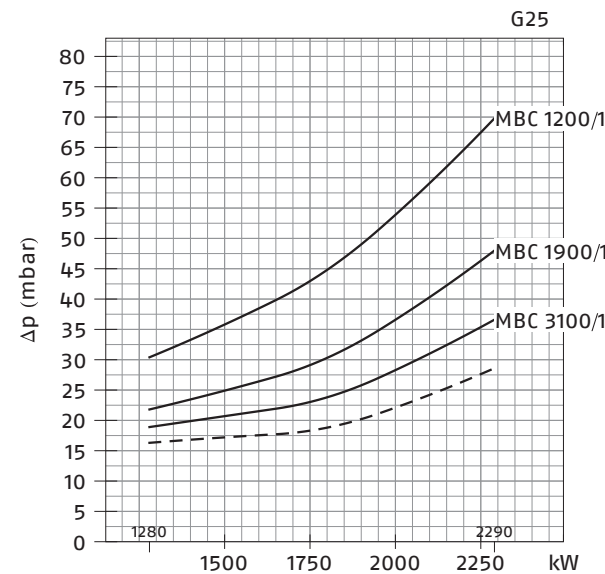
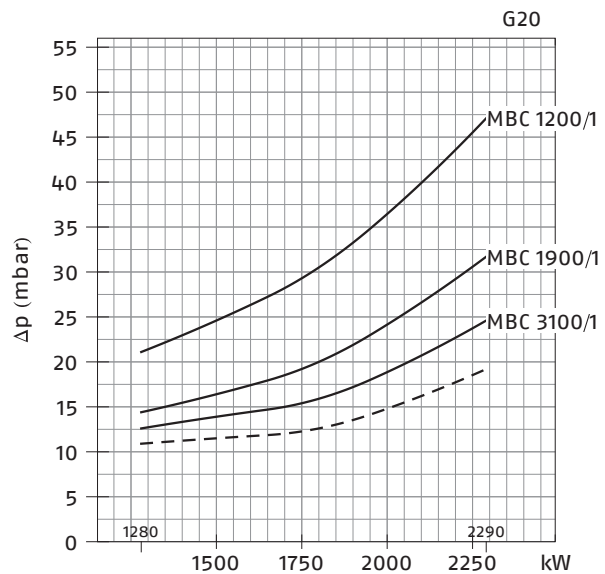


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 190/M (NATURAL GAS)

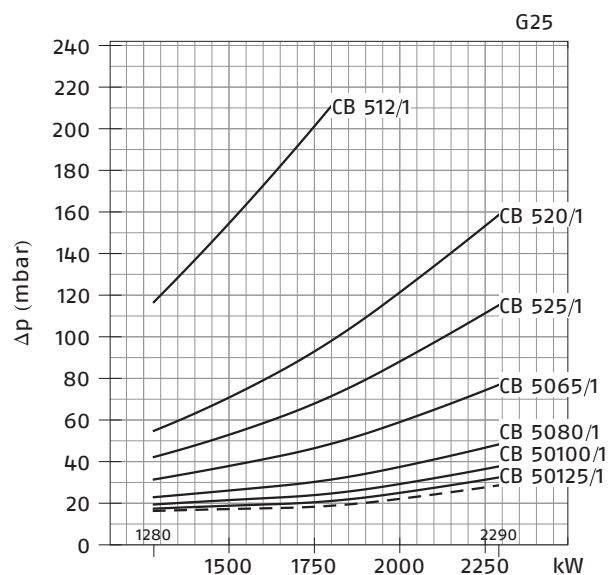
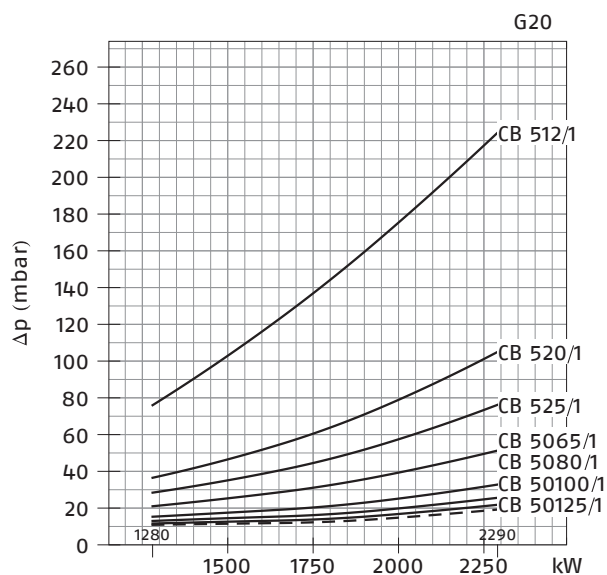


RS 190/M (NATURAL GAS)

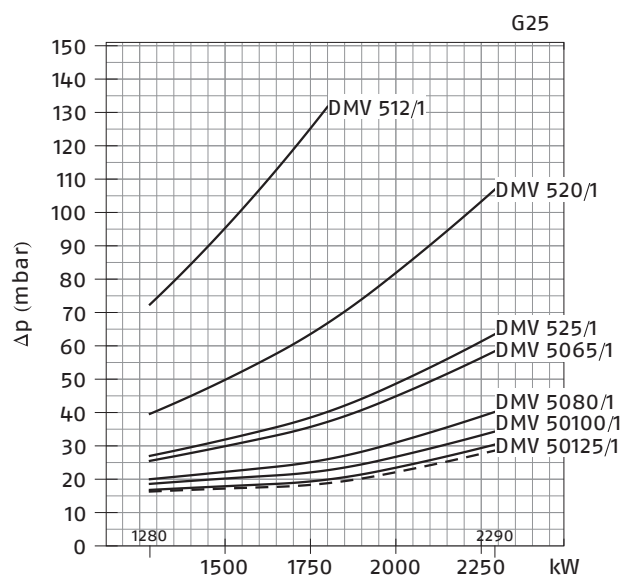
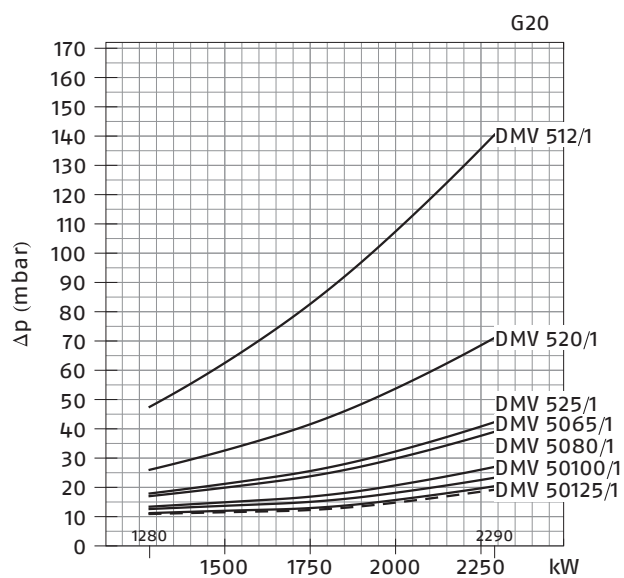


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 190/M (NATURAL GAS)

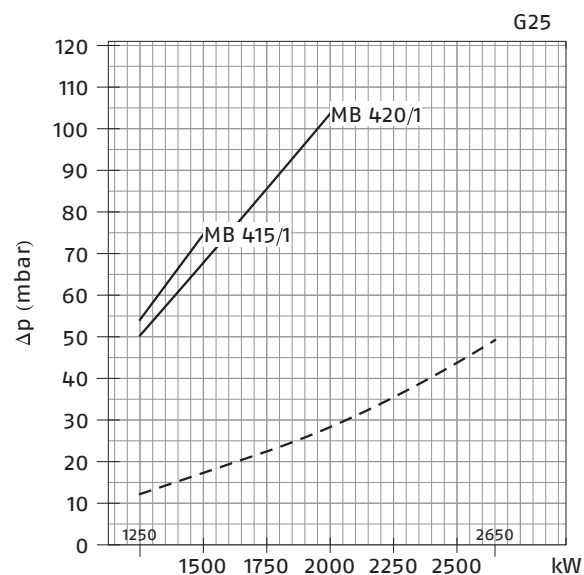
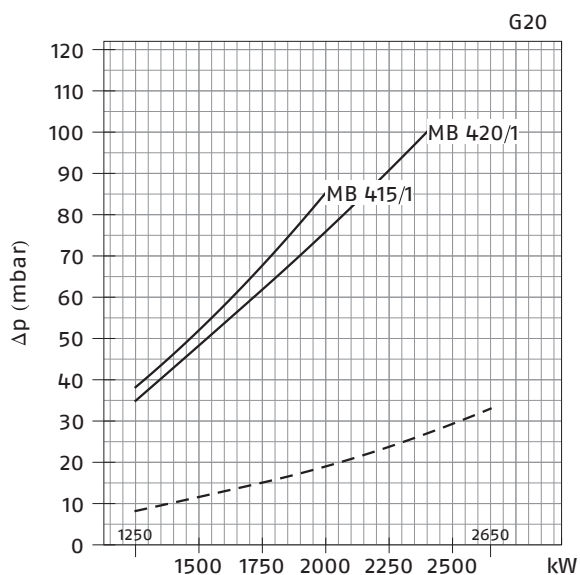


