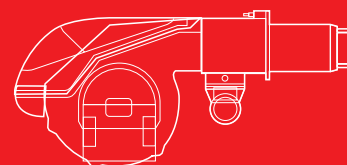




RS 25÷200/M BLU Series

Low NO_x Modulating Gas Burners

RS 25/M C05	70/125 ÷ 340 kW
RS 35/M C05	82/200 ÷ 440 kW
RS 45/M C05	90/190 ÷ 570 kW
RS 25/M BLU	45/125 ÷ 370 kW
RS 35/M BLU	72/202 ÷ 480 kW
RS 55/M BLU	100/300 ÷ 680 kW
RS 68/M BLU	150/350 ÷ 860 kW
RS 120/M BLU	300/600 ÷ 1300 kW
RS 160/M BLU	300/930 ÷ 1860 kW
RS 200/M BLU	570/1375 ÷ 2400 kW



The RS/M C05-BLU burners series covers a firing range from 44 to 2400 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 C05-BLU 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. Optimisation of sound emissions is guaranteed by the special design of the air suction circuit and by incorporated sound proofing material.

A wide range of accessories guarantees elevated working flexibility.

Technical Data

Model			RS 25/M C05	RS 35/M C05	RS 45/M C05
Output (1)	Max.	kW	125 ÷ 340	200 ÷ 440	190 ÷ 570
		Mcal/h	108 ÷ 295	190 ÷ 380	164 ÷ 491
	Min.	kW	70	82	90
		Mcal/h	60	71	78
Fuel			Natural gas: G20 (methane gas) - G25 - G31		
Gas pressure at max. output.(2) Gas: G20 / G25		mbar	21.0 / 30.4	18.5 / 23.2	18.0 / 27.0
Servomotor	Type		SQN..		
	Operation time		24s. at 90°		
Operation			Intermittent (min. 1 stop in 24 hours) Two progressive or modulating stages with kit (see ACCESSORIES)		Continuous (1 stop in 72 hours) Two progressive or modulating stages with kit (see ACCESSORIES)
Standard applications			Boilers: water, steam, diathermic oil		
Ambient temperature		°C	0 - 40		
Combustion air temperature		°C max	60		
Noise levels (3)	Sound pressure	dB(A)	68	70	70
	Sound power		79	81	81

Electrical data

Model		RS 25/M C05	RS 35/M C05	RS 35/M C05	RS 45/M C05
Main electrical supply 1 Ph		230V ~ +/-10% 50/60Hz single phase		1N 230V ~ +/-10% 50/60Hz	1N ~ 230V 50Hz
Main electrical supply 3 Ph		-		230/400V with neutral ~ +/-10% 50/60Hz	-
Fan motor	Hz	50 - 60	50 - 60	50 - 60	-
	rpm	2800 - 3400	2800 - 3400	2800 - 3400	2800
	V	230	230	230/400-260/460	230
	kW	0.3	0.42	0.45	0.42
	A	2.4 - 2.2	2.6 - 2.46	1.73/1 - 1.55/1.0	2.6
Motor capacitor		µF/V	12.5/260	12.5/420	12,5/420
Ignition transformer		V1 - V2 I1 - I2	230 V - 1 x 15 kV 1 A - 25 mA		
Absorbed electrical power		W max	600	700	750
Protection level			IP 40	IP 40	IP 40
Approval					
Directive		2006/42/CE- 2016/426/EU - 2014/30/EU - 2014/35/EU			
Conforming to		EN 676 - EN 12100			
Certification		CE-0123CT1607			

(01) Reference conditions: Room temperature 20°C - Gas temperature 15°C - Barometric pressure 1013 mbar - Altitude 0 m above sea level.
 (02) Pressure on the pressure switch socket (Fig. 31 at page 31) with zero pressure in the combustion chamber and at maximum burner output.
 (03) 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.

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Model			RS 25/M BLU	RS 35/M BLU
Output (1)	Max.	kW	125 ÷ 370	202 ÷ 480
		Mcal/h	108 ÷ 320	174 ÷ 413
	Min.	kW	45	72
		Mcal/h	39	62
Fuel			Natural gas: G20 (methane gas) - G21 - G22 - G23 - G25	
Gas pressure at max. output.(2) Gas: G20 / G25		mbar	15.6 / 21.8	14.1 / 24.7
Servomotor	Type		SQN..	
	Operation time		24s. at 90°	
Operation			Intermittent (min. 1 stop in 24 hours) Two progressive or modulating stages with kit (see ACCESSORIES)	
Standard applications			Boilers: water, steam, diathermic oil	
Combustion air temperature		°C	0 - 40	
Temperatura aria comburente		°C max	60	
Noise levels (3)	Sound pressure	dB(A)	68	70
	Sound power		79	81

Electrical data

Model		RS 25/M BLU	RS 35/M BLU	RS 35/M BLU
Main electrical supply		230V ~ +/-10% 50/60Hz single phase	230V ~ +/-10% 50/60Hz single phase	230/400V with neutral ~ +/-10% 50/60Hz three-phase
Fan motor	rpm	2800	2800	2780
	V	220 - 240	220 - 240	220/240-380/415
	kW	0.3	0.42	0.45
Acceleration current	A	15	17	14 - 10
Working current	A	3.2	3.5	2 - 1.4
Motor capacitor	µF/V	12.5/260	12.5/420	-
Ignition transformer	V1 - V2 I1 - I2	230 V - 1 x 15 kV 1 A - 25 mA		
Absorbed electrical power	W max	600	700	750
Protection level		IP 40	IP 40	IP 40

Approval

Directive	2006/42/CE - 2016/426/EU - 2014/30/EU - 2014/35/EU
Conforming to	EN 676 - EN 12100
Certification	CE-0085BR0379

(01) Reference conditions: Room temperature 20°C - Gas temperature 15°C - Barometric pressure 1013 mbar - Altitude 0 m above sea level.
 (02) Pressure on the pressure switch socket (Fig. 31 at page 31) with zero pressure in the combustion chamber and at maximum burner output.
 (03) 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.

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Model			RS 55/M BLU	RS 68/M BLU
Output (1)	Max.	kW	300 ÷ 680	350 ÷ 860
		Mcal/h	259 ÷ 586	301 ÷ 740
	Min.	kW	100	150
		Mcal/h	86	130
Fuel			Natural gas: G20 (methane gas) - G21 - G22 - G23 - G25	
Gas pressure at max. output.(2) Gas: G20 / G25		mbar	15.2 / 20.0	11.7 / 17.3
Servomotor	Type		SQN..	SQN..
	Operation time		24s. at 90°	30s. at 90°
Operation			Intermittent	Continuous Two progressive or modulating stages with kit (see ACCESSORIES)
Standard applications			Boilers: water, steam, diathermic oil	
Ambient temperature		°C	0 - 40	
Combustion air temperature		°C max	60	
Noise levels (3)	Sound pressure	dB(A)	64	77
	Sound power		75	88

Electrical data

Model			RS 55/M BLU	RS 68/M BLU
Main electrical supply			230-400 with neutral +/-10% 50Hz three-phase	230-400 with neutral +/-10% 50Hz three-phase
Fan motor	rpm		2850	2860
	V		230-400	230/400
	kW		1.1	1.5
	A		4.0 - 2.3	5.5 - 3.4
Ignition transformer		V1 - V2 I1 - I2	220-240V - 1 x 15 kV 1 A - 25 mA	230V - 1 x 8 kV 1 A - 20 mA
Absorbed electrical power		W max	1500	2200
Protection level			IP 40	IP44

Approval

Directive			2006/42/CE - 2016/426/EU - 2014/30/EU - 2014/35/EU	
Conforming to			EN 676 - EN 12100	
Certification			CE-0085CM0293	CE-0085BM0452

(01) Reference conditions: Room temperature 20°C - Gas temperature 15°C - Barometric pressure 1013 mbar - Altitude 0 m above sea level.
 (02) Pressure on the pressure switch socket (Fig. 31 at page 31) with zero pressure in the combustion chamber and at maximum burner output.
 (03) 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.

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Model			RS 120/M BLU	RS 160/M BLU
Output (1)	Max.	kW	600 ÷ 1300	930 ÷ 1860
		Mcal/h	516 ÷ 1118	800 ÷ 1600
	Min.	kW	300	300
		Mcal/h	258	258
Fuel			Natural gas: G20 (methane gas) - G21 - G22 - G23 - G25	
Gas pressure at max. output.(2) Gas: G20 / G25		mbar	22.5 / 33.3	18/24
Servomotor	Type		SQN..	SQN..
	Operation time		30s. at 90°	22.6s. at 90°
Operation			Continuous Two progressive or modulating stages with kit (see ACCESSORIES)	Intermittent (min. 1 stop in 24 hours) Two progressive or modulating stages with kit (see ACCESSORIES)
Standard applications			Boilers: water, steam, diathermic oil	
Ambient temperature		°C	0 - 40	
Combustion air temperature		°C max	60	
Noise levels (3)	Sound pressure	dB(A)	78.5	80.5
	Sound power		89.5	91.5

Electrical data

Model		RS 120/M BLU	RS 160/M BLU	
Main electrical supply		230-400 with neutral +/-10% 50Hz three-phase	400 with neutral +/-10% 50Hz three-phase	230 with neutral +/-10% 50Hz three-phase
Fan motor	rpm	2860	2900	2900
	V	230/400	400	230
	kW	2.2	4.5	4.5
	A	7.9 - 4.6	-	-
Acceleration current	A	-	8.7	15
Working current	A	-	81	141
Ignition transformer	V1 - V2 I1 - I2	230 V - 1 x 8 kV 1 A - 20 mA		
Absorbed electrical power	W max	2200	4500	
Protection level		IP44		
Approval				
Directive		2006/42/CE- 2016/426/EU - 2014/30/EU - 2014/35/EU		
Conforming to		EN 676 - EN 12100		
Certification		CE-0085BM0452		

(01) Reference conditions: Room temperature 20°C - Gas temperature 15°C - Barometric pressure 1013 mbar - Altitude 0 m above sea level.

(02) Pressure on the pressure switch socket (Fig. 31 at page 31) with zero pressure in the combustion chamber and at maximum burner output.

(03) 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.

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Model			RS 200/M BLU
Output (1)	Max.	kW	1380 ÷ 2400
		Mcal/h	1187 ÷ 2064
	Min.	kW	550
		Mcal/h	473
Fuel			Natural gas: G20 (methane gas) - G21 - G22 - G23 - G25 - G31
Pressure at max. output.(2) Gas: G20 / G25 Gas: G31		mbar	28.0 / 35.6 19.6
Servomotor	Type		SQN..
	Operation time		22.6s. at 90°
Operation			Intermittent (min. 1 stop in 24 hours) Two progressive or modulating stages with kit (see ACCESSORIES)
Standard applications			Boilers: water, steam, diathermic oil
Ambient temperature		°C	0 - 40
Combustion air temperature		°C max	60
Noise levels (3)	Sound pressure	dB(A)	83.0
	Sound power		94.0

Electrical data

Model		RS 200/M BLU	RS 200/M BLU
Main electrical supply		3 ~ 230/400V +/-10% 50Hz	3 ~ 220/380V +/-10% 60Hz
Fan motor	rpm	2910	3400
	V	230/400	220/380
	kW	5.5	4.5
Acceleration current	A	18.2 -10.5	16.6 - 9.6
Working current	A	143 - 83	136 - 79
Ignition transformer	V1 - V2 I1 - I2	230 V - 1 x 5 kV 1 A - 20 mA	
Absorbed electrical power	W max	6500	5800
Protection level		IP44	

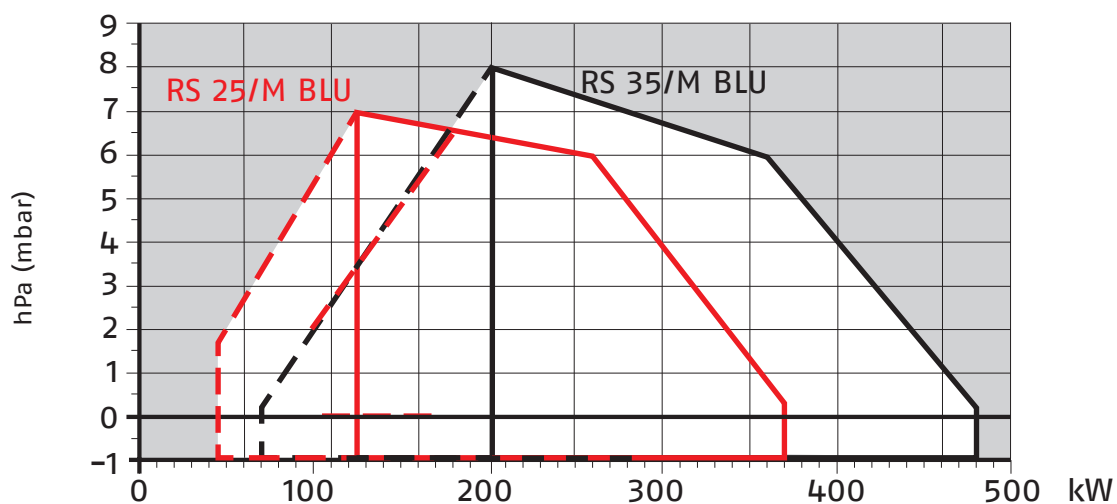
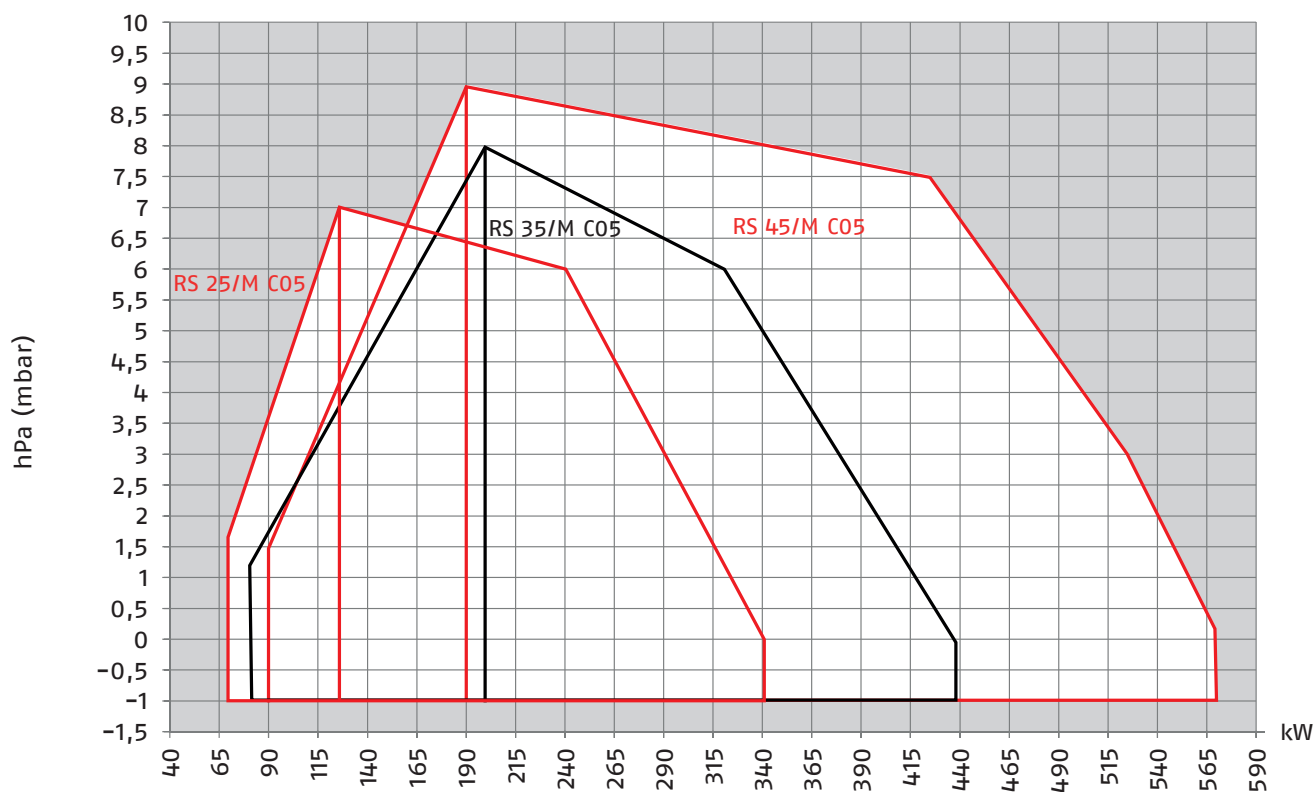
Approval

Directive	2006/42/CE- 2016/426/EU - 2014/30/EU - 2014/35/EU
Conforming to	EN 676 - EN 12100
Certification	CE-0085BT0414

(01) Reference conditions: Room temperature 20°C - Gas temperature 15°C - Barometric pressure 1013 mbar - Altitude 0 m above sea level.
(02) Pressure on the pressure switch socket (Fig. 31 at page 31) with zero pressure in the combustion chamber and at maximum burner output.
(03) 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.

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Firing rates



□ Useful working field for choosing the burner

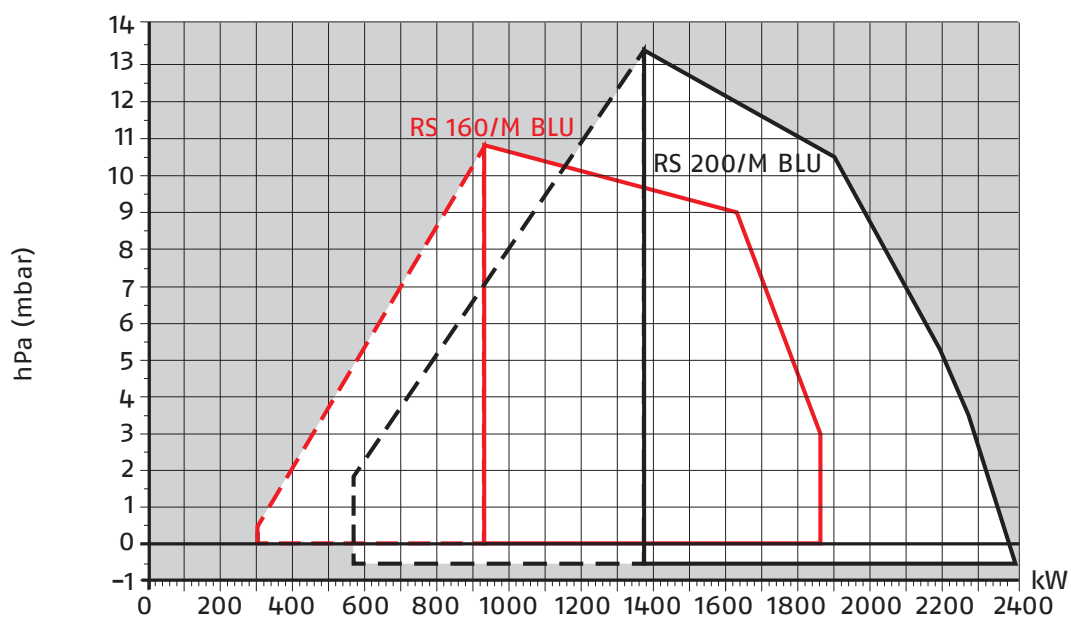
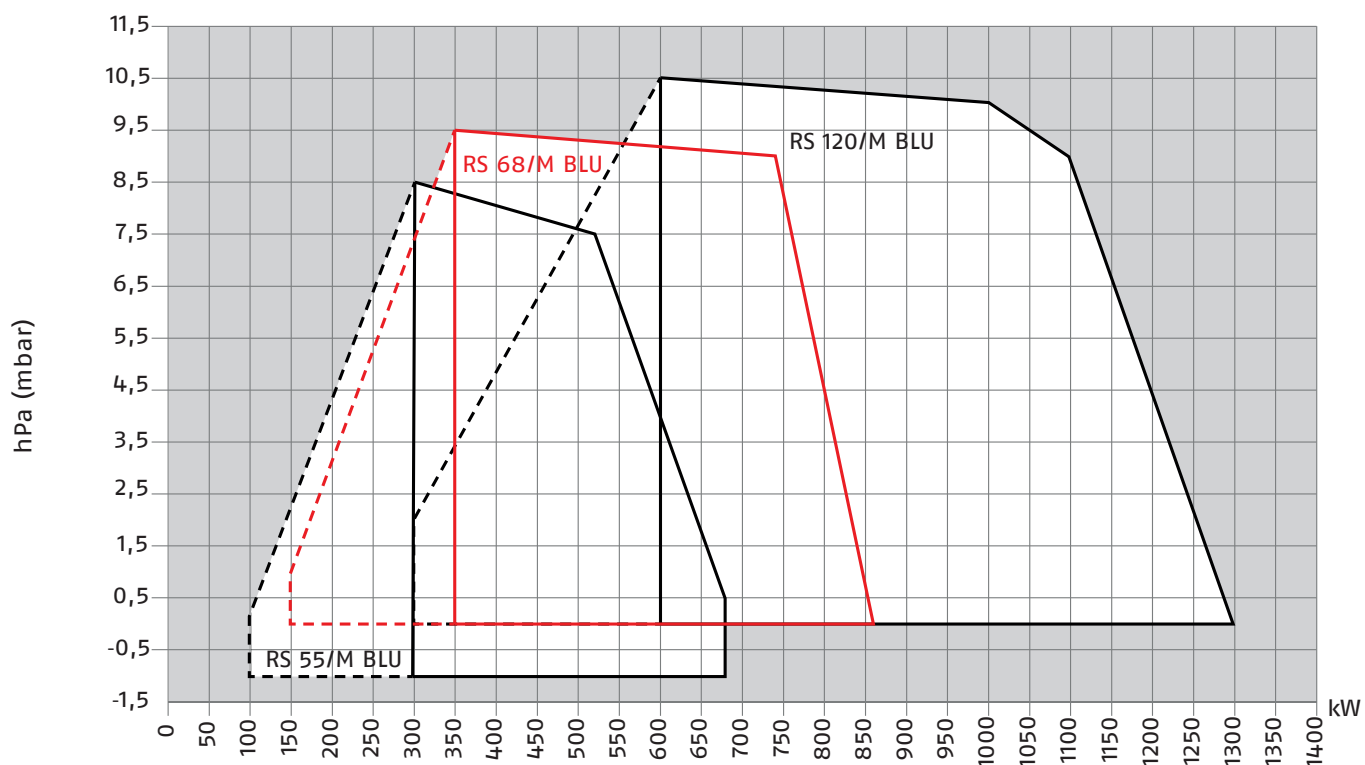
[- -] Modulation range

Test conditions conforming to EN 676:

Temperature: 20°C

Pressure: 1013.5 mbar

Altitude: 0 m a.s.l.



□ 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.

Fuel Supply

GAS TRAINS

The burners are fitted with a butterfly valve to regulate the fuel, controlled by a stepper motor with high accuracy position and absence of joint clearance and mechanical hysteresis.

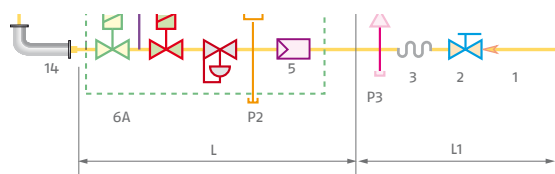
Fuel can be supplied either from the right or left hand sides.

