

RS 310-410-510-610/M BLU SERIES

The RS 310-410-510-610/M BLU burners series covers a firing range from 1200 to 6250 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 or by external 4-20 mA/0-10 V signal.

The mechanical cam device of regulation allows to catch up a high modulation ratio on all firing rates range. The burners can, therefore, supply with precision the demanded power, guaranteeing a high efficiency system level and the stability setting, obtaining fuel consumption and operating costs reduction.

The combustion head, engineered with advanced simulation devices, guarantees reduced polluting emissions ($\text{NO}_x < 60 \text{ mg/kWh}$).

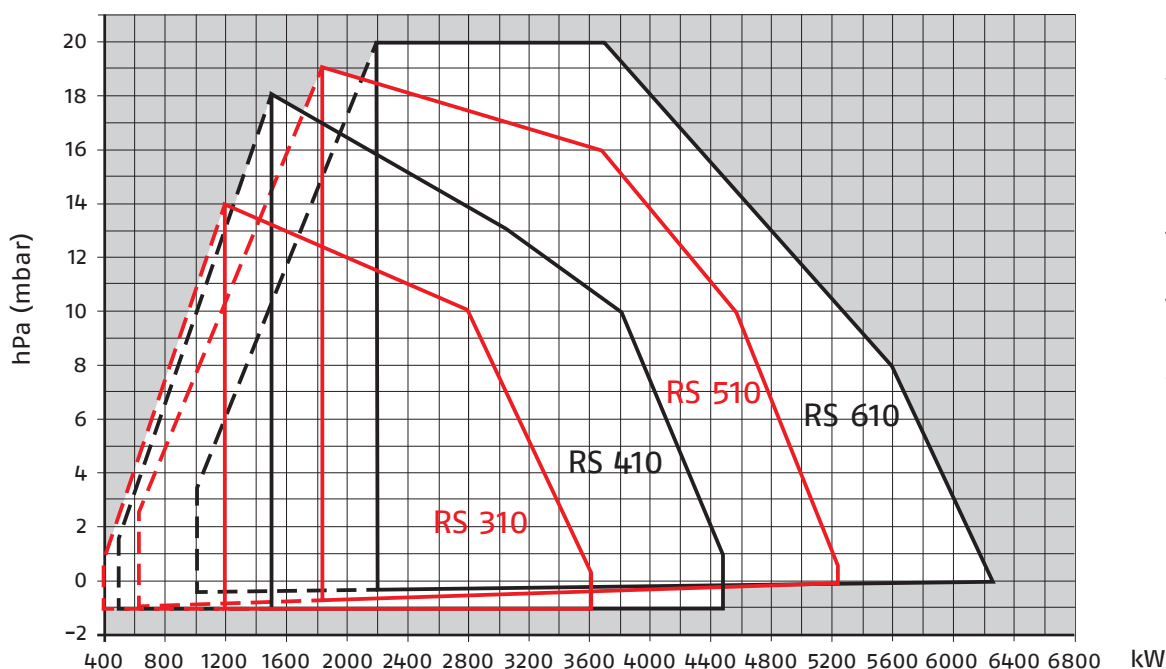
FS1 and FS2 versions are available for intermittent and continuous operation applications.

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

A wide range of accessories guarantees elevated working flexibility.



RS 310/M BLU	400/1200	÷	3630	kW
RS 410/M BLU	500/1500	÷	4450	kW
RS 510/M BLU	680/1800	÷	5250	kW
RS 610/M BLU	1000/2200	÷	6250	kW



