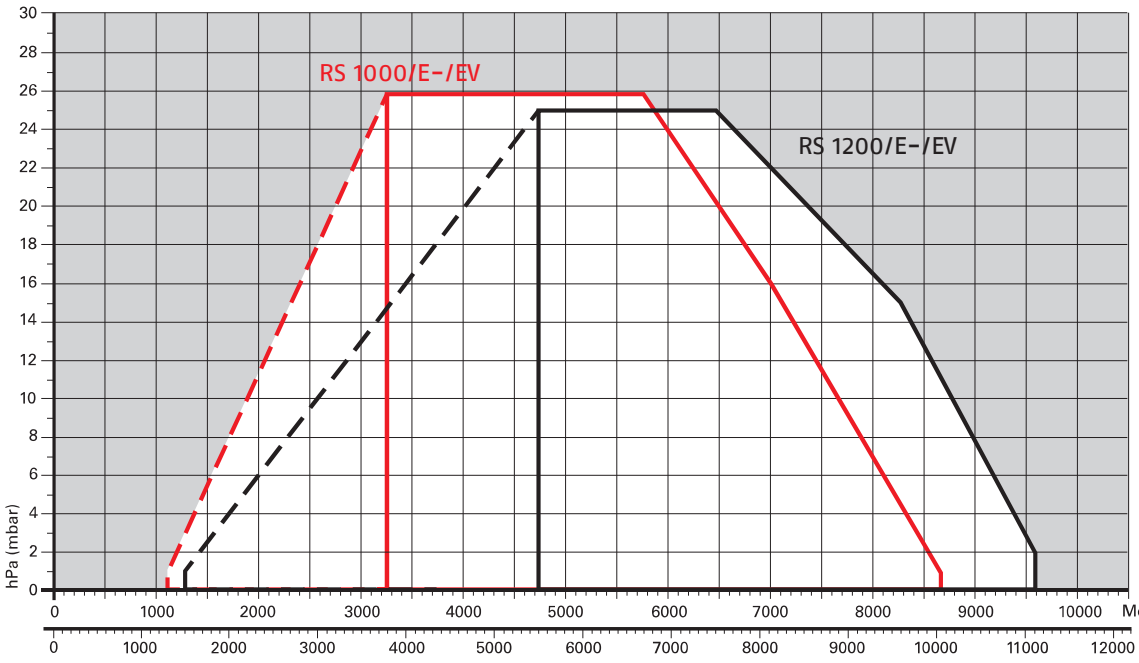
RS 1000÷2000/E-EV C01 SERIES

The well-known RS 1000-1200/E-EV Burner Series, till now The RS/E and RS/EV C01 burners series are characterised by a modular monoblock structure that means all necessary components can be combined in a single unit thus making installation easier, faster and, above all, more flexible.
The burners cover a firing range from 4000 to 19500 kW, and they have been designed for use in hot water boilers or industrial steam generators.
Operation can be modulating on the RS/E series and modulating with variable speed drive operation on RS/EV series.
The mechanisms of regulation allow to catch up a high modulation ratio on all firing rates range.
The burner can, therefore, supply with precision the demanded power, guaranteeing an high efficiency system level and the stability setting, obtaining fuel consumption and operating costs reduction.
The burner operation can be intermittent or continuous by menu setting.
The innovative combustion head, adjustment system ensures perfect movement during modulation.

RS 1000/E-EV C01	1100/4000	÷ 10100 kW
RS 1200/E-EV C01	1500/5500	÷ 11100 kW
RS 1300/E-EV C01	2500/7500	÷13000 kW
RS 1600/E-EV C01	3065/9503	÷15560 kW
RS 2000/E-EV C01	4000/12000	÷19500 kW

