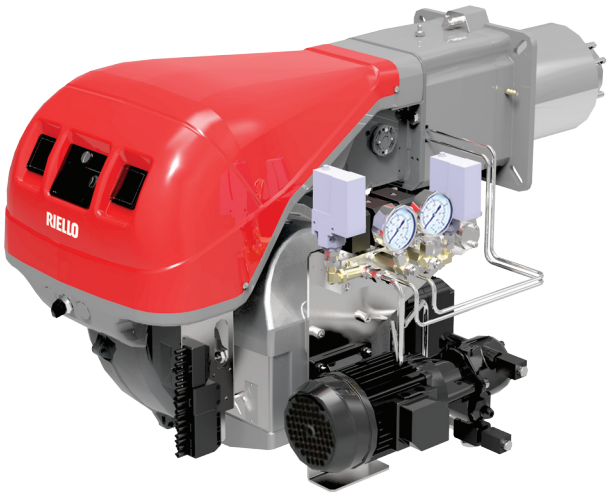
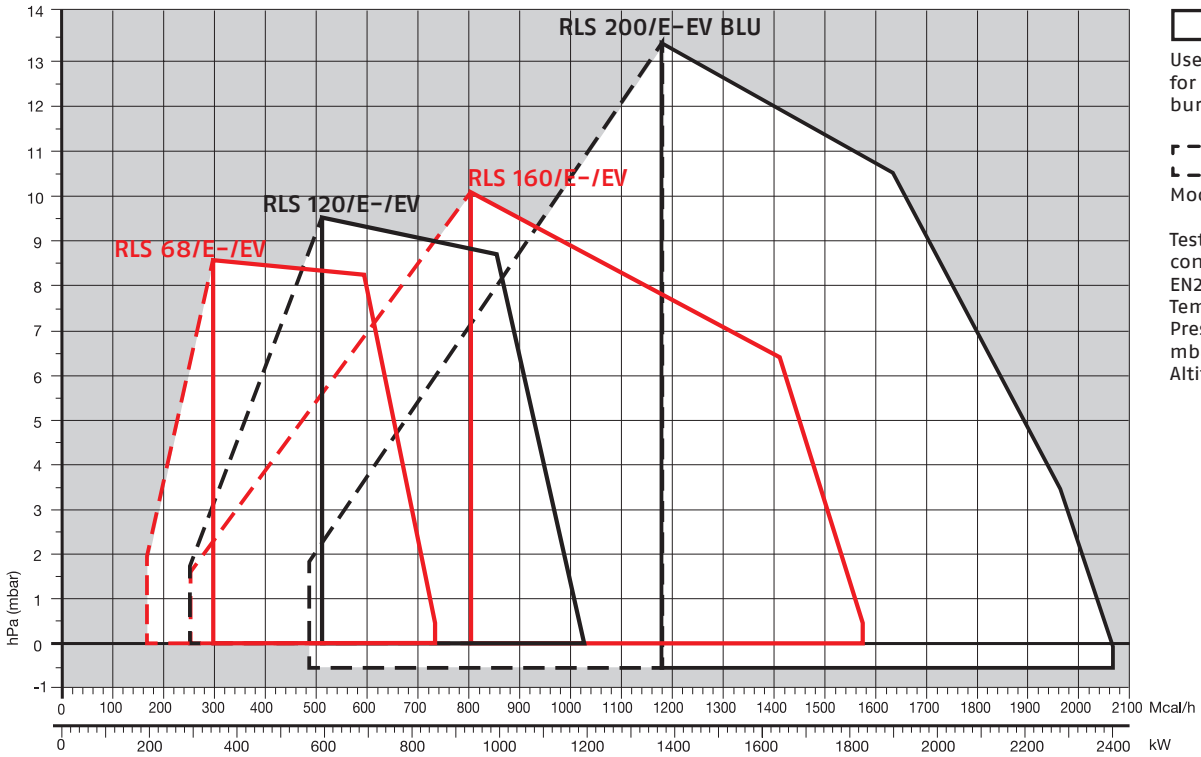
RLS/E-EV MX SERIES

The RLS/E-EV MX series of burners covers a firing range from 350 to 2400 kW, and they have been designed for use in low or medium temperature hot water boilers, hot air or steam boilers, diathermic oil boilers.
They are equipped with Siemens LMV26, 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 a PID logic regulator and respective probes. RLS/E-EV MX burners series guarantees high efficiency levels in all the various applications, thus reducing fuel consumption and running costs.
The RLS/E-EV MX models, are available to operate with **Variable Speed Drive technology** base on the control of a Frequency Inverter that modifies the air flow through the motor speed variation.
Optimisation of sound emissions is guaranteed by the special design of the air suction circuit and by **incorporated sound proofing material.**