A maximum gas pressure switch stops the burner in case of excess pressure in the fuel line (as accessory for RS 25-35/M C05 - BLU).

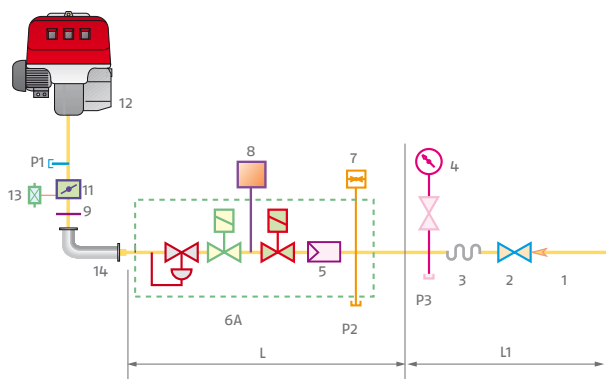
The gas train can be selected to best fit system requirements depending on the fuel output and pressure in the supply line.

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

MB "THREADED"

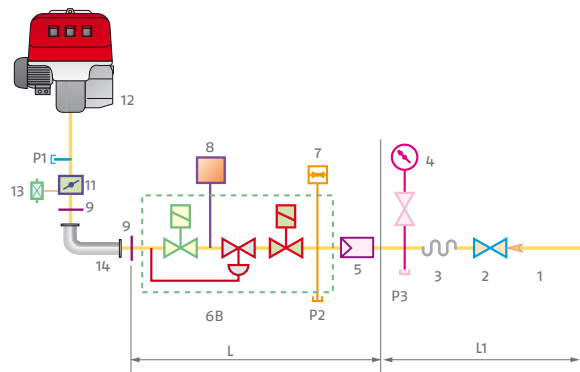


MBC "THREADED"

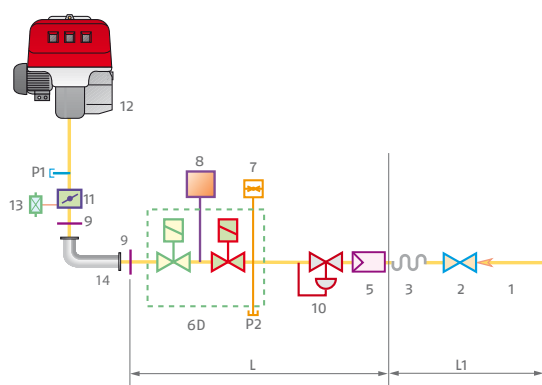


1	Gas input pipework
2	Manual valve
3	Anti-vibration joint
4	Pressure gauge with pushbutton cock
5	Filter
6A	Includes:
	- filter
	- operation valve
	- safety valve
	- pressure adjuster
7	Minimum gas pressure switch
8	Leak detection device, supplied as an accessory or incorporated, based on the gas train code
9	Gasket
10	Pressure adjuster
11	Gas adjuster butterfly valve
12	Burner
13	Maximum gas pressure switch
14	Gas train-burner adaptor
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

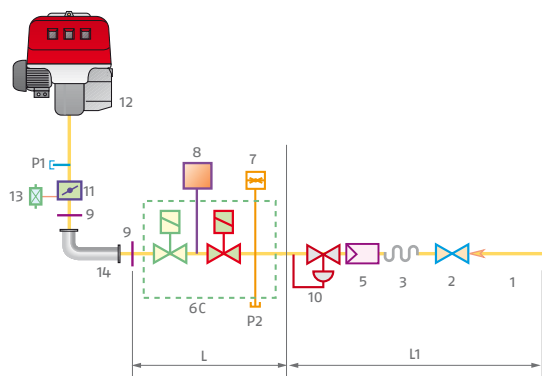
MBC "FLANGED"



CB "FLANGED OR THREADED"



DMV "FLANGED OR 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
6B	Includes:
	- operation valve
	- safety valve
	- pressure adjuster
6C	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
10	Pressure adjuster
11	Gas adjuster butterfly valve
12	Burner
13	Maximum gas pressure switch
14	Gas train-burner adaptor
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

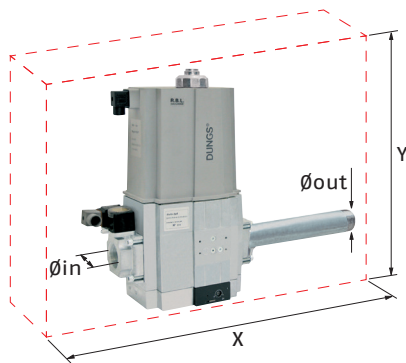
Gas trains are approved by standard EN 676 together with the burner.

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 C05-BLU burners, intake and outlet diameters and seal control if fitted.

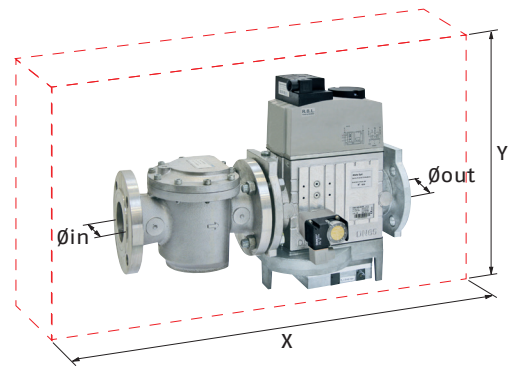
The gas train valves proofing control is an integrated function of REC 27 Electronic Cam device.

The maximum gas pressure of gas train "Multibloc" type is 360 mbar, and the one of gas train "Composed" type is 500 mbar.

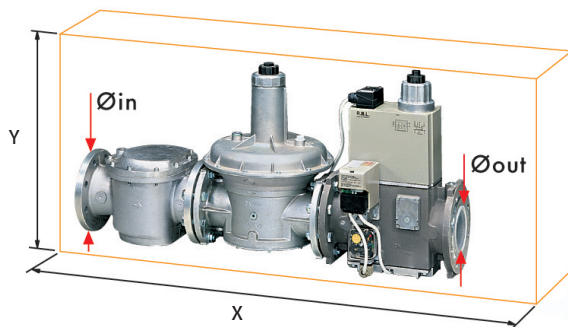
The range of pressure in the MULTIBLOC with flange can be modified choosing the stabiliser spring (see gas train accessory).



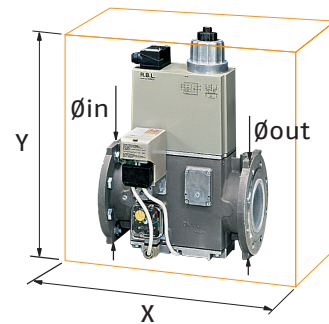
Example of gas train "MULTIBLOC" type without seal control (i.e. MBC 1200)



Example of gas train "COMPOSED" type without seal control (i.e. MBC 1900-3100-5000)



Example of gas train "CB" series with seal control



Example of gas train "DMV" series with seal control

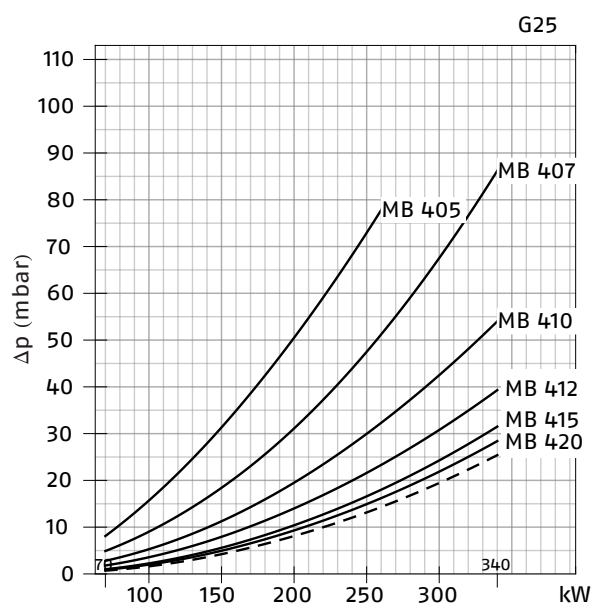
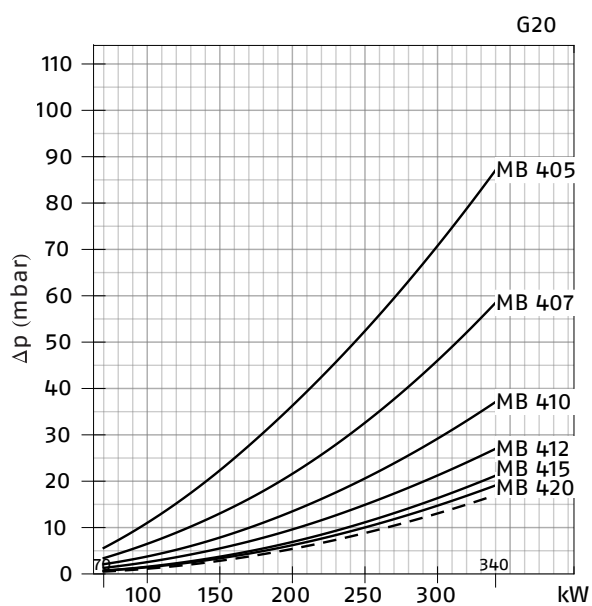
GAS TRAIN					
CODE	MODEL	Ø in	Ø out	X mm	Y mm
3970500	MB 405/1 - RT 20	Rp 3/4"	Rp 3/4"	371	186
3970553	MB 407/1 - RT 20	Rp 3/4"	Rp 3/4"	371	186
3970599	MB 407/1 - RT 52	Rp 3/4"	Rp 1/4"	371	186
3970229	MB 407/1 - RSM 20	Rp 3/4"	Rp 3/4"	371	186
3970258	MB 410/1 - RT 52	Rp 1" 3/4	Rp 1" 1/2	433	223
3970554	MB 410/1 - RT 20	Rp 1"	Rp 3/4"	405	223
3970600	MB 410/1 - RT 52	Rp 1"	Rp 3/4"	405	223
3970230	MB 410/1 - RSM 20	Rp 1"	Rp 3/4"	523	223
3970256	MB 412/1 - RT 52	Rp 1" 1/2	Rp 1" 1/2	433	223
3970144	MB 412/1 - RT 20	Rp 1" 1/4	Rp 1" 1/4	433	223
3970197	MB 412/1 CT - RT 20	Rp 1" 1/4	Rp 1" 1/4	433	223
3970231	MB 412/1 - RSM 20	Rp 1" 1/4	Rp 1" 1/4	433	223
3970180	MB 415/1 - RT 30	Rp 1" 1/2	Rp 1" 1/2	523	250
3970198	MB 415/1 CT - RT 30	Rp 1" 1/2	Rp 1" 1/2	523	250
3970250	MB 415/1 - RT 52	Rp 1" 1/2	Rp 1" 1/2	523	250
3970253	MB 415/1 CT - RT 52	Rp 1" 1/2	Rp 1" 1/2	523	250
3970232	MB 415/1 - RSM 30	Rp 1" 1/2	Rp 1" 1/2	523	250
3970181	MB 420/1 - RT 30	Rp 2"	Rp 2"	523	289
3970182	MB 420/1 CT - RT 30	Rp 2"	Rp 2"	523	289
3970257	MB 420/1 - RT 52	Rp 2"	Rp 2"	523	289
3970252	MB 420/1 CT - RT 52	Rp 2"	Rp 2"	523	289
3970233	MB 420/1 - RSM 30	Rp 2"	Rp 2"	523	289
3970234	MB 420/1 CT - RSM 30	Rp 2"	Rp 2"	523	289
3970221	MBC 1200/1 - RSM 60	Rp 2"	Rp 2"	528	424
3970225	MBC 1200/1 CT - RSM 60	Rp 2"	Rp 2"	528	424
3970222	MBC 1900/1 - FSM 40	DN 65	DN 65	613	430
3970226	MBC 1900/1 CT - FSM 40	DN 65	DN 65	613	430
3970223	MBC 3100/1 - FSM 40	DN 80	DN 80	633	500
3970227	MBC 3100/1 CT - FSM 40	DN 80	DN 80	633	430
3970224	MBC 5000/1 - FSM 80	DN 100	DN 100	733	576
3970228	MBC 5000/1 CT - FSM 80	DN 100	DN 100	733	576
3970145	CB 512/1 - RSM 30	Rp 1" 1/2	Rp 1" 1/2	891	261
20045589	CB 512/1 CT - RSM 30	Rp 1" 1/2	Rp 1" 1/2	891	261
3970146	CB 520/1 - RSM 30	Rp 2"	Rp 2"	986	328
3970160	CB 520/1 CT - RSM 30	Rp 2"	Rp 2"	986	328
20044659	CB 525/1 - RSM 30	Rp 2"	Rp 2"	1025	356
20044660	CB 525/1 CT - RSM 30	Rp 2"	Rp 2"	1025	356
3970147	CB 5065/1 - FSM 30	DN 65	DN 65	906	356
3970161	CB 5065/1 CT - FSM 30	DN 65	DN 65	906	356
3970148	CB 5080/1 - FSM 30	DN 80	DN 80	934	416
3970162	CB 5080/1 CT - FSM 30	DN 80	DN 80	934	416
3970149	CB 50100/1 - FSM 30	DN 100	DN 100	1054	501
3970163	CB 50100/1 CT - FSM 30	DN 100	DN 100	1054	501
20015871	CB 50125/1 - FSM 30	DN 125	DN 125	1164	780
3970196	CB 50125/1 CT - FSM 30	DN 125	DN 125	1164	780

GAS TRAIN					
CODE	MODEL	Ø in	Ø out	X mm	Y mm
20043035	DMV 512/1 - RSM -0	Rp 1-1/2"	Rp 1-1/2"	490	292
20043036	DMV 512/1 CT RSM -0	Rp 1-1/2"	Rp 1-1/2"	490	292
20043038	DMV 520/1 - RSM -0	Rp 2"	Rp 2"	490	292
20043039	DMV 520/1 CT RSM -0	Rp 2"	Rp 2"	490	292
20043053	DMV 525/1 - RSM -0	Rp 2"	Rp 2"	530	338
20043054	DMV 525/1 CT RSM -0	Rp 2"	Rp 2"	530	338
20043041	DMV 5065/1 - FSM -0	DN 65	DN 65	290	338
20043042	DMV 5065/1 CT FSM -0	DN 65	DN 65	290	338
20043044	DMV 5080/1 - FSM -0	DN 80	DN 80	310	397
20043045	DMV 5080/1 CT FSM -0	DN 80	DN 80	310	397
20043047	DMV 50100/1 - FSM -0	DN 100	DN 100	350	449
20043048	DMV 50100/1 CT FSM -0	DN 100	DN 100	350	449
20043050	DMV 50125/1 - FSM -0	DN 125	DN 125	400	554
20043051	DMV 50125/1 CT FSM -0	DN 125	DN 125	400	554

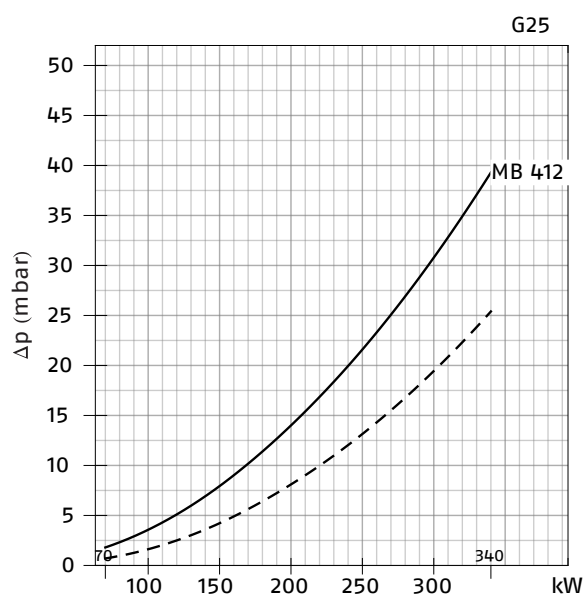
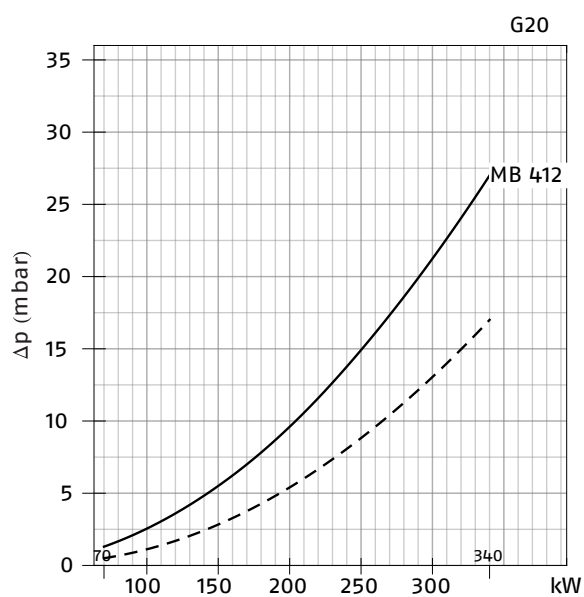
PRESSURE DROP DIAGRAM

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.

RS 25/M C05 (NATURAL GAS)

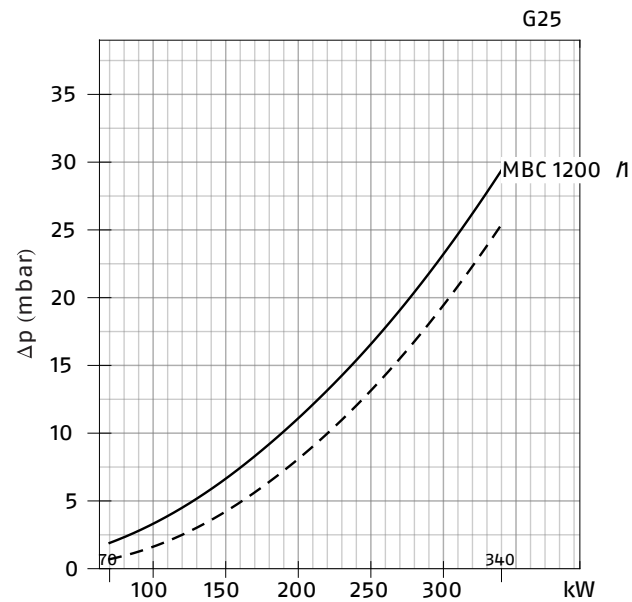
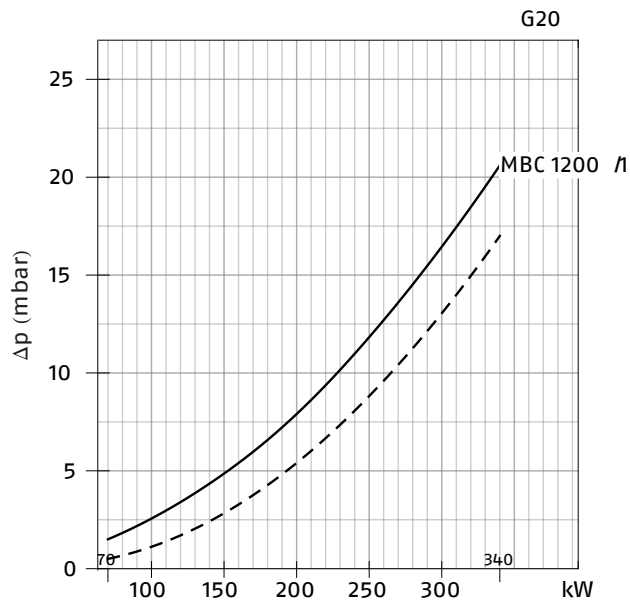


RS 25/M C05 (NATURAL GAS)

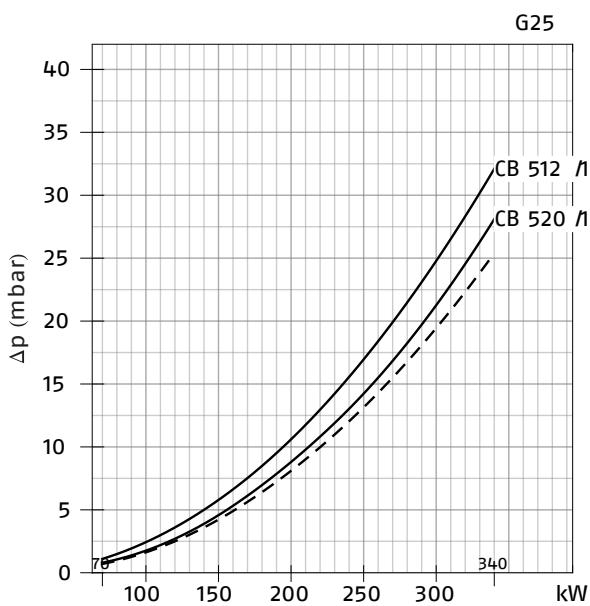
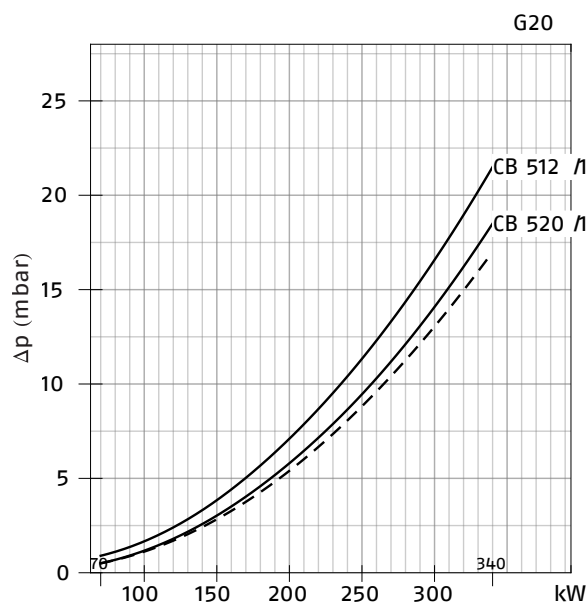


- Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 25/M C05 (NATURAL GAS)



