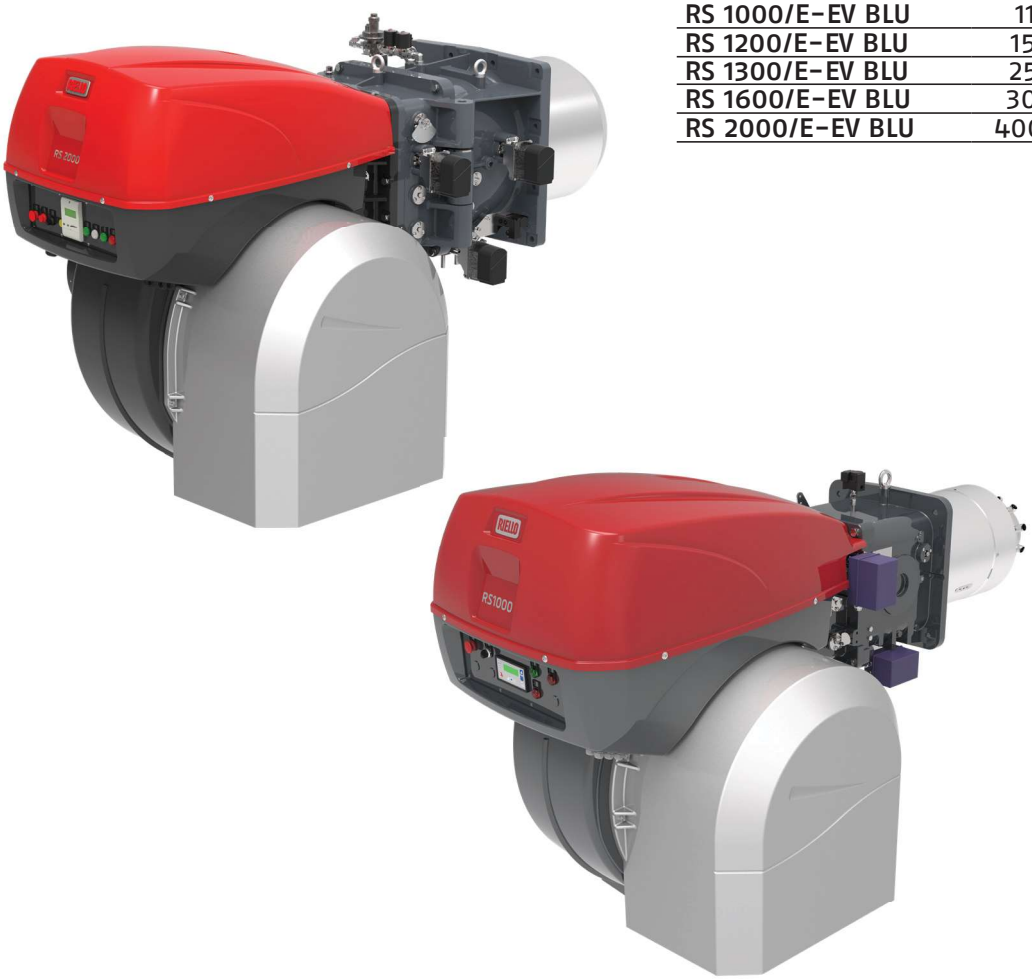
RS 1000÷2000/E-EV BLU SERIES

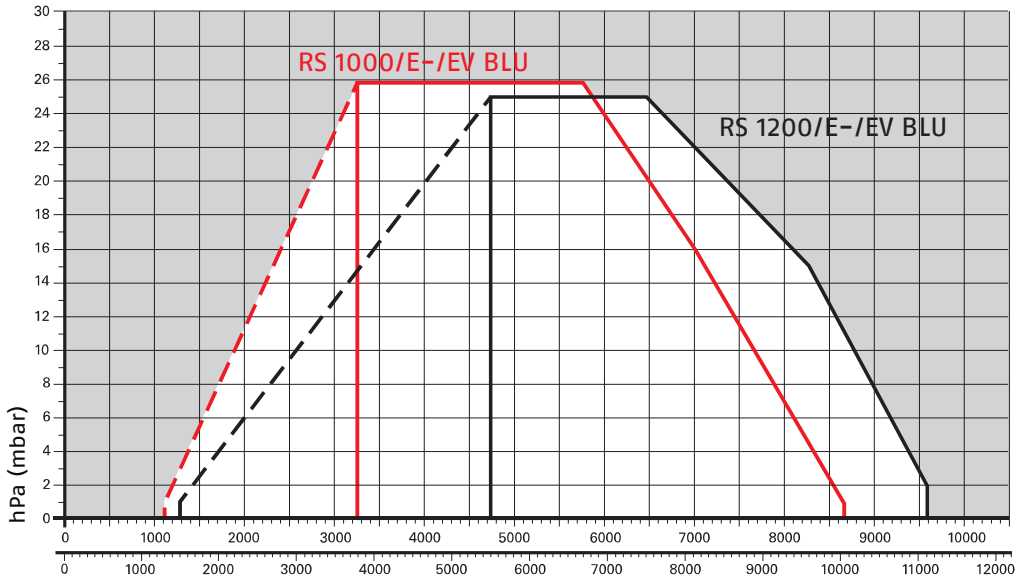
The RS/E and RS/EV series burners are characterised by a modular monoblock structure that means all necessary components can be combined in a single unit thus making installation easier, faster and, above all, more flexible.
The burners cover a firing range from 4000 to 19500 kW, and they have been designed 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 as well as reducing noise and pollutants.



