

RS 25÷45 C05 SERIES

The new RS C05 series represents Riello's ultimate step of innovation in terms of Low NOx technology applied to gas fueled burners in the low-medium power segment.

The series includes three models, working in Two Stage operation, with an output ranging from 45 to 570 kW.

The combustion head has been re-designed in order to achieve very low values of NOx emissions (< 56 mg/kWh), for use in low or medium temperature hot water boilers, hot air or steam boilers, diathermic oil boilers. RS C05 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.



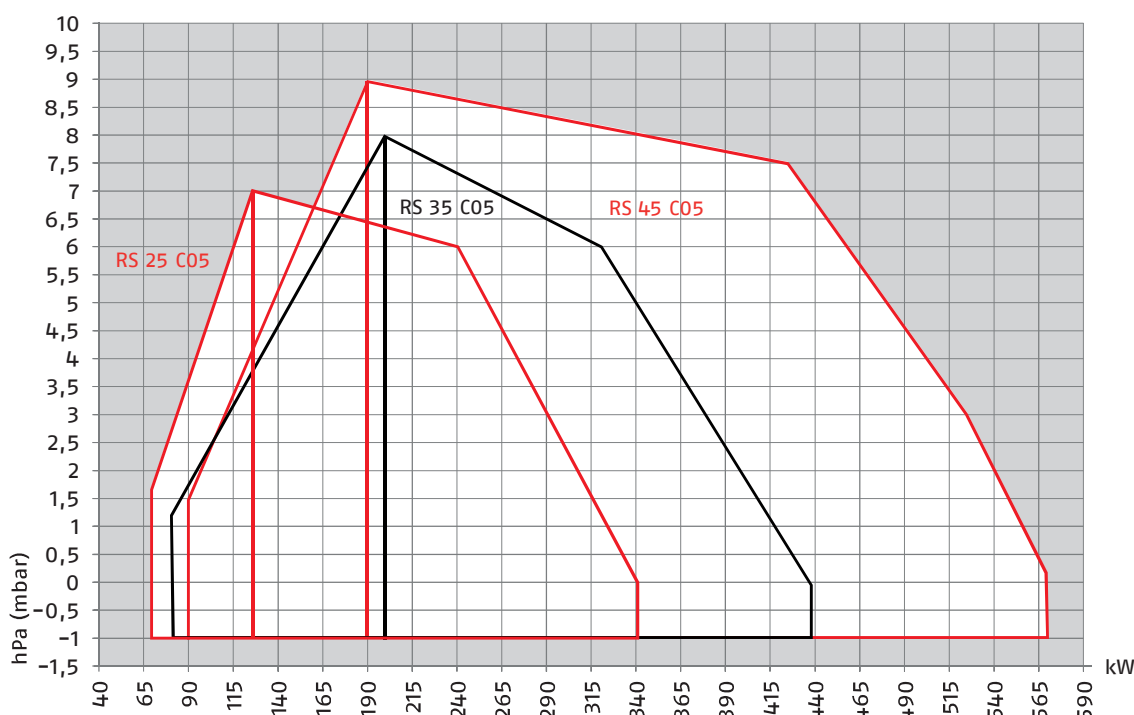
Guidelines for installation of burners in conformity to EU Regulation:

A RIELLO burner (Heat Generator), where it is matched with a water-based boiler (Heater Housing) with a nominal output ≤ 400 kW, providing heat for heating purposes and heat to deliver sanitary hot water, can be installed:

- With boilers (heater housings) already in service in the field, for replacement of identical products, in conformity to Article 1, paragraph 2, point (G) of the EU Regulation No. 813/2013;
- With boilers (heater housings) on a new installation, if they have emissions complying with the requirement of Annex II, paragraph 4 of the EU regulation No. 813/2013.

RS 25 C05	70/125 ÷	340 kW
RS 35 C05	82/200 ÷	440 kW
RS 45 C05	90/190 ÷	570 kW

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.

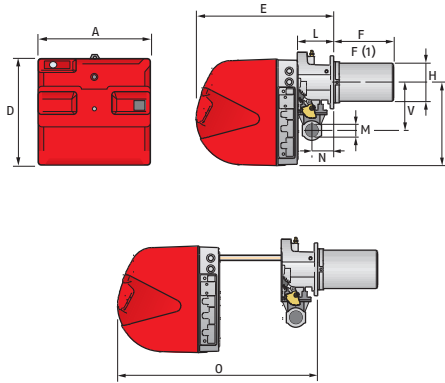
Low NOx Two Stage Progressive Gas Burners