RS 190/M (NATURAL GAS)

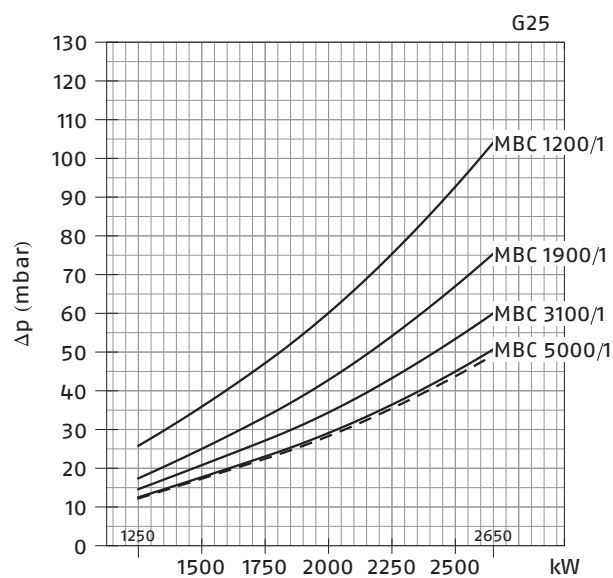
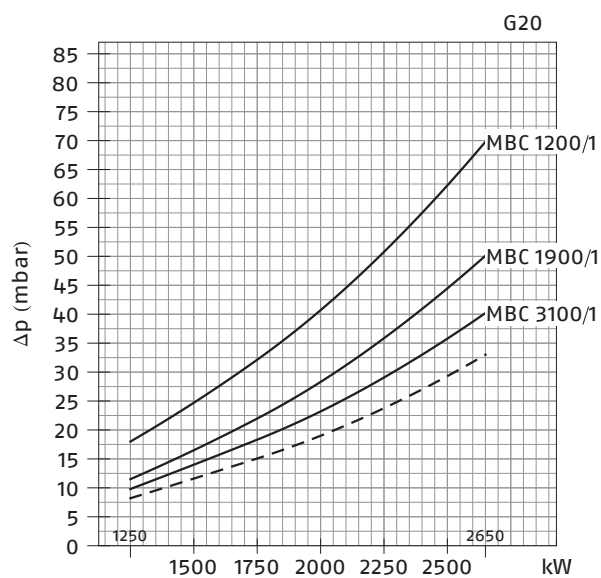


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 250/M (NATURAL GAS)

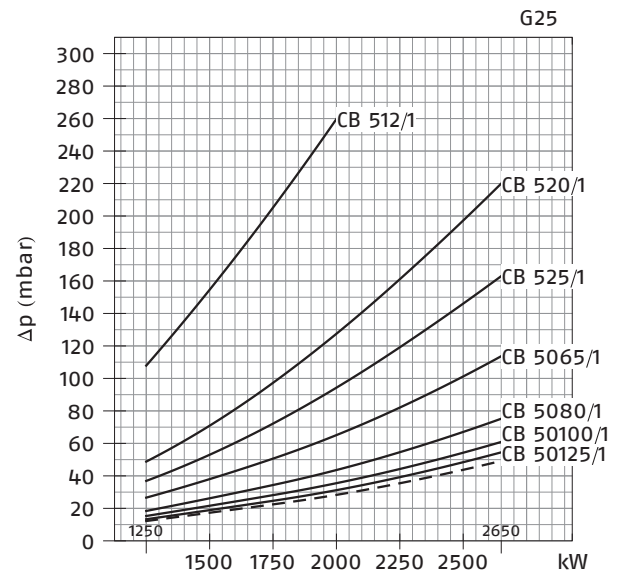
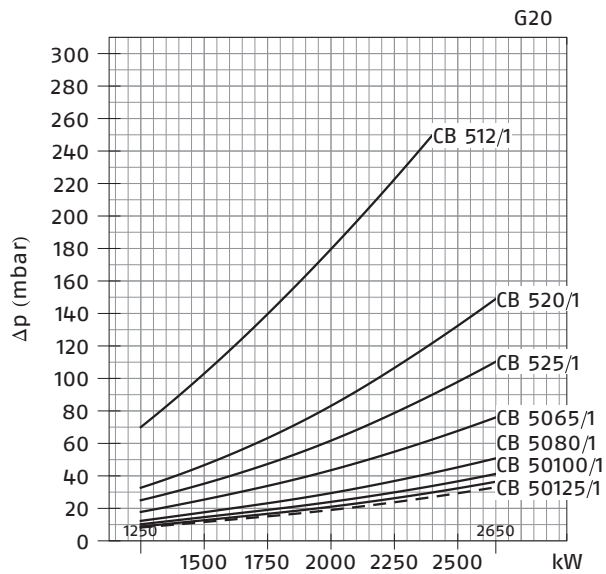


RS 250/M (NATURAL GAS)

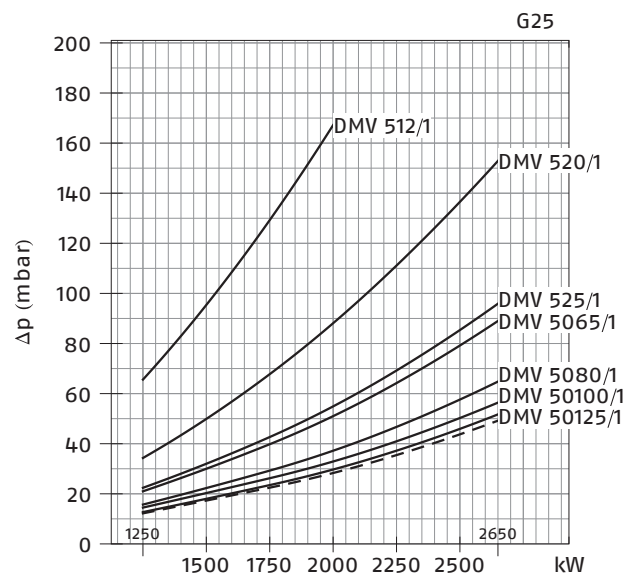
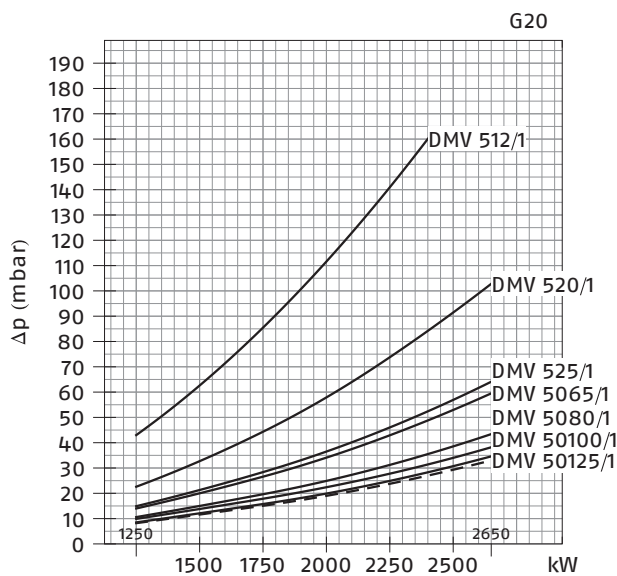


- Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 250/M (NATURAL GAS)



RS 250/M (NATURAL GAS)