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

RS 1000-2000/E-EV BLU SERIES

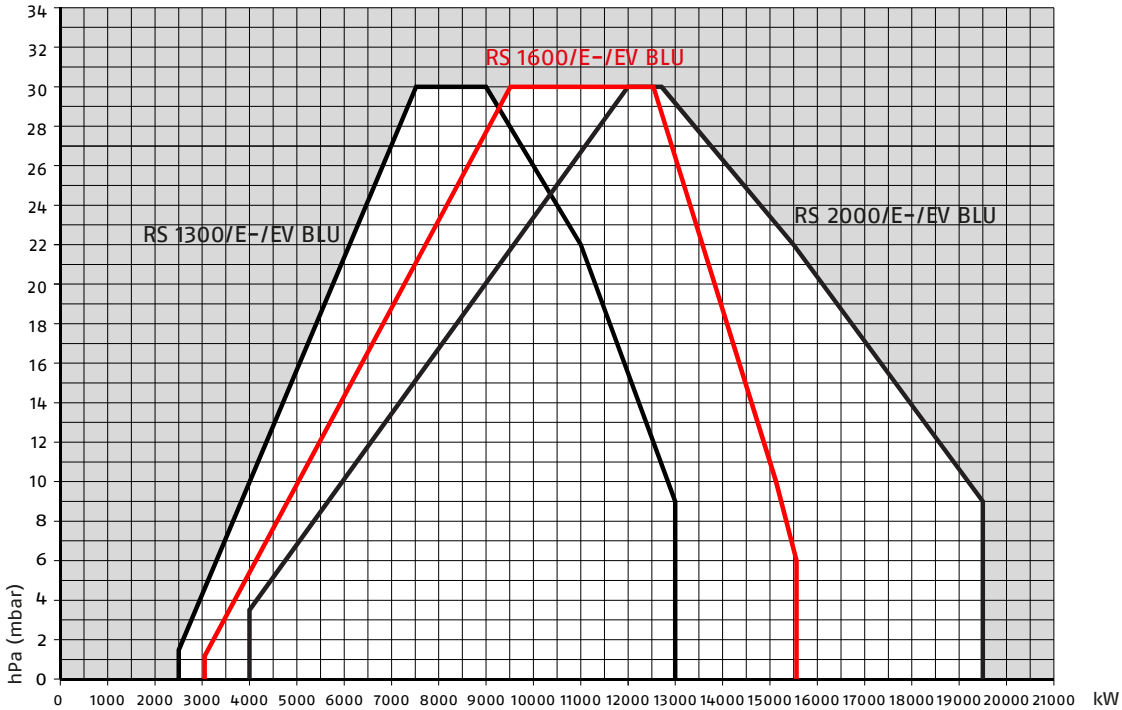
FIRING RATES



Useful working field for choosing the burner

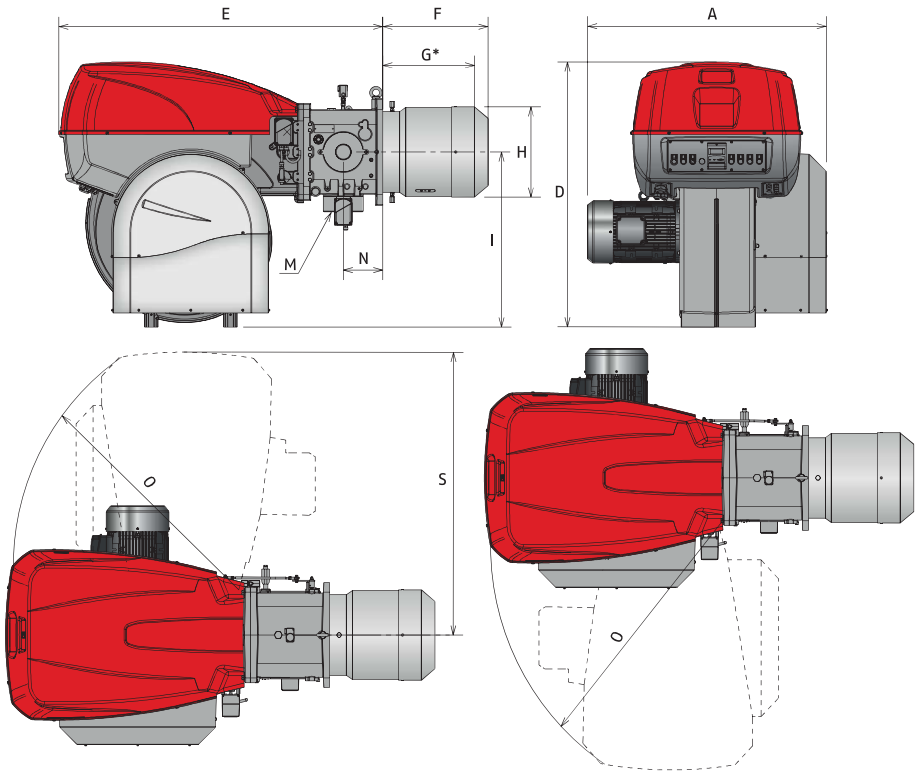
Modulation range

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



Overall dimensions (mm)

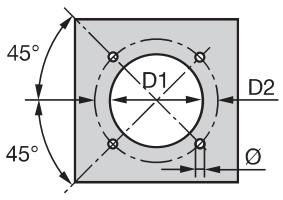
BURNER



MODEL	A	D	E	F	G*	H	I	M	N	O	S
▶ RS 1000/E-EV BLU	1206	1338	1637	669	485	413	885	DN80	200	1350	1493
