Balanced spool electropneumatic valves - C Series(ex. CETOP)

Connections: 1/8" - 1/4" - 3/8" - 1/2"

C SERIES



- Balanced spool valves
- Fast switching times
- High mechanical strength
- Anodised aluminium body
  Thermoplastic polymer or anodised aluminium bases
- 3/2 - 5/2 - 5/3 electro-pneumaticaly operator
  Internal servo-pilot
- Possibility of series assembly
- Available with ATEX 2014/34/EU certification

TECHNICAL CHARACTERISTICS				
Function		3/2 - 5/2 - 5/3		
Operation		Electro-pneumaticaly: Internal servo-pilot - Monostable mechanical or pneumatic spring return, bistable and three positions		
Materials		Anodised aluminium alloy body, thermoplastic polymer (PBT) / anodised aluminium alloy base and cover Internal components in steel - aluminium - brass - NBR gaskets		
Note on materials		Compliant with REACH (1907/2006/EC and subsequent amendments)		
Connections		Size A: 1/8" Gas (Available with 1/4" Gas connections) Size B: 1/4" Gas (Available with 3/8" Gas connections) Size C: 1/2" Gas		
Threads		Cylindrical gases (BSPP)		
Operating temperature		0°C ÷ +80°C (-20°C with dry air, to avoid ice formation)		
Operating pressure		0 ÷ 10 bar		
Pilot operation pressure		2 bar		
Air flow rate		Size A - 1/8", 1/4"	Size B - 1/4", 3/8"	Size C - 1/2"
Rated diameter		5mm	8mm	12mm
Supply pressure	5 bar	460 Nl/min	840 Nl/min	2100 Nl/min
(with ΔP 1 bar)	6 bar	500 Nl/min	930 Nl/min	2300 Nl/min
	7 bar	540 Nl/min	1020 Nl/min	2450 Nl/min
		See flow diagram page 3.3.05.2		
Fluid		Filtered air, lubrication-free, compliant with ISO 8573-1:2010 [7:4:4]		
Lubrication		Not required (if required in the pneumatic circuit, it must be continuous)		

COILS ELECTRICAL CHARACTERISTICS		
Coil type	Type "E" (22mm)	
Operating voltage	12, 24, 48 VDC	24, 48, 110, 220 VAC
Power (max.)	5.5 W	6.5 VA
Tolerance	± 10%	
Protection class	IP54 / IP65	
Other characteristics	See from p. 3.3.05.10	

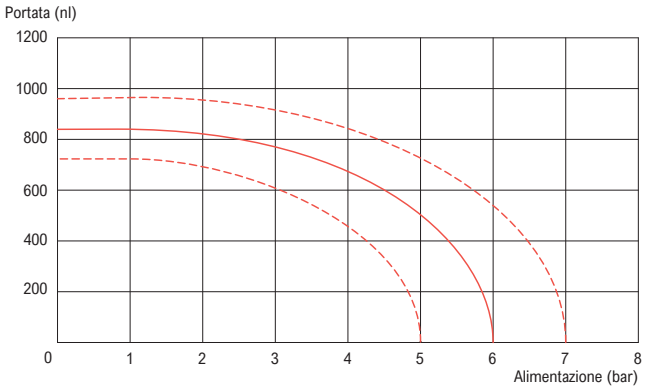
ATEX CERTIFICATION		
Valve marking (excluding coil)	CE Ex	II 2G Ex h IIC T6 Gb (Zone 1 and Zone 2) II 2D Ex h IIIC 85°C Db (Zone 21 and Zone 22)
Operating pressure in ATEX environment	0.5 ÷ 10 bar	
ATEX ambient temperature	-20°C ≤ Ta ≤ +60°C	
CE marking	In compliance with Directive 2014/34/EU (see declaration of conformity)	



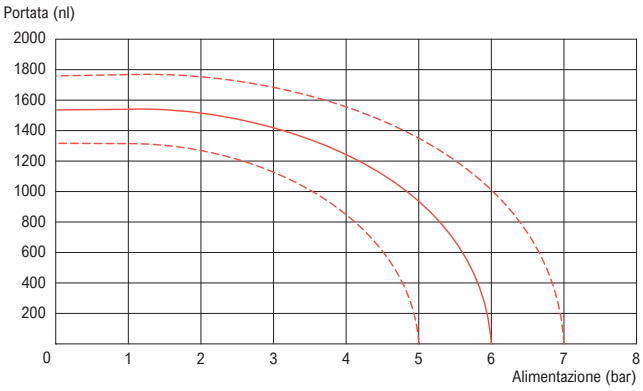
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FLOW DIAGRAMS - ELECTROPNEUMATICALLY OPERATED VALVES

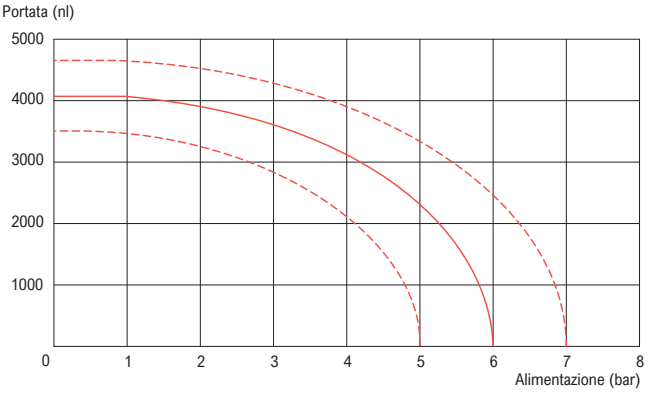
FLOW RATE DIAGRAM - SIZE "A" - 1/8", 1/4"



FLOW RATE DIAGRAM - SIZE "B" - 1/4", 3/8"