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

GAS TRAIN		ADAPTER CODE								
CODE	MODEL	RS 34	RS 44-50	RS 64	RS 70	RS 100	RS 130	RS 150	RS 190	RS 250
3970500	MB 405/1 – RT 20	3000824		●	●	●	●	●	●	●
3970553	MB 407/1 – RT 20			●	●	●	●	●	●	●
3970599	MB 407/1 – RT 52			●	●	●	●	●	●	●
3970229	MB 407/1 – RSM 20			●	●	●	●	●	●	●
3970258	MB 410/1 – RT 52	3010124		3000843		●	●	●	●	●
3970554	MB 410/1 – RT 20	3000824		3000824 + 3000843		●	●	●	●	●
3970600	MB 410/1 – RT 52					●	●	●	●	●
3970230	MB 410/1 – RSM 20					●	●	●	●	●
3970256	MB 412/1 – RT 52	-	-	3000843						
3970144	MB 412/1 – RT 20	-	-							
3970197	MB 412/1 CT RT 20	-	-							
3970231	MB 412/1 – RSM 20	-	-							
3970180	MB 415/1 – RT 30	-	-							
3970198	MB 415/1 CT RT 30	-	-							
3970250	MB 415/1 – RT 52	-	-							
3970253	MB 415/1 CT RT 52	-	-							
3970232	MB 415/1 – RSM 30	-	-							
3970181	MB 420/1 – RT 30	3000822		-	-	-	-	-	-	-
3970182	MB 420/1 CT RT 30			-	-	-	-	-	-	-
3970257	MB 420/1 – RT 52			-	-	-	-	-	-	-
3970252	MB 420/1 CT RT 52			-	-	-	-	-	-	-
3970233	MB 420/1 – RSM 30			-	-	-	-	-	-	-
3970234	MB 420/1 CT RSM 30			-	-	-	-	-	-	-
3970221	MBC 1200/1 – RSM 60			-	-	-	-	-	-	-
3970225	MBC 1200/1 CT RSM 60	-	-	-	-	-	-	-	-	
3970222	MBC 1900/1 – FSM 40	●	●	3000825						
3970226	MBC 1900/1 CT FSM 40	●	●							
3970223	MBC 3100/1 – FSM 40	●	●	3000826						
3970227	MBC 3100/1 CT FSM 40	●	●							
3970224	MBC 5000/1 – FSM 80	●	●	●	●	●	●	●	●	3010370 + 3000826
3970228	MBC 5000/1 CT FSM 80	●	●	●	●	●	●	●	●	
3970145	CB 512/1 – RSM 30	-	-	3000843						
20045589	CB 512/1 CT RSM 30	-	-							
3970146	CB 520/1 – RSM 30	3000822		-	-	-	-	-	-	-
3970160	CB 520/1 CT RSM 30			-	-	-	-	-	-	-
20044659	CB 525/1 – RSM 30			-	-	-	-	-	-	-
20044660	CB 525/1 CT RSM 30			-	-	-	-	-	-	-
3970147	CB 5065/1 – FSM 30	●	3000825							
3970161	CB 5065/1 CT FSM 30	●								
3970148	CB 5080/1 – FSM 30	●	●	3000826						
3970162	CB 5080/1 CT FSM 30	●	●							
3970149	CB 50100/1 – FSM 30	●	●	3010370 + 3000826						
3970163	CB 50100/1 CT FSM 30	●	●							
20015871	CB 50125/1 – FSM 30	●	●	●	●	●	3010224 + 3000826			
3970196	CB 50125/1 CT FSM 30	●	●	●	●	●				

Key to layout

● Not available

GAS TRAIN		ADAPTER CODE								
CODE	MODEL	RS 34	RS 44-50	RS 64	RS 70	RS 100	RS 130	RS 150	RS 190	RS 250
20043035	DMV 512/1 - RSM -0	-	-	3000843						
20043036	DMV 512/1 CT RSM -0	-	-							
20043037	DMV 512/1 CQ RSM -2	-	-							
20043038	DMV 520/1 - RSM -0	3000822		-	-	-	-	-	-	-
20043039	DMV 520/1 CT RSM -0			-	-	-	-	-	-	-
20043040	DMV 520/1 CQ RSM -2			-	-	-	-	-	-	-
20043053	DMV 525/1 - RSM -0			-	-	-	-	-	-	-
20043054	DMV 525/1 CT RSM -0			-	-	-	-	-	-	-
20043055	DMV 525/1 CQ RSM -2			-	-	-	-	-	-	-
20043041	DMV 5065/1 - FSM -0	●	3000825							
20043042	DMV 5065/1 CT FSM -0	●								
20043043	DMV 5065/1 CQ FSM -2	●								
20043044	DMV 5080/1 - FSM -0	●	●	3000826						
20043045	DMV 5080/1 CT FSM -0	●	●							
20043046	DMV 5080/1 CQ FSM -2	●	●							
20043047	DMV 50100/1 - FSM -0	●	●	3010370 + 3000826						
20043048	DMV 50100/1 CT FSM -0	●	●							
20043049	DMV 50100/1 CQ FSM -2	●	●							
20043050	DMV 50125/1 - FSM -0	●	●	●	●	●	3010224 + 3000826			
20043051	DMV 50125/1 CT FSM -0	●	●	●	●	●				
20043052	DMV 50125/1 CQ FSM -2	●	●	●	●	●				

Key to layout

● Not available

Ventilation

The ventilation circuit produces low noise levels with high performance pressure and air output, in spite of the compact dimensions.

The use of sound-proofing material on all models keeps noise level very low.

A variable profile cam connects the fuel and air regulations, ensuring high fuel efficiency at all firing ranges. A minimum air pressure switch stops the burner when there is an insufficient quantity of air at the combustion head.

The RS 34/M MZ and RS 44/M MZ are realised with a structure made by an innovative technology based on a new fibreglass reinforced polyamide material, with high thermal and mechanical characteristics, instead of the traditional aluminium.

This allows big advantages in terms of lay-out rationalisation, weight and dimensions reduction.

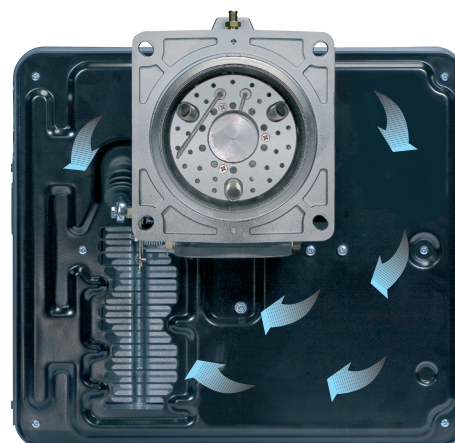
In order to guarantee the correct exercise temperature for the internal burner components in every working conditions, the new structure includes an innovative patented cooling technology.

Between the burner front base and the reinforcing steel front plate, had been create an air cavity offering an high thermal insulation against the front boiler reflection heat, and to further improve the insulation efficiency the innovative HCS (Housing Cooling System) technology had been developed.

Inside the front base cavity an air circulation is activated with continuous air volume refresh to obtain an active cooling system and avoid any heat transfer to the electrical component housing.



Example of the servomotor for gas setting.



Example of HCS (Housing Cooling System) working concept.

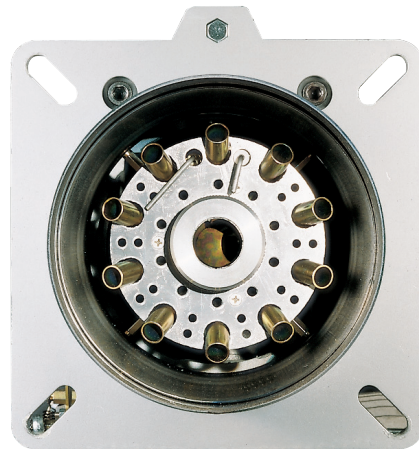
Combustion Head

Different lengths of the combustion head can be chosen for the RS/M series of burners.

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

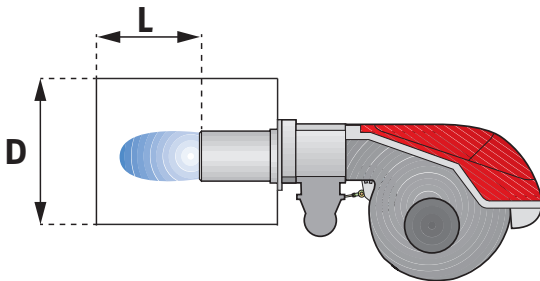
Depending on the type of generator, check that the penetration of the head into the combustion chamber is correct.

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



Example of a RS/M burner combustion head.