RS 1000-2000/E-EV C01 SERIES

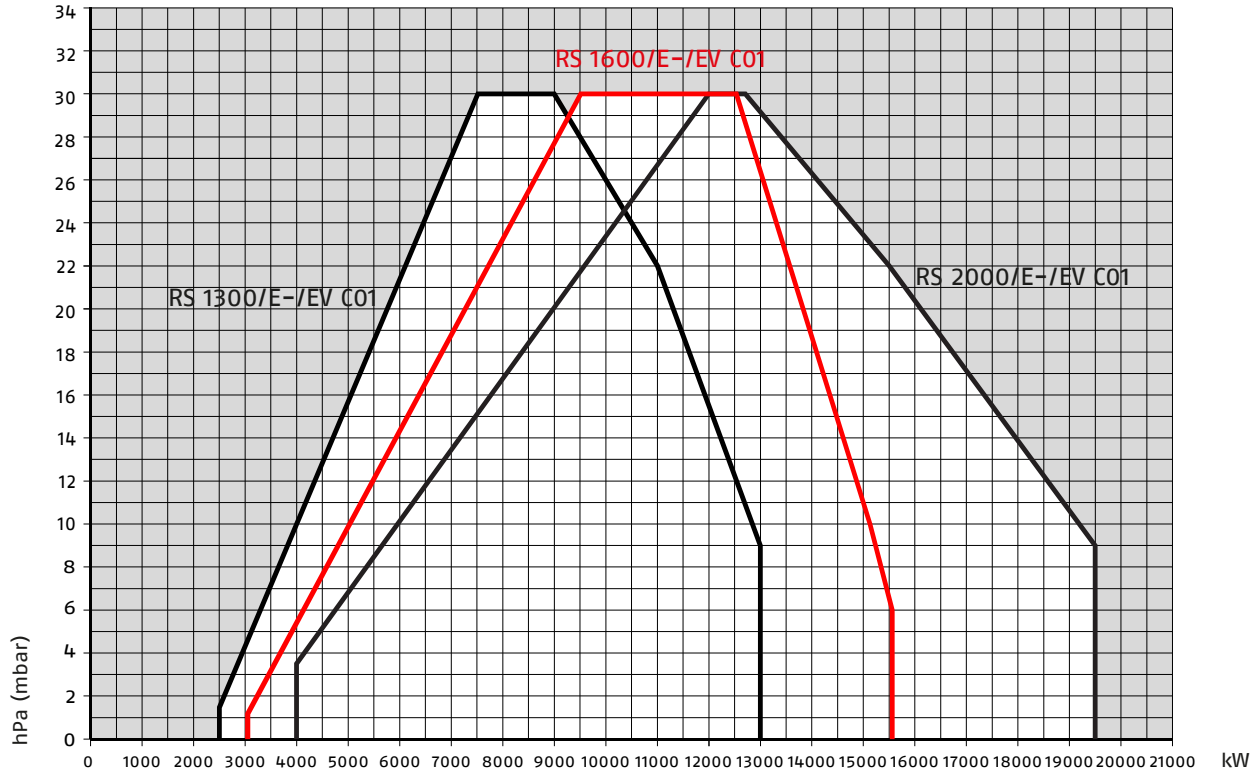
FIRING RATES



Useful working field for choosing the burner

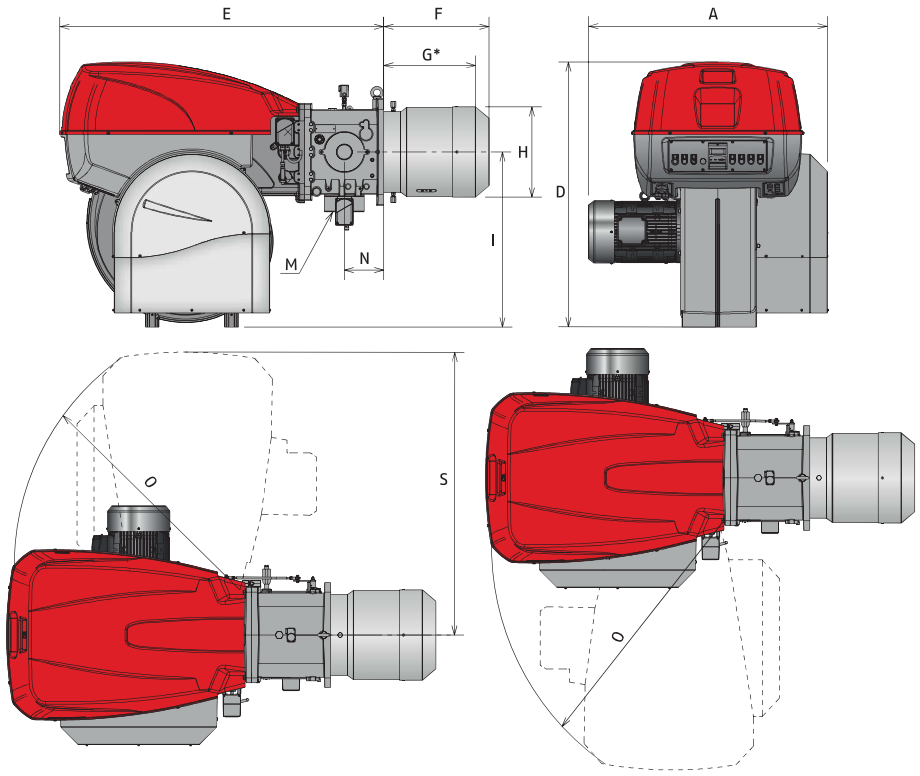
Modulation range

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



Overall dimensions (mm)

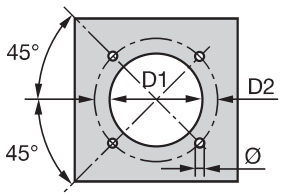
BURNER



MODEL	A	D	E	F	G*	H	I	M	N	O	S
▶ RS 1000/E-EV C01	1206	1338	1637	538	485	413	885	DN80	200	1350	1493
▶ RS 1200/E-EV C01	1250	1338	1637	539	485	456	885	DN80	200	1350	1493

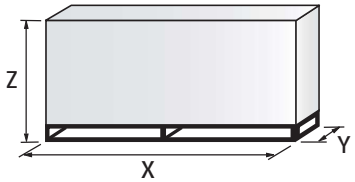
* Maximum depth of the boiler door including the depth of the burner flange insulating gasket.

BURNER - BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
▶ RS 1000/E-EV C01	460	608	M20
▶ RS 1200/E-EV C01	500	608	M20