RLS 68/E-EV MX	200/350 ÷ 860	kW
RLS 120/E-EV MX	300/600 ÷ 1200	kW
RLS 160/E-EV MX	300/930 ÷ 1840	kW
RLS 200/E-EV MX	570/1375 ÷ 2400	kW

FIRING RATES



Useful working field for choosing the burner

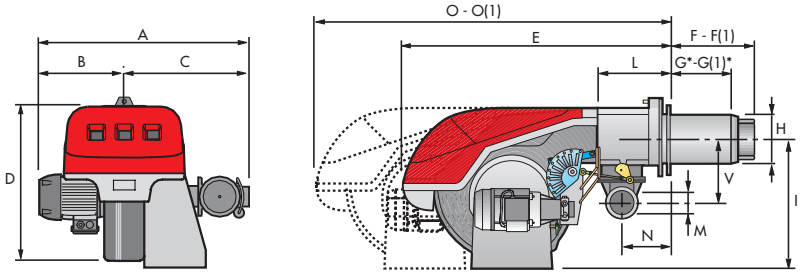
Modulation range

Test conditions conforming to EN267- EN676
Temperature: 20°C
Pressure: 1013,5 mbar
Altitude: 0 m a.s.l.

LOW NOx DUAL FUEL

Overall dimensions (mm)

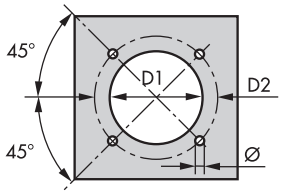
BURNER



MODEL	A	B	C	D	E	F - F(1)	G* - G(1)*	H	I	L	M	N	O - O (1)	V
▶ RLS 68/E-EV MX	691	296	395	555	840	260 - 395	200 - 335	189	430	214	2"	134	1161 - 1300	221
▶ RLS 120/E-EV MX	733	338	395	555	840	260 - 395	200 - 335	189	430	214	2"	134	1161 - 1300	221
▶ RLS 160/E-EV MX	843	366	477	555	863	373 - 503	272 - 402	221	430	237	2"	141	1442 - 1589	186
▶ RLS 200/E-EV MX	904	427	477	555	863	373 - 503	272 - 402	221	430	237	2"	141	1442 - 1589	186

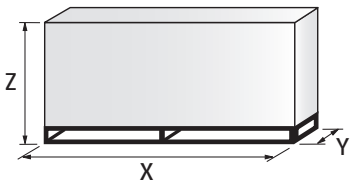
(1) Length with extended combustion head.
* Maximum depth of the boiler door including the depth of the burner flange insulating gasket.

BURNER - BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
▶ RLS 68-120/E-EV MX	195	275 - 325	M12
▶ RLS 160-200/E-EV MX	230	325 - 368	M16

PACKAGING



MODEL	X (1)	Y	Z	kg
▶ RLS 68/E-EV MX	1400	975	645	70
▶ RLS 120/E-EV MX	1400	975	645	76
▶ RLS 160/E-EV MX	1400	975	645	95
▶ RLS 160/E-EV MX	1400	975	645	130

(1) Length with standard and extended combustion head.

RLS/E-EV MX SERIES

Specification

DESIGNATION OF SERIES

Series : R

Fuel :	S	Natural gas
	L	Light oil
	LS	Light oil / Natural gas
	N	Heavy oil

Size

Operation :	/1	One stage
	...	Two stage
	/M	Modulating
	/E	Electronic cam
	/P	Proportioning air/gas valve
	/EV	Electronic cam predisposed for variable speed (with inverter)

Emission :	...	Class 1 EN267 - EN676
	MZ	Class 2 EN267 - EN676
	BLU	Class 3 EN267 - EN676
	MX	Class 2 EN267 Class 3 EN676

Head :	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	3/220V/60Hz - 3N/380V/60Hz

Auxiliary voltage :