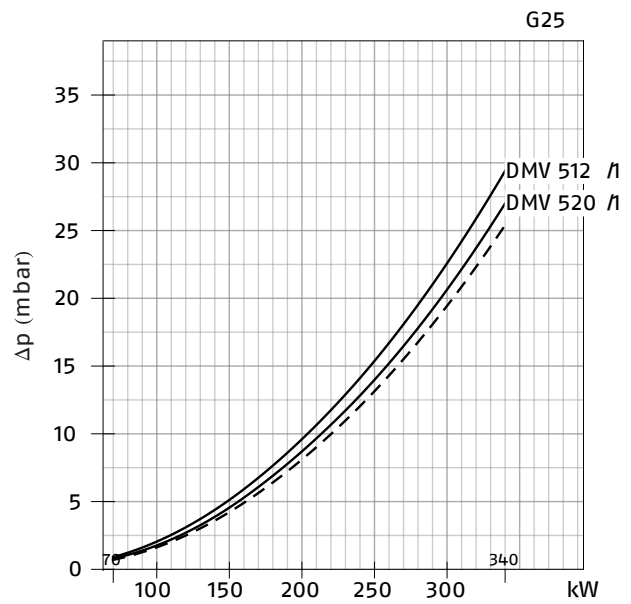
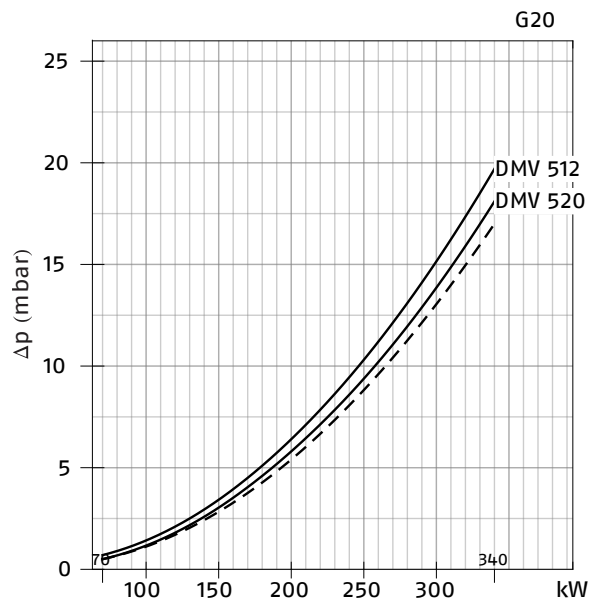
RS 25/M C05 (NATURAL GAS)



— Combustion head + gas butterfly valve + gas train

- - - Combustion head + gas butterfly valve

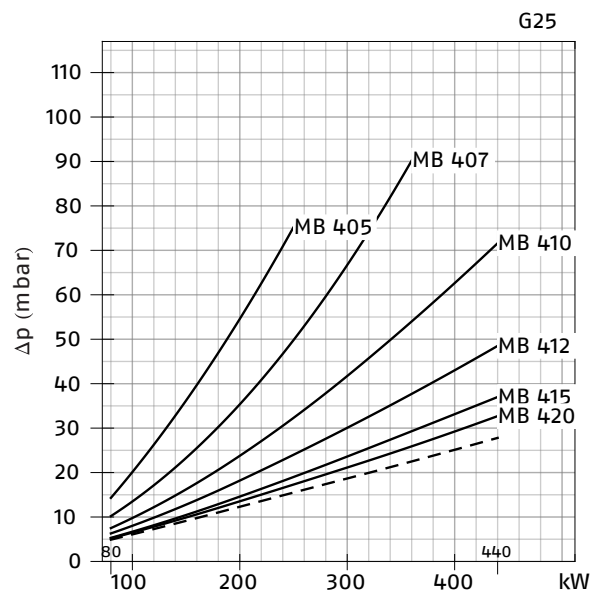
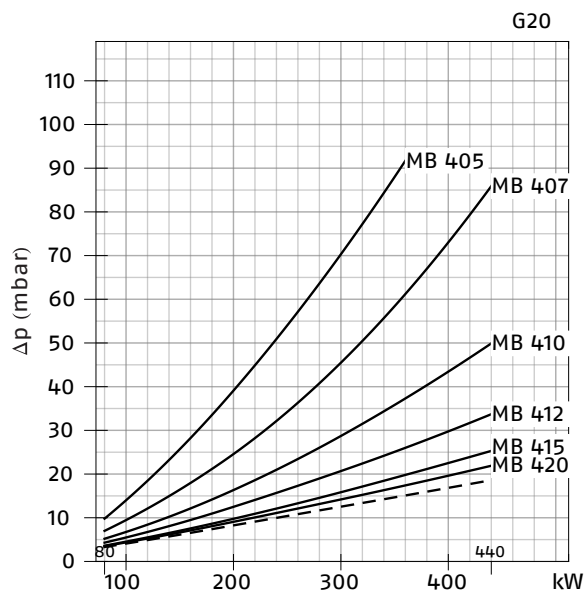
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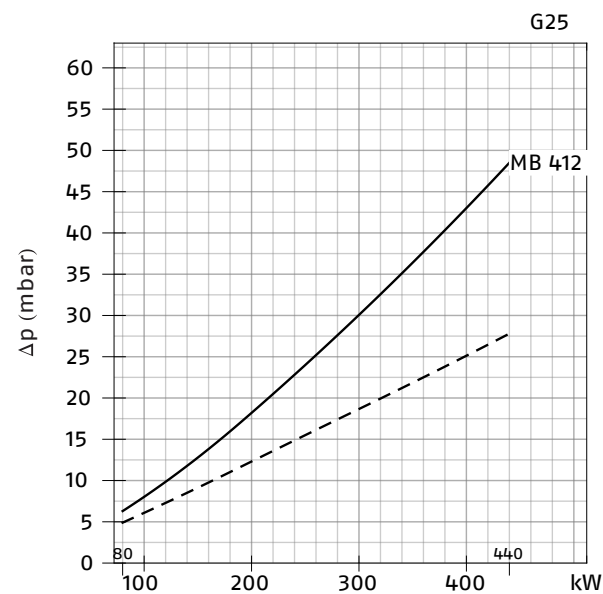
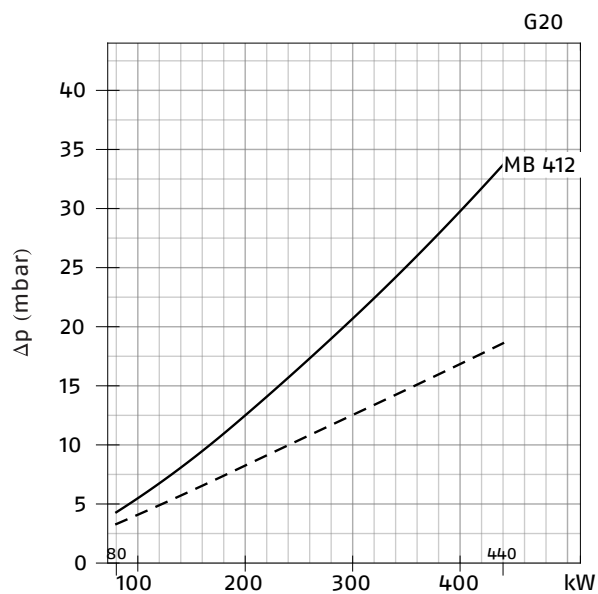
— Combustion head + gas butterfly valve + gas train

- - - Combustion head + gas butterfly valve

RS 35/M C05 (NATURAL GAS)

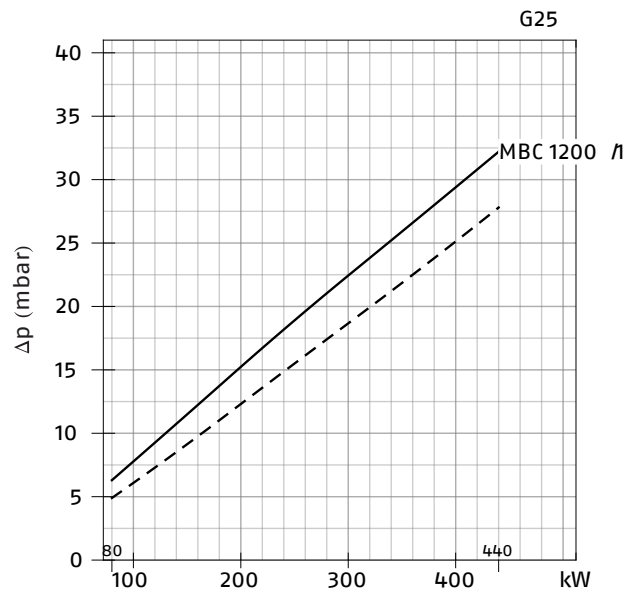
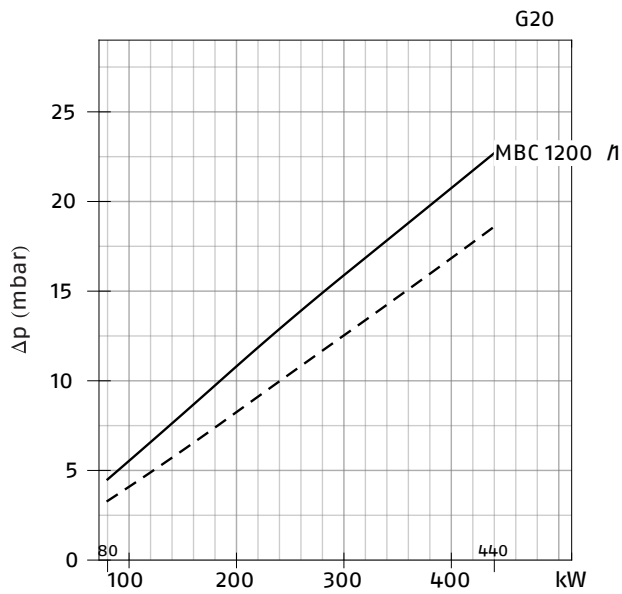


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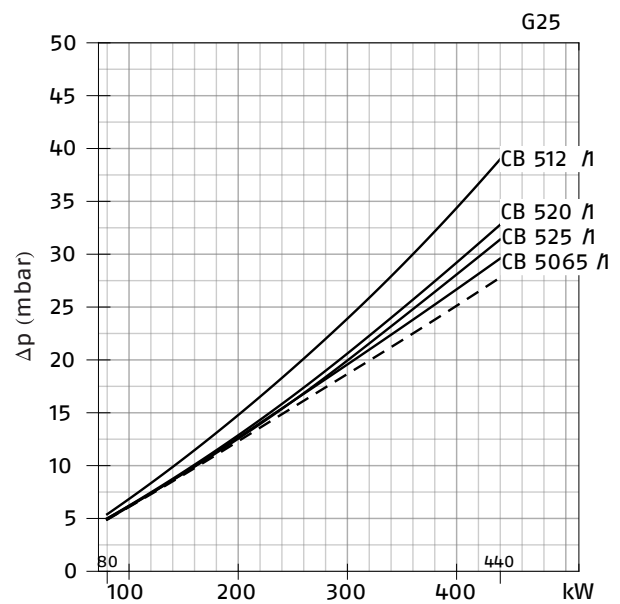
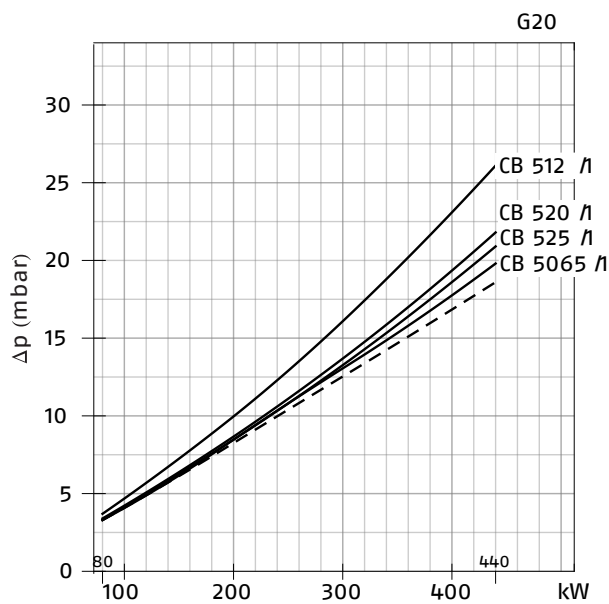


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 35/M C05 (NATURAL GAS)

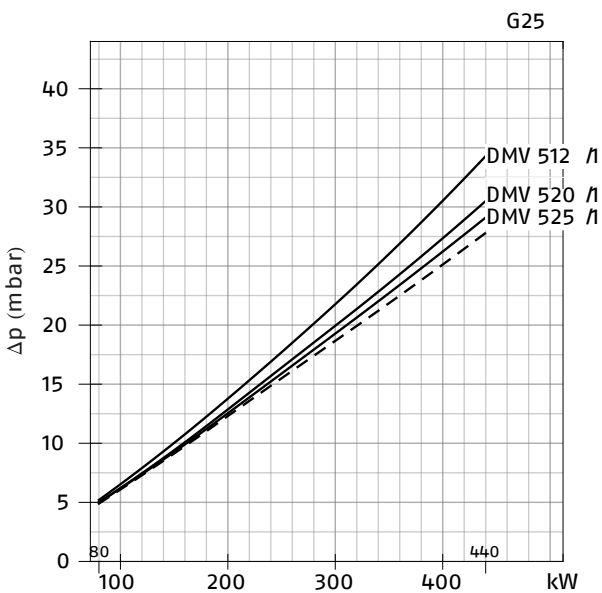
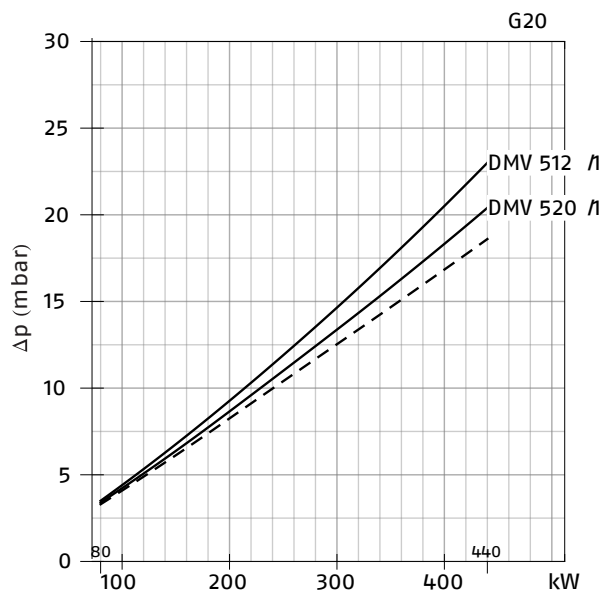


RS 35/M C05 (NATURAL GAS)



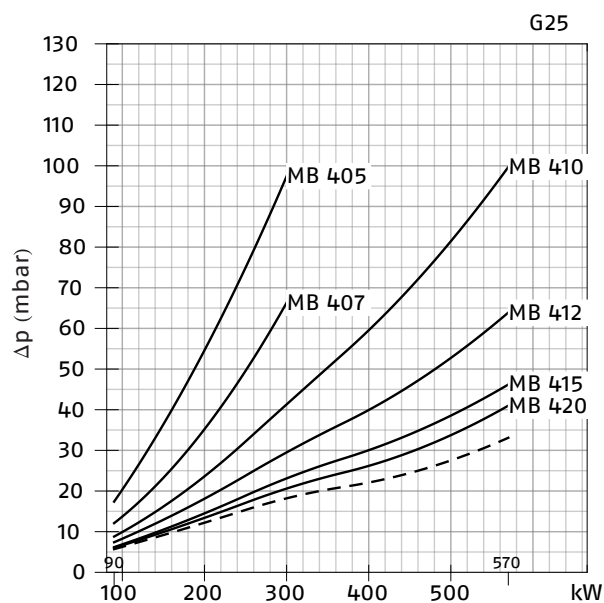
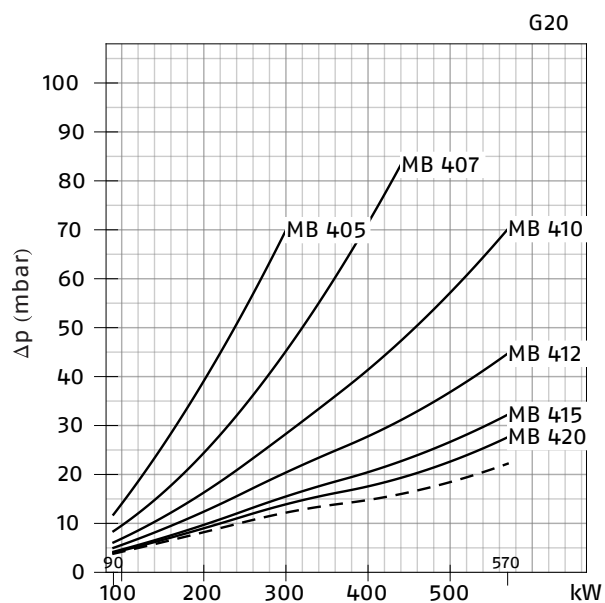
— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 35/M C05 (NATURAL GAS)

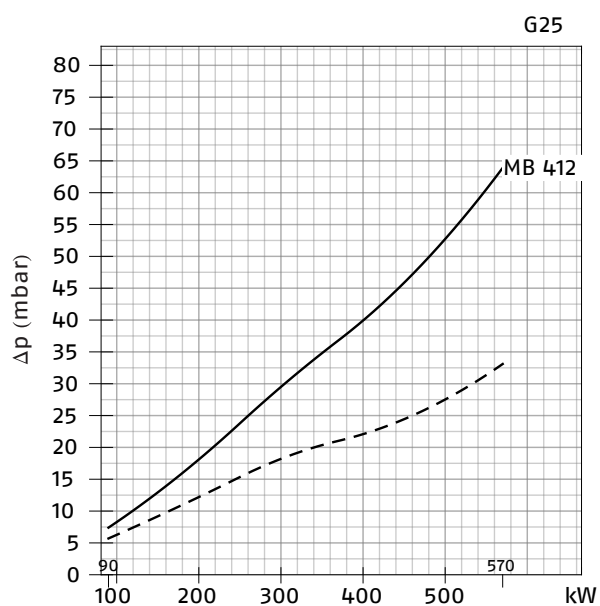
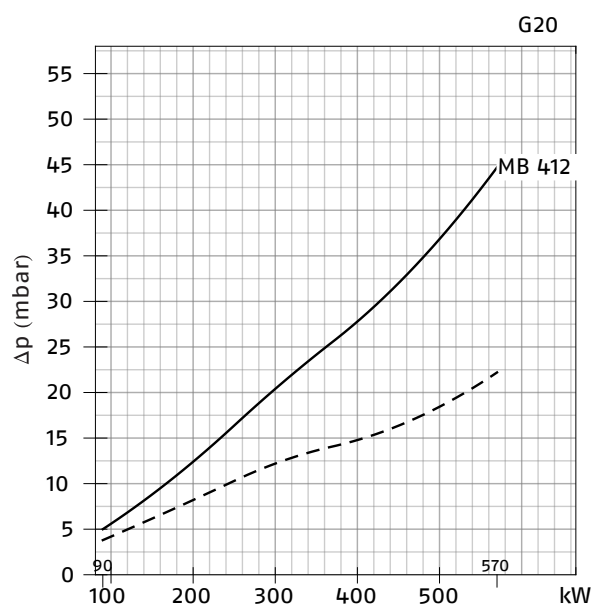


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 45/M C05 (NATURAL GAS)

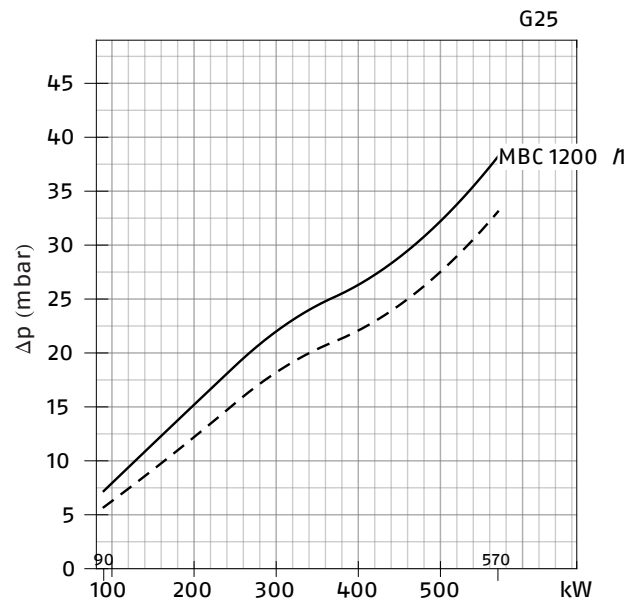
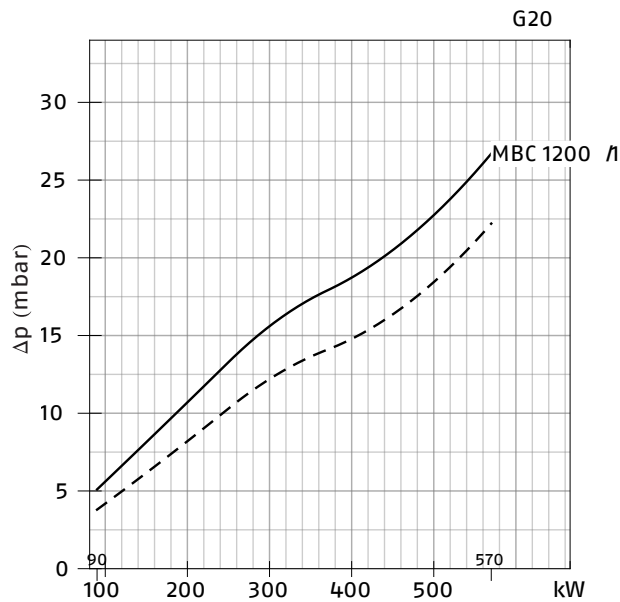


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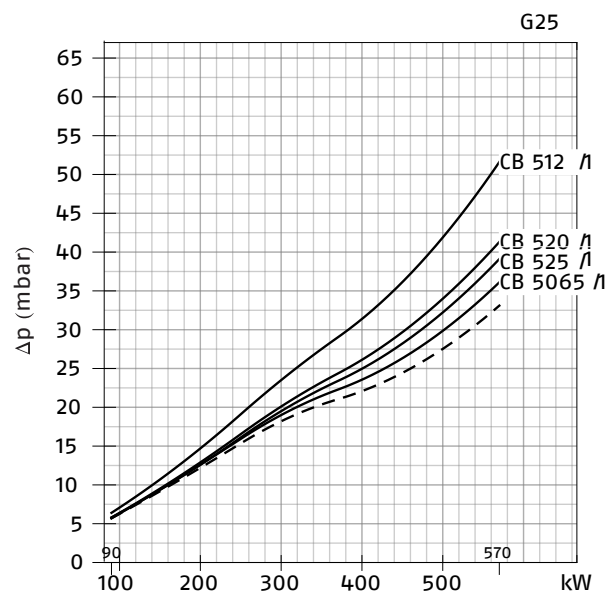
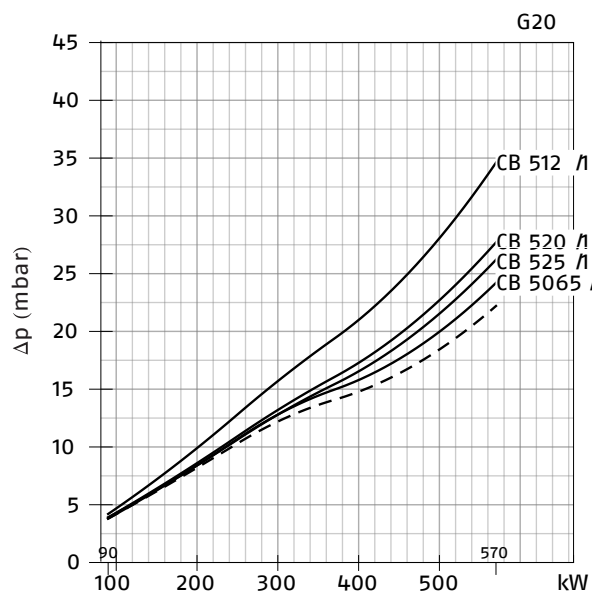