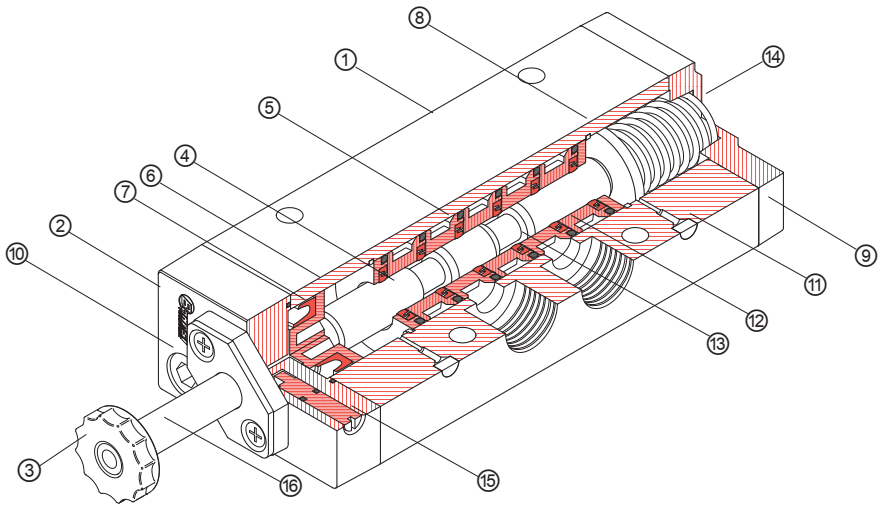


FLOW RATE DIAGRAM - SIZE "C" - 1/2"



MATERIALS - ELECTROPNEUMATICALLY OPERATED VALVES

POS	DESCRIPTION	MATERIAL	POS	DESCRIPTION	MATERIAL
①	Body	Anodised drawn aluminium	⑨	Base	Polybutylene terephthalate PBT / Anodised aluminium
②	Cover	Polybutylene terephthalate PBT / Anodised aluminium	⑩	Screw	Galvanised steel
③	Ring nut	Acrilonitrile butadiene stirene ABS	⑪	Silencer	Sintered bronze
④	Spool	Nickel-plated aluminium	⑫	O-ring	Nitrile rubber (NBR)
⑤	Spacers	Brass OT58	⑬	Sealing gasket	Nitrile rubber (NBR)
⑥	Piston	Nylon	⑭	Spring	AISI 302 steel (X10CrNi18-09)
⑦	Piston gasket	Nitrile rubber (NBR)	⑮	Manual intervention	Brass OT58
⑧	Seeger ring	C75 steel	⑯	Electropilot	Brass - Magnetic stainless steel



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CODING KEY - ELECTROPNEUMATICALLY OPERATED VALVES

Operation	Function	Size	Version	Pneumatic connections	Electropilot position	Certifications
EC	**31**	**80**	**1**	☐	**L/E**	☐

EC = Electropneumatic internal servo-pilot

80 = Size A - Standard 1/8" Gas
40 = Size B - Standard 1/4" Gas
20 = Size C - Standard 1/2" Gas

NULL = Standard
/4 = 1/4" Gas
/3 = 3/8" Gas

L/E = In line
A/E = In height

NULL = None
EX = For compressed air in potentially explosive atmosphere (ATEX)

