

# A Series Poppet valves



ISO 9001  
BUREAU VERITAS  
Certification









# Poppet valves - A series

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

## A SERIES



- High flow rate valves
- Fast switching times
- Not effected by fluid impurities
- High mechanical strength
- Body and top cover in anodized aluminium or stainless steel AISI 316
- Available with ports Gas or NPT
- 2/2 NO/NC - 3/2 NO/NC - 5/2 pilot-spring
- Version for low temperature
- Version for high temperature
- Version for vacuum
- Possibility of manifold mounting
- Available certificated ATEX 2014/34/EU
- Available certificated up to SIL 3

### TECHNICAL FEATURES

<b>Function</b>	2/2 NO - 2/2 NC - 3/2 NO - 3/2 NC - 5/2 pilot-spring										
<b>Operation</b>	Electropneumatic: with solenoid size 22 and 30 mm, internal or external servopiloting and return by mechanical spring Pneumatic: with external piloting (single or double) and return by mechanical spring.										
<b>Materials</b>	Standard: Body and covers in aluminium alloy anodized, internal components in carbon steel - aluminium - brass Seals NBR/FKM/PUR Version X: Body and covers in stainless steel AISI 316, internal components in carbon steel - aluminium - brass Seals NBR/FKM/PUR Version XX: Body and covers in stainless steel AISI 316, internal components in stainless steel AISI 316 Seals NBR/FKM/PUR										
<b>Note about the materials</b>	According to Directive REACH (1907/2006/CE and s.a.s.)										
<b>Ports</b>	1/8", 1/4", 1/2", 3/4", 1"										
<b>Threads</b>	BSPP (Gas parallel thread), NPT										
<b>Operating temperature range</b>	Standard: 0°C ÷ +80°C (-20°C cwith dry air to avoid ice formation) High temperature (-VT): -10°C ÷ +150°C Low temperature (-BT): -50°C ÷ +110°C										
<b>Operating pressure range</b>	Electropneumatic, internal servopiloting (/E): 1,5 ÷ 10 bar Electropneumatic, external servopiloting (/PS/E - /PS/D): 0 ÷ 10 bar Pneumatic, external piloting, single or double (DP): 0 ÷ 10 bar Pneumatic, external double piloting for high pressure (DP-HP): 0 ÷ 16 bar										
<b>External pilot pressure</b>	1/8"	1/4"	1/2"	3/4"	1"						
Piloting	Single	Double	Single	Double	Single	Double	Single	Double	Single	Double	
Inlet pressure	5 bar	2,2 bar	1,6 bar	2,3 bar	1,7 bar	2,4 bar	1,9 bar	2,5 bar	1,9 bar	2,5 bar	2,1 bar
	6 bar	2,4 bar	1,9 bar	2,6 bar	2,0 bar	2,8 bar	2,3 bar	2,9 bar	2,3 bar	2,9 bar	2,5 bar
	7 bar	2,7 bar	2,2 bar	2,9 bar	2,3 bar	3,1 bar	2,6 bar	3,2 bar	2,6 bar	3,3 bar	2,9 bar
	See piloting diagrams (page 3.4.05.3)										
<b>Flow rate</b>	1/8"	1/4"	1/2"	3/4"	1"						
Nominal orifice	6 mm	9 mm	12 mm	19 mm	23 mm						
Inlet pressure	5 bar	650 NI/min	1500 NI/min	2800 NI/min	6100 NI/min	11000 NI/min					
(with ΔP 1 bar)	6 bar	700 NI/min	1600 NI/min	3000 NI/min	6500 NI/min	12000 NI/min					
	7 bar	800 NI/min	1800 NI/min	3400 NI/min	7300 NI/min	13500 NI/min					
	See flow rate diagrams (page 3.4.05.3)										
<b>Shifting time</b>	1/8"	1/4"	1/2"	3/4"	1"						
According to ISO 12238:2001	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	
	3/2 NC	5 ms	16 ms	6 ms	16 ms	7 ms	20 ms	16 ms	44 ms	12 ms	47 ms
	3/2 NA	7 ms	17 ms	6 ms	20 ms	11 ms	56 ms	20 ms	87 ms	17 ms	100 ms
	5/2	10 ms	45 ms	11 ms	53 ms	14 ms	72 ms	28 ms	135 ms	26 ms	215 ms
<b>Fluid</b>	Filtered air, without lubrication, according to ISO 8573-1:2010 [7:4:4]										
<b>Lubrication</b>	Not required (if required on the pneumatic circuit, must be continus)										