▶ RS 1200/E-EV BLU	1250	1338	1637	670	485	456	885	DN80	200	1350	1493

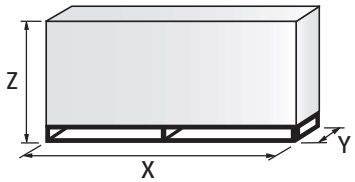
* Maximum depth of the boiler door including the depth of the burner flange insulating gasket.

BURNER - BOILER MOUNTING FLANGE



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

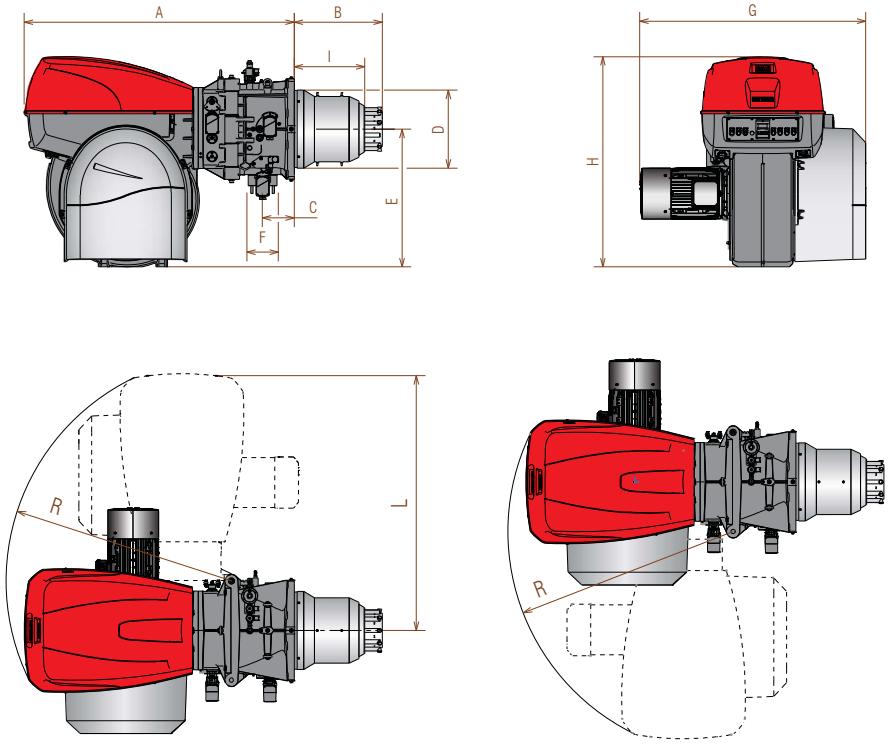
PACKAGING



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

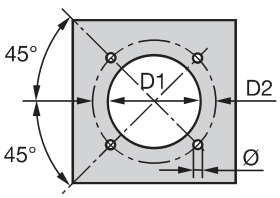
Overall dimensions (mm)