31 = 3/2 Normally open

33 = 3/2 Normally closed

13 = 5/2 Monostable 5/2 Bistable

51 = 5/3 Closed centres

53 = 5/3 Open centres

1 = Monostable Pneumatic spring return

4 = Monostable Mechanical spring return

2 = Electropneumatic bistable Three monostable positions

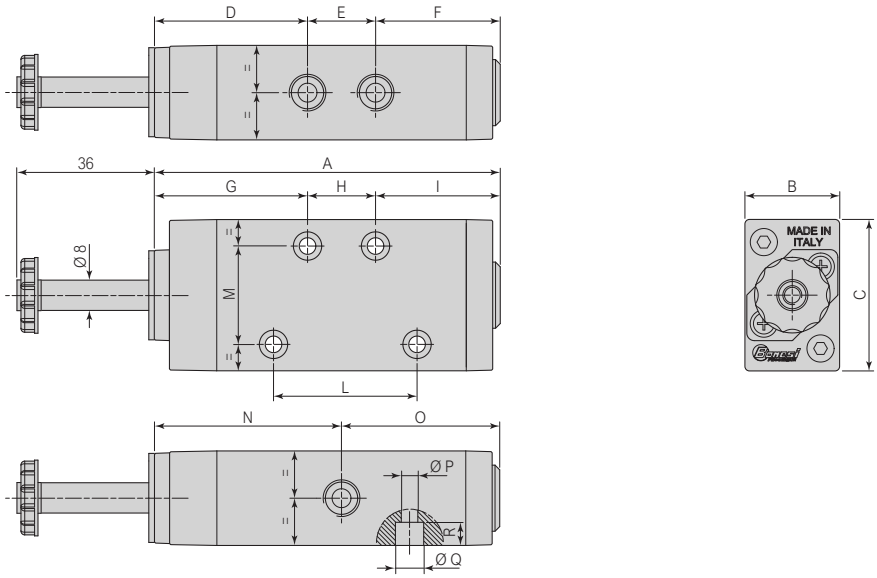
POSSIBLE CONFIGURATIONS

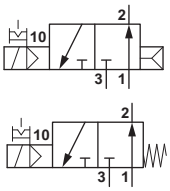
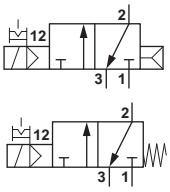
Operation	Function	Size	Version	Pneumatic connections	Electropilot position	Certifications
EC Electropneumatic external servo pilot	**31** 3/2 Normally open	**80** Size A Standard 1/8" Gas	**1** Monostable Pneumatic return	☐ 1/8" Gas	**L/E** in line	☐ None
	33 3/2 Normally closed		**4** Monostable Mechanical return	**/4** 1/4" Gas		**EX** ATEX
	13 5/2		**2** Electropneumatic bistable. Three stable positions			
	51 5/3 Closed centres	**40** Size B Standard 1/4" Gas	**1** Monostable Pneumatic return	☐ 1/4" Gas	**L/E** in line	☐ None
	53 5/3 Open centres		**4** Monostable Mechanical return	**/3** 3/8" Gas		**EX** ATEX
			2 Electropneumatic bistable. Three stable positions			
	13 5/2	**20** Size C Standard 1/2" Gas	**1** Monostable Pneumatic return	☐ 1/2" Gas	**L/E** in line	☐ None
	51 5/3 Closed centres		**4** Monostable Mechanical return			**EX** ATEX
	53 5/3 Open centres		**2** Electropneumatic bistable. Three stable positions		**A/E** in height	☐ None
						EX ATEX

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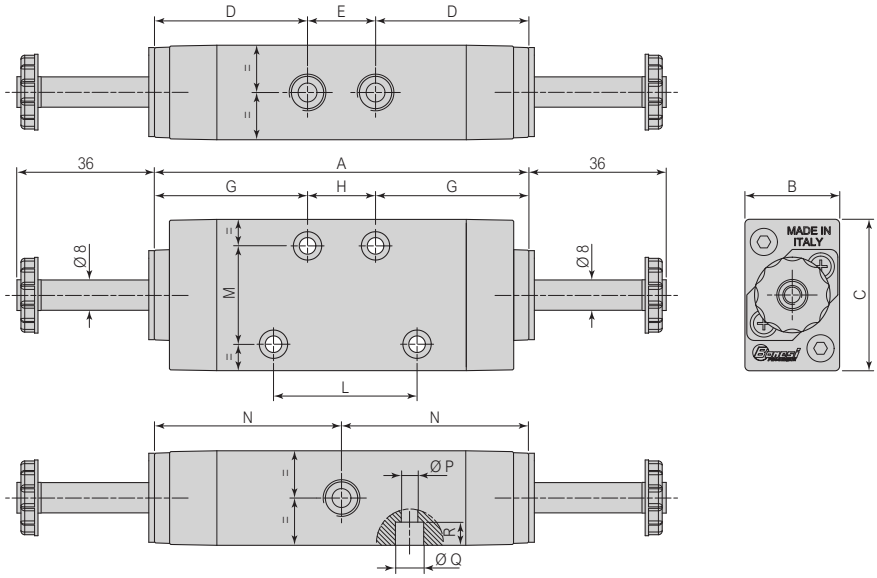
DIMENSIONS - 3/2 VALVES WITH ELECTROPNEUMATIC OPERATION

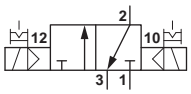
ELECTROPNEUMATIC OPERATION - NORMALLY OPEN / CLOSED - MONOSTABLE WITH PNEUMATIC / MECHANICAL SPRING RETURN



Symbol	Function	Size	Connections	Code	A	B	C	D	E	F	G	H	I	L	M	N	O	Ø P	Ø Q	R
	NA	A	Gas 1/8"	EC31801L/E EC31804L/E	91.5	25	40	40.5	18	33	38.5	22	31	40	26	49.5	42	4.5	7.5	6
			Gas 1/4"	EC31801/4L/E EC31804/4L/E	91.5	25	40	40.5	18	33	38.5	22	31	40	26	49.5	42	4.5	7.5	6
		B	Gas 1/4"	EC31401L/E EC31404L/E	113.5	30	52	49.25	22	42.25	49.25	30	38.25	50	40	60.25	53.25	5.5	9	7
			Gas 3/8"	EC31401/3L/E EC31404/3L/E	113.5	30	52	49.25	22	42.25	45.25	30	38.25	50	40	60.25	53.25	5.5	9	7
	NC	A	Gas 1/8"	EC33801L/E EC33804L/E	91.5	25	40	40.5	18	33	38.5	22	31	40	26	49.5	42	4.5	7.5	6
			Gas 1/4"	EC33801/4L/E EC33804/4L/E	91.5	25	40	40.5	18	33	38.5	22	31	40	26	49.5	42	4.5	7.5	6
		B	Gas 1/4"	EC33401L/E EC33404L/E	113.5	30	52	49.25	22	42.25	49.25	30	38.25	50	40	60.25	53.25	5.5	9	7
			Gas 3/8"	EC33401/3L/E EC33404/3L/E	113.5	30	52	49.25	22	42.25	45.25	30	38.25	50	40	60.25	53.25	5.5	9	7