SUGGESTED COMBUSTION CHAMBER DIMENSIONS

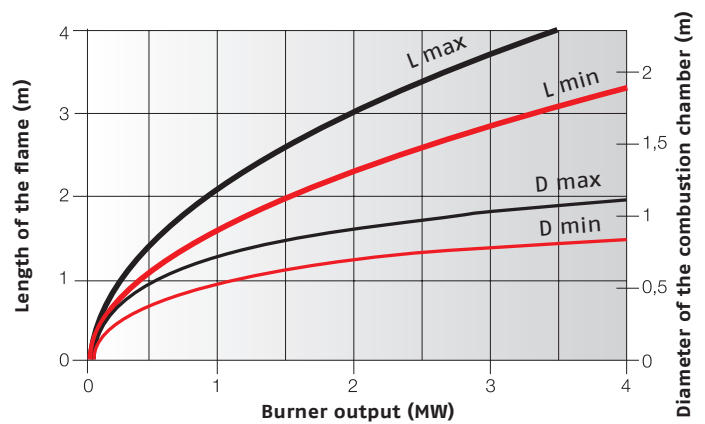


Example:

Burner thermal output = 2000 kW;

L Combustion Chamber (m) = 2,7 m (medium value);

D Combustion Chamber (m) = 0,8 m (medium value)



Operation

BURNER OPERATION MODE

The RS/M series of burners can have “two stage progressive” or “modulating” operation.



Output regulator.

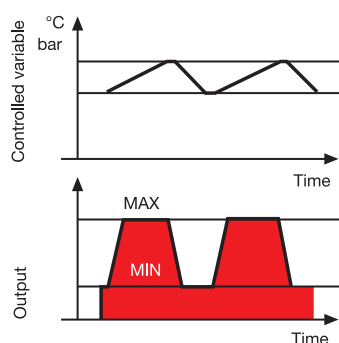


Analog control signal converter.

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

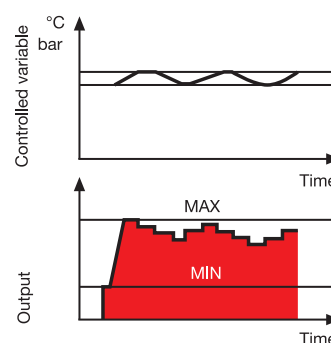
In “modulating” operation, normally required in steam generators, in superheated boilers or diathermic oil burners, a specific regulator or an analog control signal converter are required. These are supplied as accessories that must be ordered separately. The burner can work for long periods at intermediate output levels (see picture B).

“TWO STAGE PROGRESSIVE” OPERATION



Picture A

“MODULATING” OPERATION



Picture B

The RS 34-44-64-250/M MZ burner models are fitted with a new microprocessor control panel, RMG/M, 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.



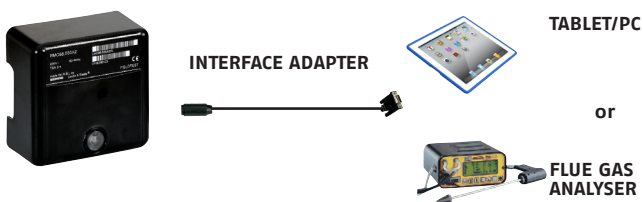
There are two diagnostic choices, for indication of operation and diagnosis of fault cause:

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 over 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	●	●	●	●	●	●	●	●
Flame simulation	●	●	●	●	●	●	●	●

● 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 over 3 seconds.

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

The flashing of red LED are a signal with this sequence:
(e.g. signal with n° 3 flashes – faulty air pressure monitor)

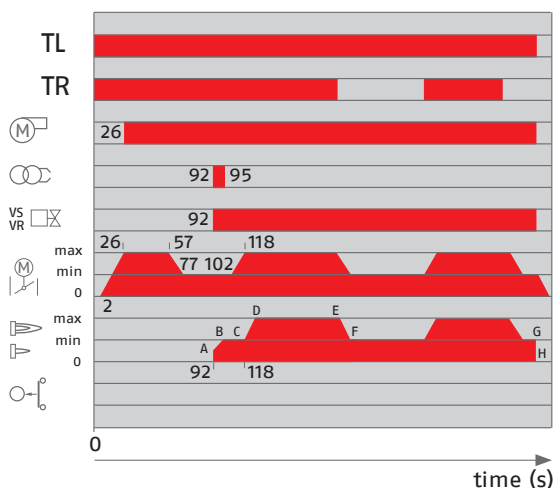


ERROR CODE TABLE

POSSIBLE CAUSE OF FAULT		FLASH CODE
No establishment of flame at the end of safety time:	- faulty or soiled fuel valves - faulty or soiled flame detector - poor adjustment of burner, no fuel - faulty ignition equipment	● 2x flashes
Faulty air pressure monitor		● 3x flashes
Extraneous light or simulation of flame on burner start up		● 4x flashes
Flame presence during pre-purging		● 5x flashes
Loss of flame during operation:	- faulty or soiled fuel valves - faulty or soiled flame detector - poor adjustment of burner	● 7x flashes
Minimum air pressure switch opens during operation		● 18x flashes
Wrong electrical connections		● 19x flashes
Faulty control box		● 20x flashes

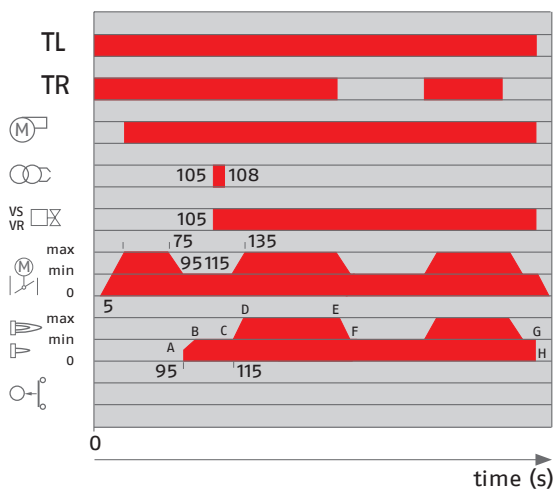
START UP CYCLE

RS 34/M MZ- 44/M MZ - 50/M MZ - 64/M MZ



- 0s The TL remote control closes.
 2-26s The servomotor opens the air-damper.
 26-57s Pre-ventilation with air delivery at max output.
 57-77s The air damper and the gas butterfly valve are positioned on MIN output.
 92s The ignition electrode sparks.
 94s Firing: the VS safety valve and the VR adjustment valve open.
 118s The start up cycle of the control box is concluded.

RS 70/M - 100/M - 130/M - 190/M - 250/M MZ



- 0s The TL remote control closes.
 5-35s The servomotor opens the air-damper.
 35-75s Pre-ventilation with air delivery at max output.
 75-95s The air damper and the gas butterfly valve are positioned on MIN output.
 105s The ignition electrode sparks.
 Firing: the VS safety valve and the VR adjustment valve open.
 115s The start up cycle of the control box is concluded.

Burner Wiring

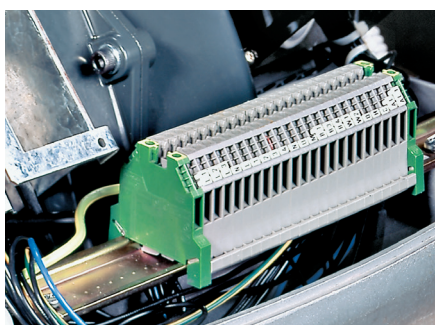
All models of the RS/M burner series have an easily accessible control panel for the electrical components housing and wiring.

In particular the RS 34-44/M MZ models, thanks to the new structure concept, have a extremely clean electrical layout to optimise the commissioning and maintenance speed.

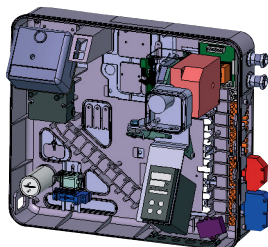
On these models the electrical connection are done by a Plug&Socket system, accessible from the external of the cover, and some of the main components as the servomotor, the air pressure switch, the electronic regulator (accessory) and the gas max pressure switch (accessory) are connected to the burner electrical wiring trough plugs & sockets system in order to facilitate the connection in case of maintenance.

The electrical wiring of all RS/M burner models are very easy to do following the wiring diagrams included in the instruction handbook.

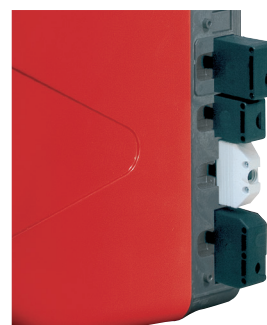
Electrical connections must be made by qualified and skilled personnel, according to the local norms.



Example of the terminal board for electrical connections for the RS 70-100-130-190-250/M models.



Example of electrical components housing and Plug&Socket system for electrical connection of RS 34-44/M MZ.