Useful working field for choosing the burner



Modulation range

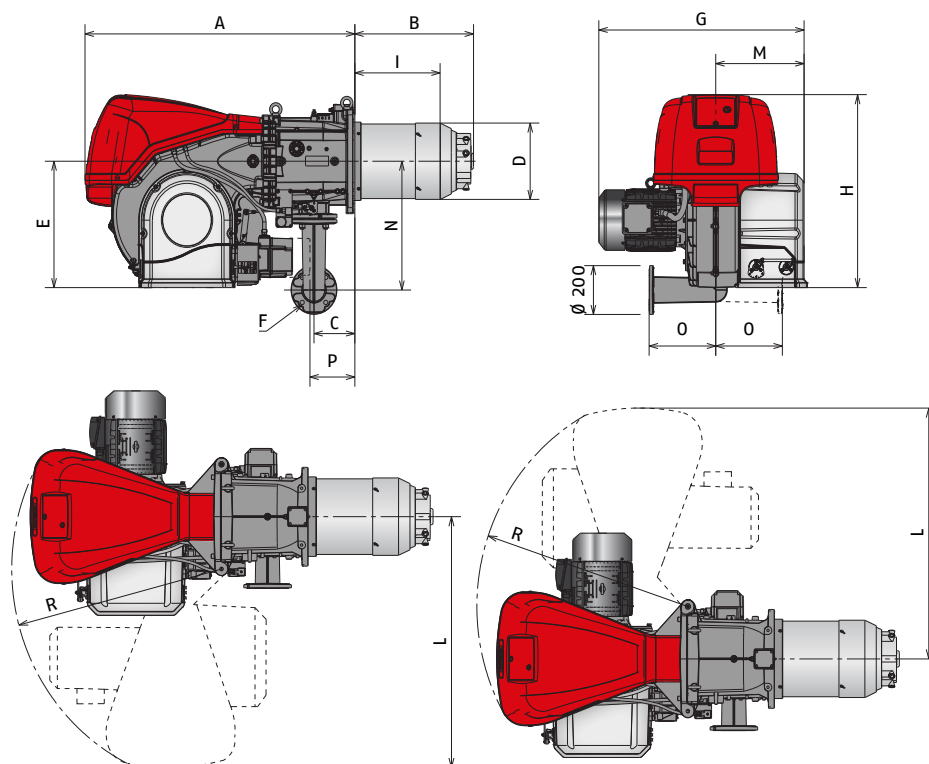
Test conditions conforming to EN676
Temperature: 20°C
Pressure: 1013,5 mbar
Altitude: 0 m a.s.l.

Low NOx Modulating Gas Burners

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Overall dimensions (mm)

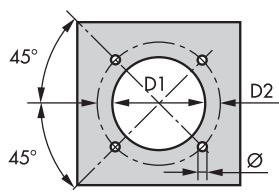
BURNER



Model	A	B	C	D	E	F	G	H	I	L	M	N	O	P*	R
► RS 310/M BLU	1178	465	178	306	520	DN65	890	790	346	1015	400	528	290	177	890
► RS 410/M BLU	1178	517	178	313	520	DN65	908	790	340	1015	400	528	290	177	890
► RS 510/M BLU	1178	517	178	313	520	DN65	908	790	340	1015	400	528	290	177	890
► RS 610/M BLU	1178	517	178	334	520	DN65	980	790	365	1015	400	528	290	177	890

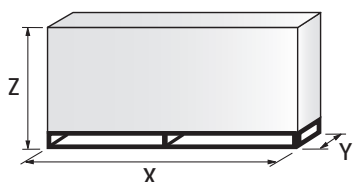
* Maximum position for the extraction of the servomotor cover in mechanical cam models.

BURNER - BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
► RS 310/M BLU	335	452	M18
► RS 410/M BLU	335	452	M18
► RS 510/M BLU	335	452	M18
► RS 610/M BLU	350	452	M18

PACKAGING



MODEL	X	Y	Z	kg
► RS 310/M BLU	2040	1180	1125	250
► RS 410/M BLU	2040	1180	1125	250
► RS 510/M BLU	2040	1180	1125	250
► RS 610/M BLU	2040	1180	1125	280

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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: ... or C01 Class 1 EN267 – EN676									
MZ Class 2 EN267 – EN676									
BLU Class 3 EN267 – EN676									
MX Class 2 EN267									
Class 3 EN676									
Head length: TC standard head									
TL extended head									
Flame control system: FS1 Standard (1 stop every 24 h)									
FS2 Continuous working (1 stop every 72 h)									
Electrical supply to the system:									
1/230/50 1/230V/50Hz									
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/50–60H									
110/50–60 110V/50–60Hz									
R	S	510	/M	BLU	TC	FS1	3/230–400/50	230/50–60	
BASIC DESIGNATION									
EXTENDED DESIGNATION									

LOW NOx GAS

Low NOx Modulating Gas Burners

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Specification

STATE OF SUPPLY

Monoblock forced draught gas burners with modulating operation, fully automatic, made up of:

- High performance fan with low sound emissions, forward curve blades.
- Air suction circuit lined with sound-proofing material
- Air damper for air setting controlled by a high precision servomotor
- Air pressure switch
- Fan starting motor at 2900 rpm, three-phase 230/400 – 400/690 V with neutral, 50 Hz
- 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 sensor for flame detection (or UV sensor on demand)
 - flame stability disk
- Maximum gas pressure switch, with pressure test point, for halting the burner in the case of over pressure on the fuel supply line
- Burner safety control box for controlling the system safety: RMG/M and LFL for FS1 intermittent operation and LGK for FS2 continuous operation for RS 310-410-510-610/M models;
- Star/delta starter for the fan motor (Direct starter fan motor for RS 310-410 models)
- Main electrical supply terminal board
- Burner on/off switch
- Manual or automatic output increase/decrease switch
- Contacts motor and thermal relay with release button
- Burner failure led signal and lighted release button
- Burner opening hinge
- Lifting rings
- IP 54 electric protection level