230/50-60	230V/50-60Hz
110/50-60	110V/50-60Hz

ID : Differential switch

R	LS	160	/E	MX	TC	FS1	3/230-400/50	230/50	

BASIC DESIGNATION

EXTENDED DESIGNATION

LOW NOx DUAL FUEL

RLS/E-EV MX SERIES

Specification

STATE OF SUPPLY

Monoblock forced draught Low NOx dual fuel burner with two stage progressive or modulating operation at the gas and oil side, with a specific kit, fully automatic, made up of:
- Microprocessor-based Digital Burner Management System (Electronic Cam)
- Display Interface operating unit to adjust the system
- air suction circuit lined with sound-proofing material
- centrifugal fan with high performance and low sound emissions
- air damper for air flow setting, butterfly valve for regulating gas output and oil modulator for oil output controlled by a servomotors
- starting motor at 2800 rpm, three-phase 400V with neutral, 50Hz
- low emission 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
    - gas distributor
    - flame stability disk
- maximum gas pressure switch to stop the burner in the case of excess pressure on the fuel supply line
- minimum air pressure switch stops the burner in case of insufficient air quantity at the combustion head
- gears pump for high pressure fuel supply
- pump starting motor
- Valve unit with a double oil safety valve on the output circuit and a double safety valve on the return circuit
- Safety oil pressure switch
- burner safety control box
- UV photocell for flame detection
- burner on/off selection switch
- manual or automatic output increase/decrease selection switch
- Oil/Gas selector
- flame inspection window
- slide bars for easier installation and maintenance
- protection filter against radio interference
- IP 44 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
- 2 flexible pipes for connection to the oil supply network
- 2 nipples for connection to the pump with gaskets
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

Available models

Burners

CODE	MODEL				HEAT OUTPUT (kW)	LIGHT OIL (kg/h)	NATURAL GAS (Nm³/h)	TOTAL ELECTRICAL POWER (kW)	CERTIFICATION	NOTE
on demand	RLS 68/E MX	TC	FS1 3/230-400/50	230/50-60	200/350-860	17/30-73	27/40-100	2,2	in progress	
on demand	RLS 68/EV MX	TL	FS1 3/230-400/50	230/50-60	200/350-860	17/30-73	27/40-100	2,2	in progress	
on demand	RLS 120/E MX	TC	FS1 3/230-400/50	230/50-60	300/600-1200	25/50-101	37/70-140	3,0	in progress	
20092413	RLS 120/EV MX	TC	FS2 3/230-400/50	230/50-60	300/600-1200	25/50-101	37/70-140	3,3 (oil) 2,6 (gas)	in progress	
on demand	RLS 120/EV MX	TL	FS1 3/230-400/50	230/50-60	300/600-1200	25/50-101	37/70-140	3,0	in progress	
on demand	RLS 160/E MX	TC	FS1 3/400/50	230/50-60	300/930-1840	25/78-155	30/93-184	6,0	in progress	
on demand	RLS 160/EV MX	TC	FS1 3/230/50	230/50-60	300/930-1840	25/78-155	30/93-184	6,0	in progress	
on demand	RLS 160/E MX	TL	FS1 3/400/50	230/50-60	300/930-1840	25/78-155	30/93-184	6,0	in progress	
on demand	RLS 160/EV MX	TL	FS1 3/230/50	230/50-60	300/930-1840	25/78-155	30/93-184	6,0	in progress	
on demand	RLS 200/E MX	TC	FS1 3/400/50	230/50-60	570/1375-2400	48/115-200	57/138-240	6,0	in progress	
on demand	RLS 200/EV MX	TC	FS1 3/230/50	230/50-60	570/1375-2400	48/115-200	57/138-240	6,0	in progress	
on demand	RLS 200/E MX	TL	FS1 3/400/50	230/50-60	570/1375-2400	48/115-200	57/138-240	6,0	in progress	
on demand	RLS 200/EV MX	TL	FS1 3/230/50	230/50-60	570/1375-2400	48/115-200	57/138-240	6,0	in progress	

Net calorific value light oil: 11,8 kWh/kg; 10.200 kcal/kg - Viscosity at 20°C: 4-6 mm²/s (cSt).
Net calorific value G20 gas: 10 kWh/Nm³; 8.600 kcal/Nm³ - Density: 0,71 kg/Nm³.
The burners of RLS/E-EV MX series are in according to 2009/142 - 2004/108 - 2006/95 - EC Directive and EN 267 - 676 Norm.