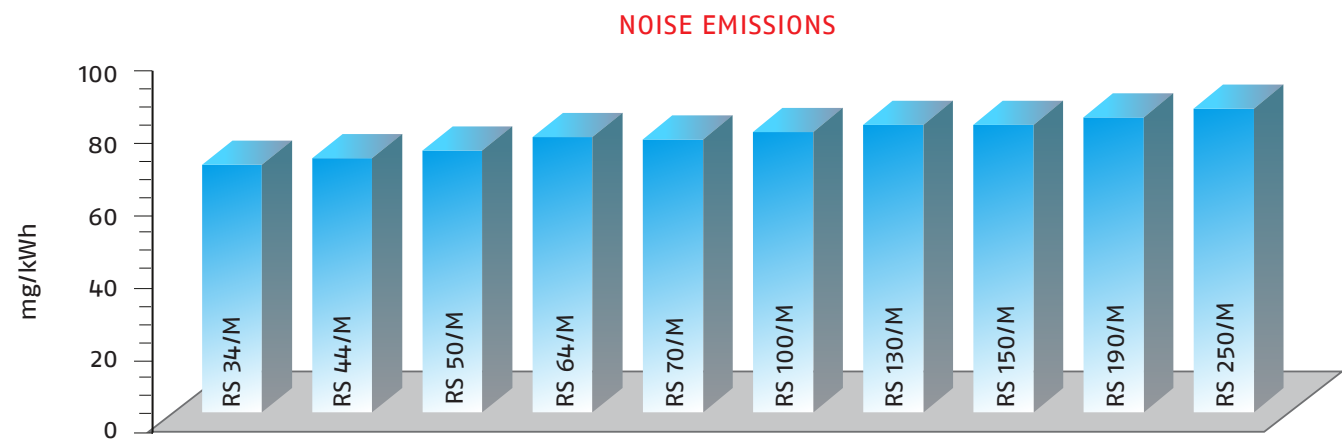
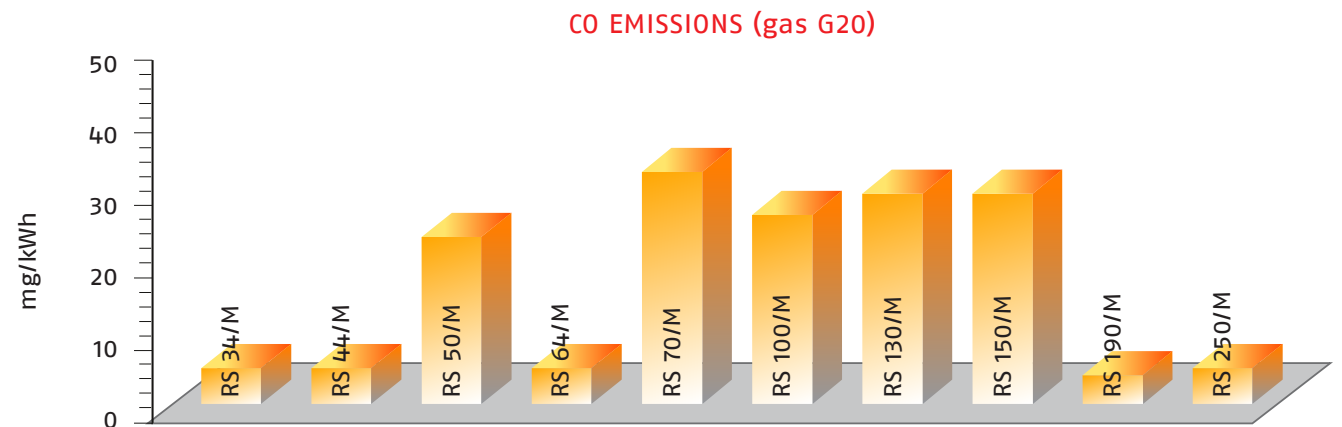
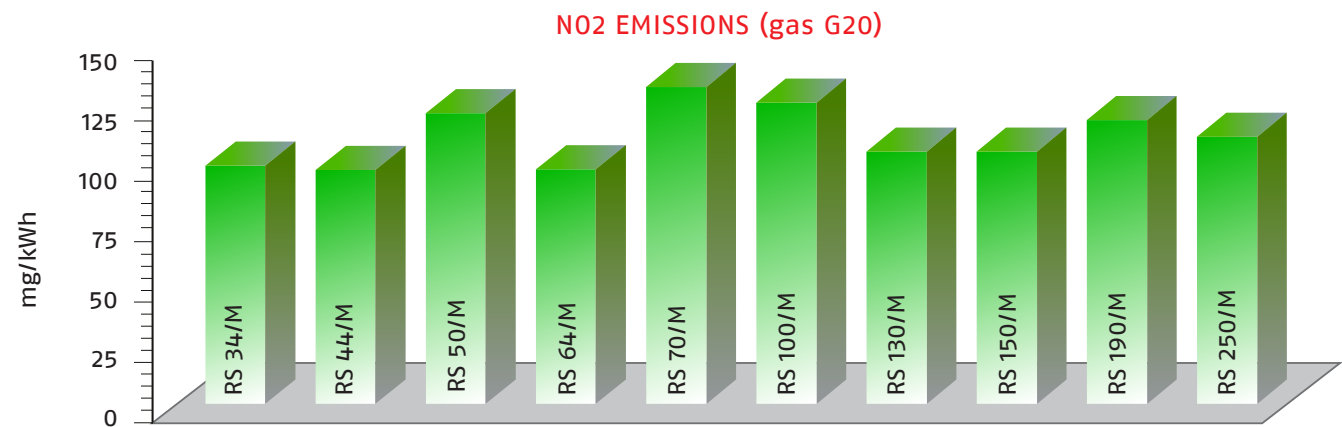
The following table shows the supply lead sections and the type of fuse to be used.

MODEL	V	F (A)	L (mm ²)
RS 34/M MZ	230	T6	1,5
RS 44/M MZ	230	T6	1,5
RS 44/M MZ	230	T6	1,5
	400	T6	1,5
RS 50/M MZ	230	T6	1,5
	400	T6	1,5
RS 64/M MZ	230	T10	1,5
	400	T6	1,5
RS 70/M	230	T10	1,5
	400	T6	1,5

MODEL	V	F (A)	L (mm ²)
RS 100/M	230	T16	1,5
	400	T10	1,5
RS 130/M	230	T16	1,5
	400	T10	1,5
RS 150/M	230	T12	2,5
	400	T10	2,5
RS 190/M	230	T25	2,5
	400	T25	2,5
RS 250/M MZ	230	25A aM - 40A gG	6
	400	16A aM - 32A gG	4

V = Electrical supply F = Fuse L = Lead section

Emissions

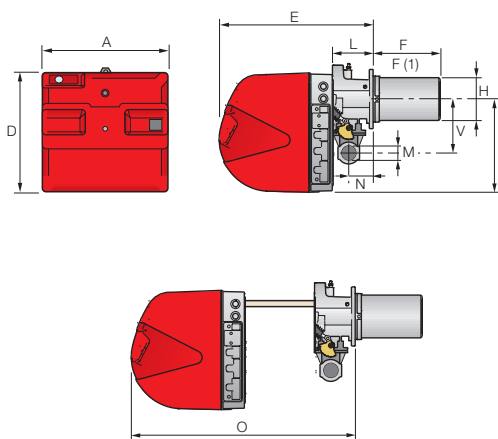


The noise emissions have been measured at the maximum output.

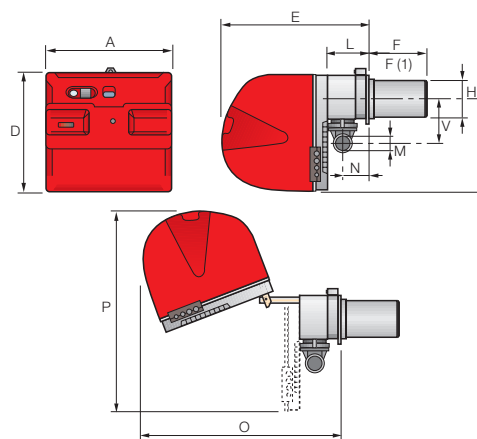
Overall Dimensions (mm)