**ELECTRICAL FEATURES OF THE COILS**

Coil type	Type "E" (22mm)		Type "D" (30mm)		Type "C" (30 mm) ATEX	
	12, 24 VDC	24, 48, 110, 220 VAC	12, 24 VDC	24, 48, 110, 220 VAC	24 VDC	24, 48, 110, 220 VAC
Operating voltage	12, 24 VDC	24, 48, 110, 220 VAC	12, 24 VDC	24, 48, 110, 220 VAC	24 VDC	24, 48, 110, 220 VAC
Power consumption (max.)	5,5 W	6,5 VA	10 W	13 VA	5,3 W	5,3 W (raddrizzata)
Voltage tolerance	± 10%		± 10%		± 10%	
Temperature range	-40°C ÷ +50°C		-40°C ÷ +50°C		-20°C ÷ +40°C	
Protection class	IP54 / IP65		IP54 / IP65		IP65	
Other features	See page 3.4.05.17		See page 3.4.05.17		See page 3.4.05.18	

**ATEX CERTIFICATION**

Valve marking (coil excluded)	C <sup>o</sup> Ex II 2G Ex h IIC T6 Gb C <sup>o</sup> Ex II 2D Ex h IIIC 85°C Db
Operating pressure in ATEX environment	1,5 ÷ 10 bar
Temperature in ATEX environment	-20°C ≤ Ta ≤ +60°C
CE marking	According to Directive 2014/34/EU (see declaration of conformity)


**SIL CERTIFICATION** (Pneumatic valve with external piloting)

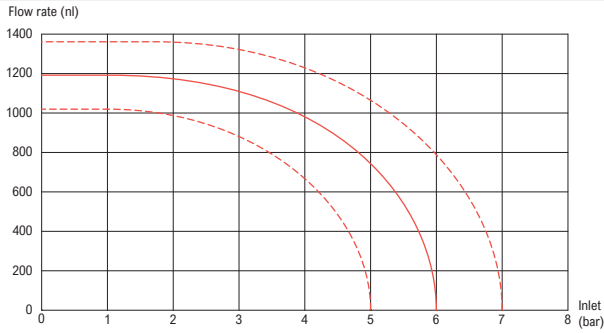
Type	Type A - Low demand mode
Systematic capability	Route 1H - 2H
Architectural constraints	Up to SIL 2 for single channel configuration without external diagnostic tests (HFT 0)
	Up to SIL 3 for single channel configuration with external diagnostic tests (HFT 0)
In accordance with	Up to SIL 3 redundant double channel configuration (HFT 1)
	EN 61508:2010 part 1,2,3,4,5,6,7 - EN 61511 part 1,2,3