ELECTROPNEUMATIC OPERATION - BISTABLE

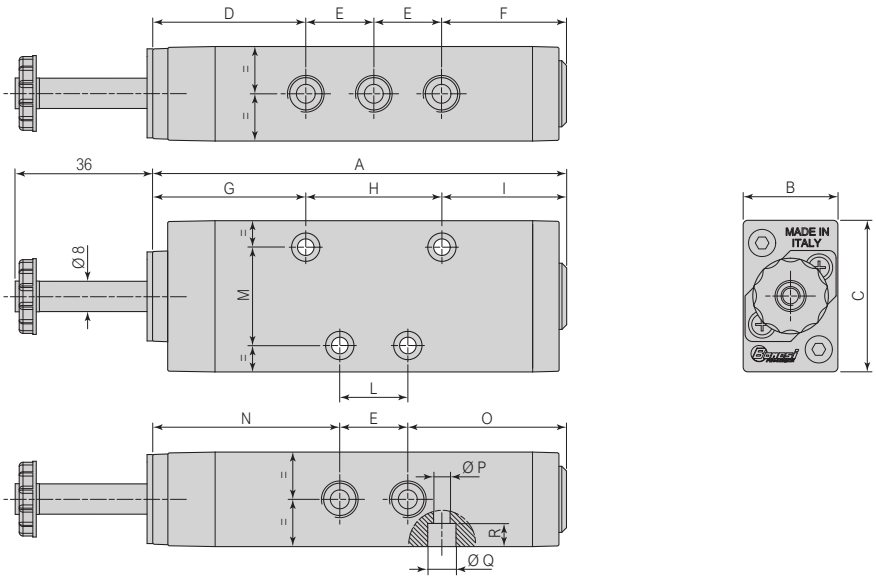


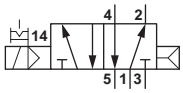
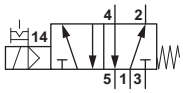
Symbol	Size	Connections	Code	A	B	C	D	E	G	H	L	M	N	Ø P	Ø Q	R
	A	Gas 1/8"	EC31802L/E	99	25	40	40.5	18	38.5	22	40	26	49.5	4.5	7.5	6
		Gas 1/4"	EC31802/4L/E	99	25	40	40.5	18	38.5	22	40	26	49.5	4.5	7.5	6
	B	Gas 1/4"	EC31402L/E	120.5	30	52	49.25	22	49.25	30	50	40	60.25	5.5	9	7
		Gas 3/8"	EC31402/3L/E	120.5	30	52	49.25	22	45.25	30	50	40	60.25	5.5	9	7

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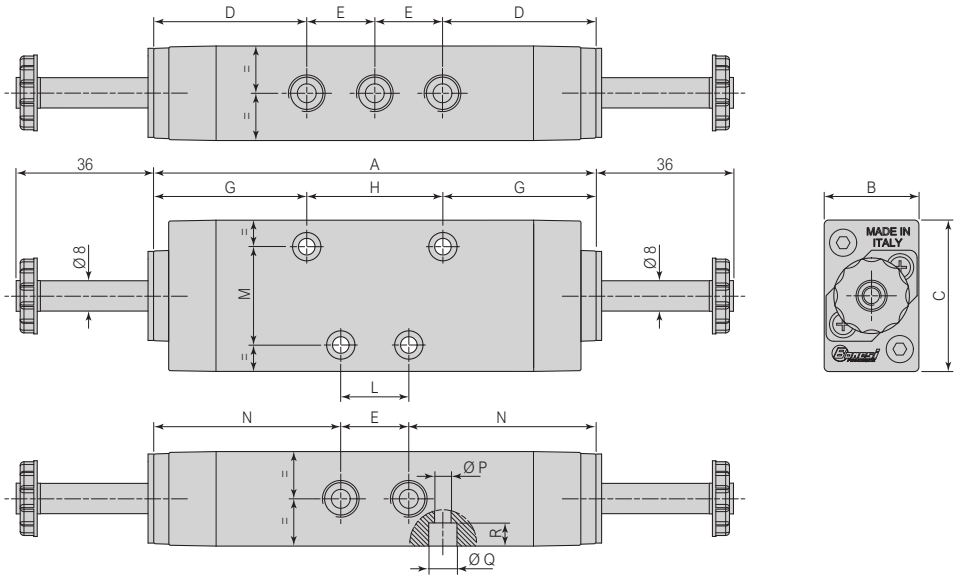
DIMENSIONS - 5/2 VALVES WITH ELECTROPNEUMATIC OPERATION IN LINE

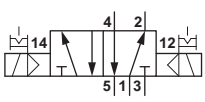
ELECTROPNEUMATIC DRIVE - MONOSTABLE WITH PNEUMATIC / MECHANICAL SPRING RETURN



Symbol	Size	Connections	Code	A	B	C	D	E	F	G	H	I	L	M	N	O	Ø P	Ø Q	R
	A	Gas 1/8"	EC13801L/E EC13804L/E	109.5	25	40	40.5	18	33	40.5	36	33	18	26	49.5	42	4.5	7.5	6
		Gas 1/4"	EC13801/4L/E EC13804/4L/E	109.5	25	40	40.5	18	33	38.5	40	31	57	26	49.5	42	4.5	7.5	6
	B	Gas 1/4"	EC13401L/E EC13404L/E	135.5	30	52	49.25	22	42.25	41.25	60	34.25	22	40	60.25	53.25	5.5	9	7
		Gas 3/8"	EC13401/3L/E EC13404/3L/E	135.5	30	52	49.25	22	42.25	46.25	50	39.25	70	40	60.25	53.25	5.5	9	7
	C	Gas 1/2"	EC13201L/E	168	70	35	51	33	51	39	90	39	33	50	67.5	67.5	6.5	10.5	8
			EC13204L/E	175	70	35	51	33	58	39	90	46	33	50	67.5	74.5	6.5	10.5	8