BURNER

RS 34/M MZ - 44/M MZ



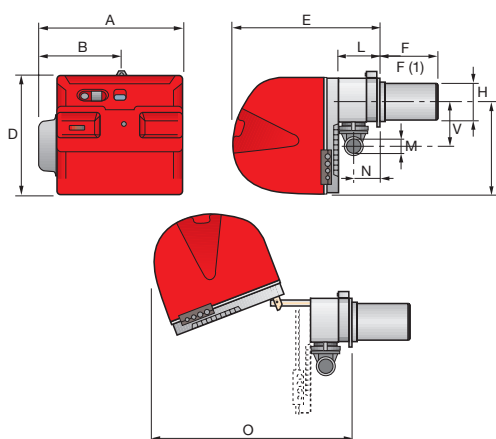
RS 50/M MZ



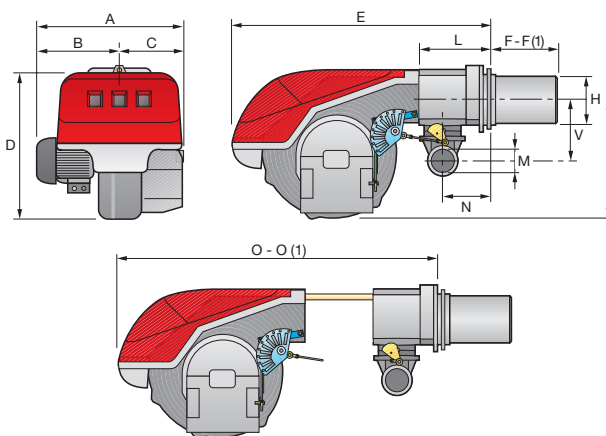
MODEL	A	D	E	F - F ⁽¹⁾	H	I	L	M	N	O	P	V
RS 34/M MZ	442	422	508	216 - 351	140	305	138	1 ¹¹ / ₂	84	780	-	177
RS 44/M MZ	442	422	508	216 - 351	152	305	138	1 ¹¹ / ₂	84	780	-	177
RS 50/M MZ	476	474	580	216 - 351	152	352	164	1 ¹¹ / ₂	108	810	719	168

(1) dimension with extended head

RS 64/M MZ

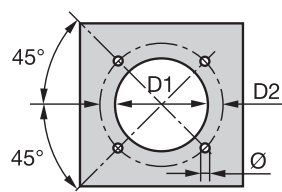


RS 70/M - 100/M - 130/M - 150/M - 190/M - 250/M MZ

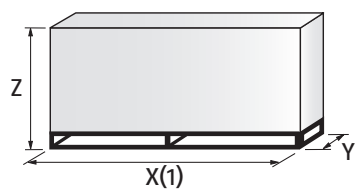


MODEL	A	B	C	D	E	F - F ⁽¹⁾	H	I	L	M	N	O - O ⁽¹⁾	V
RS 64/M MZ	533	300	-	490	640	250 - 385	179	352	222	2"	134	870 - -	221
RS 70/M	511	296	215	555	840	250 - 385	179	430	214	2"	134	1161 - 1296	221
RS 100/M	527	312	215	555	840	250 - 385	179	430	214	2"	134	1161 - 1296	221
RS 130/M	553	338	215	555	840	280 - 415	189	430	214	2"	134	1161 - 1296	221
RS 150/M	675	370	305	590	840	280 - 415	189	435	214	2"	134	1180 - 1315	221
RS 190/M	681	366	315	555	872	370 - 520	222	430	230	2"	150	1328 - -	221
RS 250/M MZ	732	427	305	555	872	370 - 520	222	430	230	2"	150	1328 - -	262

(1) dimension with extended head

BURNER – BOILER MOUNTING FLANGE

MODEL	D1	D2	Ø
RS 34/M MZ	160	224	M8
RS 44/M MZ	160	224	M8
RS 50/M MZ	160	224	M8
RS 64/M MZ	185	275-325	M12
RS 70/M	185	275-325	M12
RS 100/M	185	275-325	M12
RS 130/M	195	275-325	M12
RS 150/M	195	275-325	M12
RS 190/M	230	325-368	M16
RS 250/M MZ	230	325-368	M16

PACKAGING

MODEL	X (1)	Y	Z	kg
RS 34/M MZ	1000	485	500	32
RS 44/M MZ	1000	485	500	33
RS 50/M MZ	1200	502	520	41
RS 64/M MZ	1200	580	520	42
RS 70/M	1405	700	660	70
RS 100/M	1405	700	660	73
RS 130/M	1405	700	660	76
RS 150/M	1400-1420	1000	660	110
RS 190/M	1400-1420	1000	660	115
RS 250/M MZ	1400-1420	1040	725	117

(1) dimension with standard and extended head

Installation Description

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

BURNER SETTING

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

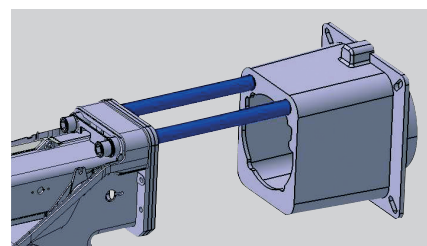
After drilling the boilerplate, using the supplied gasket as a template, dismantle the blast tube from the burner and fix it to the boiler.

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.

Turn the motor to check rotation direction (if it is a three-phase motor).

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 MAINTENANCE

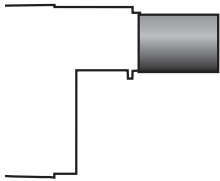
The maintenance of RS/M burners is very simple thanks to the sliding bars system that allows an easy access to the internal components.

In particular the RS 34-44/M MZ models have a new sliding bars system to make easier the access to the combustion head.

The RS 190/M and RS 250/M MZ have new reinforced sliding bars that make very strong the burner structure during maintenance.

Burner accessories

Extended heads

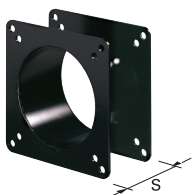


“Standard head” burners can be transformed into “extended head” versions, by using the special kit. The KITS available for the various burners, giving the original and the extended lengths, are listed below.

BURNER	'STANDARD HEAD' LENGTH (mm)	'EXTENDED HEAD' LENGTH (mm)	KIT CODE
RS 34/M MZ	216	351	3010428
RS 44/M MZ	216	351	3010429
RS 50/M MZ	216	351	3010078
RS 64/M MZ	250	385	3010427
RS 70/M	250	385	3010117
RS 100/M	250	385	3010118
RS 130/M	280	415	3010119
RS 150/M	280	415	20052186
RS 190/M	370	520	3010443 *
RS 250/M MZ	370	520	3010412

* Kit to be used on burners recognizable by a serial number that is over or equal to 02426XXXXXX, for burners with a serial number that is under or equal to 02416XXXXXX please use the Kit coded 3010196

Spacer kit



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

BURNER	SPACER THICKNESS S (mm)	KIT CODE
RS 34/M MZ - 44/M MZ - RS 50/M MZ	110	3010095
RS 64/M MZ - RS 70/M - 100/M - 130/M - 150/M	135	3010129
RS 190/M - 250/M MZ	102	3000722

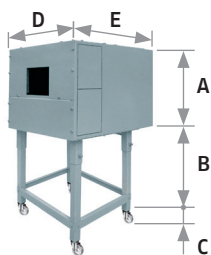
Continuous ventilation kit



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

BURNER	KIT CODE
RS 34/M MZ - 44/M MZ	3010449
RS 50/M MZ - 64/M MZ - 70/M - 100/M - 130/M - 150/M - 190/M - 250/M	3010094

Sound proofing box



If noise emission needs reducing even further, sound-proofing boxes are available.

In case of generator heights, where a lower dimension “B” is required, ask for the Box Support Kit code 20065135. The useful dimensions are 40 mm less than the total dimensions indicated in the table (A, D, E). Not suitable for outdoor use.

BURNER	BOX TYPE	A (mm)	B (mm) min-max	C (mm)	D (mm)	E (mm)	[dB(A)] (*)	BOX CODE
RS 34/M MZ - 44/M MZ RS 50/M - 64/M MZ	C1/3	650	372 - 980	110	690	770	10	3010403
RS 70/M - 100/M RS 130/M - 150/M RS 190/M - 250/M MZ	C4/5	850	160 - 980	110	980	930	10	3010404

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

Accessories for modulating operation



To obtain modulating operation, the RS/M series of burners requires a regulator with three point outlet controls. The relative temperature or pressure probes fitted to the regulator must be chosen on the basis of the application. The following table lists the accessories for modulating operation with their application range.

BURNER	TYPE	CODE
RS 34/M MZ - 44/M MZ	RWF 50.2	20083339
	RWF 55.5	20098541
RS 50/M MZ - RS 64/M MZ	RWF 50.2	20082208
	RWF 55.5	20099657
RS 70/M - 100/M - 130/M - 150/M - 190/M - 250/M MZ	RWF 50.2	20099869
	RWF 55.5	20099905

Probe



BURNER	PROBE TYPE	RANGE (°C) (bar)	CODE
All models	Temperature PT100	-100 ÷ 500°C	3010110
	Pressure 4 ÷ 20 mA	0 ÷ 2,5 bar	3010213
	Pressure 4 ÷ 20 mA	0 ÷ 16 bar	3010214
	Pressure 4 ÷ 20 mA	0 ÷ 25 bar	3090873

Analog control signal converter



Modulating operation can also be obtained with an analog control signal converter and a feedback three-pole potentiometer. Alternatively, the potentiometer can be used to check the servomotor position.