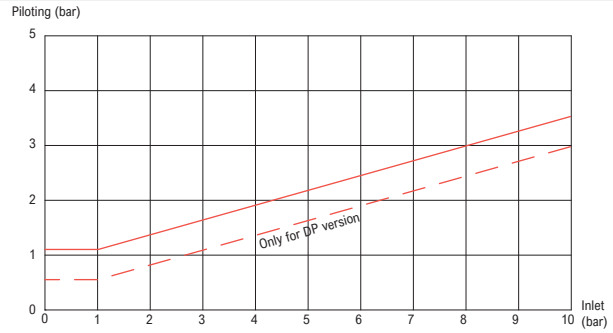


**FLOW RATE AND PILOTING DIAGRAMS**

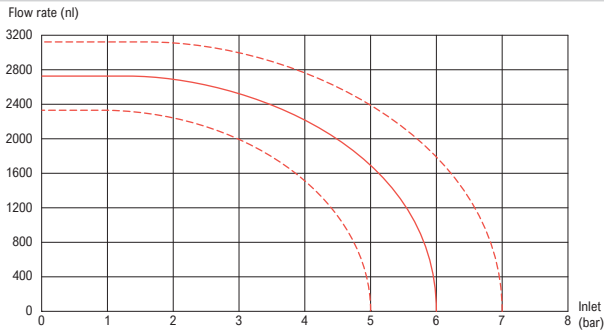
**FLOW RATE DIAGRAM – VALVE 1/8"**



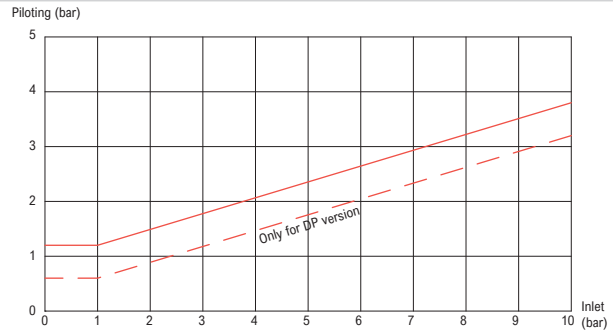
**PILOTING DIAGRAM – VALVE 1/8"**



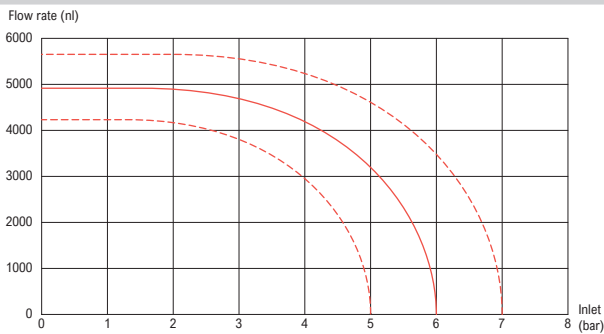
**FLOW RATE DIAGRAM – VALVE 1/4"**



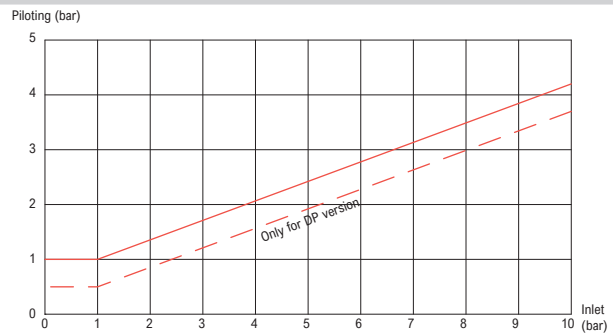
**PILOTING DIAGRAM – VALVE 1/4"**



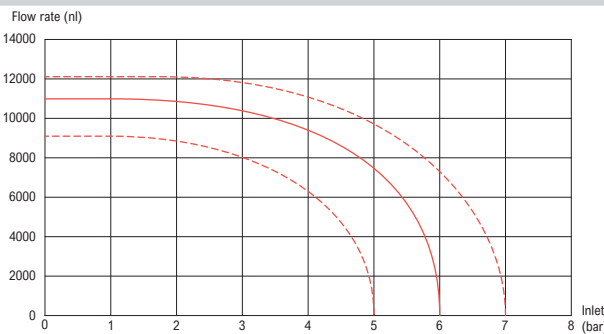
**FLOW RATE DIAGRAM – VALVE 1/2"**



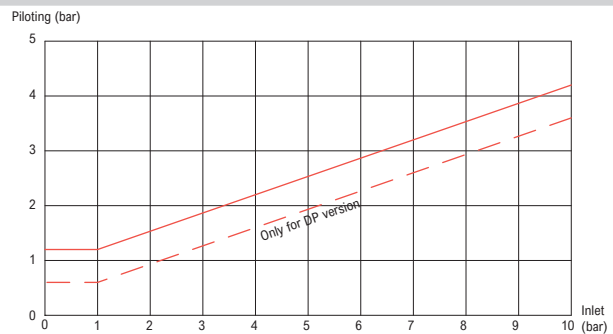
**PILOTING DIAGRAM – VALVE 1/2"**



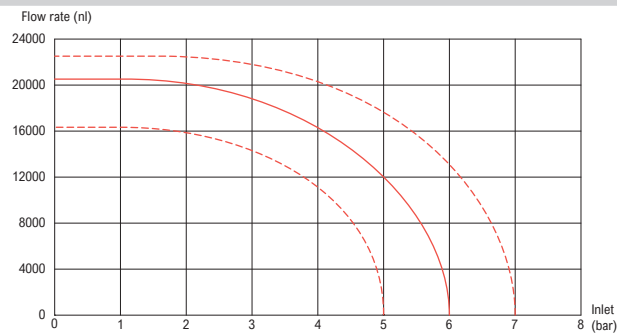
**FLOW RATE DIAGRAM – VALVE 3/4"**



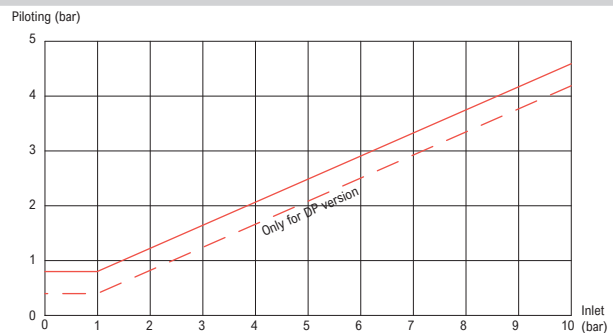
**PILOTING DIAGRAM – VALVE 3/4"**



**FLOW RATE DIAGRAM – VALVE 1"**

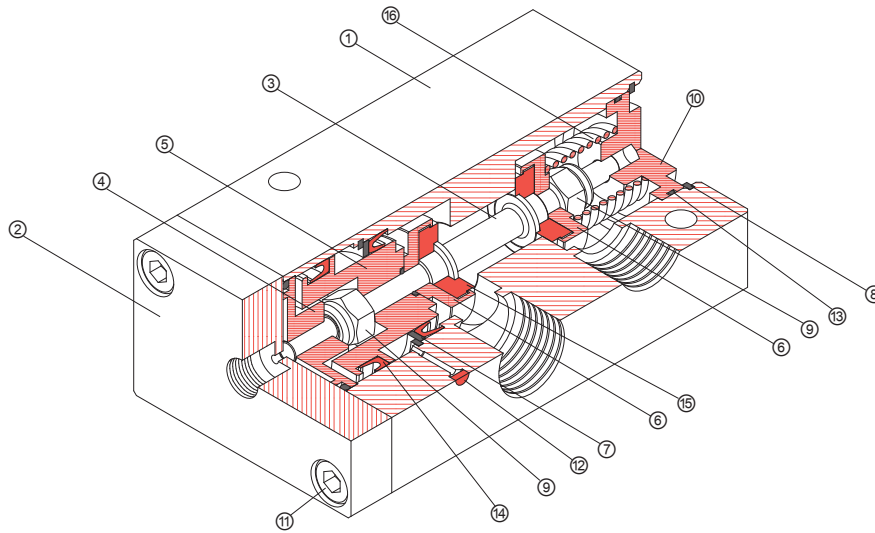