ELECTROPNEUMATIC OPERATION - BISTABLE

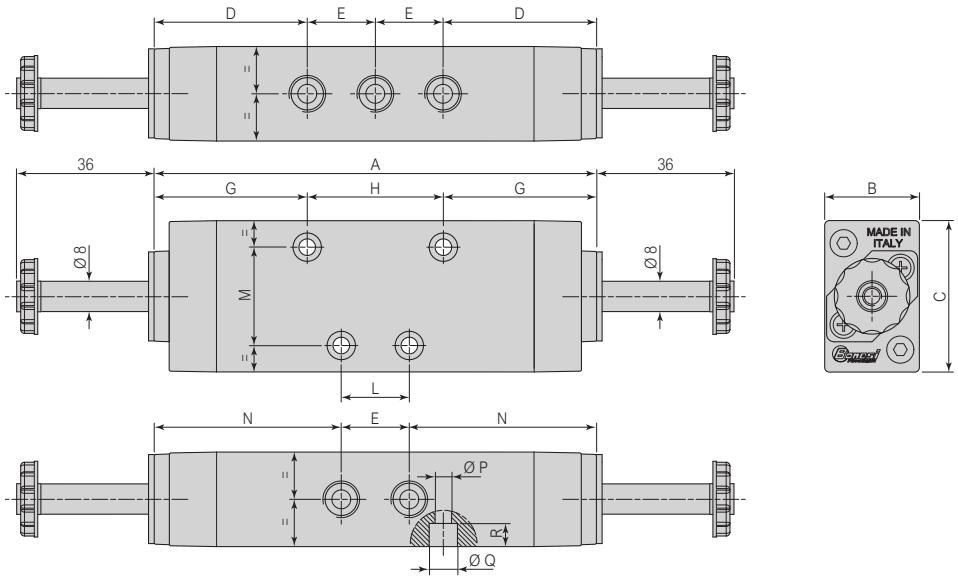


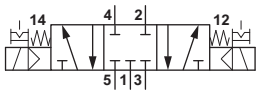
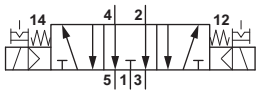
Symbol	Size	Connections	Code	A	B	C	D	E	G	H	L	M	N	Ø P	Ø Q	R
	A	Gas 1/8"	EC13802L/E	117	25	40	40.5	18	40.5	36	18	26	49.5	4.5	7.5	6
		Gas 1/4"	EC13802/4L/E	117	25	40	40.5	18	38.5	40	57	26	49.5	4.5	7.5	6
	B	Gas 1/4"	EC13402L/E	142.5	30	52	49.25	22	41.25	60	22	40	60.25	5.5	9	7
		Gas 3/8"	EC13402/3L/E	142.5	30	52	49.25	22	46.25	50	70	40	60.25	5.5	9	7
	C	Gas 1/2"	EC13202L/E	168	70	35	51	33	39	90	33	50	67.5	6.5	10.5	8

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DIMENSIONS - 5/3 VALVES WITH ELECTROPNEUMATIC OPERATION IN LINE

ELECTROPNEUMATIC OPERATION - THREE POSITIONS - CLOSED / OPEN CENTRES

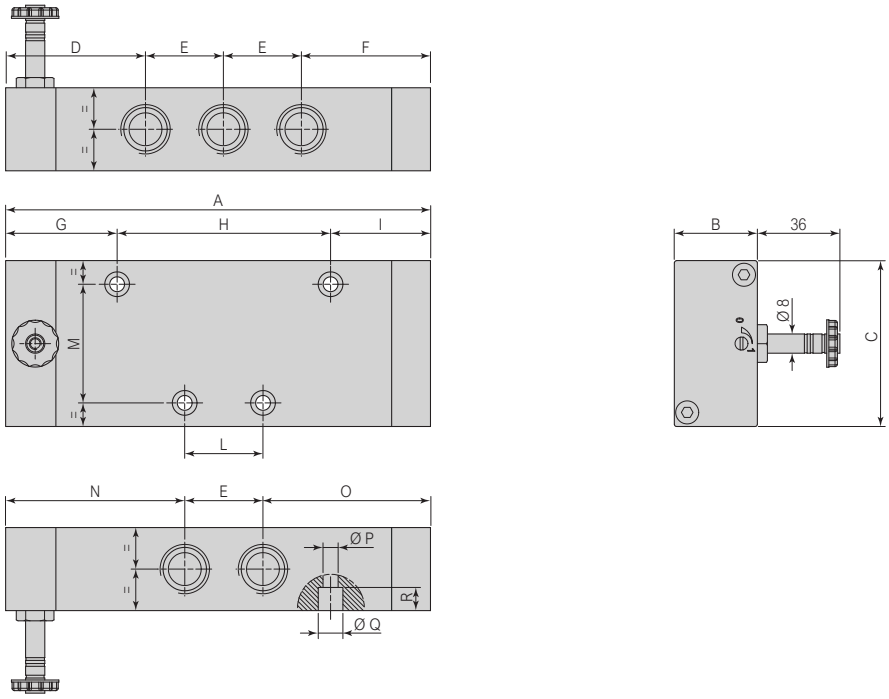


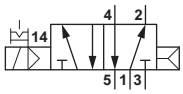
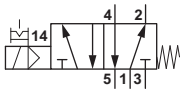
Symbol	Size	Connections	Code	A	B	C	D	E	G	H	L	M	N	Ø P	Ø Q	R
	A	Gas 1/8"	EC51802L/E	117	25	40	40.5	18	40.5	36	18	26	49.5	7.5	6	6
		Gas 1/4"	EC51802/4L/E	117	25	40	40.5	18	38.5	40	57	26	49.5	7.5	6	6
	B	Gas 1/4"	EC51402L/E	142.5	30	52	49.25	22	41.25	60	22	40	60.25	9	7	7
		Gas 3/8"	EC51402/3L/E	142.5	30	52	49.25	22	46.25	50	70	40	60.25	9	7	7
	C	Gas 1/2"	EC51202L/E	174.5	35	70	50.5	33	38.5	90	33	50	67	10.5	8	8
	A	Gas 1/8"	EC53802L/E	117	25	40	40.5	18	40.5	36	18	26	49.5	7.5	6	6
		Gas 1/4"	EC53802/4L/E	117	25	40	40.5	18	38.5	40	57	26	49.5	7.5	6	6
	B	Gas 1/4"	EC53402L/E	142.5	30	52	49.25	22	41.25	60	22	40	60.25	9	7	7
		Gas 3/8"	EC53402/3L/E	142.5	30	52	49.25	22	46.25	50	70	40	60.25	9	7	7
	C	Gas 1/2"	EC53202L/E	174.5	35	70	50.5	33	38.5	90	33	50	67	10.5	8	8