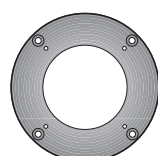
BURNER	TYPE (INPUT SIGNAL)	CODE
RS 34/M MZ - 44/M MZ	0/2 - 10 V (impedance 200 KΩ)	3010410
	0/4 - 20 mA (impedance 250 Ω)	
RS 50/M MZ - RS 64/M MZ	0/2 - 10 V (impedance 200 KΩ)	on demand
	0/4 - 20 mA (impedance 250 Ω)	
RS 70/M - 100/M - 130/M - 150/M - RS 190/M - 250/M MZ	0/2 - 10 V (impedance 200 KΩ)	3010415
	0/4 - 20 mA (impedance 250 Ω)	

Potentiometer kit



BURNER	KIT CODE
RS 34/M MZ - 44/M MZ	3010420
RS 50/M MZ - RS 64/M MZ	3010109
RS 70/M - 100/M - 130/M - 150/M - 190/M - 250/M MZ	3010416

Connection flange kit



A kit is available for use where the burner opening on the boiler is of excessive diameter.

BURNER	KIT CODE
RS 34/M MZ - 44/M MZ - RS 50/M MZ	3010138

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:

BURNER	KIT CODE FOR 'STANDARD HEAD'	KIT CODE FOR 'EXTENDED HEAD'
RS 34/M MZ	3010423	3010423
RS 44/M MZ	3010424	3010424
RS 50/M MZ	20008173	20008173
RS 64/M MZ	3010434	3010435
RS 70/M	20008175	20008176
RS 100/M	20008177	20008178
RS 130/M	20008179	20008180
RS 150/M	20050064	20050065
RS 190/M	3010166	3010166
RS 250/M MZ	3010411	3010411

Town gas kit



For burning Town gas, a special kit is available:

BURNER	KIT CODE FOR HEAD' (*)
RS 34/M MZ	3010502
RS 44/M MZ	3010503
RS 50/M MZ	3010285
RS 70/M	3010286
RS 100/M	3010287
RS 130/M	3010288
RS 190/M	3010297
RS 250/M MZ	3010472

(*) Without CE certification

Vibration reduction kit



The kit allow you to improve flame stability in some applications, where the boiler/flue assembly is liable to resonate.

BURNER	KIT CODE
RS 50/M MZ TC - RS 50/M MZ TL	3010200
RS 70/M TC - RS 70/M TL	3010201
RS 100/M TC - RS 100/M TL	3010202
RS 130/M TC	3010373
RS 130/M TL	3010374
RS 190/M TC	3010375

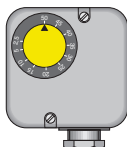
Ground fault interrupter kit



A "Ground fault interrupter kit" is available as a safety device for electrical system fault.

BURNER	KIT CODE
RS 34/M MZ - 44/M MZ	3010448
RS 50/M MZ - RS 64/M MZ	3010321
RS 70/M - 100/M - 130/M - 150/M - 190/M - RS 250/M MZ	3010329

Gas max pressure switch kit



If necessary a Gas max pressure Switch kit is available and connectable to the burner electrical wiring through Plugs & Sockets system.

BURNER (*)	KIT CODE
RS 34/M MZ - 44/M MZ	3010418

(*) Gas max pressure switch is installed as a standard on RS 50/M MZ - 64/M MZ - 70/M - 100/M - 130/M - 190/M - 250/M MZ

Volt free contact kit



A volt free contact kit is available for installation onto the burner. It can be used for a remote interface between burner operating signals. Every burner can be equipped with a single kit for a remote check of the flame presence signal or the burner lockout indication.

BURNER	KIT CODE
RS 34/M MZ - 44/M MZ - 50/M MZ - 64/M MZ	3010419

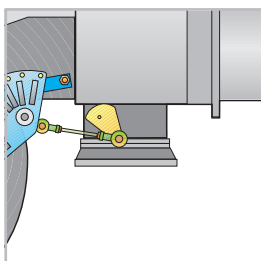
PC interface kit



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

BURNER	KIT CODE
All models	3002719

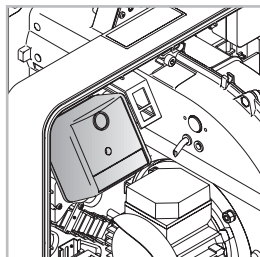
DN80 gas flange kit



To modify the standard 2" burner gas input connection in to DN80 connection, a specific gas flange is available.

BURNER	KIT CODE
All models	3010439

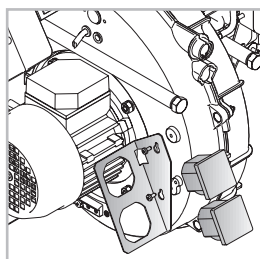
Post-ventilation kit



To have 20 s ventilation after opening of thermostats chain, a special kit is available.

BURNER	KIT CODE
RS 34/M MZ - 44/M MZ	3010451

Hours counter kit



To measure the burner working time a hours counter kit is available.

BURNER	KIT CODE
RS 34/M MZ - 44/M MZ	3010450

Protection kit (electromagnetic interferences)

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

BURNER	KIT CODE
All models	3010386

Head kit for "reverse flame chamber"



In certain cases, the use of the burner on reverse flame boilers can be improved by using an additional cylinder.

BURNER	STANDARD HEAD LENGTH WITH CYLINDER (mm)	EXTENDED HEAD LENGTH WITH CYLINDER (mm)	KIT CODE (*)
RS 190/M	493	-	3010241

(*) EC certification in progress

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
2" 1/2  2" DN 65  2" 1/2	300	3000825
2" 1/2  1" 1/2 DN 80  2"	300	3000826
1" 1/2  2"	35	3000843
1" 1/4  1" 1/2	35	3010124
1" 1/4  2"	35	3010126

Stabiliser spring



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

The following table shows these accessories with their application range. Please refer to the technical manual for the correct choice of spring.

GAS TRAIN	SPRING COLOUR	SPRING PRESSURE RANGE mbar	SPRING CODE
MBC 1900/1 - 3100/1 MBC 5000/1	WHITE	4 - 20	3010381
	RED	20 - 40	3010382
	BLACK	40 - 80	3010383
	GREEN	80 - 150	3010384
CB 512/1	RED	25 - 55	3010131
	BLACK	60 - 110	3010157
	PINK	90 - 150	3090486
CB 520/1 - 525/1	RED	25 - 55	3010132
	BLACK	60 - 110	3010158
	PINK	90 - 150	3090487
CB 5065/1 - 5080/1	RED	25 - 55	3010133
	BLACK	60 - 110	3010135
	PINK	100 - 150	3090456
	GREY	140 - 200	3090992

Seal control kit



To test the valve seals on the gas train, a special “seal control kit” is available. The valve seal control device is compulsory (EN 676) on gas trains to burners with a maximum output over 1200 kW. The seal control is type VPS 504.

GAS TRAIN	KIT CODE FOR 50 Hz OPERATION	KIT CODE FOR 60 Hz OPERATION
MB/1 type	3010123	20050030
MBC/1 type	3010367	20029057
CB/1 type	3010367	20029057

Specification

DESIGNATION OF SERIES

A specific index guides your choice of burner from the various models available in the RS/M C13 series. Below is a clear and detailed specification description of the product.