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 45/M C05 (NATURAL GAS)

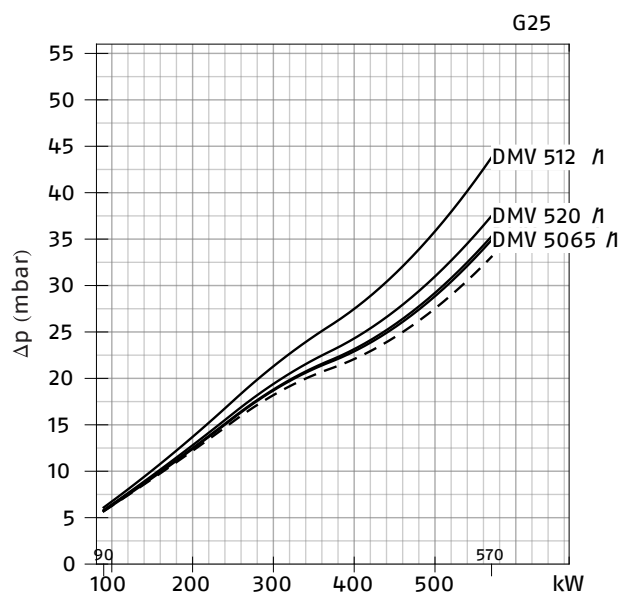
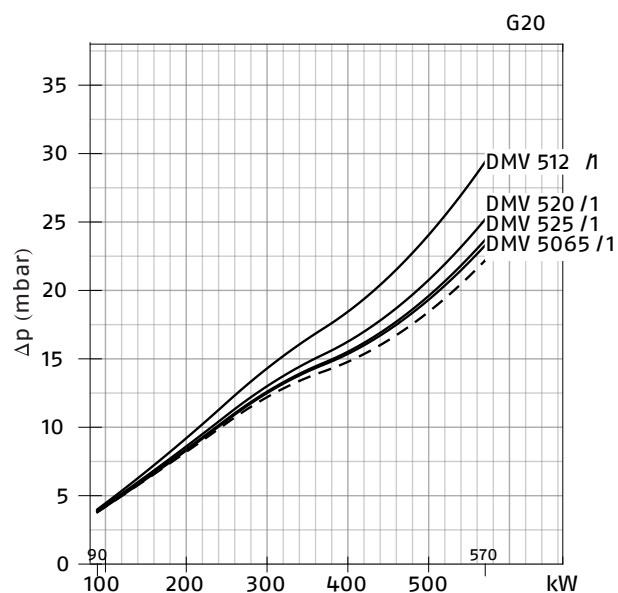


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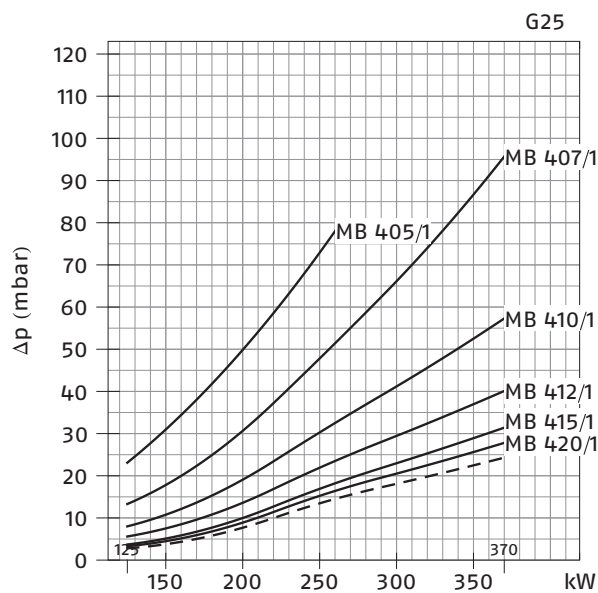
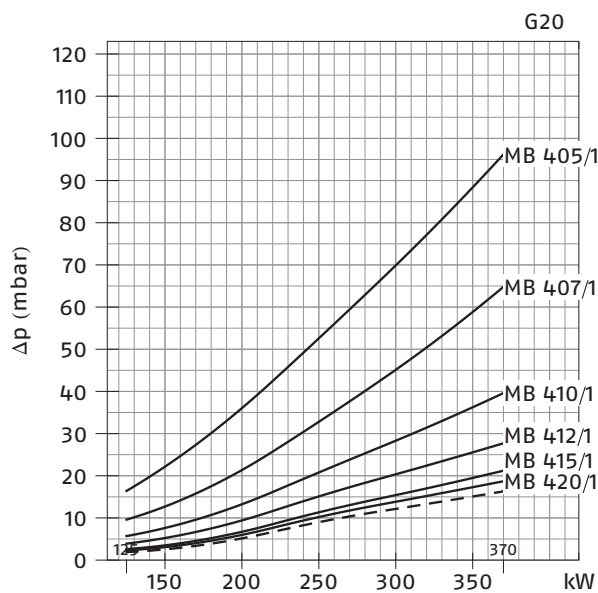
— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 45/M C05 (NATURAL GAS)

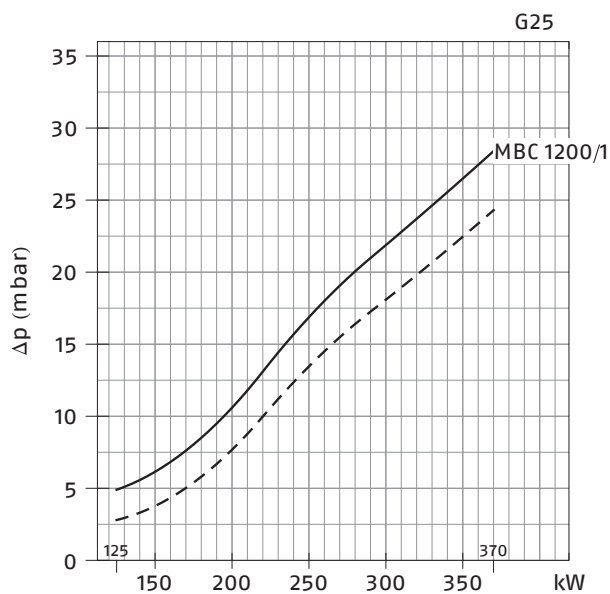
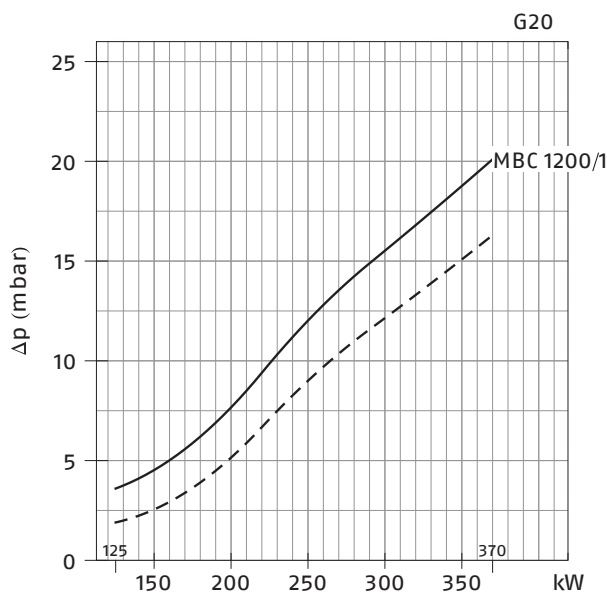


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 25/M (NATURAL GAS)

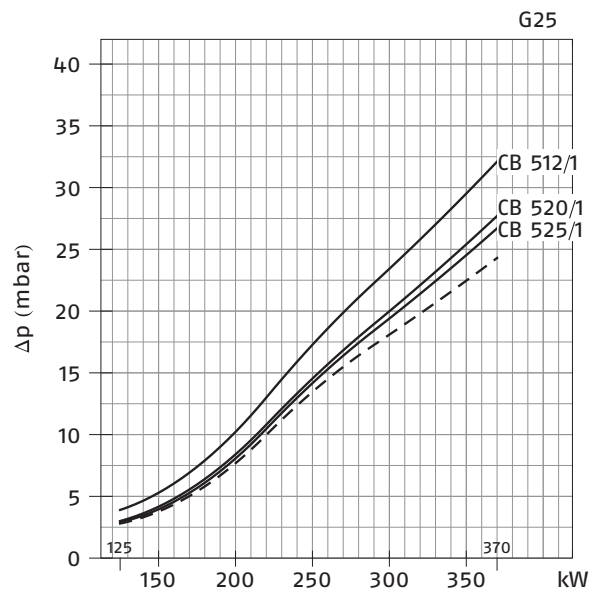
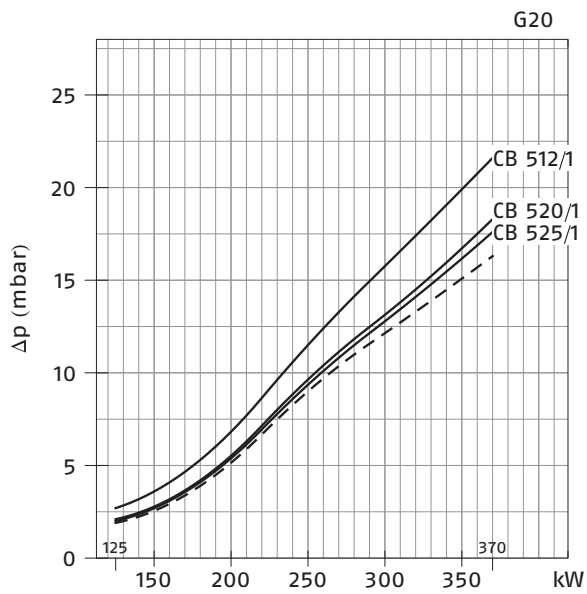


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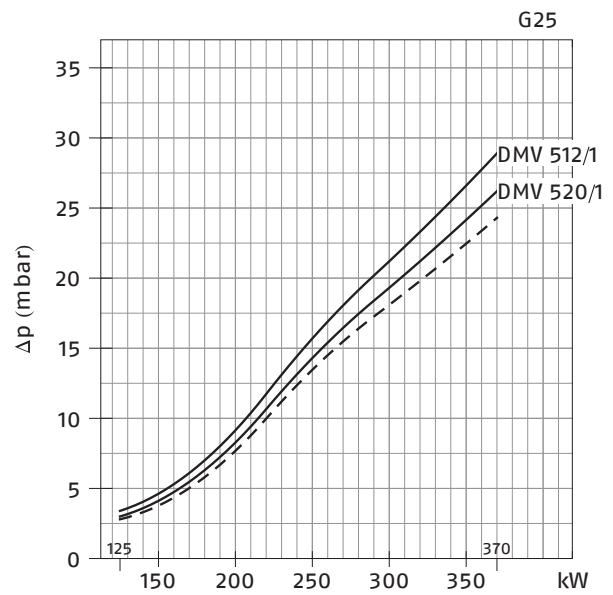
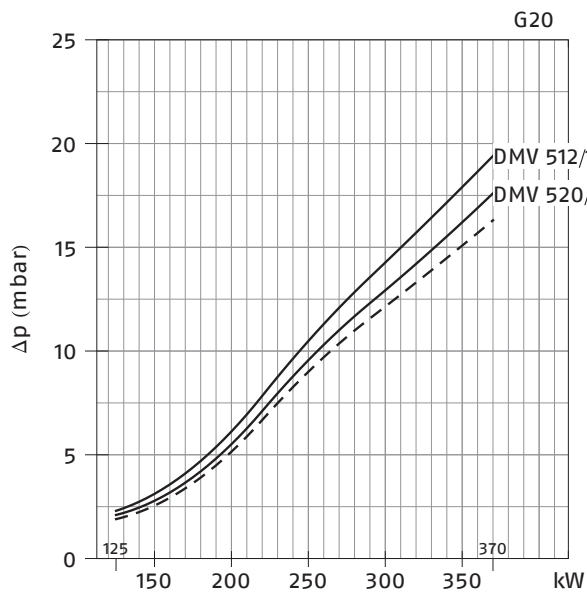


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 25/M (NATURAL GAS)

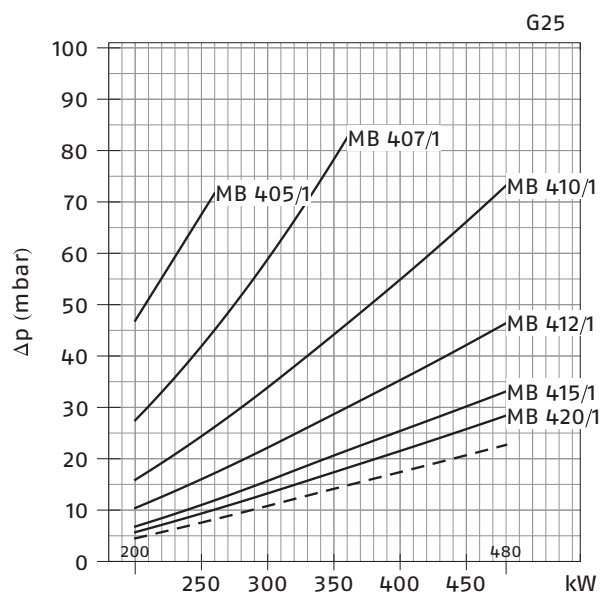
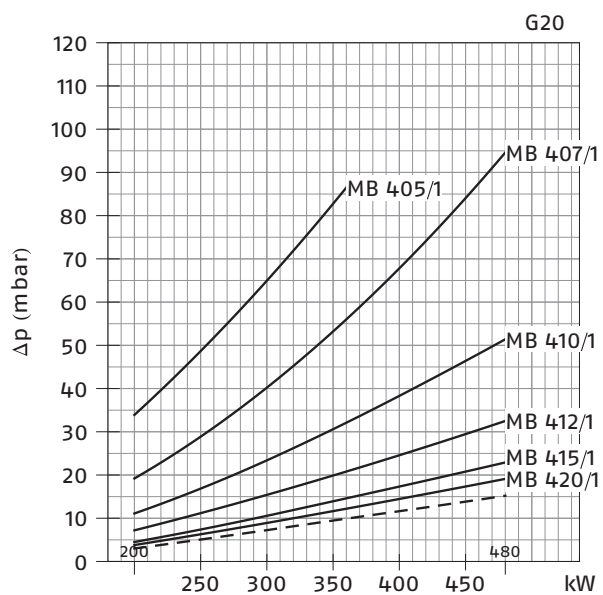


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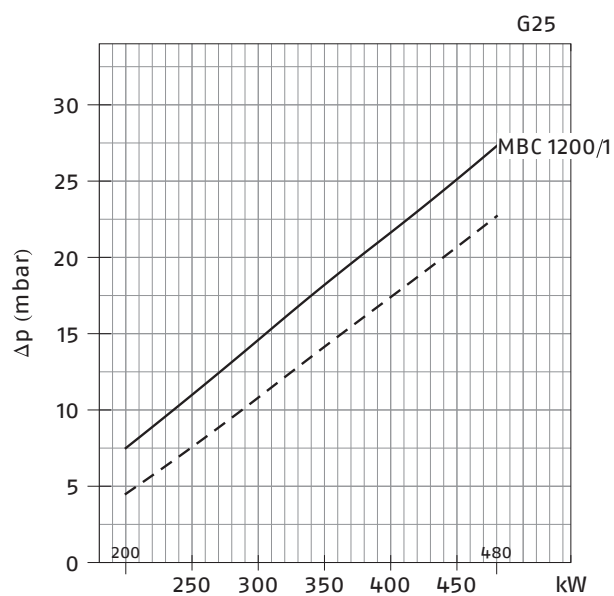
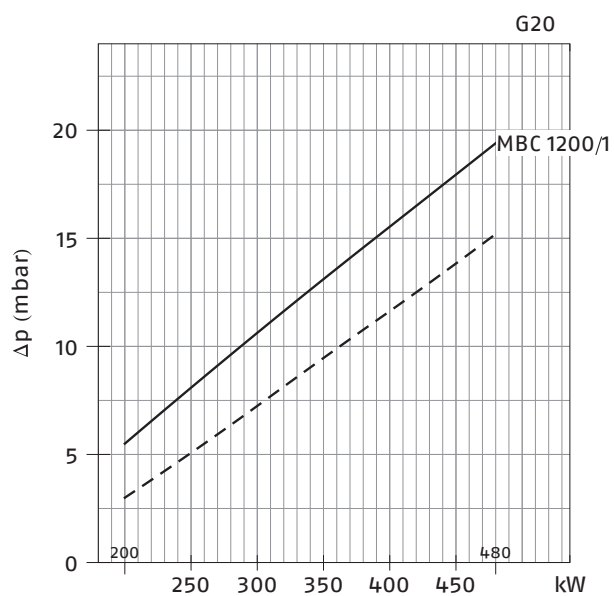


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 35/M (NATURAL GAS)

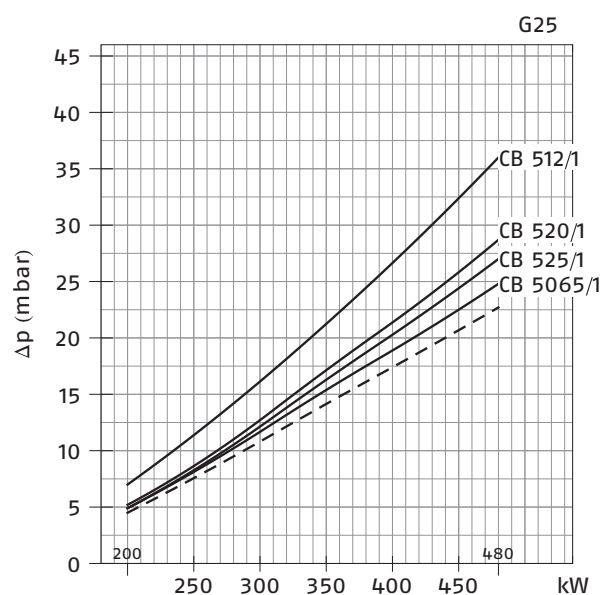
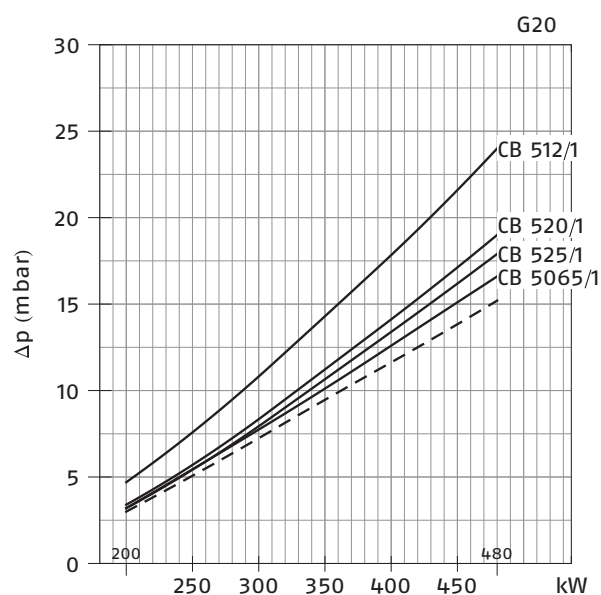


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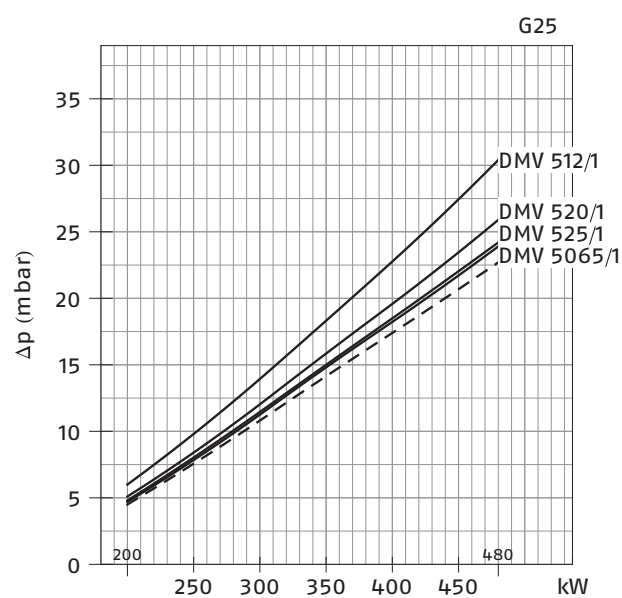
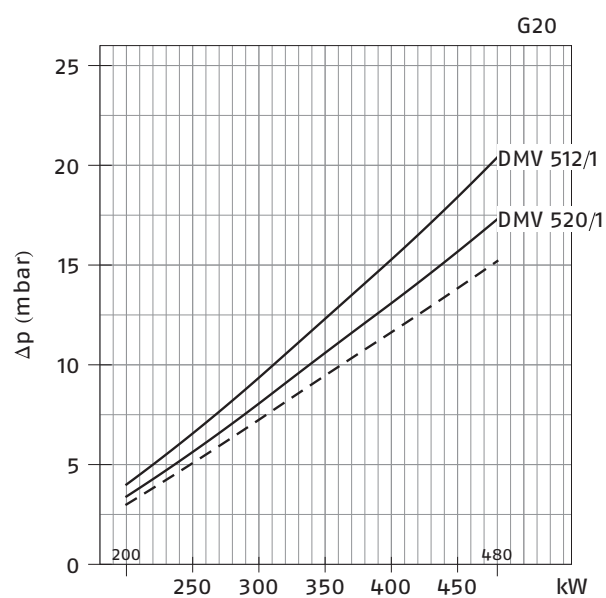


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 35/M (NATURAL GAS)

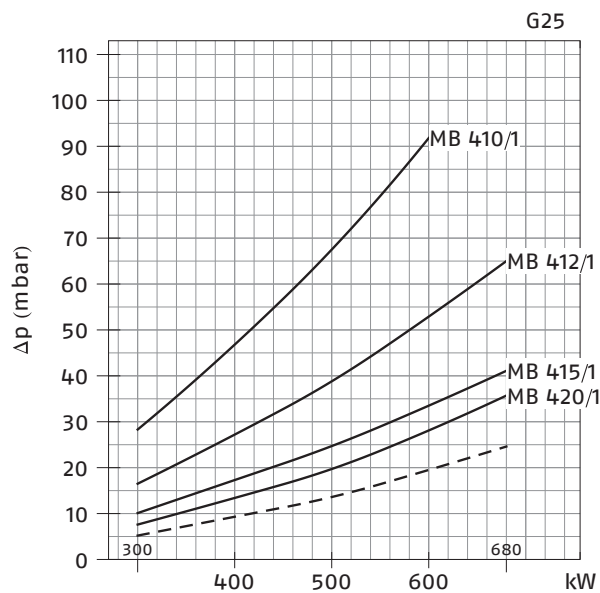
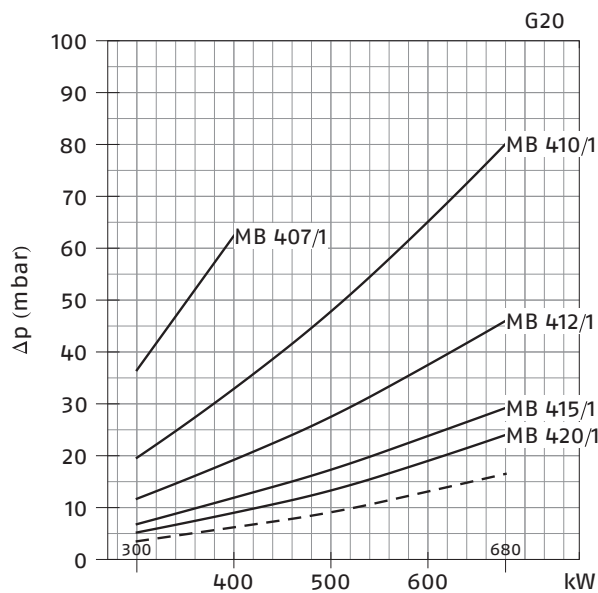