**PILOTING DIAGRAM – VALVE 1"**



**MATERIALS - PNEUMATIC VALVES - STANDARD VERSION**

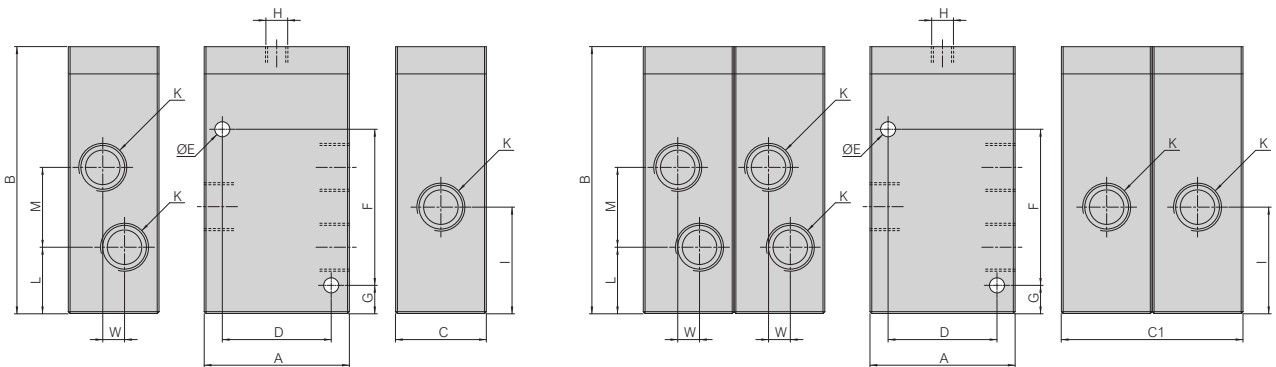
ITEM	DESCRIPTION	MATERIAL	ITEM	DESCRIPTION	MATERIAL
①	Body	Anodized profiled / extruded aluminium	⑨	Self-locking nut	Zinc plated steel
②	Top cover	Anodized profiled / extruded aluminium	⑩	End cover	Anodized aluminium
③	Poppet rod	Zinc plated steel	⑪	Screw	Zinc plated steel
④	Guide rod	Anodized aluminium	⑫	Silencer	Sintered bronze
⑤	Piston	Anodized aluminium	⑬	O-ring	NBR / FKM / PUR
⑥	Poppet holder	Zinc plated steel	⑭	Tightness seal	NBR / FKM / PUR
⑦	Anti-extrusion washer	Hostaform	⑮	Poppet seal	NBR / FKM / PUR
⑧	Seeger ring	C75 carbon steel	⑯	Spring	Stainless steel AISI 302 (X10CrNi18-09)