Available models

Gas Trains

GAS TRAIN			ADAPTER CODE			
CODE	MODEL	Ø	RLS 68	RLS 120	RLS 160	RLS 200
3970599*	MB 407/1 - RT 52	Rp ¾"	3000824+ 3000843	●	●	●
3970553*	MB 407/1 - RT 20	Rp ¾"		●	●	●
3970229*	MB 407/1 - RSM 20	Rp ¾"		●	●	●
3970258*	MB 410/1 - RT 52	Rp 1" ¼	3010126		●	●
3970554*	MB 410/1 - RT 20	Rp ¾"	3000824+ 3000843		●	●
3970600*	MB 410/1 - RT 52	Rp ¾"			●	●
3970230*	MB 410/1 - RSM 20	Rp ¾"			●	●
3970256*	MB 412/1 - RT 52	Rp 1" ½	3000843			●
3970144*	MB 412/1 - RT 20	Rp 1" ½				●
3970197**	MB 412/1 CT RT 20	Rp 1" ½				●
3970231*	MB 412/1 - RSM 20	Rp 1" ½				●
3970180*	MB 415/1 - RT 30	Rp 1" ½	3000843			
3970198**	MB 415/1 CT RT 30	Rp 1" ½				
3970250*	MB 415/1 - RT 52	Rp 1" ½				
3970253**	MB 415/1 CT RT 52	Rp 1" ½				
3970232*	MB 415/1 - RSM 30	Rp 1" ½				
3970181*	MB 420/1 - RT 30	Rp 2"	-	-	-	-
3970182**	MB 420/1 CT RT 30	Rp 2"	-	-	-	-
3970257*	MB 420/1 - RT 52	Rp 2"	-	-	-	-
3970252**	MB 420/1 CT RT 52	Rp 2"	-	-	-	-
3970233*	MB 420/1 - RSM 30	Rp 2"	-	-	-	-
3970234**	MB 420/1 CT RSM 30	Rp 2"	-	-	-	-
3970221*	MBC 1200/1 - RSM 60	Rp 2"	-	-	-	-
3970225**	MBC 1200/1 CT RSM 60	Rp 2"	-	-	-	-
3970222*	MBC 1900/1 - FSM 40	DN 65	3000825			
3970226**	MBC 1900/1 CT FSM 40	DN 65				
3970223*	MBC 3100/1 - FSM 40	DN 80	3000826			
3970227**	MBC 3100/1 CT FSM 40	DN 80				
3970224*	MBC 5000/1 - FSM 80	DN 100	●	●	●	3000826 + 3010370
3970228**	MBC 5000/1 CT FSM 80	DN 100	●	●	●	
3970145*	CB 512/1 - RSM 30	Rp 1" ½	3000843			
20045589**	CB 512/1 CT RSM 30	Rp 1" ½				
3970146*	CB 520/1 - RSM 30	Rp 2"	-	-	-	-
3970160**	CB 520/1 CT RSM 30	Rp 2"	-	-	-	-
20044659*	CB 525/1 - RSM 30	Rp 2"	-	-	-	-
20044660**	CB 525/1 CT RSM 30	Rp 2"	-	-	-	-
3970147*	CB 5065/1 - FSM 30	DN 65	3000825			
3970161**	CB 5065/1 CT FSM 30	DN 65				
3970148*	CB 5080/1 - FSM 30	DN 80	3000826			
3970162**	CB 5080/1 CT FSM 30	DN 80				
3970148*	CB 50100/1 - FSM 30	DN 100	3010370 + 3000826			
3970162**	CB 50100/1 CT FSM 30	DN 100				
3970148*	CB 50125/1 - FSM 30	DN 125	●	3010224 + 3000826		
3970162**	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.
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.

Burner accessories

Nozzles type 60° B

The nozzles must be ordered separately. The following table shows the features and codes on the basis of the maximum required fuel output.

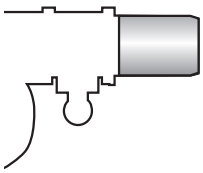
NOTE: each burner needs N° 1 nozzle.