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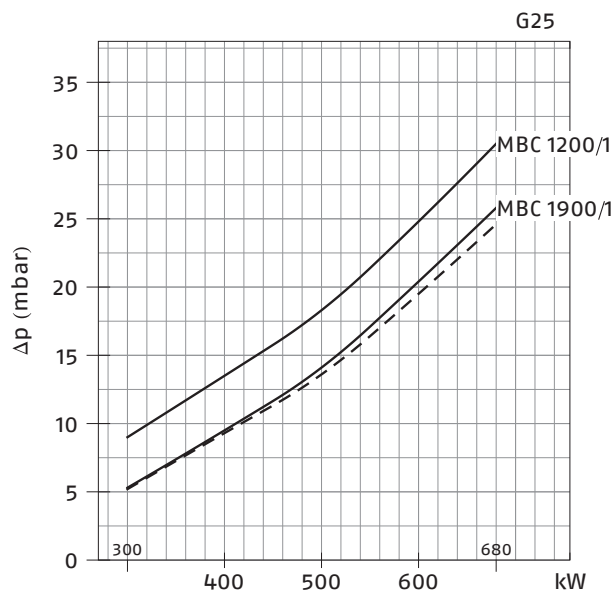
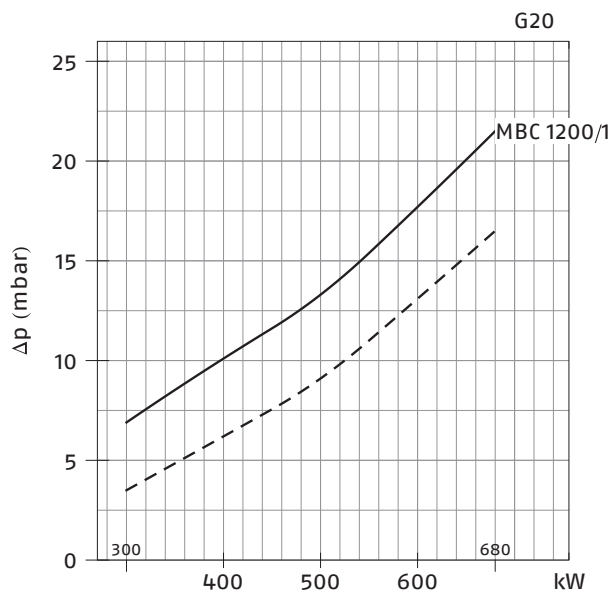


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 55/M (NATURAL GAS)

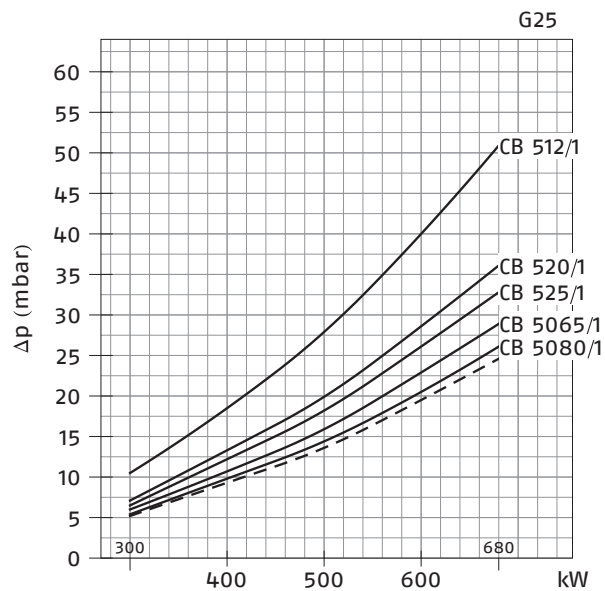
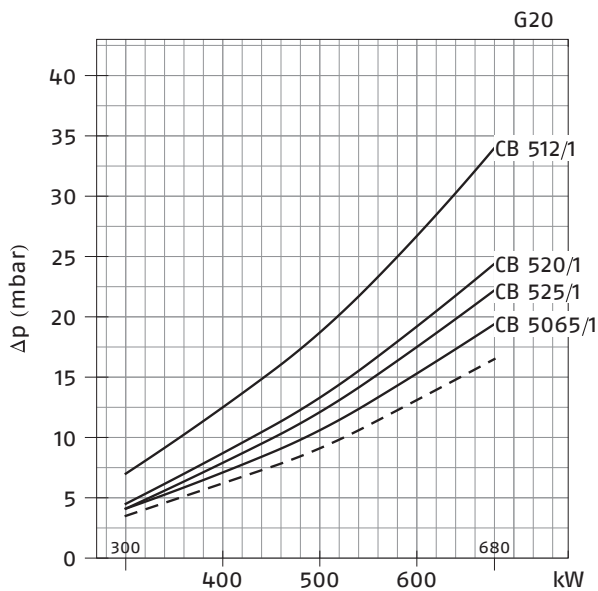


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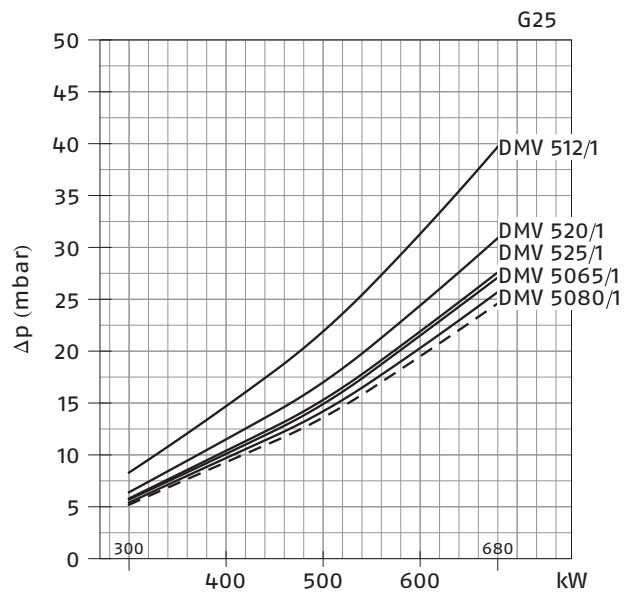
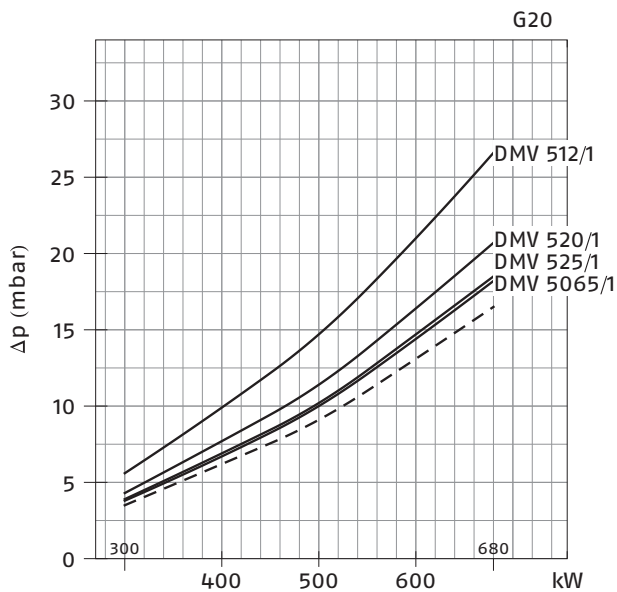


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 55/M (NATURAL GAS)

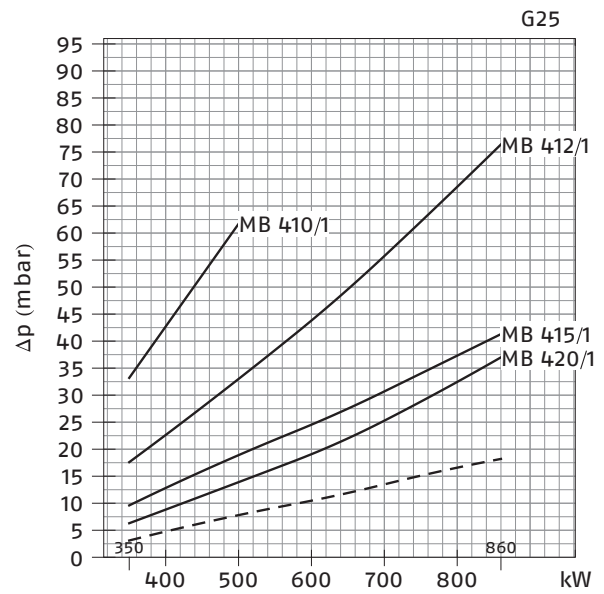
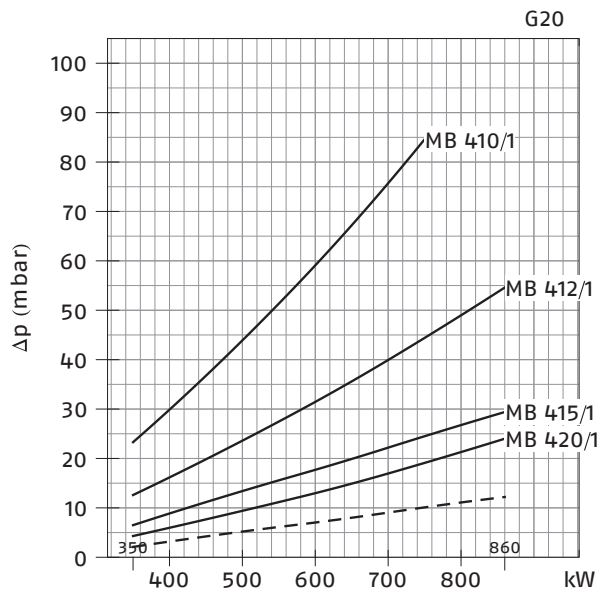


RS 55/M (NATURAL GAS)

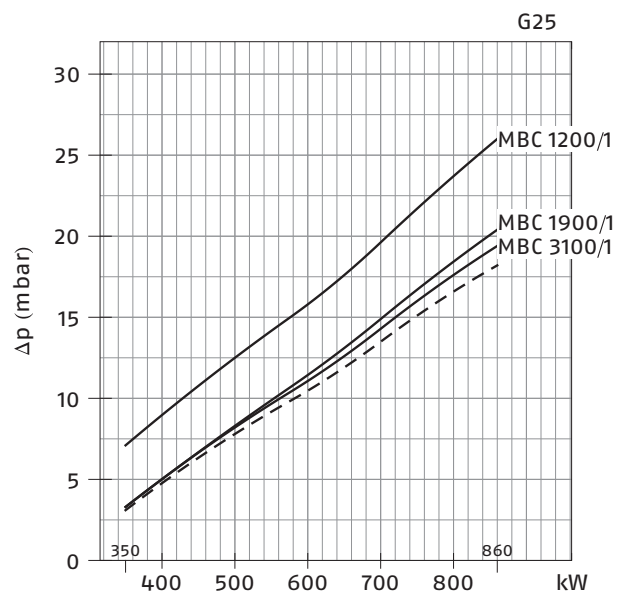
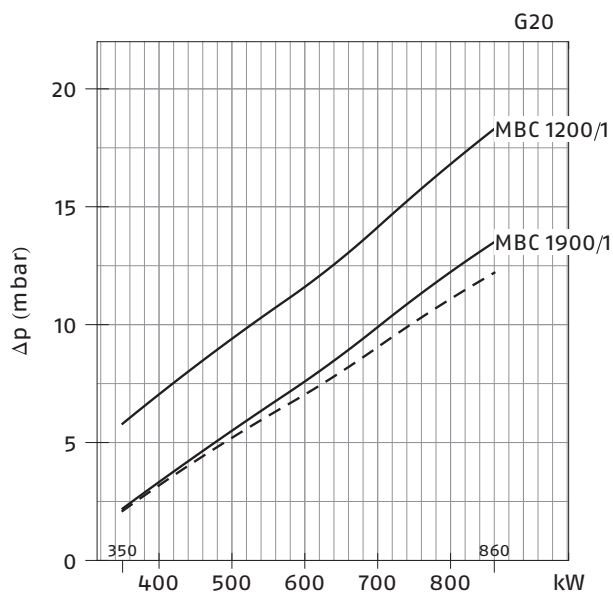


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 68/M (NATURAL GAS)

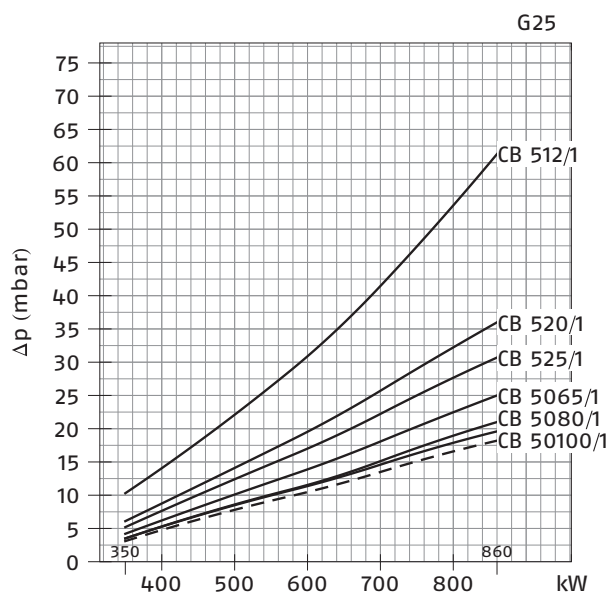
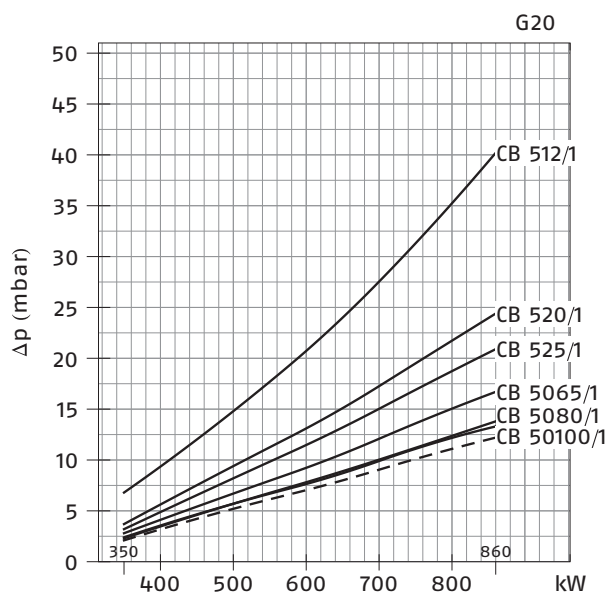


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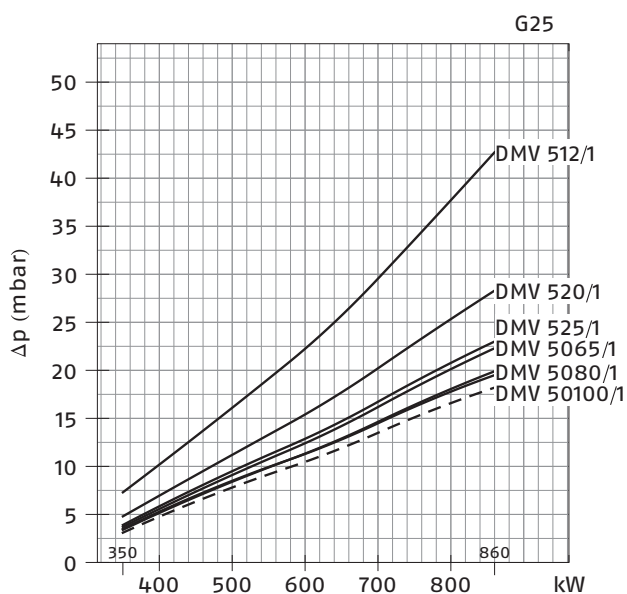
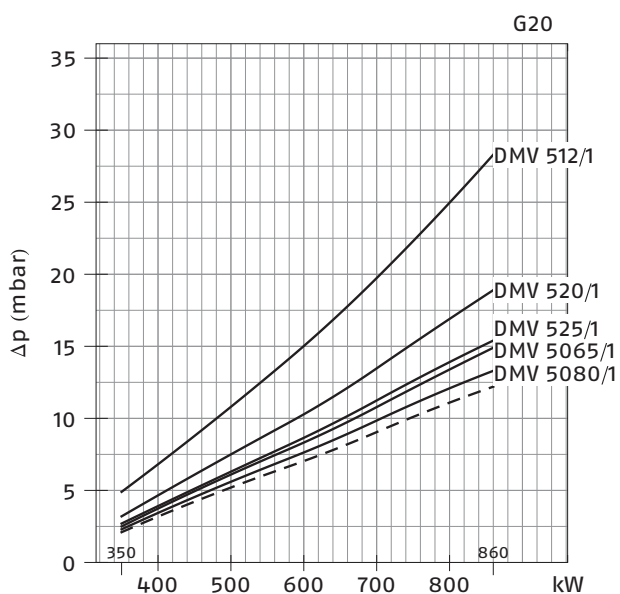


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 68/M (NATURAL GAS)

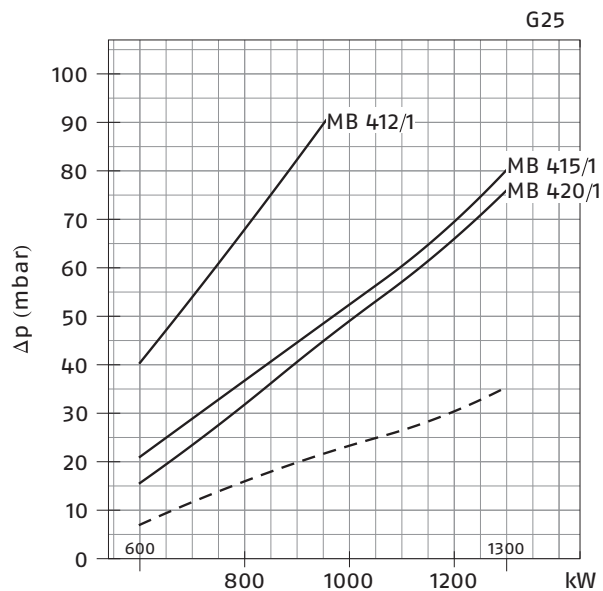
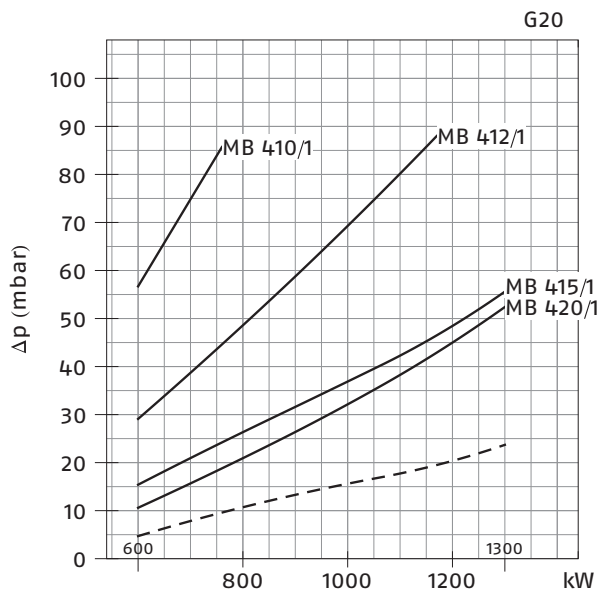


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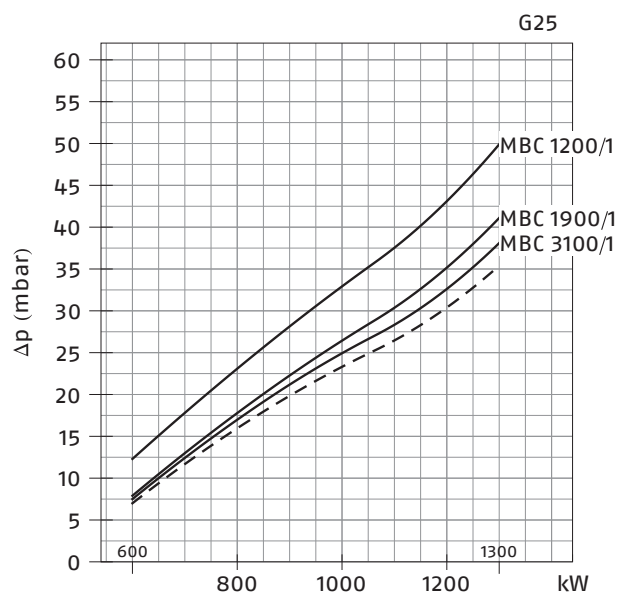
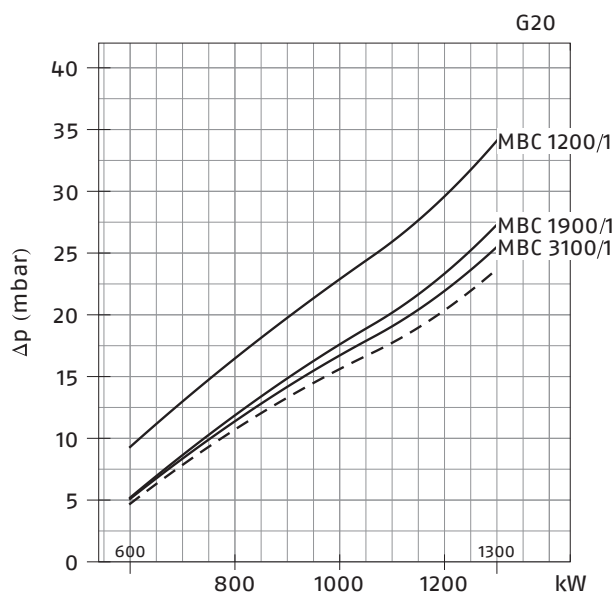


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 120/M (NATURAL GAS)