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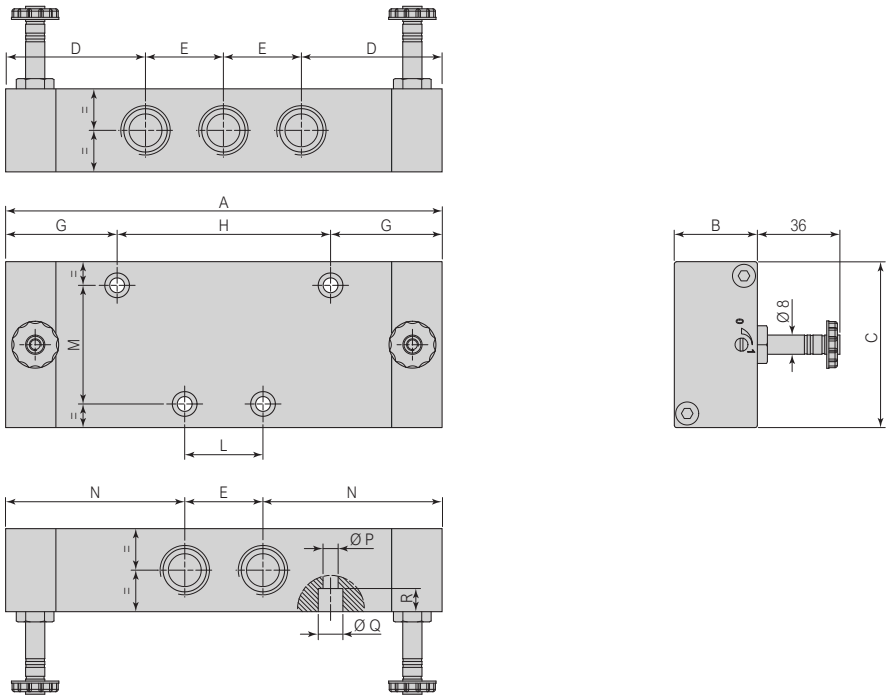
DIMENSIONS - 5/2 VALVES WITH ELECTROPNEUMATIC OPERATION IN HEIGHT

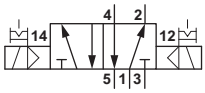
ELECTROPNEUMATIC DRIVE - MONOSTABLE WITH PNEUMATIC / MECHANICAL SPRING RETURN



Symbol	Size	Connections	Code	A	B	C	D	E	F	G	H	I	L	M	N	O	Ø P	Ø Q	R
	C	Gas 1/2"	EC13201A/E	180.5	35	70	60	33	54.5	48	90	42.5	33	50	76.5	71	6.5	10.5	8
		Gas 1/2"	EC13204A/E	180.5	35	70	60	33	54.5	48	90	42.5	33	50	76.5	71	6.5	10.5	8

ELECTROPNEUMATIC OPERATION - BISTABLE

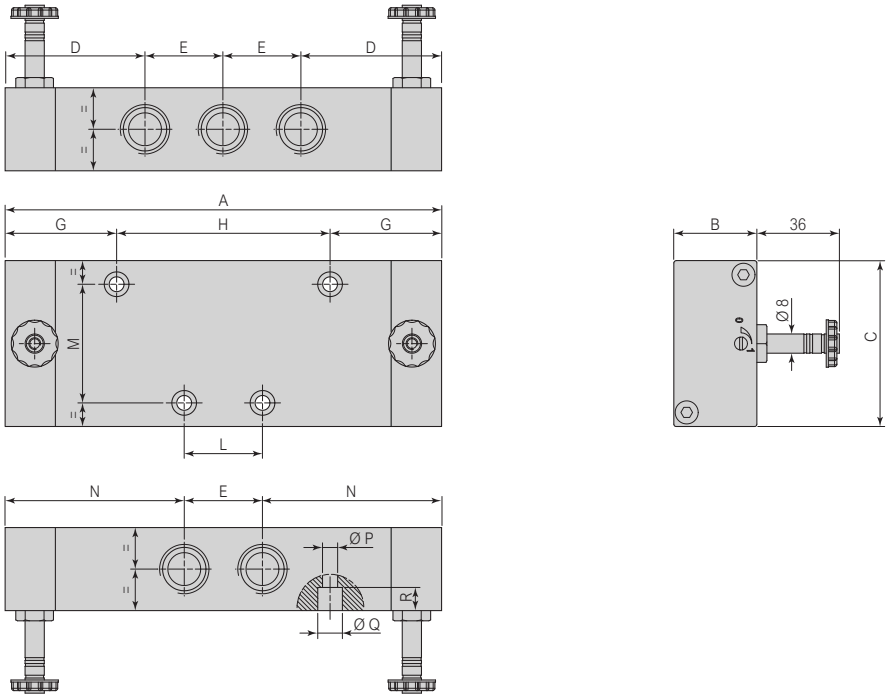


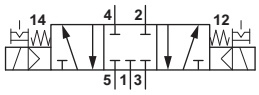
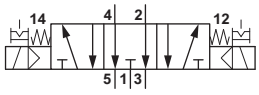
Symbol	Size	Connections	Code	A	B	C	D	E	G	H	L	M	N	Ø P	Ø Q	R
	C	Gas 1/2"	EC13202A/E	186	35	70	60	33	48	90	33	50	76.5	6.5	10.5	8