BURNER



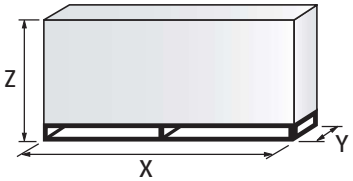
MODEL	A	B	C	D	E	F	G	H	I	L	R
▶ RS 1300/E-EV BLU	1880	613	220	544	960	DN 80	1585	1463	383	1782	1565
▶ RS 1600/E-EV BLU	1880	852	220	544	960	DN 100	1530	1463	544	1785	1565
▶ RS 2000/E-EV BLU	1880	852	220	590	960	DN 100	1560	1463	562	1782	1565

BURNER - BOILER MOUNTING FLANGE



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

PACKAGING



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

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	BLU	TC	FS2	3/230-400/50	230/50-60
BASIC DESIGNATION								
EXTENDED DESIGNATION								

RS 1000÷2000/E-EV BLU SERIES

Specification

STATE OF SUPPLY
RS 1000-1200/E-EV BLU

Monoblock forced draught gas burner with modulating operation, fully automatic, made up of:
- High performance fan with low sound emissions, reverse 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, 50Hz
- Low emission 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 electrodes
    - 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
- AZL Display Interface, for combustion system commissioning and monitoring,
- Burner safety control included on Electronic Cam device
- IRD sensor or ionization probe
- Star/delta starter for the fan motor (RS/E)
- Main electrical supply terminal board
- Burner on/off switch
- Auxiliary voltage led signal
- Manual or automatic output increase/decrease switch
- 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)
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

Specification

STATE OF SUPPLY
RS 1300-1600-2000/E-EV BLU

Monoblock forced draught gas burner 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 400/690 V with neutral, 50Hz
- Low emission 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 electrodes
    - flame stability disk
    - Ignition pilot burner
- 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 (for both RS/E and RS/EV models)
- AZL Display Interface, for combustion system commissioning and monitoring, included
- Burner safety control included on Electronic Cam device
- IRD sensor flame detector
- Star/delta starter for the fan motor
- Main terminal supply board
- Volt-free contacts output relay
- Stop/emergency push-button
- Off-automatic selector
- Light signalling of main fuel valve open
- Light signalling of mains live state
- Fan motor lockout warning lamp
- Burner lockout warning lamp and reset switch
- Heat request signal
- Fan motor contactor and thermal relay
- 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)
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

Available models

Burners

CODE	MODEL	HEAT OUTPUT NATURAL GAS (kW)	HEAT OUTPUT NATURAL GAS (Nm³/h)	TOTAL ELECTRICAL POWER (kW)	CERTIFICATION	NOTE
20057514	RS 1000/E BLU TC FS1/FS2 3/400/50 230/50-60	1300/3800-10100	130/380-940	24	CE-0085CN0119	(1)(3)
20072967	RS 1000/E BLU TC FS1/FS2 3/400/50 230/50-60	1300/3800-10100	130/380-940	24	CE-0085CN0119	(1)(4)
20057515	RS 1200/E BLU TC FS1/FS2 3/400/50 230/50-60	1500/5500-11100	150/550-1150	27,2	CE-0085CN0120	(1)(3)
20072968	RS 1200/E BLU TC FS1/FS2 3/400/50 230/50-60	1500/5500-11100	150/550-1150	27,2	CE-0085CN0120	(1)(4)
20124422	RS 1300/E BLU TC FS1/FS2 3/400/50 230/50-60	2500/7500÷13000	250/750÷1300	34,5	-	(1)(2)(3)
20124358	RS 1600/E BLU TC FS1/FS2 3/400/50 230/50-60	3065/9503÷15560	307/951÷1556	41,5	-	(1)(2)(3)
20104154	RS 2000/E BLU TC FS1/FS2 3/400/50 230/50-60	4000/12000÷19500	400/135÷1950	49,3	-	(1)(2)(3)
20057519	RS 1000/EV BLU TC FS1/FS2 3/400/50 230/50-60	1300/3800-10100	130/380-940	24	CE-0085CN0119	(1)(3)(5)
20072969	RS 1000/EV BLU TC FS1/FS2 3/400/50 230/50-60	1300/3800-10100	130/380-940	24	CE-0085CN0119	(1)(4)(5)
20057520	RS 1200/EV BLU TC FS1/FS2 3/400/50 230/50-60	1500/5500-11100	150/550-1150	27,2	CE-0085CN0120	(1)(3)(5)
20072970	RS 1200/EV BLU TC FS1/FS2 3/400/50 230/50-60	1500/5500-11100	150/550-1150	27,2	CE-0085CN0120	(1)(4)(5)
20127213	RS 1300/EV BLU TC FS1/FS2 3/400/50 230/50-60	2500/7500÷13000	250/750÷1300	34,5	-	(1)(2)(3)
20104142	RS 1600/EV BLU TC FS1/FS2 3/400/50 230/50-60	3065/9503÷15560	307/951÷1556	41,5	-	(1)(2)(3)
20093706	RS 2000/EV BLU TC FS1/FS2 3/400/50 230/50-60	4000/12000÷19500	400/135÷1950	49,3	-	(1)(2)(3)