Standard equipment:

Gasket for gas train adaptor
Adaptor for gas train
Screws for fixing the gas train adaptor: M 16 x 70
Thermal insulation screen
M 18 x 60 screws to secure the burner flange to the boiler
Cable grommets kit for optional electrical wiring input
M16 x 6 studs for fixing the gas elbow to the pipe coupling
M16 nuts to fix the gas elbow to the pipe coupling
Instruction handbook for installation, use and maintenance
Spare parts catalogue

Gas train

Fuel supply line, in the MULTIBLOC configuration (for a diameter of 1-1/2" and 2") or COMPOSED configuration (from a diameter of DN 65 until a diameter of DN 125), fitted with:

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

Conforming to:

Low NOx Modulating Gas Burners

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Specification

- 2004/108 EC directive (electromagnetic compatibility)
- 2006/95 EC directive (low voltage)
- 2009/142 EC directive (gas)
- 2006/42 EC directive (machine)
- EN 676 (gas burners).

Available accessories to be ordered separately:

- Power controller
- Probe
- Analog control signal converter
- Potentiometer
- Continuous ventilation kit
- UV cell kit
- PC interface kit
- Sound proofing box
- Spacer kit
- Adapters
- Seal Control kit
- Stabiliser spring.

LOW NOx GAS

Low NOx Modulating Gas Burners

RS 310-410-510-610/M BLU SERIES

Available models

Burners

CODE	MODEL					HEAT OUTPUT NATURAL GAS		TOTAL ELECTRICAL POWER (KW)	CERTIFICATION	NOTE
						(KW)	(Nm³/h)			
20067964	RS 310/M BLU	TC	FS1	3/400/50		400/1200-3630	40/120-363	8,8	CE-0085C90166	(1) (4)
20068219	RS 310/M BLU	TC	FS1	3/230/50		400/1200-3630	40/120-363	9,1	CE-0085C90166	(1)
20068245	RS 310/M BLU	TC	FS1	3/400/50		400/1200-3630	40/120-363	9,1	CE-0085C90166	(1)
20074125	RS 310/M BLU	TC	FS1	3/400/50		400/1200-3630	40/120-363	9,1	CE-0085C90166	(2) (4)
20074121	RS 310/M BLU	TC	FS1	3/230/50		400/1200-3630	40/120-363	9,1	CE-0085C90166	(2)
20074122	RS 310/M BLU	TC	FS1	3/400/50		400/1200-3630	40/120-363	9,1	CE-0085C90166	(2)
20074133	RS 310/M BLU	TC	FS2	3/400/50		400/1200-3630	40/120-363	9,1	CE-0085C90166	(3) (4)
20074129	RS 310/M BLU	TC	FS2	3/230/50		400/1200-3630	40/120-363	9,1	CE-0085C90166	(3)
20074130	RS 310/M BLU	TC	FS2	3/400/50		400/1200-3630	40/120-363	9,1	CE-0085C90166	(3)
20069841	RS 410/M BLU	TC	FS1	3/400/50		500/1500-4450	50/150-445	10,6	CE-0085C90166	(1) (4)
20068270	RS 410/M BLU	TC	FS1	3/230/50		500/1500-4450	50/150-445	10,8	CE-0085C90166	(1)
20068284	RS 410/M BLU	TC	FS1	3/400/50		500/1500-4450	50/150-445	10,8	CE-0085C90166	(1)
20074126	RS 410/M BLU	TC	FS1	3/400/50		500/1500-4450	50/150-445	10,8	CE-0085C90166	(2) (4)
20074123	RS 410/M BLU	TC	FS1	3/230/50		500/1500-4450	50/150-445	10,8	CE-0085C90166	(2)
20074124	RS 410/M BLU	TC	FS1	3/400/50		500/1500-4450	50/150-445	10,8	CE-0085C90166	(2)
20074134	RS 410/M BLU	TC	FS2	3/400/50		500/1500-4450	50/150-445	10,8	CE-0085C90166	(3) (4)
20074131	RS 410/M BLU	TC	FS2	3/230/50		500/1500-4450	50/150-445	10,8	CE-0085C90166	(3)
20074132	RS 410/M BLU	TC	FS2	3/400/50		500/1500-4450	50/150-445	10,8	CE-0085C90166	(3)
20069845	RS 510/M BLU	TC	FS1	3/400/50		680/1800-5250	68/180-525	14	CE-0085C90166	(1) (4)
20074127	RS 510/M BLU	TC	FS1	3/400/50		680/1800-5250	68/180-525	14	CE-0085C90166	(2) (4)
20074135	RS 510/M BLU	TC	FS2	3/400/50		680/1800-5250	68/180-525	14	CE-0085C90166	(3) (4)
20069847	RS 610/M BLU	TC	FS1	3/400/50		1000/2200-6250	100/220-625	16,9	CE-0085C90166	(1) (4)
20074128	RS 610/M BLU	TC	FS1	3/400/50		1000/2200-6250	100/220-625	16,9	CE-0085C90166	(2) (4)
20074136	RS 610/M BLU	TC	FS2	3/400/50		1000/2200-6250	100/220-625	16,9	CE-0085C90166	(3) (4)