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DIMENSIONS - 5/2 VALVES WITH ELECTROPNEUMATIC OPERATION IN HEIGHT

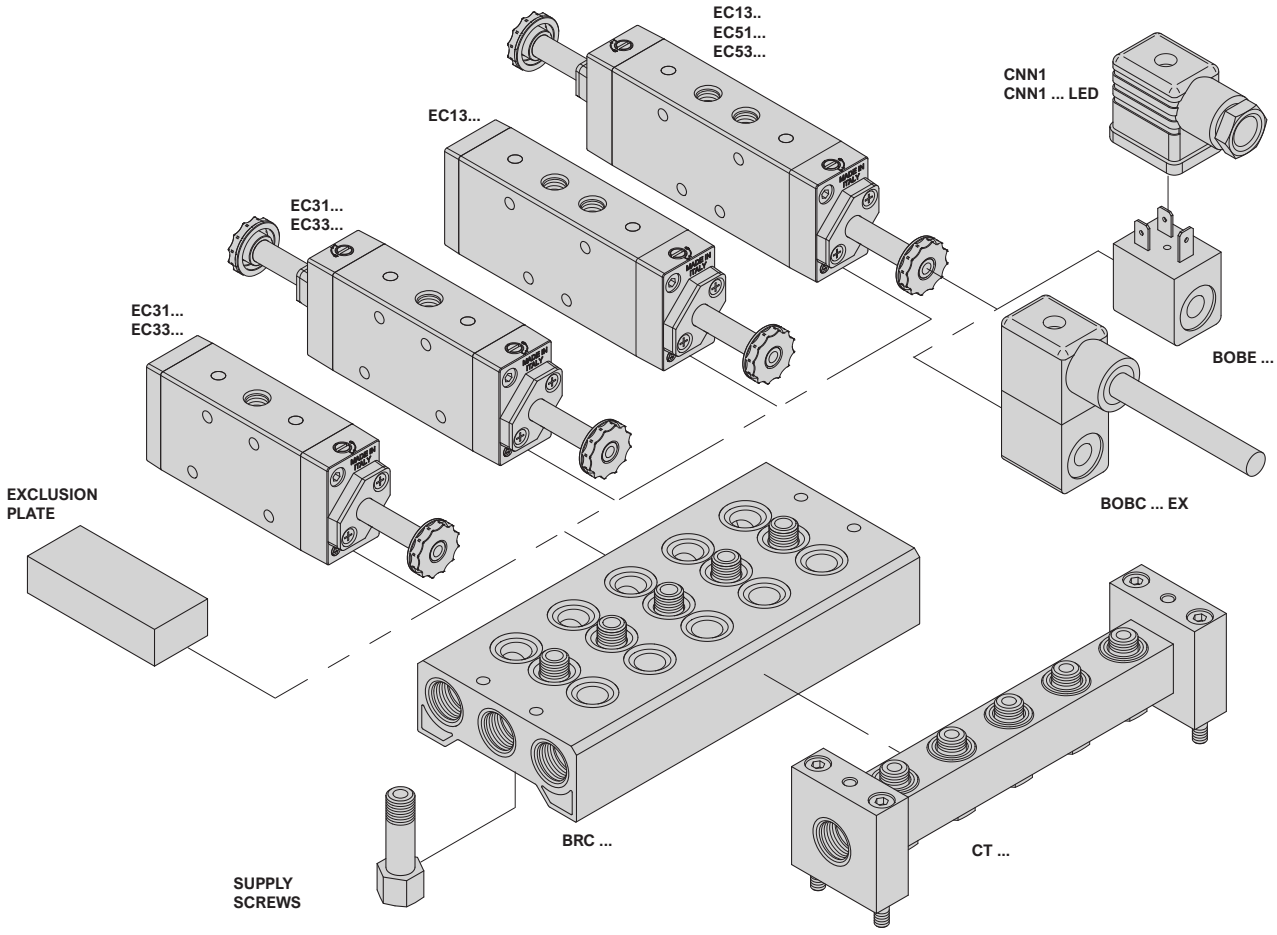
ELECTROPNEUMATIC OPERATION - THREE POSITIONS - CLOSED / OPEN CENTRES

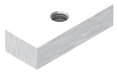


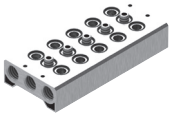
Symbol	Size	Connections	Code	A	B	C	D	E	G	H	L	M	N	Ø P	Ø Q	R
	C	Gas 1/2"	EC51202A/E	186	35	70	60	33	48	90	33	50	76.5	6.5	10.5	8
		Gas 1/2"	EC53202A/E	186	35	70	60	33	48	90	33	50	76.5	6.5	10.5	8

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ACCESSORIES



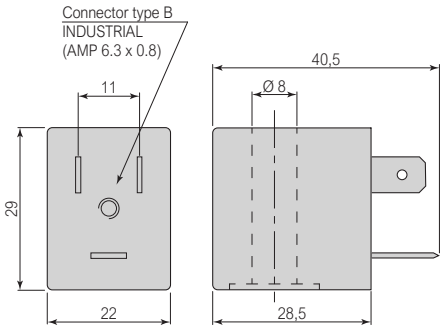
		BOBE ... "E" type coils AC / DC	BOBC ... EX ATEX coils AC / DC	CNN1 ... Connectors for "E" type coils	CNN1 ... LED Connectors for "E" type coils	CONNECTING SCREWS separate power supply For BRC sub-base...	EXCLUSION PLATE For BRC sub-base...
							