**DIMENSIONS - PNEUMATIC VALVES - STANDARD VERSION**

Version 2/2 and 3/2 NC or NO

Version 5/2



K	A	B	C	C1	D	Ø E	F	G	H	I	L	M	W
Gas - NPT	0 -0,2	± 0,3	0 -0,2	0 -0,5	± 0,3		± 0,3	± 0,2	Gas - NPT	± 0,2	± 0,2	± 0,3	± 0,3
1/8" Gas - 1/8" NPT	40	70	20	40	29	4,25	33,5	11,5	1/8" Gas - 1/8" NPT	26	16	20	0
1/4" Gas - 1/4" NPT	50	80,5	25	50	34	5,25	39	14,5	1/8" Gas - 1/8" NPT	29,5	17,5	24	0
1/2" Gas - 1/2" NPT	70	99,5	35	70	50	6,25	54,5	15	1/8" Gas - 1/8" NPT	37	21	32	0
3/4" Gas - 3/4" NPT	79	147	50	100	60	8,25	86	15,5	1/4" Gas - 1/4" NPT	58,5	36,5	44	12
1" Gas - 1" NPT	100	166	60	120	82	10,5	85	33	1/8" Gas - 1/4" NPT	64,5	30	61	0

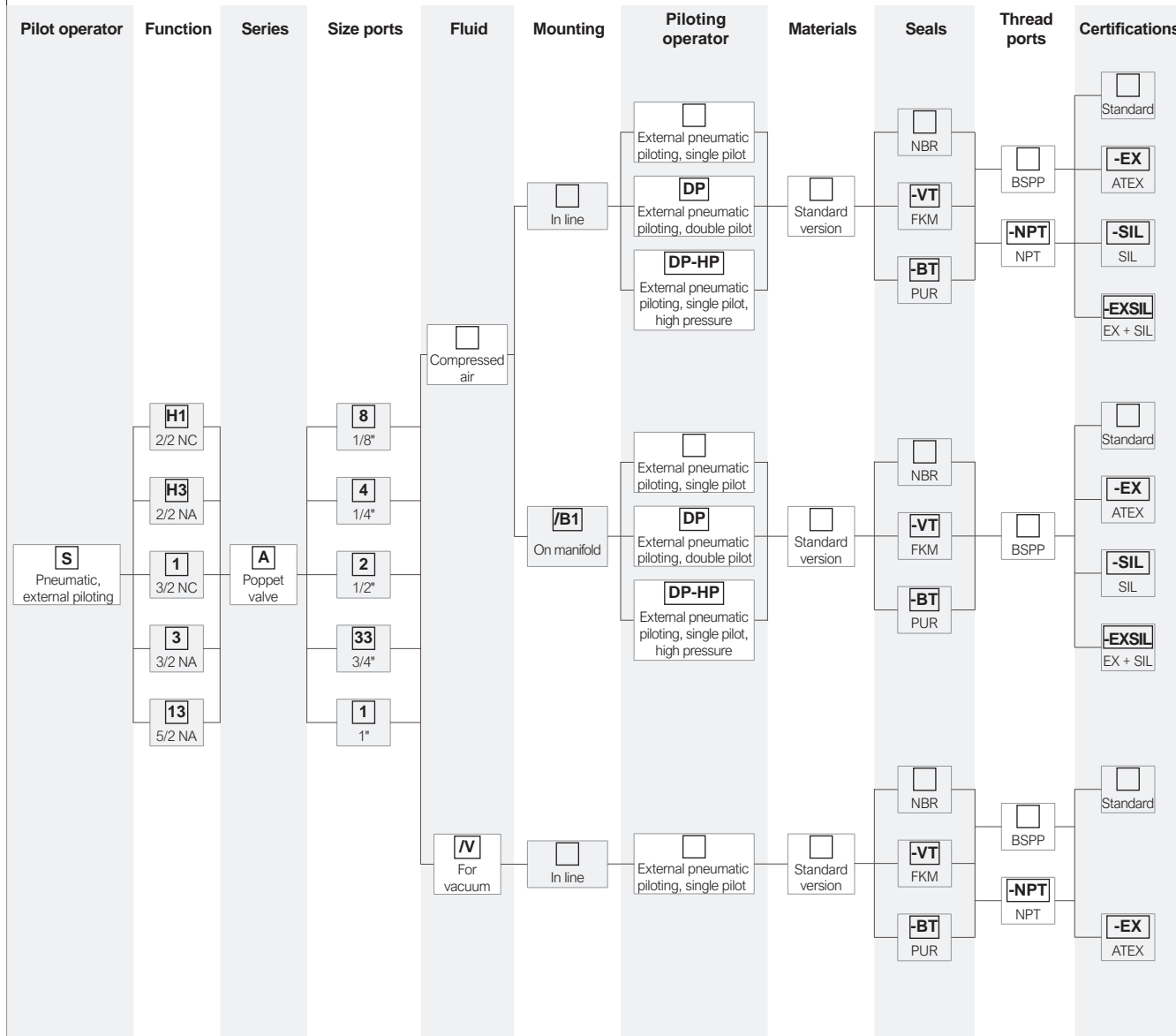


ORDERING CODE - PNEUMATIC VALVES - STANDARD VERSION

Pilot operator	Function	Series	Size ports	Fluid	Mounting	Piloting operator	Materials	Seals	Thread ports	Certifications
<b>S</b>	<b>1</b>	<b>A</b>	<b>2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>S</b> = Pneumatic, external piloting		<b>A</b> = Poppet valve	<b>8</b> = 1/8" <b>4</b> = 1/4" <b>2</b> = 