BURNER	RATED OUTPUT kg/h	A3 NOZZLE CODE	A4 NOZZLE CODE
▶ RLS/E-EV MX	40	3009853	20067277
▶ RLS/E-EV MX	50	3009854	20067279
▶ RLS/E-EV MX	60	3009855	20067281
▶ RLS/E-EV MX	70	3009856	20067283
▶ RLS/E-EV MX	80	3009857	20067284
▶ RLS/E-EV MX	90	3009858	20067285
▶ RLS/E-EV MX	100	3009859	20067286
▶ RLS/E-EV MX	110	3009860	20067287
▶ RLS/E-EV MX	120	3009861	20067288
▶ RLS/E-EV MX	130	3009862	20067289
▶ RLS/E-EV MX	140	3009863	20067290
▶ RLS/E-EV MX	150	20059496*	20067290
▶ RLS/E-EV MX	160	3009864	20067293
▶ RLS/E-EV MX	180	3009865	20067295
▶ RLS/E-EV MX	200	3009866	20067297

* 60° Angle

Burner accessories

Extended head kit



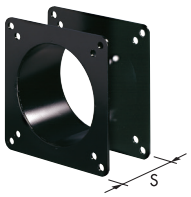
"Standard head" burners can be transformed into "extended head" versions, by using the special kit. The kits available for the various burners, giving the original and the extended lengths, are listed below.

BURNER	STANDARD HEAD LENGTH (mm)	EXTENDED HEAD LENGTH (mm)	KIT CODE
▶ RLS 68-120/E-EV MX	260	395	3010360
▶ RLS 160/E-EV MX	373	503	3010441 *
▶ RLS 200/E-EV MX	373	503	on demand

* Kit to be used on burners recognizable by a serial number that is over or equal to 02426XXXXXX, for burners with a serial number that is under or equal to 02416XXXXXX please use the Kit coded 3010340

Burner accessories

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)	KIT CODE
▶ RLS/E-EV MX	102	3000722

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.

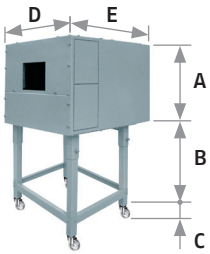
BURNER	KIT CODE
▶ RLS/E-EV MX	3010094

Ground fault interrupter kit

A "Ground fault interrupter kit" is available as a safety device for electrical system fault.

BURNER	KIT CODE
▶ RLS/E-EV MX	20098337

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)] (*)	BOX CODE
▶ RLS 68-120/E-EV MX RLS 160-200/E-EV MX	C4/5	850	160 - 980	110	980	930	10	3010404

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

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

The motor speed variation for the RLS/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 RLS/EV series.

BURNER	MAX POWER (kW)	KIT CODE
▶ RLS 68/EV BLU	1,5	20063532
▶ RLS 120/EV BLU	3,0	20063533
▶ RLS 160/EV - 200/EV BLU	5,5	20062679

Burner accessories

Accessories for modulating operation

To obtain modulating operation, the RLS/E-EV MX 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	REGULATOR TYPE	REGULATOR CODE
▶ RLS/E-EV MX	RWF 40	3010414

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)	PROBE CODE
▶ RLS/E-EV MX	Temperature PT 100	-100 ÷ 500°C	3010110
▶ RLS/E-EV MX	Pressure 4 ÷ 20 mA	0 ÷ 2,5 bar	3010213
▶ RLS/E-EV MX	Pressure 4 ÷ 20 mA	0 ÷ 16 bar	3010214
▶ RLS/E-EV MX	Pressure 4 ÷ 20 mA	0 ÷ 25 bar	3090873

Head kit for "reverse flame chamber"

In certain cases, the use of the burner on reverse flame boilers can be improved by using an additional Pipes Kit.

BURNER	KIT CODE
▶ RLS 68/E-EV MX	20006401
▶ RLS 120/E-EV MX	20006402
▶ RLS 160/E-EV MX	3010249
▶ RLS 200/E-EV MX	20035848

PC Interface kit

To connect the 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
▶ All models	3010436

OCI412 interface kit

Interface kit between the LMV 26 and a Modbus system, such as a building automation and control system (BACS).
The Modbus interface is based on the RS-485 standard.

BURNER	KIT CODE
▶ All models	3010437

Gas train accessories

Adapters

When the diameter of the gas train is different from the set diameter of the burners, an adapter must be fitted between the gas train and the burner.
Below are given the available adapters; please see on the Gas Train list the correct adapter codes to select.

ADAPTER	LENGTH mm	ADAPTER CODE
3/4" 1" 1/2	31	3000824
2" 1/2 2" DN 65 2" 1/2 1" 1/2	300	3000825
DN 80 2" 1/2 2"	300	3000826
1" 1/2 2"	35	3000843
1" 1/4 2"	35	3010126
DN 100 DN 80	50	3010370
	320	3010224

Stabiliser spring

Accessory springs are available to vary the pressure range of the gas train stabilisers.
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