Series: R									
Fuel :									
S		Natural Gas							
L		Light oil							
LS		Light oil/Natural Gas							
N		Heavy oil							
Size:									
Setting:									
/1		Single stage				/E		Electronic cam	
/B		Two stage				/P		Proportioning air/gas valve	
/M		Modulating - Mechanical cam				/EV		Electronic cam predisposed for variable speed (with inverter)	
Emission:									
C11		or ...		Class 1 EN267 - EN676					
C22		or MZ		Class 2 EN267 - EN676					
C33		or BLU		Class 3 EN267 - EN676					
C23		or MX		Class 2 EN267 - EN676					
C13		Class 1 EN267 - Class EN676							
Head length:									
TC		standard head							
TL		extended head							
Sistema controllo fiamma:									
FS1		standard (1 stop every 24 h)							
FS2		continuous working (1 stop every 72 h)							
Flame control system:									
1/230/50		1/230V/50Hz							
3/230/50		3/230V/50Hz							
3/400/50		3N/400V/50Hz							
3/230-400/50		3/230V/50Hz - 3N/400V/50Hz							
3/220/60		3/220V/60Hz							
3/380/60		3N/380V/60Hz							
3/220-380/60		3N/220V/60Hz - 3N/380V/60Hz							
Auxiliary voltage:									
1/230/50		230V/50-60Hz				110V/50-60Hz			
110/50-60									
R	S	50	/M	MZ	TC	FS1	3/230-400/50	230V/50-60	
BASIC DESIGNATION									
EXTENDED DESIGNATION									

AVAILABLE BURNER MODELS

3788710	RS 34/M MZ	TC	FS1	1/230/50-60	230/50-60
3788711	RS 34/M MZ	TL	FS1	1/230/50-60	230/50-60
3788810	RS 44/M MZ	TC	FS1	1/230/50-60	230/50-60
3788811	RS 44/M MZ	TL	FS1	1/230/50-60	230/50-60
3788840	RS 44/M MZ	TC	FS1	3/230-400/50-60	230/50-60
3788841	RS 44/M MZ	TL	FS1	3/230-400/50-60	230/50-60
3781622	RS 50/M MZ	TC	FS1	3/230-400/50	230/50-60
3781623	RS 50/M MZ	TL	FS1	3/230-400/50	230/50-60
3781682	RS 50/M MZ	TC	FS1	3/220-380/60	230/50-60
3781683	RS 50/M MZ	TL	FS1	3/220-380/60	230/50-60
3788910	RS 64/M MZ	TC	FS1	3/230-400/50	230/50-60
3788911	RS 64/M MZ	TL	FS1	3/230-400/50	230/50-60
3788920	RS 64/M MZ	TC	FS2	3/230-400/50	230/50-60
3788921	RS 64/M MZ	TL	FS2	3/230-400/50	230/50-60
3788980	RS 64/M MZ	TC	FS1	3/220-380/60	230/50-60
3788981	RS 64/M MZ	TL	FS1	3/220-380/60	230/50-60
3789610	RS 70/M	TC	FS1	3/230-400/50	230/50-60
3787040	RS 70/M	TC	FS1	3/230-400/50	230/50-60 ID
3789611	RS 70/M	TL	FS1	3/230-400/50	230/50-60
3787041	RS 70/M	TL	FS1	3/230-400/50	230/50-60 ID
3866203	RS 70/M	TC	FS1	3/230-400/50	230/50-60
on demand	RS 70/M	TL	FS1	3/230-400/50	230/50-60
3787082	RS 70/M	TC	FS1	3/220-380/60	230/50-60
3787083	RS 70/M	TL	FS1	3/220-380/60	230/50-60
3789710	RS 100/M	TC	FS1	3/230-400/50	230/50-60
3787240	RS 100/M	TC	FS1	3/230-400/50	230/50-60 ID
3789711	RS 100/M	TL	FS1	3/230-400/50	230/50-60
3787241	RS 100/M	TL	FS1	3/230-400/50	230/50-60 ID
3866204	RS 100/M	TC	FS1	3/230-400/50	230/50-60
on demand	RS 100/M	TL	FS1	3/230-400/50	230/50-60
3787282	RS 100/M	TC	FS1	3/380/60	230/50-60
3787283	RS 100/M	TL	FS1	3/220-380/60	230/50-60
3789810	RS 130/M	TC	FS1	3/230-400/50	230/50-60
3787440	RS 130/M	TC	FS1	3/230-400/50	230/50-60 ID
3789811	RS 130/M	TL	FS1	3/230-400/50	230/50-60
3787441	RS 130/M	TL	FS1	3/230-400/50	230/50-60 ID
3866205	RS 130/M	TC	FS1	3/230-400/50	230/50-60
on demand	RS 130/M	TL	FS1	3/230-400/50	230/50-60
3787482	RS 130/M	TC	FS1	3/220-380/60	230/50-60
3787483	RS 130/M	TL	FS1	3/220-380/60	230/50-60
20044638	RS 150/M	TC	FS1	3/400/50	230/50-60
20044639	RS 150/M	TL	FS1	3/400/50	230/50-60
20051315	RS 150/M	TC	FS1	3/230/50	230/50-60
20051316	RS 150/M	TL	FS1	3/230/50	230/50-60
3787623	RS 190/M	TC	FS1	3/400/50	230/50-60
3787622	RS 190/M	TC	FS1	3/230/50	230/50-60
3787640	RS 190/M	TC	FS1	3/400/50	230/50-60 ID
20011675	RS 190/M	TC	FS1	3/230/50	230/50-60 ID
3866206	RS 190/M	TC	FS1	3/400/50	230/50-60
on demand	RS 190/M	TL	FS1	3/400/50	230/50-60
20011708	RS 190/M	TC	FS1	3/230/50	230/50-60
3787682	RS 190/M	TC	FS1	3/220-380/60	230/50-60
3787681	RS 190/M	TC	FS1	3/220/60	220/60
3788410	RS 250/M MZ	TC	FS1	3/400/50	230/50-60
3788411	RS 250/M MZ	TL	FS1	3/400/50	230/50-60
3788440	RS 250/M MZ	TC	FS1	3/230/50	230/50-60
3788441	RS 250/M MZ	TL	FS1	3/230/50	230/50-60
3788420	RS 250/M MZ	TC	FS2	3/400/50	230/50-60
3788421	RS 250/M MZ	TL	FS2	3/400/50	230/50-60
3788450	RS 250/M MZ	TC	FS2	3/230/50	230/50-60
3788451	RS 250/M MZ	TL	FS2	3/230/50	230/50-60
20008162	RS 250/M MZ	TC	FS1	3/220-380/60	220/60

PRODUCT SPECIFICATION

RS 34/M MZ – 44/M MZ models

Monoblock forced draught gas burner with two stage progressive or modulating operation, with a specific kit, fully automatic, made up of:

- Air suction circuit **with sound proofing material**
- High performance fan with straight blades
- Air damper for air flow setting and butterfly valve for regulating fuel output controlled by a servomotor with variable cam
- Starting motor at 2800 rpm, single-phase / 230V / 50-60Hz or three-phase / 230-400V / 50-60Hz
- 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
 - ionisation probe
 - gas distributor
 - flame stability disk
- Exclusive patented HCS (Housing Cooling System) with high thermal insulation and air circulation with continuous air volume refresh for an active cooling system and avoid heat transfer to the electrical component housing
- Minimum air pressure switch stops the burner in case of insufficient air quantity at the combustion head
- Microprocessor-based burner safety control box, with diagnostic functions
- Plugs and Sockets for electrical connection, accessible from the external of the cover
- Burner on/off selection switch
- Manual or automatic output increase/decrease selection switch
- Flame inspection window
- Slide bars for easier installation and maintenance
- Protection filter against radio interference
- IP 40 electric protection level.

Standard equipment:

- 1 gas train flange
- 1 flange gasket
- 4 screws for fixing the flange
- 1 thermal screen
- 4 screws for fixing the burner flange to the boiler
- 3 plugs for electrical connection (RS 34-44/M MZ single-phase)
- 4 plugs for electrical connection (RS 44/M MZ three-phase)
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

RS 50/M MZ – 64/M MZ – 70/M – 100/M – 130/M – 150/M – 190/M – 250/M MZ models

Monoblock forced draught gas burner with two stage progressive or modulating operation, with a specific kit, fully automatic, made up of:

- Air suction circuit lined with sound-proofing material
- Fan with reverse curve blades (RS 50 – 70 – 100 – 130/M models) or straight blades (RS 64/M MZ – 150/M – 190/M – 250/M MZ models)
- Air damper for air flow setting and butterfly valve for regulating fuel output controlled by a servomotor with variable cam
- Starting motor at 2800 rpm, three-phase 400V with neutral, 50Hz
- 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
 - ionisation probe
 - gas distributor
 - flame stability disk
- Maximum gas pressure switch to stop the burner in the case of excess pressure on the fuel supply line
- Minimum air pressure switch stops the burner in case of insufficient air quantity at the combustion head
- Microprocessor-based burner safety control box, with diagnostic functions
- Burner on/off selection switch
- Manual or automatic output increase/decrease selection switch
- Flame inspection window
- Slide bars for easier installation and maintenance
- Protection filter against radio interference
- IP 44 electric protection level.

Standard equipment:

- 1 gas train flange
- 1 flange gasket
- 4 screws for fixing the flange
- 1 thermal screen
- 4 screws for fixing the burner flange to the boiler
- Wiring loom fittings for the electrical connection (RS 64–50/M MZ)
- 2 slide bar extensions (for extended head models and RS 150–190/M models)
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

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

05/2016

TS0015UK07



[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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