

Low NOx modulating gas burners

RS 810/E BLU



- Progressive two-stage or modulating gas burners with electronic cam, with low NOx emissions according to Class 3 of European standard EN 676 (NOx lower than 80 mg/kWh*)

RS 810/E BLU burner series covers a firing range from 1200 to 8010 kW, and it has been designed for use in low or medium temperature hot water boilers, hot air or steam boilers, diathermic oil boilers. It is based on a new Digital Burner Management System (Riello REC37 or Siemens LMV52), which is able to manage the air-fuel ratio by independent servomotors in order to obtain a perfect output control and to assure a correct combustion and safe operation on all modulation range. Operation can be "two stage progressive" or, alternatively, "modulating" with the installation of the dedicated probes (with burner models equipped with REC37 control box, an additional PID logic regulator is required). RS 810/E BLU burner series guarantees high efficiency levels in all the various applications, thus reducing fuel consumption and running costs. The combustion head engineered with advanced simulation devices, guarantees reduced polluting emissions. The exclusive design ensures reduced dimensions, simple use and maintenance. A wide range of accessories guarantees elevated working flexibility. Finally, RS 810/E BLU burner model equipped with Siemens LMV52 control box and compatible with combustion optimization based on the residual O₂ content in the exhaust fumes, is now available.

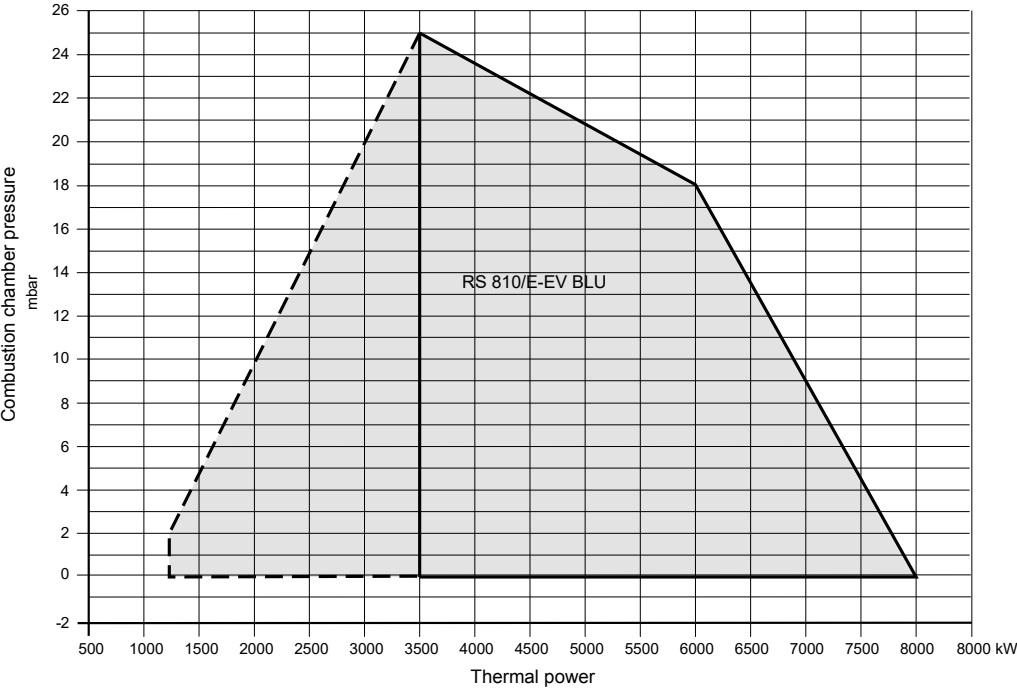
* The emission value is determined, according to the provisions of standard EN 676, in a standardised combustion chamber, on the average of the firing rates and standardised at the reference conditions provided for by the standard.