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

The burners of RS/M BLU series are in according to 2009/142 - 2004/108 - 2006/95 - 2006/42 EC Directives.

- (1) with RMG/M control box
- (2) with LFL control box
- (3) with LGK control box
- (4) Star delta starter

Low NOx Modulating Gas Burners

RS 310-410-510-610/M BLU SERIES

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Available models

Gas Trains

CODE	GAS TRAIN			VPS Code	ADAPTER CODE			
	MODEL	Ø	C.T.		RS 310	RS 410	RS 510	RS 610
3970180*	MB 415/1 - RT 30	Rp 1" 1/2	-	3010123	3000826 + 20064220	●	●	●
3970198**	MB 415/1 CT RT 30	Rp 1" 1/2	◆	-		●	●	●
3970250*	MB 415/1 - RT 52	Rp 1" 1/2	-	3010123		●	●	●
3970253**	MB 415/1 CT RT 52	Rp 1" 1/2	◆	-		●	●	●
3970232*	MB 415/1 - RSM 30	Rp 1" 1/2	-	3010123		●	●	●
3970181*	MB 420/1 - RT 30	Rp 2"	-	3010123	3000826 + 20042324	●	●	●
3970182**	MB 420/1 CT RT 30	Rp 2"	◆	-		●	●	●
3970257*	MB 420/1 - RT 52	Rp 2"	-	3010123		●	●	●
3970252**	MB 420/1 CT RT 52	Rp 2"	◆	-		●	●	●
3970233*	MB 420/1 - RSM 30	Rp 2"	-	3010123		●	●	●
3970234**	MB 420/1 CT RSM 30	Rp 2"	◆	-		●	●	●
3970221*	MBC 1200/1 - RSM 60	Rp 2"	-	3010367	3000826 + 20042324			
3970225**	MBC 1200/1 CT RSM 60	Rp 2"	◆	-				
3970222*	MBC 1900/1 - FSM 40	DN 65	-	3010367	3010221			
3970226**	MBC 1900/1 CT FSM 40	DN 65	◆	-				
3970223*	MBC 3100/1 - FSM 40	DN 80	-	3010367	3010222			
3970227**	MBC 3100/1 CT FSM 40	DN 80	◆	-				
3970224*	MBC 5000/1 - FSM 80	DN 100	-	3010367	3010222 - 3010370			
3970228**	MBC 5000/1 CT FSM 80	DN 100	◆	-				
3970145*	CB 512/1 - RSM 30	Rp 1" 1/2	-	3010367	3000826 + 20064220	●	●	●
20045589**	CB 512/1 CT RSM 30	Rp 1" 1/2	◆	-		●	●	●
3970146*	CB 520/1 - RSM 30	Rp 2"	-	3010367	3000826 + 20042324			●
3970160**	CB 520/1 CT RSM 30	Rp 2"	◆	-				●
20044659*	CB 525/1 - RSM 30	Rp 2"	-	3010367	3000826 + 20042324			
20044660**	CB 525/1 CT RSM 30	Rp 2"	◆	-				
3970147*	CB 5065/1 - FSM 30	DN 65	-	3010367	3010221			
3970161**	CB 5065/1 CT FSM 30	DN 65	◆	-				
3970148*	CB 5080/1 - FSM 30	DN 80	-	3010367	3010222			
3970162**	CB 5080/1 CT FSM 30	DN 80	◆	-				
3970149*	CB 50100/1 - FSM 30	DN 100	-	3010367	3010223 - 3010370			
3970163**	CB 50100/1 CT FSM 30	DN 100	◆	-				
20015871*	CB 50125/1 - FSM 30	DN 125	-	3010367	3010224			
3970196**	CB 50125/1 CT FSM 30	DN 125	◆	-				

Please see designation of Gas Train Series in the page before the Catalogue index.