RS 25÷45 C05 SERIES

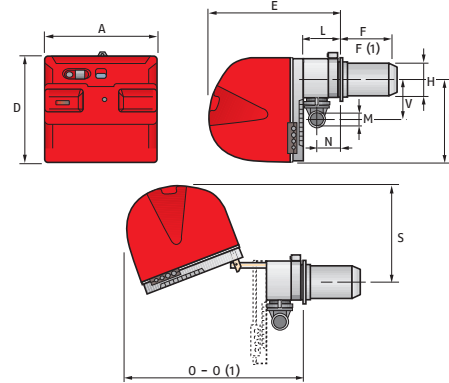
Overall dimensions (mm)

BURNER

RS 25 - 35 C05



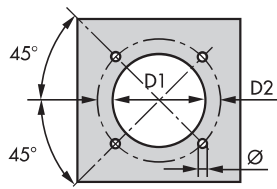
RS 45 C05



MODEL	A	B	C	D	E	F - F (1)	G* - G(1)*	H	I	L	M	N	O - O(1)	S	V
▶ RS 25 C05	442	-	-	422	508	230 - 365	- -	140	305	138	1"1/2	84	780 - -	-	177
▶ RS 35 C05	442	-	-	422	508	192 - 327	- -	152	305	138	1"1/2	84	780 - -	-	177
▶ RS 45 C05	476	-	-	474	580	192 - 327	- -	160	352	164	1"1/2	108	810 - 810	367	168

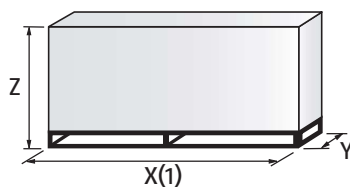
(1) Length with extended combustion head. * Maximum depth of the boiler door including the depth of the burner flange insulating gasket.

BURNER - BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
▶ RS 25 C05	160	224	M8
▶ RS 35 C05	160	224	M8
▶ RS 45 C05	165	224	M8

PACKAGING



MODEL	X(1)	Y	Z	kg
▶ RS 25 C05	1000	485	500	39
▶ RS 35 C05	1000	485	500	40
▶ RS 45 C05	1015	500	630	48

(1) dimension with standard and extended head

RS 25÷45 C05 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
 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/50-60H
 110/50-60 110V/50-60Hz

R	S	35		C05	TC	FS1	3/230-400/50	230/50-60
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BASIC DESIGNATION

EXTENDED DESIGNATION

Low NOx Two Stage Progressive Gas Burners

RS 25÷45 C05 SERIES

Specification

STATE OF SUPPLY

Monoblock forced draught Low Nox gas burner, with two stage operation, fully automatic, made up of:
Air suction circuit with sound proofing material

High performance fan

- Air damper for air flow setting and butterfly valve for regulating fuel output on 1st and 2nd stage controlled by a servomotor with variable cam
- Newly designed combustion head, for Low Nox emissions (< 56mg/kWh), 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
- Microprocessor-based burner safety control box, with diagnostic functions
- Flame inspection window
- Slide bars for easier installation and maintenance
- Protection filter against radio interference
- 1st - 2nd stage manual switch
- 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
- IP40 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
- 3 plugs for electrical connection
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

Available models

Burners

CODE	MODEL	HEAT OUTPUT		TOTAL ELECTRICAL POWER (kW)	CERTIFICATION	NOTE
		NATURAL GAS (kW)	NATURAL GAS (Nm ³ /h)			
20159225	RS 25 C05 TC 1/220-230/50-60 220-230/50-60	70/125÷340	4,5/12,5÷34	0,6	CE-0123CT1607	(1)
20159226	RS 25 C05 TL 1/220-230/50-60 220-230/50-60	70/125÷340	4,5/12,5÷34	0,6	CE-0123CT1607	(1)
20159227	RS 35 C05 TC 1/220-230/50-60 220-230/50-60	82/200÷440	7/20÷44	0,7	CE-0123CT1607	(1)
20159229	RS 35 C05 TL 1/220-230/50-60 220-230/50-60	82/200÷440	7/20÷44	0,7	CE-0123CT1607	(1)
20159233	RS 45 C05 TC 3/220-230/50-60 230/50-60	90/190÷570	9/19÷57	0,76	CE-0123CT1607	(1)
20159234	RS 45 C05 TL 3/220-230/50-60 230/50-60	90/190÷570	9/19÷57	0,76	CE-0123CT1607	(1)

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

The burners of RS/M BLU series are in according to 2016/426/EU - 2014/30/EU - 2014/35/EU - 2006/42 EC Directive and EN 676 - LRV 92 Norm.

(1) With plug and socket.