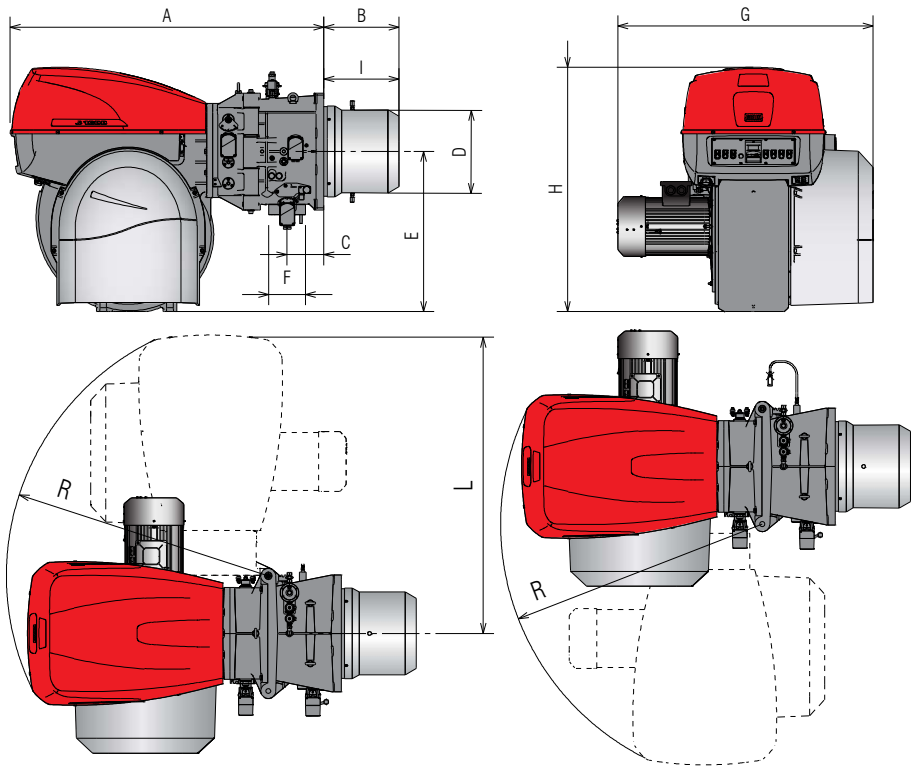
PACKAGING



MODEL	X	Y	Z	kg
▶ RS 1000/E-EV C01	2400	1400	1595	500
▶ RS 1200/E-EV C01	2400	1400	1595	550

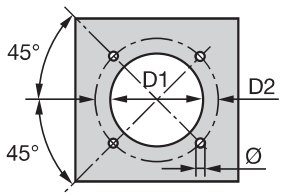
Overall dimensions (mm)

BURNER



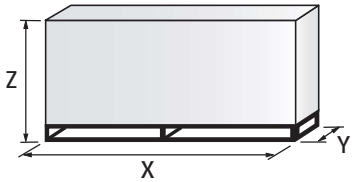
MODEL	A	B	C	D	E	F	G	H	I	L	R
▶ RS 1300/E-EV C01	1880	450	220	544	960	DN 80	1585	1463	383	1782	1565
▶ RS 1600/E-EV C01	1880	450	220	544	960	DN 80	1530	1463	383	1785	1565
▶ RS 2000/E-EV C01	1880	450-610	220	544	960	DN 80	1560	1463	383-543	1782	1565

BURNER - BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
▶ RS 1300/E-EV C01	580	645	M20
▶ RS 1600/E-EV C01	580	645	M20
▶ RS 2000/E-EV C01	580	645	M20

PACKAGING



MODEL	X	Y	Z	kg
▶ RS 1300/E-EV C01	3000	1800	1750	1180
▶ RS 1600/E-EV C01	3000	1800	1750	1180
▶ RS 2000/E-EV C01	3000	1800	1750	1180

RS 1000÷2000/E-EV C01 SERIES

Specification

DESIGNATION OF SERIES

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
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/50-60H
110/50-60		110V/50-60Hz

R	S	1000	/E	C01	TC	FS2	3/230-400/50	230/50-60
BASIC DESIGNATION								
EXTENDED DESIGNATION								

RS 1000-2000/E-EV C01 SERIES

Specification

STATE OF SUPPLY

Monoblock forced draught gas burner with modulating operation, fully automatic, made up of:
- High performance fan with reverse curve blades for RS 1000-1200 and forward curve blades for RS 1300-1600-2000
- 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 400/690 V with neutral, 50Hz
- Mobile 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 by gas pilot with gas train
    - flame stability disk
- Automatic regulator for gas delivery, controlled by a high precision servomotor
- Maximum gas pressure switch, with pressure test point, for halting the burner in the case of over pressure on the fuel supply line
- Module for air/fuel setting and output modulation with incorporated PID control of temperature or pressure of the heat generator (LMV 51.100 on RS/E C01, LMV 52 on RS/EV C01)
- AZL Display Interface, for combustion system commissioning and monitoring, included in both RS/E and /EV models
- Burner safety control included on Electronic Cam device
- IRD sensor for flame detector
- Star/delta starter for the fan motor
- Main electrical supply terminal board
- Burner on/off switch
- Auxiliary voltage led signal
- Burner working led signal
- Contacts motor and thermal relay with release button
- Motor internal thermal protection
- Motor failure led signal
- Burner failure led signal and lighted release button
- Emergency button
- Coded connection plugs-sockets
- Burner opening hinge
- Lifting rings
- IP 54 electric protection level

Standard equipment:
- 1 flange gasket
- 1 thermal screen
- screws for fixing the flange
- screws for fixing the burner flange to the boiler
- Seal control pressure switch (for installation on gas train)
- DN 80 gas supply connector for gas train connection (for RS 1000-1200)
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