1/2" <b>33</b> = 3/4" <b>1</b> = 1"	<b>NULL</b> = For compressed air <b>V</b> = For vacuum	<b>NULL</b> = In line <sup>(1)</sup> <b>/B1</b> = On manifold			<b>NULL</b> = NBR <b>-VT</b> = FKM <b>-BT</b> = PUR	<b>NULL</b> = BSPP <b>-NPT</b> = NPT <sup>(1)</sup>	
<b>H1</b> = 2/2 Pilot-spring Normally closed										
<b>H3</b> = 2/2 Pilot-spring Normally open										
<b>1</b> = 3/2 Pilot-spring Normally closed										
<b>3</b> = 3/2 Pilot-spring Normally open										
<b>13</b> = 5/2 Pilot-spring Monostable										
						<b>NULL</b> = External pneumatic piloting, single pilot <b>DP</b> = External pneumatic piloting, double pilot <b>DP-HP</b> = External pneumatic piloting, double pilot, high pressure				<b>NULL</b> = Standard <b>-EX</b> = For compressed air in potentially explosive environment (ATEX) <b>-SIL</b> = Suitable for use in safety related system up to SIL3 <b>-EXSIL</b> = Both certifications: -EX and -SIL

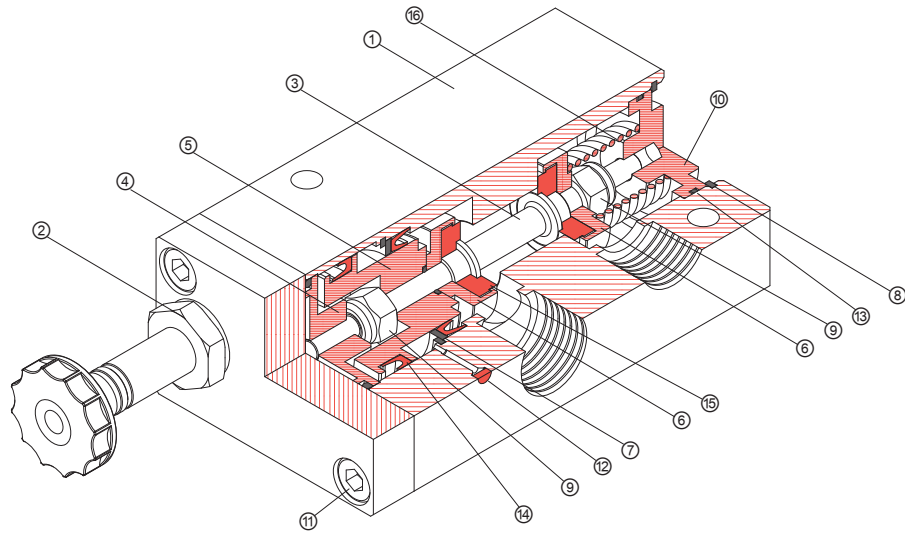
(1) NPT thread available only for in-line mounting