RS 25÷45 C05 SERIES

Available models

Gas Trains

CODE	GAS TRAIN			VPS CODE	ADAPTER CODE	
	MODEL	Ø	C.T.		RS 25	RS 35 - RS 45
3970500*	MB 405/1 - RT 20	Rp ¾"	-	3010123	3000824	
3970553*	MB 407/1 - RT 20	Rp ¾"	-	3010123		
3970599*	MB 407/1 - RT 52	Rp ¾"	-	3010123		
3970229*	MB 407/1 - RSM 20	Rp ¾"	-	3010123		
3970258*	MB 410/1 - RT 52	Rp 1" ¼	-	3010123	3010124	
3970554*	MB 410/1 - RT 20	Rp ¾"	-	3010123	3000824	
3970600*	MB 410/1 - RT 52	Rp ¾"	-	3010123		
3970230*	MB 410/1 - RSM 20	Rp ¾"	-	3010123		
3970256*	MB 412/1 - RT 52	Rp 1" ½	-	3010123	□	
3970144*	MB 412/1 - RT 20	Rp 1" ½	-	3010123	□	
3970197**	MB 412/1 CT RT 20	Rp 1" ½	◆	◆	□	
3970231*	MB 412/1 - RSM 20	Rp 1" ½	-	3010123	□	
3970180*	MB 415/1 - RT 30	Rp 1" ½	-	3010123	□	
3970198**	MB 415/1 CT RT 30	Rp 1" ½	◆	◆	□	
3970250*	MB 415/1 - RT 52	Rp 1" ½	-	3010123	□	
3970253**	MB 415/1 CT RT 52	Rp 1" ½	◆	◆	□	
3970232*	MB 415/1 - RSM 30	Rp 1" ½	-	3010123	□	
3970181*	MB 420/1 - RT 30	Rp 2"	-	3010123	3000822	
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"	◆	◆		
20137718*	VDG 50/1 - RT 122	Rp 2"	-	3010123+20186306		
20169190**	VDG 50/1 CT RT 122	Rp 2"	◆	◆	3000822	
20140762*	VDG 65/1 - FT 122	DN 65 (1)	-	3010123	3000826+3000822	
20169191**	VDG 65/1 CT FT 122	DN 65 (1)	◆	◆	3000826+3000822	
20140763*	VDG 80/1 - FT 122	DN 80	-	3010123	●	●
20169192**	VDG 80/1 CT FT 122	DN 80	◆	◆	●	●
20169193*	VDG 100/1 - FT 122	DN 100	-	3010123	●	●
20169194**	VDG 100/1 CT FT 122	DN 100	◆	◆	●	●
20169195*	VDG 125/1 - FT 122	DN 125	-	3010123	●	●
20169196**	VDG 125/1 CT FT 122	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.

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

(1) Øin = DN 65, Øout = DN 80

Low NOx Two Stage Progressive Gas Burners

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Burner accessories

Extended head kit

Burners standard head can be transformed into "extended head" versions by using the special kit. Here the KITS available for the various burners are listed, showing the original and the extended lengths.

BURNER	STANDARD HEAD LENGTH (mm)	EXTENDED HEAD LENGTH (mm)	KIT CODE
▶ RS 25... C05	230	365	20177160
▶ RS 35... C05	192	327	20177164
▶ RS 45... C05	192	327	20177165

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 - 35 - 45 C05	110	3010095

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 - 35 C05	3010449
▶ RS 45 C05	3010094

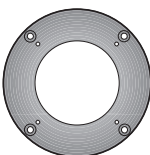
Post-ventilation kit



To prolong ventilation after opening of thermostats chain, a special kit is available.

BURNER	POST-VENTILATION TIME (s)	KIT CODE
▶ RS 25 - 35 C05	20	3010452

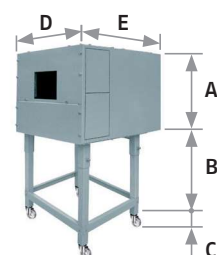
Connection flange kit



A kit is available for use where the burner opening on the boiler is of excessive diameter.

BURNER	KIT CODE
▶ RS 25 - 35 - 45 C05	3010138

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 25 - 35 - 45 C05	C1/3	650	372 - 980	110	690	770	10	3010403

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

RS 25÷45 C05 SERIES

Burner accessories

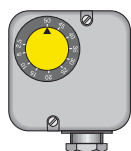
Ground fault interrupter kit



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

BURNER	KIT CODE
▶ RS 25 - 35 C05	3010448
▶ RS 45 C05	3010321

Gas max pressure switch



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

BURNER	KIT CODE
▶ RS 25 - 35 C05	3010418
▶ RS 45 C05	3010493

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 lock-out indication.

BURNER	KIT CODE
▶ RS 25 - 35 - 45 C05	3010419

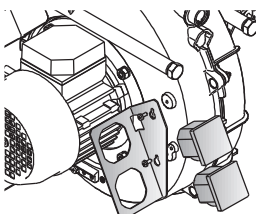
PC Interface kit



To connect the RMG 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
▶ RS 25 - 35 - 45 C05	3002719

Hours counter kit



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

BURNER	KIT CODE
▶ RS 25 - 35 C05	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
▶ RS 25 - 35 - 45 C05	3010386