TECHNICAL DATA

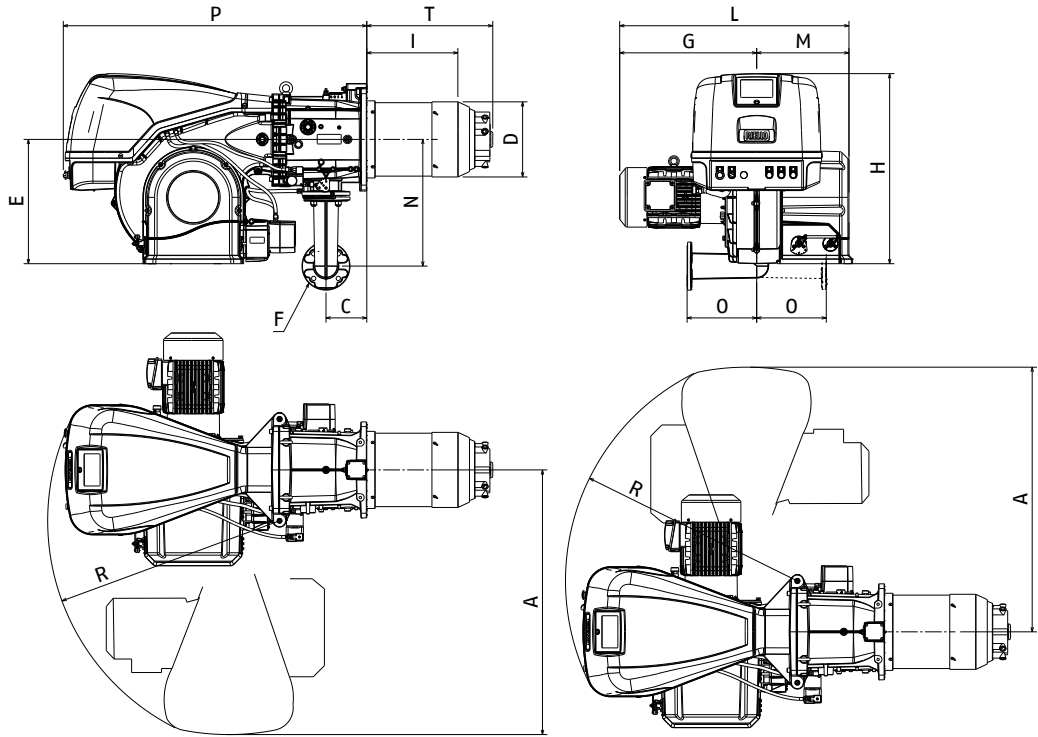
Description	Heat output natural gas		Total electrical power	Electric power supply		Certification	Note	Code
	kW	Nm³/h		kW	Ph/V/Hz			
MODELS FOR STANDARD OPERATION (ONE STOP EVERY 24 HOURS) AND CONTINUOUS OPERATION (FS2: ONE STOP EVERY 72 HOURS) - WITH ELECTRONIC CAM (REC 37)								
RS 810/E BLU TC FS1/FS2	1200/3500-8010	120/350-801	24.5	3/400/50	230/50-60	CE-0123CU1067	(1)(2)(3)	20160126
MODELS FOR STANDARD OPERATION (ONE STOP EVERY 24 HOURS) AND CONTINUOUS OPERATION (FS2: ONE STOP EVERY 72 HOURS) - WITH ELECTRONIC CAM (LMV 51)								
RS 810/E BLU TC FS1/FS2	1200/3500-8010	120/350-801	24.5	3/400/50	230/50-60	CE-0123CU1067	(1)(2)(3)	20160291
MODELS FOR STANDARD OPERATION (ONE STOP EVERY 24 HOURS) AND CONTINUOUS OPERATION (FS2: ONE STOP EVERY 72 HOURS) - WITH ELECTRONIC CAM (LMV 52) - O2 CONTROL READY								
RS 810/E O ₂ BLU TC FS1/FS2	1200/3500-8010	120/350-801	24.5	3/400/50	230/50-60	CE-0123CU1067	(1)(2)(3)	20194684

Net calorific value of natural gas (G20): 10 kWh/Nm³.
The burners comply with 2016/426/EU Regulation, 2014/30/EU - 2014/35/EU - 2006/42/EC Directives and EN 676 Standard.
FS1/FS2: Models for standard operation (one stop every 24 hours) and for continuous operation (one stop every 72 hours).
(1) Star/delta starter.
(2) Seal control function is included on Burner Digital Management System; it is necessary to add the PVP kit on the gas train as Accessory (see Gas Train Accessories).
(3) 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.