AVAILABLE CONFIGURATION



**MATERIALS - ELECTROPNEUMATIC VALVES - STANDARD VERSION**

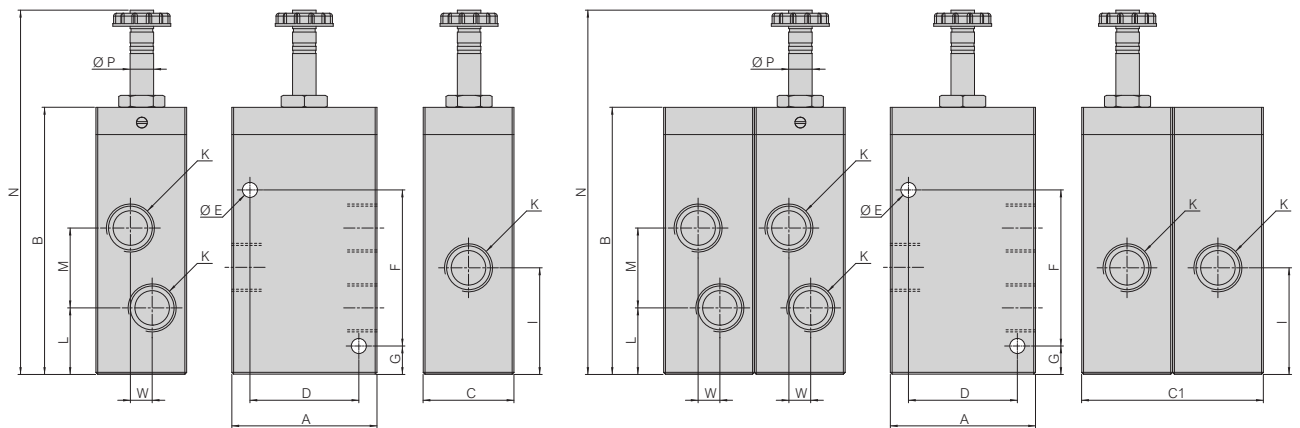
ITEM	DESCRIPTION	MATERIAL	ITEM	DESCRIPTION	MATERIAL
①	Body	Anodized profiled / extruded aluminium	⑩	End cover	Anodized aluminium
②	Top cover	Anodized profiled / extruded aluminium	⑪	Screw	Zinc plated steel
③	Poppet rod	Zinc plated steel	⑫	Silencer	Sintered bronze
④	Guide rod	Anodized aluminium	⑬	O-ring	NBR / FKM / PUR
⑤	Piston	Anodized aluminium	⑭	Tightness seal	NBR / FKM / PUR
⑥	Poppet holder	Zinc plated steel	⑮	Poppet seal	NBR / FKM / PUR
⑦	Anti-extrusion washer	Hostaform	⑯	Spring	Stainless steel AISI 302 (X10CrNi18-09)
⑧	Seeger ring	C75 carbon steel	⑰	Operator	Brass - Magnetic stainless steel
⑨	Self-looking nut	Zinc plated steel	⑱	Knurled nut	Plastic material / Aluminium



**DIMENSIONS - ELECTROPNEUMATIC VALVES - STANDARD VERSION**

Version 2/2 and 3/2 NC or NO

Version 5/2



K	A	B	C	C1	D	Ø E	F	G	I	L	M	N	Ø P	W
Gas - NPT	0 -0,2	± 0,3	0 -0,2	0 -0,5	± 0,3		± 0,3	± 0,2	± 0,2	± 0,2	± 0,3	± 0,3		± 0,3
1/8" Gas - 1/8" NPT	40	70	20	40	29	4,25	33,5	11,5	26	16	20	105	8 <sup>(3)</sup>	0
1/4" Gas - 1/4" NPT	50	80,5	25	50	34	5,25	39	14,5	29,5	17,5	24	115,5	8 <sup>(3)</sup>	0
1/2" Gas - 1/2" NPT	70	99,5	35	70	50	6,25	54,5	15	37	21	32	134,5 / 153,5 <sup>(2)</sup>	8 <sup>(3)</sup> / 13 <sup>(3)</sup>	0
3/4" Gas - 3/4" NPT	79	147	50	100	60	8,25	86	15,5	58,5	36,5	44	201	13 <sup>(3)</sup>	12
1" Gas - 1" NPT	100	166	60	120	82	10,5	85	33	64,5	30	61	220	13 <sup>(3)</sup>	0

(2) Pilot operator type /D and /PS/D, Ø13 with coil type "D", available also for solenoid valve size 1/2"  
 (3) Ø9 for version -EX (ATEX)





ORDERING CODE - ELECTROPNEUMATIC VALVES - STANDARD VERSION

Pilot operator	Function	Series	Size ports	Fluid	Mounting	Piloting operator	Materials	Seals	Thread ports	Certifications
<b>E</b>	<b>1</b>	<b>A</b>	<b>2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>E</b> = Electropneumatic, internal / external piloting		<b>A</b> = Poppet valve	<b>8</b> = 1/8" <b>4</b> = 1/4" <b>2</b> = 1/2" <b>33</b> = 3/4" <b>1</b> = 1"	<b>NULL</b> = For compressed air <b>/V</b> = For vacuum	<b>NULL</b> = In line <sup>(1)</sup> <b>/B1</b> = On manifold			<b>NULL</b> = NBR <b>-VT</b> = FKM <b>-BT</b> = PUR	<b>NULL</b> = BSPP <b>-NPT</b> = NPT <sup>(1)</sup>	
<b>H1</b> = 2/2 Pilot-spring Normally closed										
<b>H3</b> = 2/2 Pilot-spring Normally open										
<b>1</b> = 3/2 Pilot-spring Normally closed										
<b>3</b> = 3/2 Pilot-spring Normally open										
<b>13</b> = 5/2 Pilot-spring Monostable										
<b>/E</b> = Electropneumatic internal piloting, Ø8 coil type "E" (22 mm for solenoid valves size 1/8" - 1/4" - 1/2") <b>/D</b> = Electropneumatic internal piloting, Ø13 coil type "D" (30 mm for solenoid valves size 1/2" <sup>(2)</sup> - 3/4" - 1") <b>/PS/E</b> = Electropneumatic external piloting, Ø8 coil type "E" (22 mm for solenoid valves size 1/8" - 1/4" - 1/2") <b>/PS/D</b> = Electropneumatic external piloting, Ø13 coil type "D" (30 mm for solenoid valves size 1/2" <sup>(2)</sup> - 3/4" - 1")						<b>NULL</b> = Standard <b>-EX</b> = For compressed air in potentially explosive environment (ATEX)				