* 230V/50Hz - 220V/60Hz electrical supply.

** 230V/50Hz electrical supply.

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

To select the gas train please refer to the technical data leaflet and/or instruction manual.

C.T. Gas valve leak detection control device:

- gas train not equipped with leak detection control device; this device can be ordered separately - see VPS column - and installed later.

◆ gas train equipped with leak detection control device.

VPS Valve leak detection control device. Supplied separately from the gas train (please see Gas train accessories paragraph for both 50 Hz and 60 Hz codes).

● Not available.

LOW NOx GAS

Low NOx Modulating Gas Burners

RS 310-410-510-610/M BLU SERIES

Burner accessories

Accessories for modulating operation

POWER CONTROLLER



To obtain modulating operation, the RS/M BLU series of burners requires a regulator with three point outlet controls. The following table lists the accessories for modulating operation with their application range.

BURNER	TYPE	CODE
► All models	RWF 50.2 – Basic version with 3 position output	20073595
	RWF 55.5 – Complete with RS-485 interface	20074441
	RWF 55.6 – Complete with RS-485/ PROFIBUS interface	20074442

PROBE



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

BURNER	TYPE	RANGE (°C) (BAR)	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 ÷ 16 bar	3090873

ANALOG CONTROL SIGNAL CONVERTER



BURNER	TYPE (INPUT SIGNAL)	CODE
► RS 310-410-510-610/M	0/2 – 10 V (impedance 200 KΩ)	20074479
	0/4 – 20 mA (impedance 250 Ω)	

POTENTIOMETER

BURNER	CODE
► RS 310-410-510-610/M	20074487

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	CODE
► RS 310-410-510-610/M	20074542

Low NOx Modulating Gas Burners

RS 310-410-510-610/M BLU SERIES

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Burner accessories

Uv cell kit



A UV cell is available for the supervision of the flame alternatively to ionisation probe for special applications.

BURNER	CODE
► RS 310-410-510-610/M	20074548 - 20079707

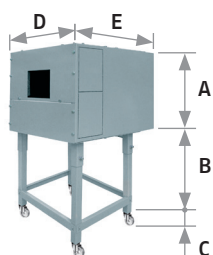
Pc interface kit



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

BURNER	CODE
► RS 310-410-510-610/M	3002719

Sound proofing box

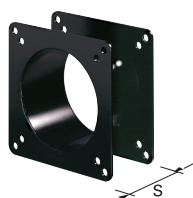


If noise emission needs reducing even further, sound-proofing boxes are available. In case of generator heights, where a lower dimension "B" is required, ask for the Box Support Kit code 20065135. The useful dimensions are 40 mm less than the total dimensions indicated in the table (A, D, E). Not suitable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

BURNER	BOX TYPE	A (mm)	B (mm) min. - max	C (mm)	D (mm)	E (mm)	[dB(A)] (*)	CODE
► All models	C7	1255	160 - 980	110	1140	1345	10	3010376

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

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)	CODE
► All models	180	20008903

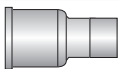
Low NOx Modulating Gas Burners

RS 310-410-510-610/M BLU SERIES

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		DIMENSIONS				ADAPTER CODE
		Ø1 DN	Ø2 DN	A mm	B mm	
1" 1/2		2"				
		-	-	65	-	20064220
2"		2"				
		-	-	65	-	20042324
DN 80		2" 1/2		2"		
		-	-	300	-	3000826
		65	80	400	-	3010221
		80	80	400	-	3010222
		100	80	400	-	3010223
		125	80	320	-	3010224

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
► MB type	3010123
► MCB - CB - DMV type	3010367

Low NOx Modulating Gas Burners

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Stabiliser spring



To vary the pressure range of the gas train stabilisers, accessory springs are available. 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	100 – 150	3090487
CB 5065/1 – 5080/1	Red	25 – 55	3010133
	Black	60 – 110	3010135
	Pink	100 – 150	3090456
	Grey	140 – 200	3090992
CB 50100/1	Red	25 – 55	3010134
	Black	60 – 110	3010136
	Pink	100 – 150	3090489
	Grey	140 – 200	3092174
CB 50125/1	Red	25 – 55	3010315
	Yellow	30 – 70	3010316
	Black	60 – 110	3010317
	Pink	100 – 150	3010318

LOW NOx GAS