FIRING RATES

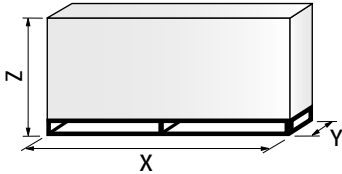
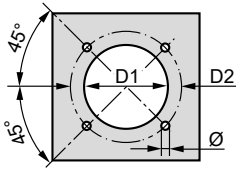


OVERALL DIMENSIONS



Description	A mm	C(*) mm	D mm	E mm	F(**) mm	G mm	H mm	I mm	L mm	M mm	N mm	O mm	P mm	R mm	T mm
MODELS WITH ELECTRONIC CAM (REC 37)															
RS 810/E BLU	1197	173	363	585	DN80	577	890	405	990	413	260	290	1345	1055	558
MODELS WITH ELECTRONIC CAM (LMV 52) - O ₂ CONTROL READY															
RS 810/E O ₂ BLU	1285	173	363	585	DN80	577	890	405	990	413	260	290	1440	1140	558

(*) Maximum position for the extraction of the servomotor cover.
(**) The adaptor for gas train is not included as standard equipment

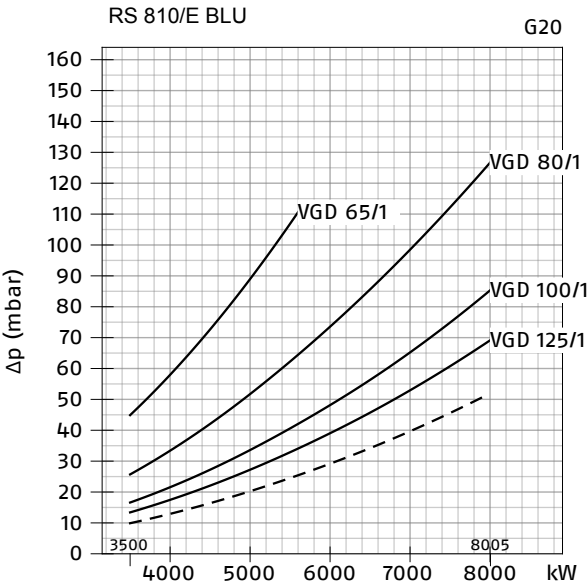


Description	D1 mm	D2 mm	Ø mm
RS 810/E BLU	400	495	M18

Description	X mm	Y mm	Z mm	Net weight kg
RS 810/E BLU	2140	1200	1346	300

PRESSURE LOSS DIAGRAMS

VGD SERIES GAS TRAIN



Please note: the diagrams indicate the minimum gas pressure drops of the burners equipped with the gas trains to be used (approved according to the EN 676 standard); in order to obtain the minimum pressure required at gas train inlet, combustion chamber counterpressure (expressed in mbar) must be added to this value.

— Combustion head + gas train
- - - Combustion head

GAS TRAINS

Description (1)	Code	Note	Ø Gas train	VPS kit code (2)	Burner-gas train adapter (3)
					RS 810/E BLU
VGD SERIES ONE STAGE GAS TRAIN					
VGD 65/1-FT 122	20140762*	(5)	DN65	3010123	20059331/(3010222+20059331)(6)
VGD 80/1-FT 122	20140763*		DN80	3010123	20059331/(3010222+20059331)(6)
VGD 100/1-FT 122	20169193*		DN100	3010123	20059332/(3010223 +20059331)(6)
VGD 125/1-FT 122	20169195*		DN125	(4)	20059333/(3010224 +20059331)(6)

- (1) Please refer to "GAS TRAIN DESIGNATION".
(2) Valve leak detection control device. Supplied separately from the gas train (see "GAS TRAIN ACCESSORIES" paragraph for both 50 Hz and 60 Hz codes).
(3) The code indicates the adapter necessary for "burner-gas train connection (see "GAS TRAINS ACCESSORIES").
(4) On demand.
(5) Ø in = DN65; Ø out = DN80.
(6) To be used with gas train and burner opening on the left (fan motor side).
* 230V/50Hz - 220V/60Hz electrical supply.
NOTE: for further information, refer to section "GAS TRAINS FOR BURNERS".