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 - 2014/68/EU - 2006/42 EC Directive.
(2) the burners are factory set for FS1 operation (1 stop every 24 h) but they can be switched to FS2 operation (continuous - 1 stop every 72 h) by changing the parameters through the AZL unit menu.
(3) IRD sensor
(4) ionization probe
(5) according to 2014/68/EU Pressure Equipment Directive (only FS2 version)

Available models

Gas Trains

GAS TRAIN			ADAPTER CODE	
CODE	MODEL	Ø	RS 1000	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.

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.
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.

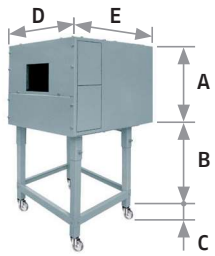
Burner accessories

Accessories for checking temperature and pressure

The temperature or pressure probes fitted to the modulating 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
	Pressure 4 ÷ 20 mA	0 ÷ 25 bar	3090873

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 BLU	C8	1425	285 - 1000	110	1500	1800	10	3010401
▶ RS 1300-1600-2000/E-EV BLU	C9							20108736

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

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
▶ All models	3010094

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

The motor speed variation for the RS/EV BLU 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 BLU	22	20163099
▶ RS 1200-1300/EV BLU	30	20163100
▶ RS 1600/EV BLU	37	20163105
▶ RS 2000/EV BLU	45	On demand

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)

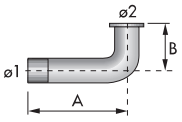
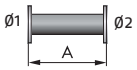
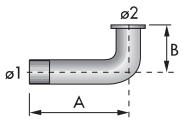
PC tool for convenient programming and burner settings, process visualization, data recording, selection of AZL language, software update AZL.

BURNER	KIT CODE
▶ All models	3010388

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.

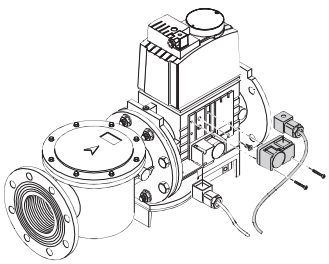
ADAPTER	DIMENSIONS Ø1 DN	Ø2 DN	A mm	B mm	ADAPTER CODE
	80	65 / 80	230	375	20066268
	100	65 / 80	230	375	20066278
	125	65 / 80	245	375	20066284
	80	80	400	-	3010222
	100	80	400	-	3010223
	125	80	320	-	3010224
	100	100	350	350	20130616
	125	100	350	350	20130617
	100	80	350	350	20130602
	125	80	350	350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

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

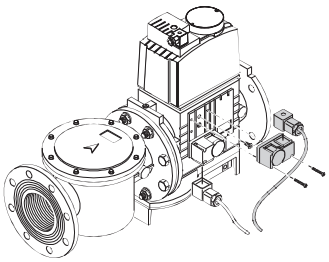


The seal control function is included on Burner Digital Management System, it is only necessary to add the PVP kit on the gas train.
The PVP is included as standard equipment on RS 1300-1600-2000 models.

BURNER	KIT CODE
▶ **MB - VGD type**	3010344

Gas train accessories

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 1300-1600-2000 models.

BURNER	KIT CODE
▶ MB - VGD type	3010344