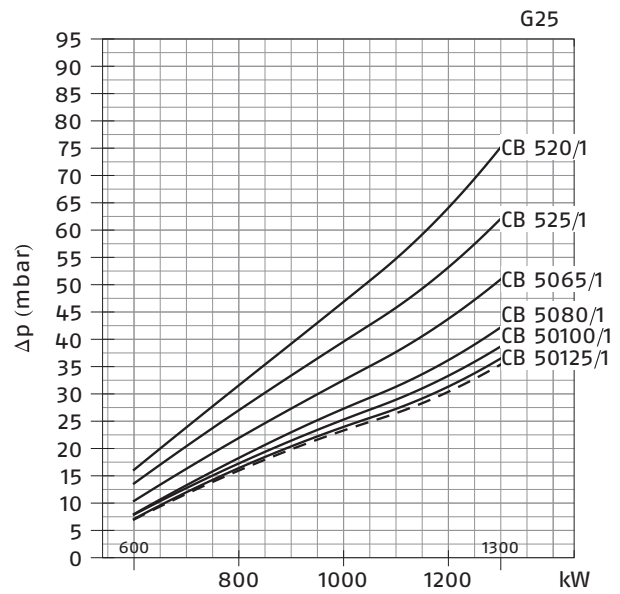
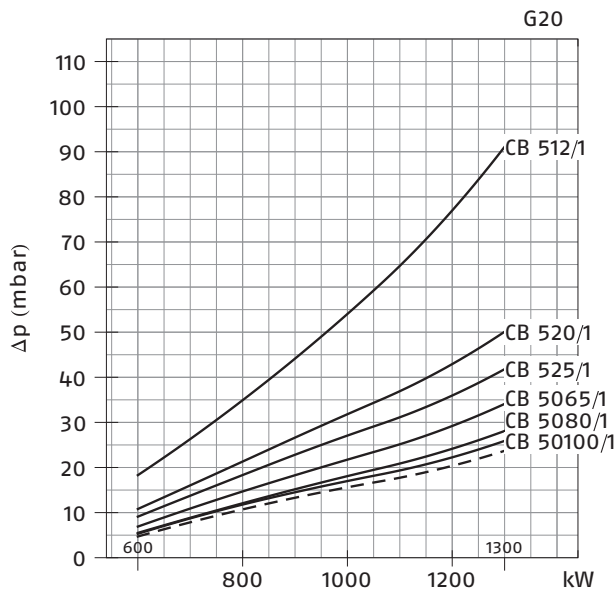


RS 120/M (NATURAL GAS)

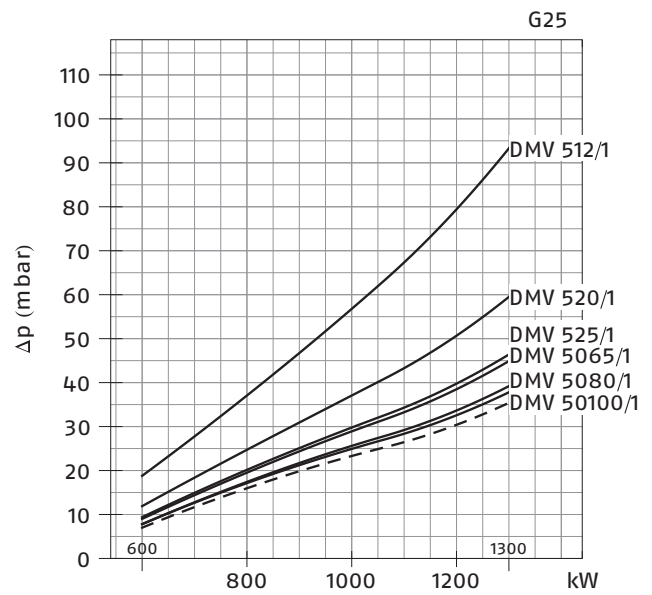
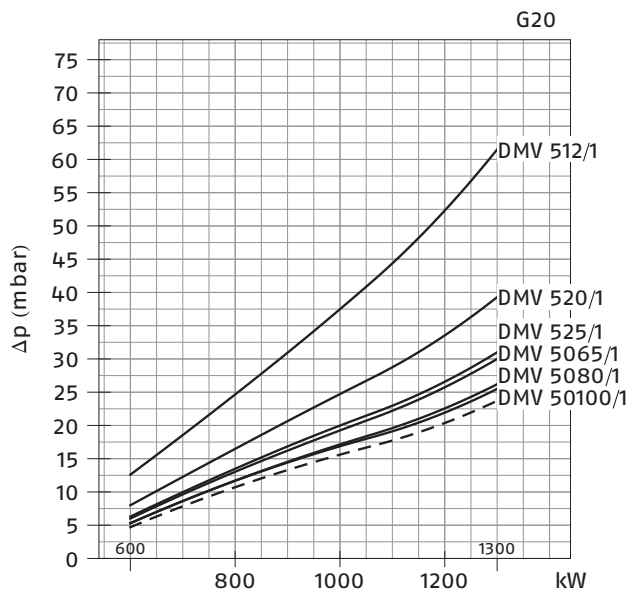


— Combustion head + gas butterfly valve + gas train
 - - - Combustion head + gas butterfly valve

RS 120/M (NATURAL GAS)

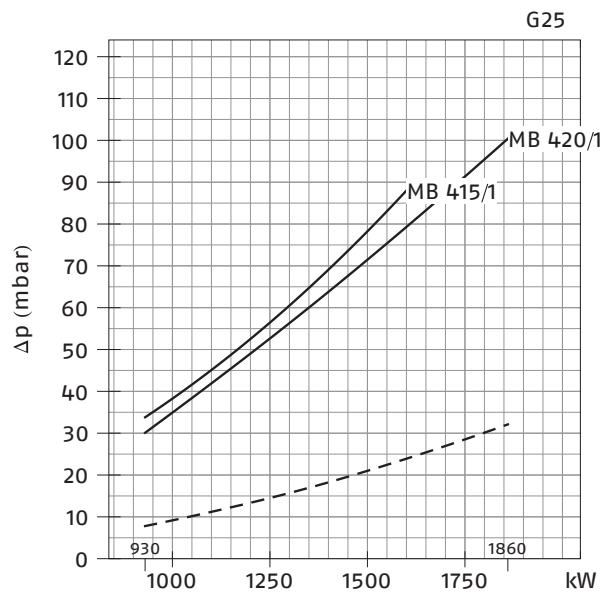
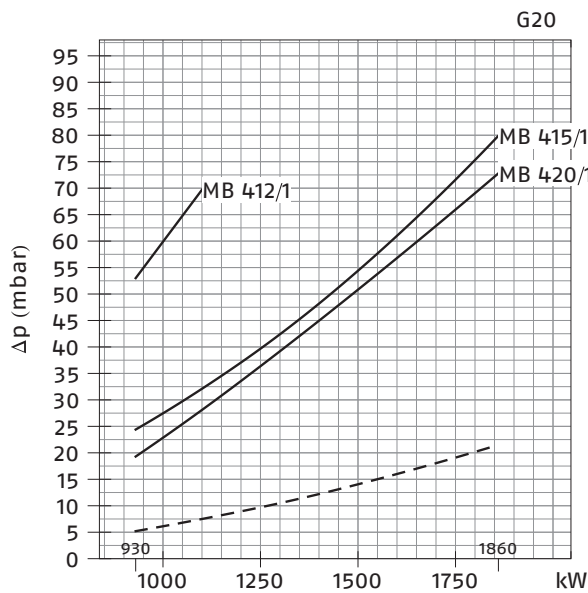


RS 120/M (NATURAL GAS)

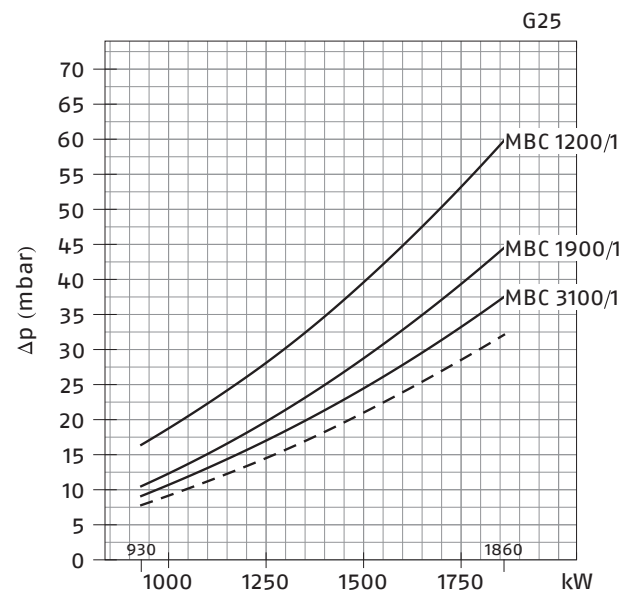
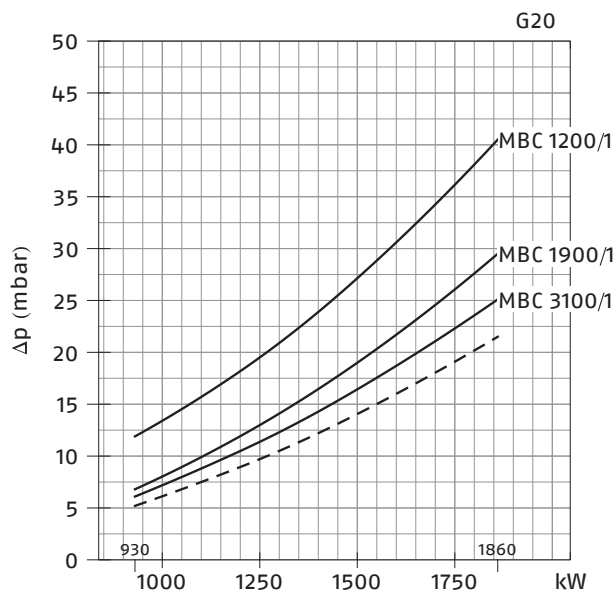


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 160/M (NATURAL GAS)

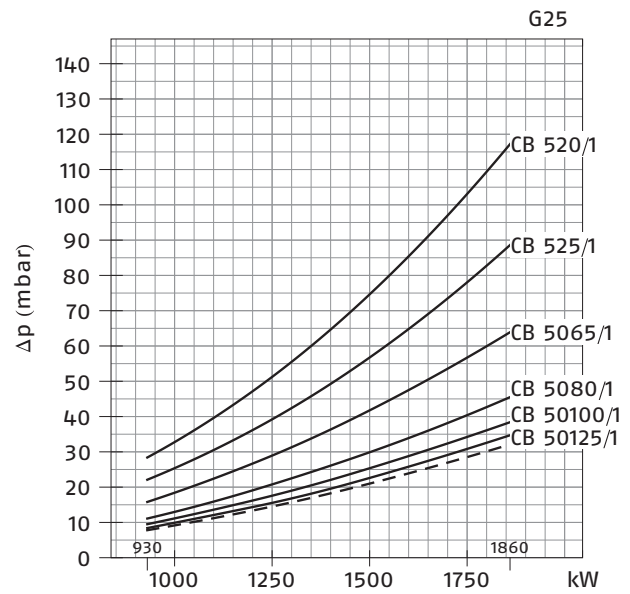
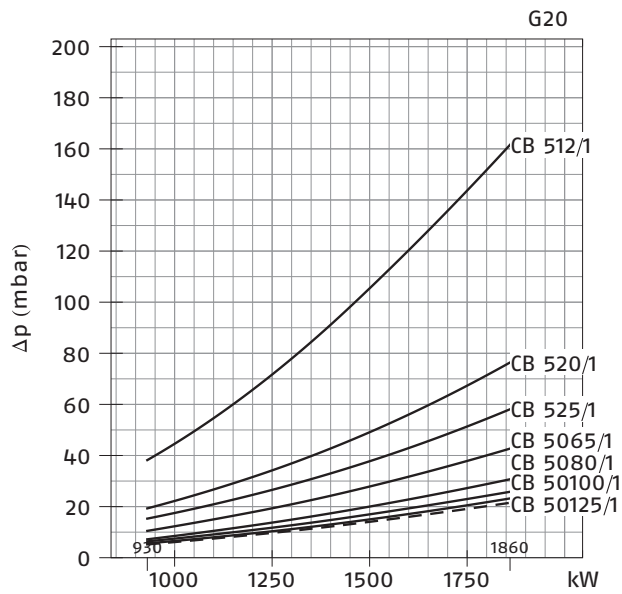


RS 160/M (NATURAL GAS)

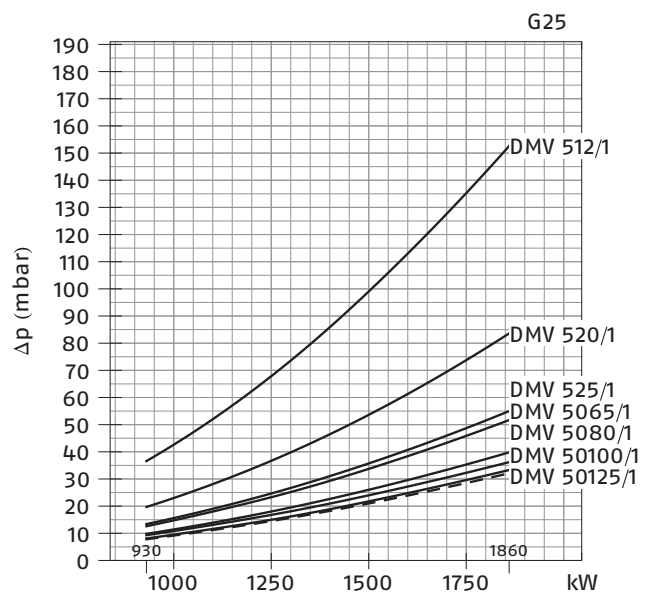
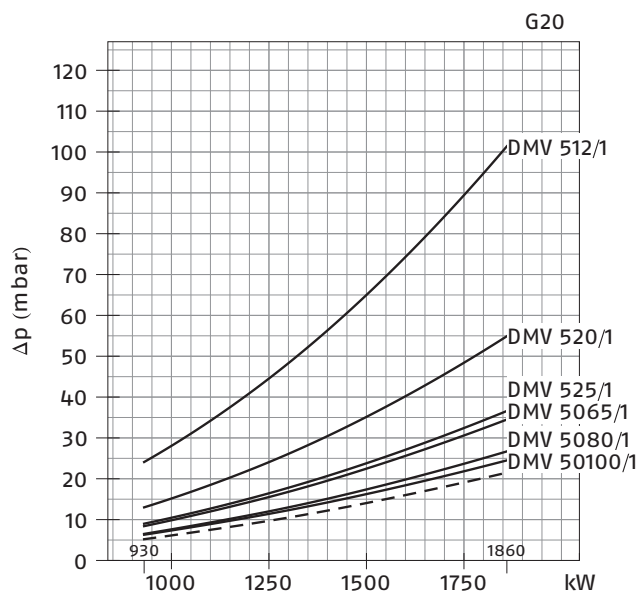


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 160/M (NATURAL GAS)

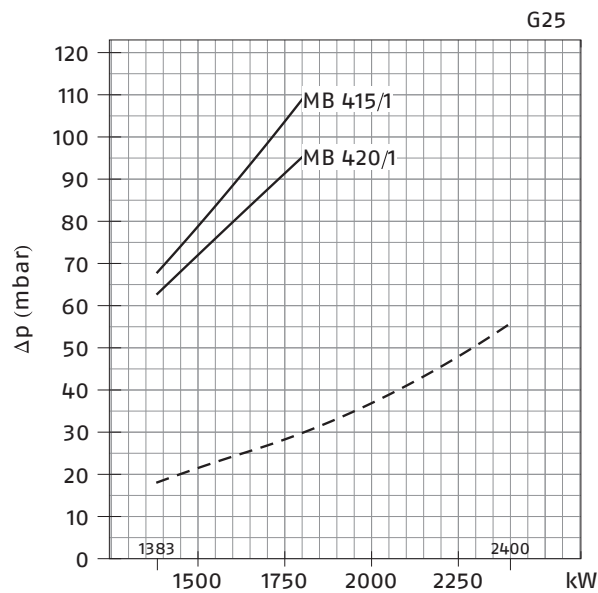
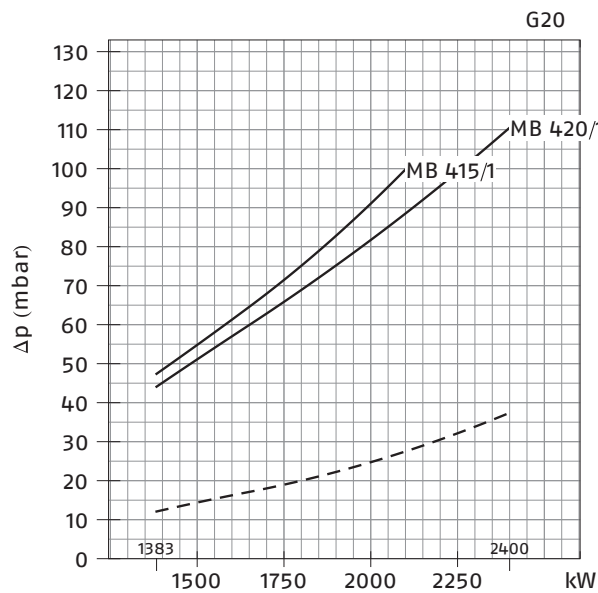


RS 160/M (NATURAL GAS)

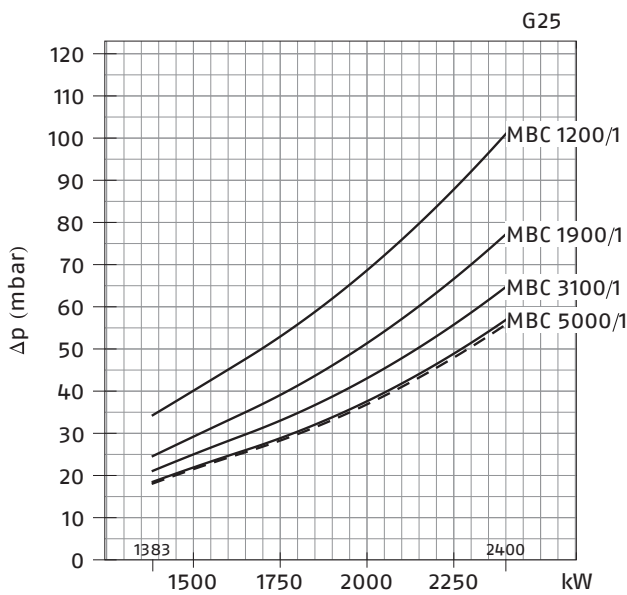
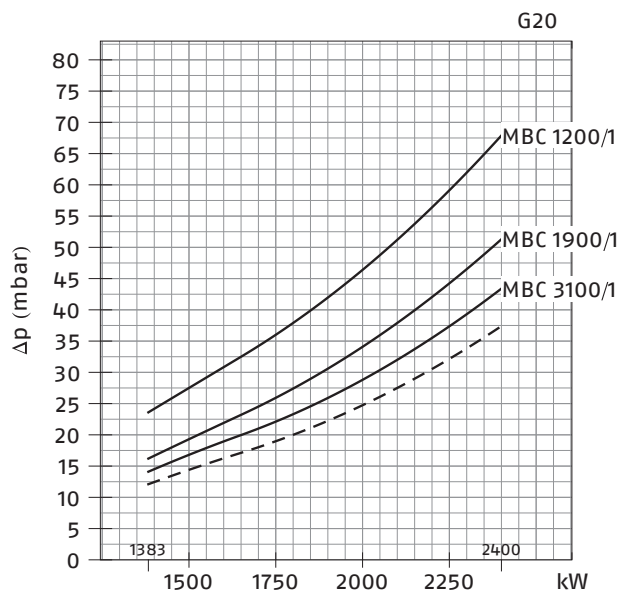


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 200/M (NATURAL GAS)

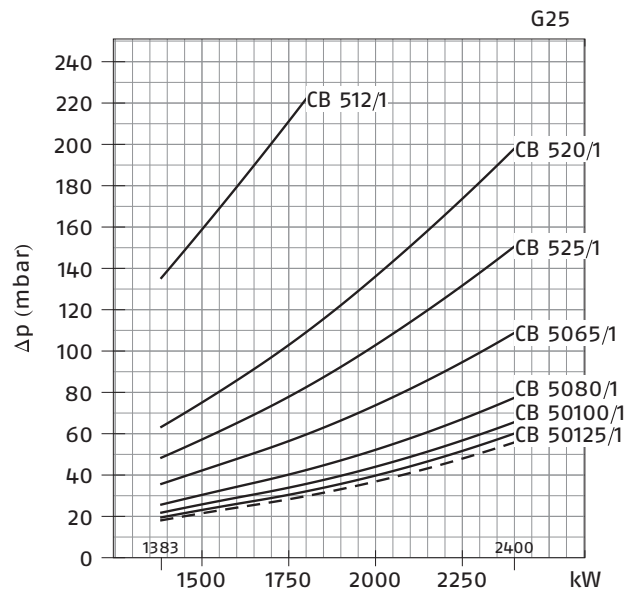
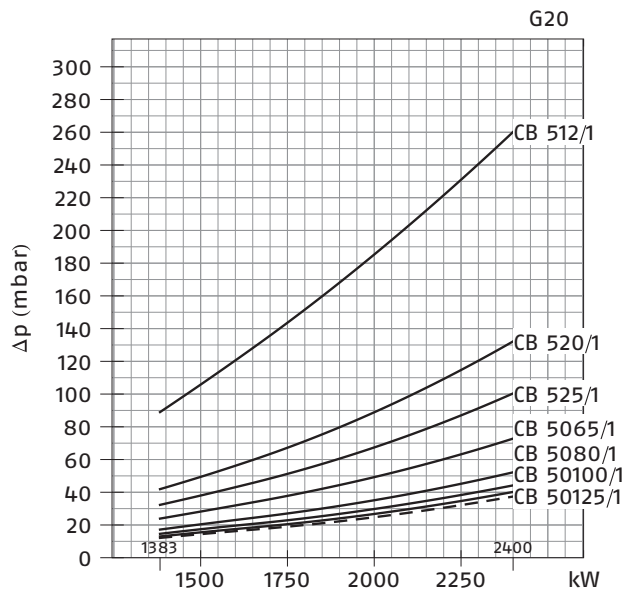


RS 200/M (NATURAL GAS)