RS 1000÷2000/E-EV C01 SERIES

Available models

Burners

CODE	MODEL					HEAT OUTPUT NATURAL GAS (kW)	HEAT OUTPUT NATURAL GAS (Nm³/h)	TOTAL ELECTRICAL POWER (kW)	CERTIFICATION	NOTE
20062014	RS 1000/E C01	TC	FS1-FS2	3/400/50	230/50-60	1300/3800-10100	130/380-940	24	-	(1)
20061950	RS 1200/E C01	TC	FS1-FS2	3/400/50	230/50-60	1500/5500-11100	150/550-1150	27,2	-	(1)
20081191	RS 1300/E C01	TC	FS1/FS2	3/400/50	230/50-60	2500/7500÷13000	250/750÷1300	34,5	-	(1)
20080872	RS 1600/E C01	TC	FS1/FS2	3/400/50	230/50-60	3065/9503÷15560	307/951÷1556	41,5	-	(1)
20080867	RS 2000/E C01	TC	FS1/FS2	3/400/50	230/50-60	4000/12000÷19500	400/135÷1950	49,3	-	(1)
20110674	RS 2000/E C01	TL	FS1/FS2	3/400/50	230/50-60	4000/12000÷19500	400/135÷1950	49,3	-	(1)
20062128	RS 1000/EV C01	TC	FS1-FS2	3/400/50	230/50-60	1300/3800-10100	130/380-940	24	-	(1)
20062129	RS 1200/EV C01	TC	FS1-FS2	3/400/50	230/50-60	1500/5500-11100	150/550-1150	27	-	(1)
20081190	RS 1300/EV C01	TC	FS1/FS2	3/400/50	230/50-60	2500/7500÷13000	250/750÷1300	34,5	-	(1)
20080871	RS 1600/EV C01	TC	FS1/FS2	3/400/50	230/50-60	3065/9503÷15560	307/951÷1556	41,5	-	(1)
20070919	RS 2000/EV C01	TC	FS1/FS2	3/400/50	230/50-60	4000/12000÷19500	400/135÷1950	49,3	-	(1)

Natural gas, net calorific value: 10 kWh/Nm³ - Density: 0,71 kg/Nm³
(1) according to 2016/426/EU - 2014/35/EU - 2014/30/EU - 2006/42/EU - 2014/68/EU Directives

Gas Trains

GAS TRAIN CODE	GAS TRAIN MODEL	Ø	ADAPTER CODE RS 1000	ADAPTER CODE RS 1200
20137718*	VGD 50/1 - RT 122	Rp 2"	●	●
20140762*	VGD 65/1 - FT 122	DN 65 (1)	●	●
20140763*	VGD 80/1 - FT 122	DN 80	20066268 / (3010222 + 20066268) (2)	
20169193*	VGD 100/1 - FT 122	DN 100	20066278 / (3010223 + 20066268) (2)	
20169195*	VGD 125/1 - FT 122	DN 125	20066284 / (3010224 + 20066268) (2)	

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

* 230V/50Hz -220V/60Hz 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.
The seal control function is managed by LMV control box, by installation on gas train of a pressure switch supplied, as standard equipment with the burner.
To select the gas train please refer to the technical data leaflet and/or instruction manual.
(1) øin = DN 65, øout = DN 80.
(2) To be used with gas train and burner opening on the left (fan motor side).
● Not available.
□ Additional adapter not necessary, the gas train may be connected directly to the burner.

Available models

Gas Trains

GAS TRAIN			ADAPTER CODE		
CODE	MODEL	Ø	RS 1300	RS 1600	RS 2000
20137718*	VGD 50/1 - RT 122	Rp 2"	●	●	●
20140762*	VGD 65/1 - FT 122	DN 65 (1)	●	●	●
20140763*	VGD 80/1 - FT 122	DN 80	●	●	●
20169193*	VGD 100/1 - FT 122	DN 100	20130602	20130616	
20169195*	VGD 125/1 - FT 122	DN 125	20130606	20130617	

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

* 230V/50Hz -220V/60Hz 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.
The seal control function is managed by LMV control box, by installation on gas train of a pressure switch supplied, as standard equipment with the burner.
To select the gas train please refer to the technical data leaflet and/or instruction manual.
(1) øin = DN 65, øout = DN 80.
● Not available.
□ Additional adapter not necessary, the gas train may be connected directly to the burner.