Key to symbols:
● Gas train not available or not suitable for the matching to the burner.

ACCESSORIES

Drawing	Burner model	Specification	Note	Code
	RS 810/E BLU	SPACER KIT If burner head penetration into the combustion chamber needs reducing, varying thickness spacers are available. Spacer thickness S = 180 mm		20008903
	RS 810/E BLU	CONTINUOUS VENTILATION KIT If the burner requires continuous ventilation in the stages without flame, a special kit is available.		20074542
	RS 810/E BLU	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. Box type: C7 Dimensions: A = 1310 mm, B (min-max) = 160-960 mm, C = 110 mm, D = 1600 mm, E = 1350 mm Average noise reduction according to EN 15036-1 Standard = 10 dB(A).		20177776
	RS 810/E BLU equipped with REC37 control box	OCI412 INTERFACE KIT Interface kit between the REC37 and a Modbus system, such as a building automation and control system (BACS). The Modbus interface is based on the RS-485 standard.		3010437
	RS 810/E BLU equipped with REC37 control box	POWER CONTROLLER To obtain modulating operation, RS/E BLU burners equipped with REC37 control box require a regulator with three point outlet controls. The following table lists the accessories for modulating operation with their application range. For remote setpoint use RWF 55. In the RS/E BLU burners equipped with Siemens LMV52, the PID regulator is integrated inside the control box.		
		RWF 50.2 - Basic version with 3 position output		20085417
		RWF 55.5 - Complete with RS-485 interface		20074441
		RWF 55.6 - Complete with RS-485/ PROFIBUS interface		20074442
	RS 810/E BLU	TEMPERATURE PROBE The temperature probe to be fitted to the power controller must be chosen based on the application. Temperature probe type PT 100 (-100-500 °C).		3010110
	RS 810/E BLU	PRESSURE PROBE The pressure probe to be fitted to the power controller must be chosen based on the application.		
		Pressure (0-2.5 bar) with 4-20 mA output.		3010213
		Pressure (0-16 bar) with 4-20 mA output.		3010214
		Pressure (0-25 bar) with 4-20 mA output.		3090873
	All models equipped with LMV52 control box	OXYGEN CONTROL KIT (QGO ₂) FOR BURNERS The QGO ₂ is an oxygen analyzer with relevant probe which controls and supervises the residual oxygen content in exhaust gases.	(1)	20045187
	RS 810/E BLU equipped with LMV52 control box	KIT EFFICIENCY WITH OXYGEN CONTROL KIT 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.		3010377
	RS 810/E BLU equipped with REC37 control box	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.		3010436
	RS 810/E BLU equipped with LMV52 control box	PC INTERFACE SOFTWARE (ACS 450) PC tool for convenient programming and burner settings, process visualization, data recording, selection of AZL language, software update AZL.		3010388

(1) Installation outside the burner cover.
NOTE: 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.

GAS

LIGHT OIL

DUAL FUEL

HEAVY OIL

STATE OF SUPPLY

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

- Air suction circuit lined with sound-proofing material
- High performance fan with low sound emissions, forward curve blades
- Air damper for air flow setting and butterfly valve for regulating fuel output controlled by independent stepper motor actuators
- 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
- REC37 Digital Burner management system for air/fuel setting with output PID modulation control as accessory
- LMV52 Digital Burner Management System for air/fuel setting and O₂ Control Ready with output PID modulation control included
- AZL Display Interface, for combustion system commissioning and monitoring
- 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: M16x70
- Thermal insulation screen
- M18x60 screws to secure the burner flange to the boiler
- Cable grommets kit for optional electrical wiring input
- M16x6 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