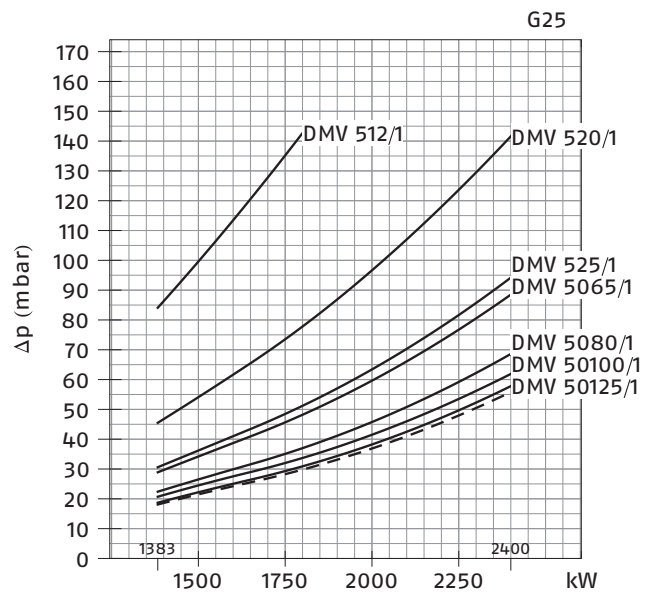
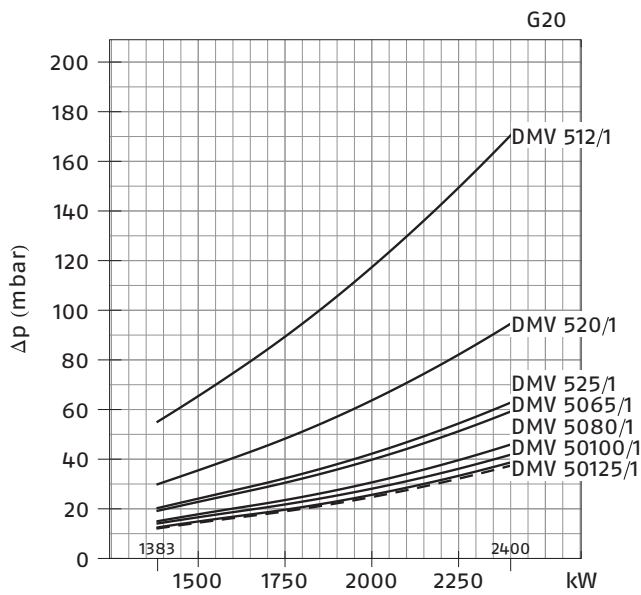


— Combustion head + gas butterfly valve + gas train
- - - Combustion head + gas butterfly valve

RS 200/M (NATURAL GAS)



RS 200/M (NATURAL GAS)



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

GAS TRAIN			ADAPTER CODE							
CODE	MODEL	Ø	RS 25	RS 35-45	RS 55	RS 68	RS 120	RS 160	RS 200	
3970500*	MB 405/1 – RT 20	Rp ¾"	3000824		●	●	●	●	●	
3970553*	MB 407/1 – RT 20	Rp ¾"			3000824 +	●	●	●	●	
3970599*	MB 407/1 – RT 52	Rp ¾"				●	●	●	●	
3970229*	MB 407/1 – RSM 20	Rp ¾"				●	●	●	●	
3970258*	MB 410/1 – RT 52	Rp 1" ¼	3010124		3010126			●	●	
3970554*	MB 410/1 – RT 20	Rp ¾"	3000824		3000824 + 3000843			●	●	
3970600*	MB 410/1 – RT 52	Rp ¾"						●	●	
3970230*	MB 410/1 – RSM 20	Rp ¾"						●	●	
3970256*	MB 412/1 – RT 52	Rp 1" ½	□		3000843				●	
3970144*	MB 412/1 – RT 20	Rp 1" ½	□						●	
3970197**	MB 412/1 CT – RT 20	Rp 1" ½	□						●	
3970231*	MB 412/1 – RSM 20	Rp 1" ½	□						●	
3970180*	MB 415/1 – RT 30	Rp 1" ½	□		3000843					
3970198**	MB 415/1 CT – RT 30	Rp 1" ½	□							
3970250*	MB 415/1 – RT 52	Rp 1" ½	□							
3970253**	MB 415/1 CT – RT 52	Rp 1" ½	□							
3970232*	MB 415/1 – RSM 30	Rp 1" ½	□							
3970181*	MB 420/1 – RT 30	Rp 2"	3000822		□					
3970182**	MB 420/1 CT – RT 30	Rp 2"			□					
3970257*	MB 420/1 – RT 52	Rp 2"			□					
3970252**	MB 420/1 CT – RT 52	Rp 2"			□					
3970233*	MB 420/1 – RSM 30	Rp 2"			□					
3970234**	MB 420/1 CT – RSM 30	Rp 2"			□					
3970221*	MBC 1200/1 – RSM 60	Rp 2"			□					
3970225**	MBC 1200/1 CT – RSM 60	Rp 2"			□					
3970222*	MBC 1900/1 – FSM 40	DN 65	●	●	3000825					
3970226**	MBC 1900/1 CT – FSM 40	DN 65	●	●	3000825					
3970223*	MBC 3100/1 – FSM 40	DN 80	●	●	●	3000826				
3970227**	MBC 3100/1 CT – FSM 40	DN 80	●	●	●	3000826				
3970224*	MBC 5000/1 – FSM 80	DN 100	●	●	●	●	●	●	3010370 + 3000826	
3970228**	MBC 5000/1 CT – FSM 80	DN 100	●	●	●	●	●	●		
3970145*	CB 512/1 – RSM 30	Rp 1" ½	□		3000843					
20045589*	CB 512/1 CT – RSM 30	Rp 1" ½	□							
3970146*	CB 520/1 – RSM 30	Rp 2"	3000822		-					
3970160**	CB 520/1 CT – RSM 30	Rp 2"			-					
20044659*	CB 525/1 – RSM 30	Rp 2"			-					
20044660**	CB 525/1 CT – RSM 30	Rp 2"			-					
3970147*	CB 5065/1 – FSM 30	DN 65	●	3000825						
3970161**	CB 5065/1 CT – FSM 30	DN 65	●							
3970148*	CB 5080/1 – FSM 30	DN 80	●	●	3000826					
3970162**	CB 5080/1 CT – FSM 30	DN 80	●	●						
3970149*	CB 50100/1 – FSM 30	DN 100	●	●	●	3010370 + 3000826				
3970163**	CB 50100/1 CT – FSM 30	DN 100	●	●	●					
20015871*	CB 50125/1 – FSM 30	DN 125	●	●	●	●	3010224 + 3000826			
3970196**	CB 50125/1 CT – FSM 30	DN 125	●	●	●	●				

* 230V/50Hz - 220V/60Hz Electrical supply

The valves seal control device is compulsory (conforming to EN 676) on gas trains to burners with a maximum output over 1200 kW.

Legenda

- Not available.
- Additional adapter not necessary, the gas train may be connected directed to the burner.

GAS TRAIN			ADAPTER CODE						
CODE	MODEL	Ø	RS 25	RS 35-45	RS 55	RS 68	RS 120	RS 160	RS 200
20043035	DMV 512/1 - RSM -0	Rp 1" 1/2	-	-	3000843				
20043036	DMV 512/1 CT RSM -0	Rp 1" 1/2	-	-					
20043038	DMV 520/1 - RSM -0	Rp 1" 1/2	3000822		-	-	-	-	-
20043039	DMV 520/1 CT RSM -0	Rp 2"			-	-	-	-	-
20043053	DMV 525/1 - RSM -0	Rp 2"	●	3000822	-	-	-	-	-
20043054	DMV 525/1 CT RSM -0	Rp 2"	●		-	-	-	-	-
20043041	DMV 5065/1 - FSM -0	DN 65	●	3000825					
20043042	DMV 5065/1 CT FSM -0	DN 65	●						
20043044	DMV 5080/1 - FSM -0	DN 80	●	●	3000826				
20043045	DMV 5080/1 CT FSM -0	DN 80	●	●					
20043047	DMV 50100/1 - FSM -0	DN 100	-	-	-	3010370 + 3000826			
20043048	DMV 50100/1 CT FSM -0	DN 100	-	-	-				
20043050	DMV 50125/1 - FSM -0	DN 125	-	-	-	●	●	3010224 + 3000826	
20043051	DMV 50125/1 CT FSM -0	DN 125	-	-	-	●	●		

* 230V/50Hz - 220V/60Hz Electrical supply

The valves seal control device is compulsory (conforming to EN 676) on gas trains to burners with a maximum output over 1200 kW.

Legenda

● Not available.

□ Additional adapter not necessary, the gas train may be connected directed to the burner.

Ventilation

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

On RS 55 - 68 - 120/M BLU models, the use of reverse curve blades and sound-proofing material keeps noise level very low.

In the RS 25 - 35 - 160 - 200/M C05 - BLU models, noise has been reduced by the special design of the air suction circuit.

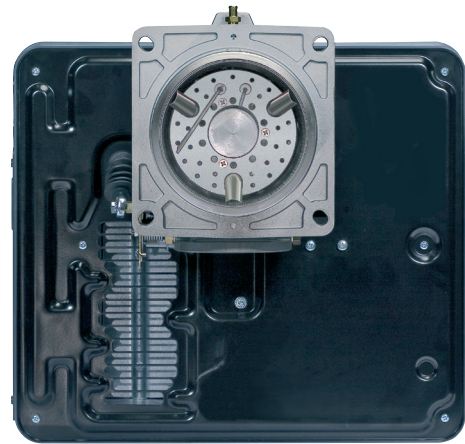
A variable profile cam connects the fuel and air regulations, ensuring high fuel efficiency at all firing ranges. A minimum air pressure switch stops the burner when there is an insufficient quantity of air at the combustion head.

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 air/gas setting.



Example of HCS (Housing Cooling System) working concept.

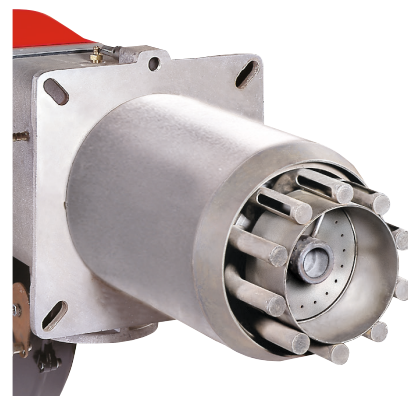
Combustion Head

Different lengths of the combustion head can be chosen for the RS/M C05 - BLU series of burners.

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

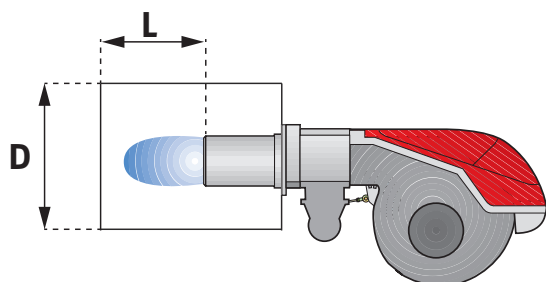
Depending on the type of generator, check that the penetration of the head into the combustion chamber is correct.

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



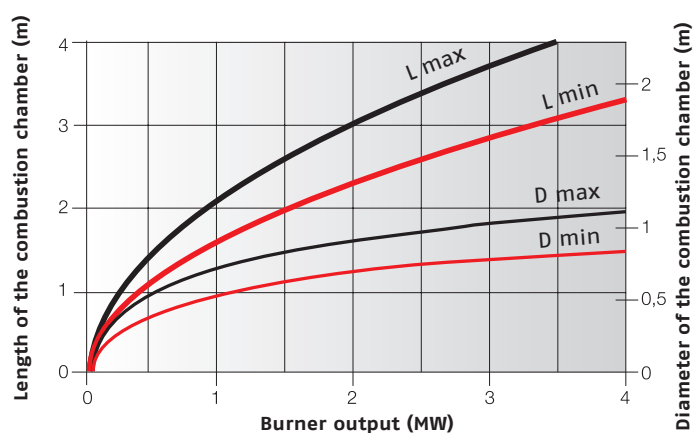
Example of a RS160/M BLU burner combustion head.

SUGGESTED COMBUSTION CHAMBER DIMENSIONS



Example:

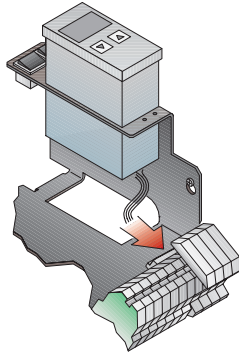
Burner thermal output = 2000 kW;
L Combustion Chamber (m) = 2.7 m (medium value);
D Combustion Chamber (m) = 0.8 m (medium value)



Operation

BURNER OPERATION MODE

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

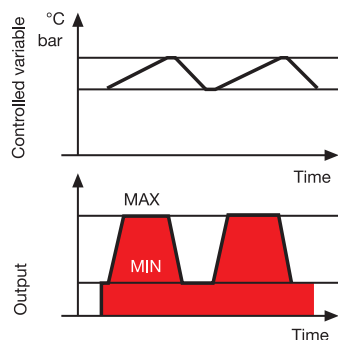


Example of a regulator.

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).

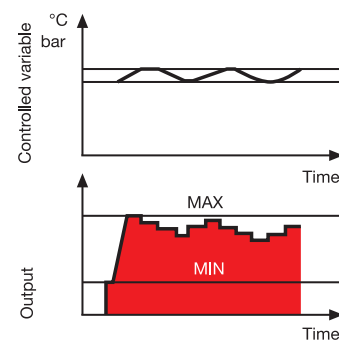
In “modulating” operation, normally required in steam generators, in superheated boilers or diathermic oil burners, a specific regulator or an analog control signal converter are required. These are supplied as accessories that must be ordered separately. The burner can work for long periods at intermediate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

“TWO STAGE PROGRESSIVE” OPERATION



Picture A

“MODULATING” OPERATION



Picture B

All RS/M BLU 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.



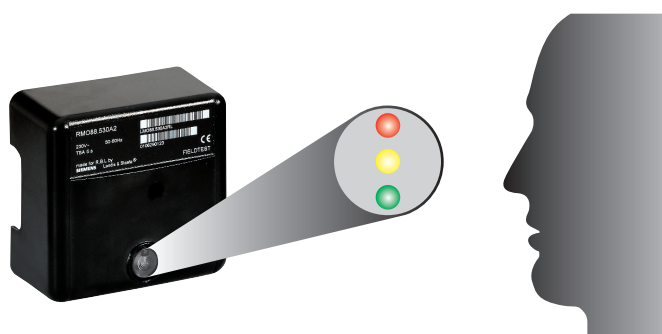
The multi-color LED is the central **indication element** for visual diagnosis and interface diagnosis.

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



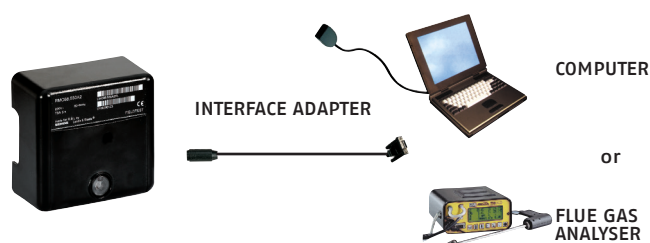
There are two diagnostic choices, for indication of operation and diagnosis of fault cause:

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	● ● ● ● ● ● ● ●
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 > 3 seconds.

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

Burner Wiring

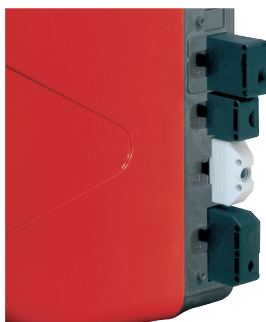
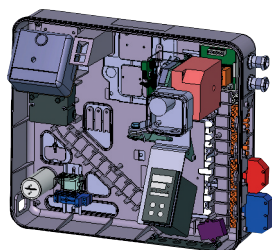
All models of the RS/M C05 - BLU burner series have an easily accessible control panel for the electrical components housing and wiring.

In particular the RS 25 - 35/M C05 - BLU models, have a extremely clean electrical layout to optimise the commissioning and maintenance speed.

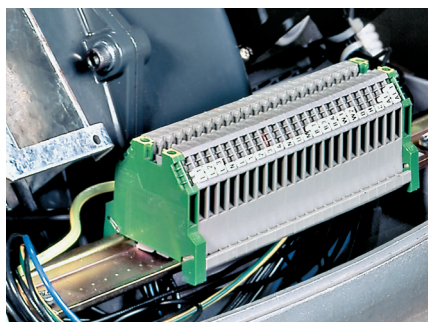
On these models the electrical connection are done by a Plug&Socket system, accessible from the external of the cover, and some of the main components as the servomotor, the air pressure switch, the electronic regulator (accessory) and the gas max pressure switch (accessory) are connected to the burner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

The electrical wiring of all RS/M C05 - BLU 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.



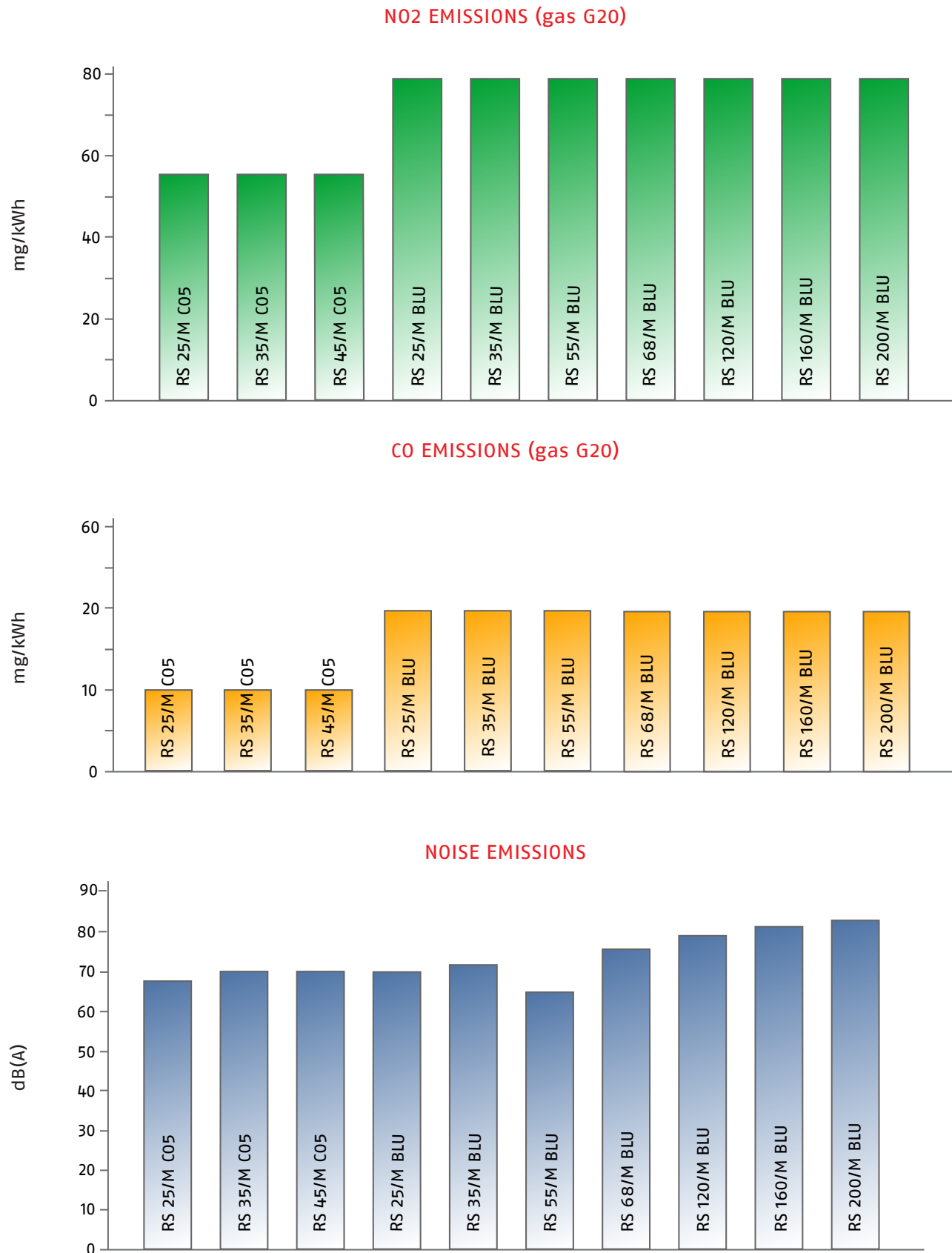
Example of electrical components housing and Plug&Socket system for electrical connection of RS 25-35/M C05 - RS 25-35/M BLU.



Example of the terminal board for electrical connections for the RS 68-120-160-200/M BLU models.

Emission

The emissions have been measured in various models at maximum output, according to EN 676 standard.



The noise emissions have been measured at the maximum output.

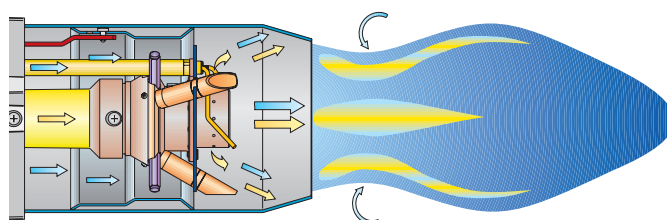
Safe and Green

The RS/M C05-BLU series combustion heads reduce polluting emissions thanks to their special design which optimises the air fuel mix.

The RS/M C05-BLU models have an oblique radial pipe distributor through which gas is injected directly into the passing air flow for a perfect distribution.

This prevents no homogeneous concentrations in the flame with areas of high oxidation; part of the premixed gas/air is injected into the centre of the flame.

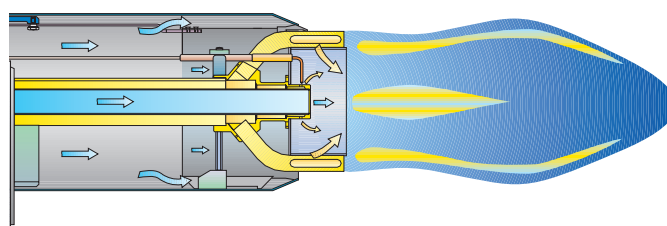
These methods produce a very stable flame with gradual and progressive combustion as the flame develops, thus giving polluting emission values below even the most restrictive norm values.



Combustion head operating diagram of RS 25/M BLU - RS 35/M C05 - BLU models.

In RS 68-120-160-200/M BLU models part of the gas is distributed through outlets which are perpendicular to the air flow, while the remaining gas is injected directly into the centre of the flame.

This prevents no homogeneous concentrations in the flame with areas of high oxidation, producing very stable flame with gradual and progressive combustion as the flame develops, thus giving polluting emission values below even the most restrictive norm values.

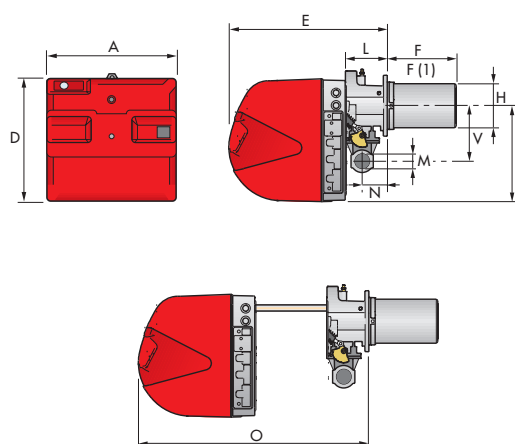


Combustion head operating diagram of RS 68/M BLU - RS 120/M BLU
RS 160/M BLU - RS 200/M BLU models.