Burner accessories

Variable Speed Drive (VSD) for RS/EV series only

The motor speed variation for the RS/EV C01 burners series is obtained thanks to a frequency converter: variable speed drive (VSD), provided with a programming panel with start-up assistant. It always must be ordered with RS/EV series.

BURNER	MAX POWER (kW)	KIT CODE
▶ RS 1000/EV C01	22	20163099
▶ RS 1200-1300/EV C01	30	20163100
▶ RS 1600/EV C01	37	20163105
▶ RS 2000/EV C01	45	On demand

Accessories for checking temperature and pressure

In RS 1000÷2000/E-EV C01 models the PID regulator is integrated inside the LMV control box. 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)	KIT 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

Display and Operating Unit (AZL) for RS/E models

This tool is needed for combustion system commissioning and monitoring.
The AZL, Display and Operating Unit, is included in RS/EV and RS1000-1200/E-EV models.

BURNER	KIT CODE
▶ All models *	3010469

* for Russian language only

Burner accessories

Oxygen Control kit (QGO$_2$) for RS/EV series only

The QGO$_2$ is an oxygen analizer with relevant probe which controls and supervises the residual oxygen content in exhaust gases.

BURNER	KIT CODE
▶ All models	20045187*

An additional transformer kit is needed to guarantee the power supply to the PLL device in case of installation where the distance between the last servomotor and the PLL kit is greater than 20 meters.
Please contact Riello Burners Commercial and Technical Department, our Application Engineers will be pleased to help you.
* Installation outside the burner cover

Kit efficiency with oxygen control kit (for RS/EV only)

The kit includes two temperature sensors: one for air and one for exhaust gas detection. They must be wired to oxygen control kit interface to allow the LMV 52 efficiency calculation. The value is showed on AZL display.

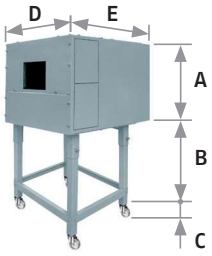
BURNER	KIT CODE
▶ All models	3010377

PC Interface Software (ACS 450)

PC tool for convenient programming and burner settings, process visualization, data recording, selection of AZL language, software update AZL.

BURNER	KIT CODE
▶ All models	3010388

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.

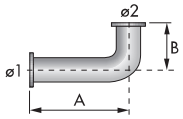
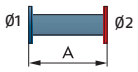
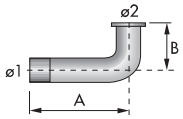
BURNER	BOX TYPE	A (mm)	B (mm) min-max	C (mm)	D (mm)	E (mm)	[dB(A)] (*)	BOX CODE
▶ RS 1000-1200/E-EV C01	C8	1425	285 - 1000	110	1500	1800	10	3010401
▶ RS 1300-1600-2000/E-EV C01	C9							20108736

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

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 Ø1 DN	Ø2 DN	A mm	B mm	ADAPTER CODE
	80	65 / 80	230	375	20066268
	100	65 / 80	230	375	20066278
	125	65 / 80	245	375	20066284
	80	80	400	-	3010222
	100	80	400	-	3010223
	125	80	320	-	3010224
	100	100	350	350	20130616
	125	100	350	350	20130617
	100	80	350	350	20130602
	125	80	350	350	20130606

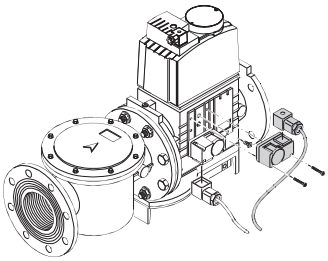
Gas train accessories

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
	Neutral	0 - 22	20181839
▶ VGD/1 series	Yellow	15 - 120	20141900
	Red	100 - 250	20141901

PVP (Pressure Valve Proving) kit



The seal control function is included on Burner Digital Management System, it is only necessary to add the PVP kit on the gas train.
The PVP is included as standard equipment on RS RS1300-1600-2000 models.

BURNER	KIT CODE
▶ MB - VGD type	3010344