Size	**Connections**	Page 3.3.05.18	Page 3.3.05.19	Page 3.3.05.18	Page 3.3.05.16	Page 3.3.05.8	Page 3.3.05.8
A	Gas 1/8"	✓	✓	✓	✓	10243	10240
	Gas 1/4"	✓	✓	✓	✓	10481	
B	Gas 1/4"	✓	✓	✓	✓	10249	10246
	Gas 3/8"	✓	✓	✓	✓	10482	
C	Gas 1/2"	✓	✓	✓	✓	✗	✗
		Coating in NYLON + GLASS FIBRES	Coating in Self-extinguishing PA + GLASS FIBRES	PA6 GF	PA6 GF - PA12	Nickel-plated brass	Anodised aluminium

		BCR .. Sub-bases								CT ... Line collectors				
														
Size	**Connections**	Page 3.3.05.20								Page 3.3.05.20				
		2 seats	3 seats	4 seats	5 seats	6 seats	7 seats	8 seats	9 seats	2 seats	3 seats	4 seats	5 seats	6 seats
A	Gas 1/8"	BCR 82	BCR 83	BCR 84	BCR 85	BCR 86	BCR 87	BCR 88	BCR 89	CT 602	CT 603	CT 604	CT 605	CT 606
	Gas 1/4"	BCR 12	BCR 13	BCR 14	BCR 15	BCR 16	BCR 17	BCR 18	BCR 19	CT 612A	CT 613A	CT 614A	CT 615A	CT 616A
B	Gas 1/4"	BCR 42	BCR 43	BCR 44	BCR 45	BCR 46	BCR 47	BCR 48	BCR 49	CT 612B	CT 613B	CT 614B	CT 615B	CT 616B
	Gas 3/8"	✗	✗	✗	✗	✗	✗	✗	✗	CT 622	CT 623	CT 624	CT 625	CT 626
C	Gas 1/2"	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Anodised aluminium sub-base Nickel-plated brass connection screw NBR gaskets								Anodised aluminium collector Nickel-plated brass connection screw NBR gaskets				

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COILS type "E" (22 mm)

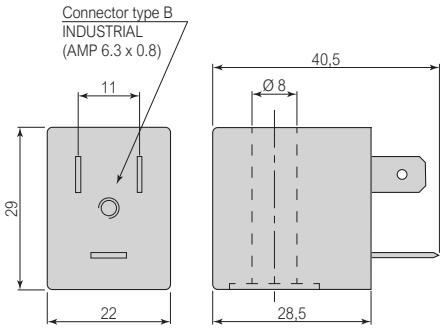
BOBE ...
Direct current coils



Technical features				
Code	BOBE012DC	BOBE024DC	BOBE048DC	
Operating voltage	12 VDC	24 VDC	48 VDC	
Power consumption (max.)	5,5 W			
Voltage tolerance	±10% (of the nominal voltage)			
Encapsulation class	155°C (F)			
Wire insulation class	200°C (H)			
Energising duration	100% (a 20°C)			
Electrical connection	INDUSTRIAL (AMP 6.3 x 0.8) type B			
Protection class	IP54 (with connector) IP65 (with connector and suitable seals)			
Material	Encapsulated NYLON + Glass fiber			

BOBE... / 1 piece each package

BOBE ...
Alternate current coils

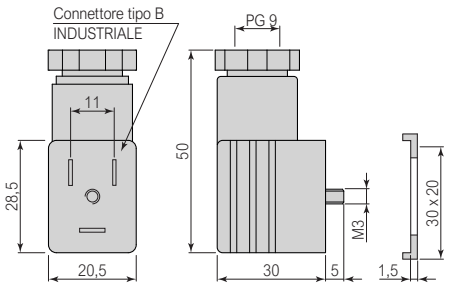


Technical features				
Code	BOBE024AC	BOBE048AC	BOBE110AC	BOBE220AC
Operating voltage	24 VAC	48 VAC	110 VAC	220 VAC
Power consumption (max.)	6,5 VA			
Voltage tolerance	±10% (of the nominal voltage)			
Encapsulation class	155°C (F)			
Wire insulation class	200°C (H)			
Energising duration	100% (a 20°C)			
Electrical connection	INDUSTRIAL (AMP 6.3 x 0.8) type B			
Protection class	IP54 (with connector) IP65 (with connector and suitable seals)			
Material	Encapsulated NYLON + Glass fiber			

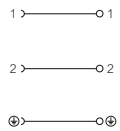
BOBE... / 1 piece each package

CONNECTORS for "E" type coils (22 mm)

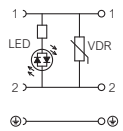
CNN1...
Connector for "E" type coils



CNN1



CNN1...LED



Technical characteristics				
Code	CNN1	CNN1 2 LED	CNN1 4 LED	CNN1 5 LED
Voltage	0÷250 V AC/DC	12/24 V AC/DC	115 V AC/DC	230 V AC/DC
Current (max.)	10 A	5 A	5 A	5 A
Contact resistance (max.)	15 mΩ			
Overvoltage category	III			
Conductor cross-section (max.)	1.5 mm^2 (without terminals)			
Cable clamp thread	PG9			
Operating temperature	-40°C ÷ +100°C	-20°C ÷ +80°C	-20°C ÷ +80°C	-20°C ÷ +80°C
Electrical connection	INDUSTRIAL (AMP 6.3 x 0.8) form B			
Protection class	IP65 (properly assembled)			
Insert and case materials	PA6 GF - PA6 GF	PA6 GF - PA12	PA6 GF - PA12	PA6 GF - PA12
Visual indicator	None	Yellow LED diode	Yellow LED diode	Yellow LED diode
Colour	Black	Clear	Clear	Clear
Electrical circuit protection	None	VDR Circuit	VDR Circuit	VDR Circuit
Fixing type	Central screw M3x32,5			

CNN1... / Insert, case, gasket and fixing screw - 1 piece per pack

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