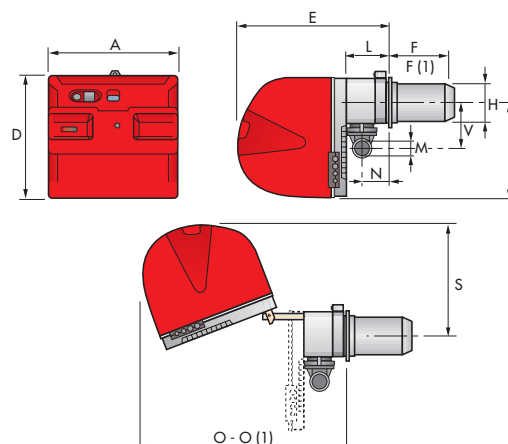
Overall dimensions (mm)

BURNER

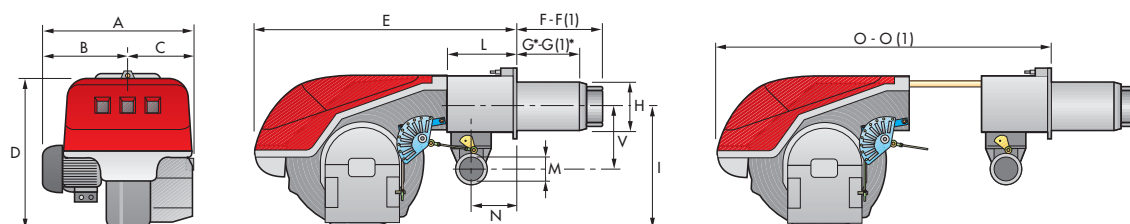
RS 25/M C05 - RS 35/M C05
RS 25/M BLU - RS 35/M BLU



RS 45/M C05
RS 55/M BLU



RS 68/M BLU - RS 120/M BLU - RS 160/M BLU - RS 200/M BLU

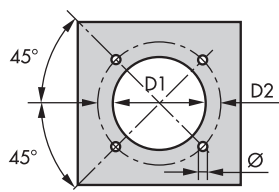


MODEL	A	B	C	D	E	F	F ⁽¹⁾	G*	G ^{(1)*}	H	I	L	M	N	O	O ⁽¹⁾	S	V
RS 25/M C05	442	-	-	422	508	230	365	-	-	140	305	138	1"1/2	84	780	-	-	177
RS 35/M C05	442	-	-	422	508	192	327	-	-	152	305	138	1"1/2	84	780	-	-	177
RS 45/M C05	476	-	-	474	580	192	327	-	-	160	352	164	1"1/2	108	810	810	367	168
RS 25/M BLU	442	-	-	422	508	230	365	-	-	140	305	138	1"1/2	84	-	-	-	177
RS 35/M BLU	442	-	-	422	508	230	365	-	-	152	305	138	1"1/2	84	-	-	-	177
RS 55/M BLU	533	300	-	490	640	255	390	-	-	189	352	222	2"	134	-	-	-	221
RS 68/M BLU	527	312	215	555	840	255	390	200	335	189	430	214	2"	134	1296	-	-	221
RS 120/M BLU	553	338	215	555	840	255	390	200	335	189	430	214	2"	134	1296	-	-	221
RS 160/M BLU	671	366	305	555	863	373	503	272	402	221	436	221	2"	141	1296	-	-	264
RS 200/M BLU	737	432	305	555	863	373	503	272	402	221	436	221	2"	141	1296	-	-	264

(1) dimension with extended head.

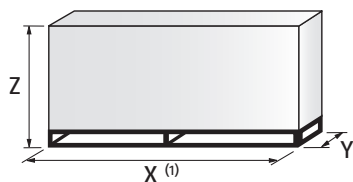
* Maximum depth of the boiler door including the depth of the burner flange insulating gasket.

BURNER – BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
RS 25/M C05	160	224	M8
RS 35/M C05	160	224	M8
RS 45/M C05	165	224	M8
RS 25/M BLU	160	224	M8
RS 35/M BLU	160	224	M8
RS 55/M BLU	195	275-325	M12
RS 68/M BLU	195	275-325	M12
RS 120/M BLU	195	275-325	M12
RS 160/M BLU	230	325-368	M12
RS 200/M BLU	230	325-368	M16

PACKAGING



MODEL	X ⁽¹⁾	Y	Z	kg
RS 25/M C05	1000	485	500	39
RS 35/M C05	1000	485	500	40
RS 45/M C05	1015	500	630	48
RS 25/M BLU	1000	485	500	39
RS 35/M BLU	1000	485	500	40
RS 55/M BLU	1405	700	660	44
RS 68/M BLU	1405	700	660	78
RS 120/M BLU	1405	700	660	84
RS 160/M BLU	1405-1420	1000	660	89
RS 200/M BLU	1405-1420	1000	660	125

(1) dimension with standard and extended head

Installation

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

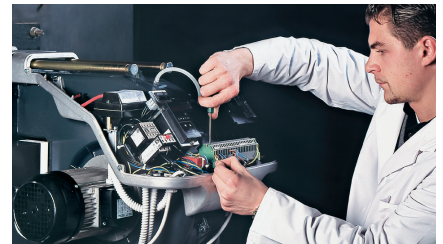
Make the electrical connections to the boiler following the wiring diagrams included in the instruction handbook.

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.

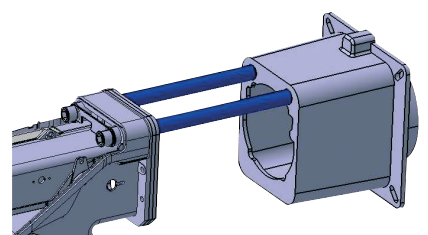


BURNER MAINTENANCE

The maintenance of RS/M C05-BLU burners is very simple thanks to the sliding bars system that allows an easy access to the internal components.

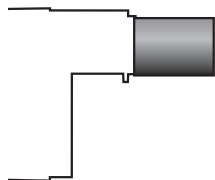
In particular the RS 25-35/M C05 - RS 25-35/M BLU models have a new sliding bars system to make easier the access to the combustion head.

The RS 160-200/M BLU have new reinforced sliding bars that make very strong the burner structure during maintenance.



Burner Accessories

Extended head kit

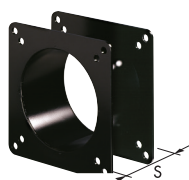


“Standard head” burners can be transformed into “extended head” versions, by using the special kit. The KITS available for the various burners, giving the original and the extended lengths, are listed below.

BURNER	STANDARD HEAD LENGTH (mm)	EXTENDED HEAD LENGTH (mm)	KIT CODE
RS 25/M C05 - RS 25/M BLU	230	365	3010430
RS 35/M C05 - RS 35/M BLU	230	365	3010431
RS 45/M C05	229	354	3010240
RS 55/M BLU	255	390	20040373
RS 68/M - 120/M BLU	255	390	3010177
RS 160/M BLU	373	503	3010442 *
RS 200/M BLU	373	503	3010474

* Kit to be used on burners recognizable by a serial number that is over or equal to 02426XXXXX, for burners with a serial number that is under or equal to 02416XXXXX please use the Kit coded 3010193.

Spacer kit



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

BURNER	SPACER THICKNESS S (mm)	KIT CODE
RS 25/M C05 - RS 25/M BLU RS 35/M C05 - RS 35/M BLU RS 45/M C05	110	3010095
RS 55/M BLU RS 68/M BLU - RS 120/M BLU	135	3010129
RS 160/M BLU - RS 200/M BLU	102	3000722

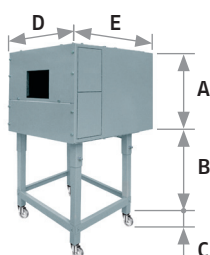
Continuous ventilation kit



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 25/M C05 - RS 25/M BLU RS 35/M C05 - RS 35/M BLU	3010449
RS 45/M C05 - RS 55/M BLU RS 68/M BLU - RS 120/M BLU RS 160/M BLU - RS 200/M BLU	3010094

Sound proofing box



If noise emission needs reducing even further, sound-proofing boxes are available. When a lower “B” dimension is required, it is available the Box Support kit code 20065135 which allows to reduce it at the fixed dimension of 55 mm. The sound-proofing boxes are not suitable for outdoor use.

BURNER	BOX TYPE	A (mm)	B (mm) min-max	C (mm)	D (mm)	E (mm)	[dB(A)] (*)	KIT CODE
RS 25/M C05 - RS 25/M BLU RS 35/M C05 - RS 35/M BLU RS 45/M C05 - RS 55/M BLU	C1/3	650	372 - 980	110	690	770	10	3010403
RS 68/M BLU - RS 120/M BLU RS 160/M BLU - RS 200/M BLU	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 C05 - RS/M BLU series of burners requires a regulator with three point outlet controls. On RS 25/M - 35/M C05 - BLU the regulator is connected to the burner electrical wiring by plug-in system in order to make the connection easier and faster.

The following table lists the accessories for modulating operation with their application range.

BURNER	REGULATOR TYPE	REGULATOR CODE
RS 25/M C05 - RS 35/M C05	RWF 50.2	20083339
RS 25/M C05 - RS 35/M BLU	RWF 55.5	20098541
RS 45/M C05	RWF 50.2	20082208
	RWF 55.5	20099657
RS 55/M BLU	RWF 50.2	20101190
	RWF 55.5	20101191
RS 68/M BLU - RS 120/M BLU	RWF 50.2	20082208
	RWF 55.5	20099657
RS 160/M BLU - RS 200/M BLU	RWF 50.2	20099869
	RWF 55.5	20099905



The relative temperature or pressure probes fitted to the regulator, must be chosen on the basis of the application.

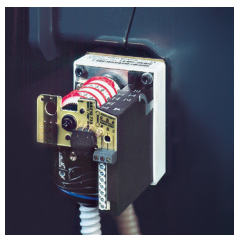
BURNER	PROBE TYPE	RANGE (°C) (bar)	PROBE CODE
All models	Temperature PT 100	-100 ÷ 500°C	3010110
	Pressure 4 ÷ 20 mA	0 ÷ 2.5 bar	3010213
	Pressure 4 ÷ 20 mA	0 ÷ 16 bar	3010214
	Pressure 4 ÷ 20 mA	0 ÷ 25 bar	3090873



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)	KIT CODE
RS 25/M C05 - RS 35/M C05	0/2 - 10 V (impedance 200 K Ω)	3010410
RS 25/M BLU - RS 35/M BLU	0/4 - 20 mA (impedance 250 Ω)	
RS 45/M C05 - RS 55/M BLU	0/2 - 10 V (impedance 200 K Ω)	3010390
	0/4 - 20 mA (impedance 250 Ω)	
RS 68/M BLU - RS 120/M BLU	0/2 - 10 V (impedance 200 K Ω)	3010415
RS 160/M BLU - RS 200/M BLU	0/4 - 20 mA (impedance 250 Ω)	



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

BURNER	POTENTIOMETER KIT CODE
RS 25/M C05 - RS 35/M C05 RS 25/M BLU - RS 35/M BLU	3010420
RS 45/M C05 - RS 55/M BLU	3010109
RS 68/M - RS 120/M BLU - RS 160/M BLU - RS 200/M BLU	3010416

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 Pipes Kit.

BURNER	KIT CODE (*)
RS 68/M BLU	3010247
RS 120/M BLU	3010248
RS 160/M BLU	3010249
RS 200/M BLU	20035848

(*) CE approval on field is required

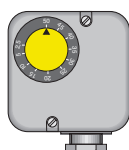
Ground fault interrupter kit



A "Ground fault interrupter kit" is available as a safety device in case of electrical system fault.

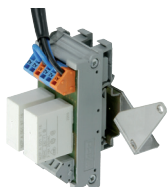
BURNER	KIT CODE
RS 25/M C05 - RS 35/M C05 - RS 25/M BLU - RS 35/M BLU	3010448
RS 45/M C05 - RS 55/M BLU - RS 68/M BLU - RS 120/M BLU - RS 160/M BLU - RS 200/M BLU	3010329

Gas max pressure switch



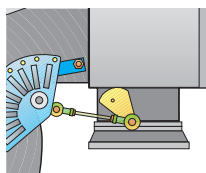
If necessary a Gas max pressure Switch kit is available and connectable to the burner electrical wiring through Plugs & Sockets system.

BURNER	KIT CODE
RS 25/M C05 - RS 35/M C05 - RS 25/M BLU - RS 35/M BLU	3010418

Volt free contact kit

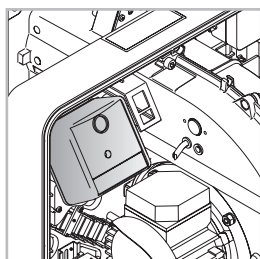
A volt free contact kit is available for installation onto the burner. It can be used for a remote interface between burner operating signals. Every burner can be equipped with a single kit for a remote check of the flame presence signal and the burner lockout indication.

BURNER	KIT CODE
RS 25/M C05 - RS 35/M C05 - RS 25/M BLU - RS 35/M BLU - RS 55/M BLU	3010419

DN80 gas flange kit

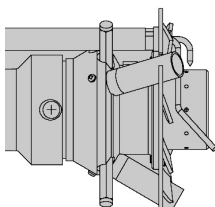
To modify the standard 2" burner gas input connection in to DN80 connection, a specific gas flange is available.

BURNER	KIT CODE
RS 68/M - RS 120/M - RS 160/M - RS 200/M BLU	3010439

Post-ventilation kit

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

BURNER	KIT CODE
RS 25/M C05 - RS 35/M C05 - RS 25/M BLU - RS 35/M BLU	3010451

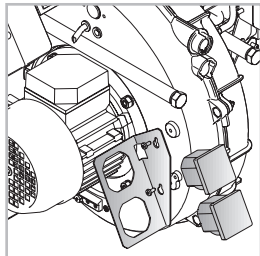
LPG kit

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 25/M C05 - RS 25/M BLU	3010423	3010423
RS 35/M C05 - RS 35/M BLU	3010424	3010424
RS 45/M C05	3010432 *	3010432 *
RS 55/M BLU	20144368 *	20161511 *
RS 68/M BLU	3010433 *	3010433 *
RS 120/M BLU	(1)	(1)
RS 160/M BLU	20008971 *	20008971 *
RS 200/M BLU	3010491	3010491

(1) Not available

Hours counter kit



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

BURNER	KIT CODE
RS 25/M C05 – RS 35/M C05 – RS 25/M BLU – RS 35/M BLU	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

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

PC Interface kit



UV90L flame sensor can be used only with the RFG0 control box and when the LFL control box with UV flame sensor type QRA2 must be replaced.

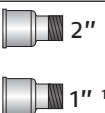
BURNER	KIT CODE
All RS/M models (*)	3002719

(*) Only with RFG0 control box.

Gas train accessories

Adapters

When the diameter of the gas train is different from the set diameter of the burners, an adapter must be fitted between the gas train and 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  2"	300	3000826
1" 1/2  2"	35	3000843
1" 1/4  1" 1/2	35	3010124
1" 1/4  2"	35	3010126

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	20050030
CB/1 type	3010367	20050030
DMV/1 type	3010367	20050030

Stabiliser spring



Accessory springs are available to vary the pressure range of the gas train composed. 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 5000/1	White	4 - 20	3010381
	Red	20 - 40	3010382
	Black	40 - 80	3010383
	Green	80 - 150	3010384
CB 512/1 - DMV 512/1	Red	25 - 55	3010131
	Black	60 - 110	3010157
	Pink	90 - 150	3090486
CB 520/1 - 525/1 DMV 520/1 - 525/1*	Red	25 - 55	3010132
	Black	60 - 110	3010158
	Pink	90 - 150	3090487
CB 5065/1 - 5080/1 DMV 5065/1 - 5080/1	Red	25 - 55	3010133
	Black	60 - 110	3010135
	Pink	100 - 150	3090456
	Grey	140 - 200	3090992
CB / DMV 50100/1	Red	25 - 55	3010134
	Black	60 - 110	3010136
	Pink	100 - 150	3090489
	Grey	140 - 200	3092174
CB / DMV 50125/1	Red	25 - 55	3010315
	Yellow	30 - 70	3010316
	Black	60 - 110	3010317
	Pink	100 - 150	3010318

Specification

DESIGNATION

A specific index guides your choice of burner from the various models available in the RS/M 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									
/B Two stage									
/M Modulating-Mechanical cam									
/E Electronic cam									
/P Proportioning air/gas valve									
/EV Electronic cam predisposed for variable speed (with inverter)									
/EVi Electronic cam with integrated inverter									
Emission: ... or C01 Class 1 EN676									
MZ Class 2 EN676									
BLU Class 3 EN676									
MX Class 3 EN676									
C05 Class 5 EN676 (NOx < 56 mg/kWh)									
Head length: TC standard head									
TL extended head									
Flame control system: FS1 Standard/Intermittent (at least 1 stop every 24 h)									
FS2 Continuous (1 stop every 72 h)									
Electrical supply to the 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 3/220/60Hz - 3N/380V/60Hz									
Auxiliary voltage: 230/50-60 230V/50-60Hz									
110/50-60 110V/50-60Hz									
R	S	55	/M	BLU	TC	FS1	3/230-400/50	230/50-60	
BASIC DESIGNATION									
EXTENDED DESIGNATION									

AVAILABLE BURNER MODELS

RS 25/M BLU	TC	FS1	1/220-230/50-60	220-230/50-60
RS 25/M BLU	TL	FS1	1/220-230/50-60	220-230/50-60
RS 25/M BLU	TC	FS2	1/220-230/50-60	220-230/50-60
RS 25/M BLU	TL	FS2	1/220-230/50-60	220-230/50-60
RS 25/M C05	TC	FS1	1/220-230/50-60	220-230/50-60
RS 25/M C05	TL	FS1	1/220-230/50-60	220-230/50-60
RS 35/M BLU	TC	FS1	1/220-230/50-60	220-230/50-60
RS 35/M BLU	TL	FS1	1/220-230/50-60	220-230/50-60
RS 35/M BLU	TC	FS2	1/220-230/50-60	220-230/50-60
RS 35/M BLU	TL	FS2	1/220-230/50-60	220-230/50-60
RS 35/M C05	TC	FS1	1/220-230/50-60	220-230/50-60
RS 35/M C05	TL	FS1	1/220-230/50-60	220-230/50-60
RS 45/M C05	TC	FS1	1/230/50	230/50-60
RS 45/M C05	TL	FS1	1/230/50	230/50-60
RS 45/M C05	TC	FS2	1/230/50	230/50-60
RS 45/M C05	TL	FS2	1/230/50	230/50-60
RS 55/M BLU	TC	FS1	3/230-400/50	230/50-60
RS 55/M BLU	TL	FS1	3/230-400/50	230/50-60
RS 68/M BLU	TC	FS1	3/230-400/50	230/50-60
RS 68/M BLU	TL	FS1	3/230-400/50	230/50-60
RS 68/M BLU	TC	FS1	3/230-400/50	230/50-60
RS 68/M BLU	TL	FS1	3/230-400/50	230/50-60
RS 68/M BLU	TC	FS2	3/230-400/50	230/50-60
RS 68/M BLU	TL	FS2	3/230-400/50	230/50-60
RS 120/M BLU	TC	FS1	3/230-400/50	230/50-60
RS 120/M BLU	TL	FS1	3/230-400/50	230/50-60
RS 120/M BLU	TC	FS1	3/230-400/50	230/50-60
RS 120/M BLU	TL	FS1	3/230-400/50	230/50-60
RS 120/M BLU	TL	FS1	3/220-380/60	230/50-60
RS 120/M BLU	TC	FS2	3/230-400/50	230/50-60
RS 120/M BLU	TL	FS2	3/230-400/50	230/50-60
RS 160/M BLU	TC	FS1	3/400/50	230/50-60
RS 160/M BLU	TC	FS1	3/230/50	230/50-60
RS 160/M BLU	TL	FS1	3/400/50	230/50-60
RS 160/M BLU	TL	FS1	3/230/50	230/50-60
RS 160/M BLU	TC	FS1	3/400/50	230/50-60
RS 160/M BLU	TC	FS1	3/230/50	230/50-60
RS 160/M BLU	TL	FS1	3/400/50	230/50-60
RS 160/M BLU	TL	FS1	3/380/60	230/50-60
RS 160/M BLU	TC	FS1	3/380/60	230/50-60
RS 160/M BLU	TC	FS2	3/400/50	230/50-60
RS 160/M BLU	TC	FS2	3/230/50	230/50-60
RS 160/M BLU	TL	FS2	3/400/50	230/50-60
RS 160/M BLU	TL	FS2	3/230/50	230/50-60
RS 200/M BLU	TC	FS1	3/400/50	230/50-60
RS 200/M BLU	TL	FS1	3/400/50	230/50-60
RS 200/M BLU	TC	FS1	3/230/50	230/50-60
RS 200/M BLU	TL	FS1	3/230/50	230/50-60
RS 200/M BLU	TC	FS2	3/400/50	230/50-60
RS 200/M BLU	TL	FS2	3/400/50	230/50-60
RS 200/M BLU	TC	FS2	3/230/50	230/50-60
RS 200/M BLU	TL	FS2	3/230/50	230/50-60

Other versions are available on request.

PRODUCT SPECIFICATION

Monoblock forced draught Low NOx gas burner, two stage progressive or modulating operation with a kit, made up of:

- Air suction circuit with sound proofing material
- Air damper for air flow setting and butterfly valve for regulating fuel output controlled by a servomotor with variable cam
- Low emissions 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
- Minimum air pressure switch stops the burner in case of insufficient air quantity at the combustion head
- Burner on/off selection switch
- Manual or automatic output increase/decrease switch
- Microprocessor-based burner safety control box, with diagnostic functions
- Flame inspection window
- Slide bars for easier installation and maintenance
- Protection filter against radio interference

RS 25/M C05 – RS 35/M C05 – RS 25/M BLU – RS 35/M BLU models

- High performance fan with forward curve blades
- Starting motor at 2800 rpm, single-phase / 220-230V / 50-60Hz or three-phase / 380-400V / 50-60Hz
- 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
- Plug and socket for electrical connections accessible from the external of the cover
- IP 40 electric protection level.

RS 45/M C05 – RS 55/M BLU – RS 68/M BLU – RS 120/M BLU – RS 160/M BLU – RS 200/M BLU models

- Fan with reverse curve blades (RS 45/M C05 – RS 55/M BLU – RS 68/M BLU – RS 120/M BLU models) or forward curve blades (RS 160/M BLU – RS 200/M BLU models)
- Sound-proofing material on air suction circuit
- Starting motor at 2800 rpm, three-phase 400V with neutral, 50Hz (single-phase, 230V, 50Hz for the RS 45/M C05 model)
- Maximum gas pressure switch (on RS 55/M BLU – RS 68/M BLU – RS 120/M BLU – RS 160/M BLU – RS 200/M BLU models)
- 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
- Fairleads for the electrical connection (RS 45/M C05)
- 3 plugs for electrical connection (RS 25/M BLU – RS 35/M BLU single-phase)
- 4 plugs for electrical connection (RS 35/M BLU three-phase)
- 2 slide bar extensions (for extended head models and RS 160/M BLU – RS 200/M BLU models)
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

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

10/2019
TS0016UK08



[1]



[2]

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.

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

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

RIELLO S.p.A. – 37045 Legnago (VR) – Italy
tel. +39 0442 630111 – fax: +39 0442 21980
www.riello.com

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