(1) NPT thread available only for in-line mounting

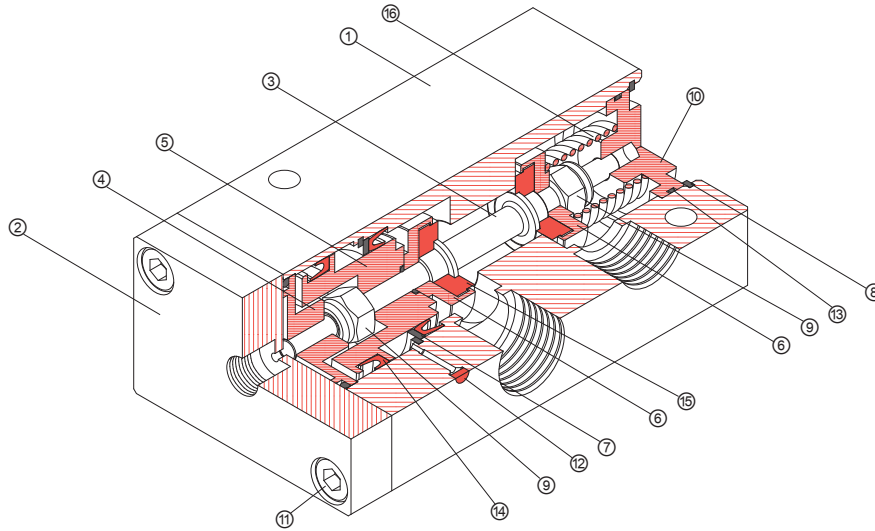
(2) Pilot operator type /D and /PS/D, Ø13 with coil type "D", available also for solenoid valve size 1/2"

AVAILABLE CONFIGURATION

Pilot operator	Function	Series	Size ports	Fluid	Mounting	Piloting operator	Materials	Seals	Thread ports	Certifications
<b>E</b> Electropneumatic external/internal piloting	<b>H1</b> 2/2 NC <b>H3</b> 2/2 NA <b>1</b> 3/2 NC <b>3</b> 3/2 NA <b>13</b> 5/2 NA	<b>A</b> Poppet valve	<b>8</b> 1/8" <b>4</b> 1/4" <b>2</b> 1/2" <b>33</b> 3/4" <b>1</b> 1"	<input type="checkbox"/> Compressed air	<input type="checkbox"/> In line	<b>/E</b> Electropneumatic internal piloting Ø8	Standard version	<input type="checkbox"/> NBR <b>-VT</b> FKM <b>-BT</b> PUR	<input type="checkbox"/> BSPP <b>-NPT</b> NPT	<input type="checkbox"/> Standard <b>-EX</b> ATEX
						<b>/D</b> Electropneumatic internal piloting Ø13 <sup>(2)</sup>				
						<b>/PS/E</b> Electropneumatic external piloting Ø8				
						<b>/PS/D</b> Electropneumatic external piloting Ø13 <sup>(2)</sup>				
						<b>/E</b> Electropneumatic internal piloting Ø8				
						<b>/D</b> Electropneumatic internal piloting Ø13 <sup>(2)</sup>				
	<input type="checkbox"/> For vacuum	<input type="checkbox"/> In line	<input type="checkbox"/> For vacuum	<input type="checkbox"/> For vacuum	<input type="checkbox"/> In line	<b>/PS/E</b> Electropneumatic external piloting Ø8	Standard version	<input type="checkbox"/> NBR <b>-VT</b> FKM <b>-BT</b> PUR	<input type="checkbox"/> BSPP <b>-NPT</b> NPT	<input type="checkbox"/> Standard <b>-EX</b> ATEX
						<b>/PS/D</b> Electropneumatic external piloting Ø13 <sup>(2)</sup>				

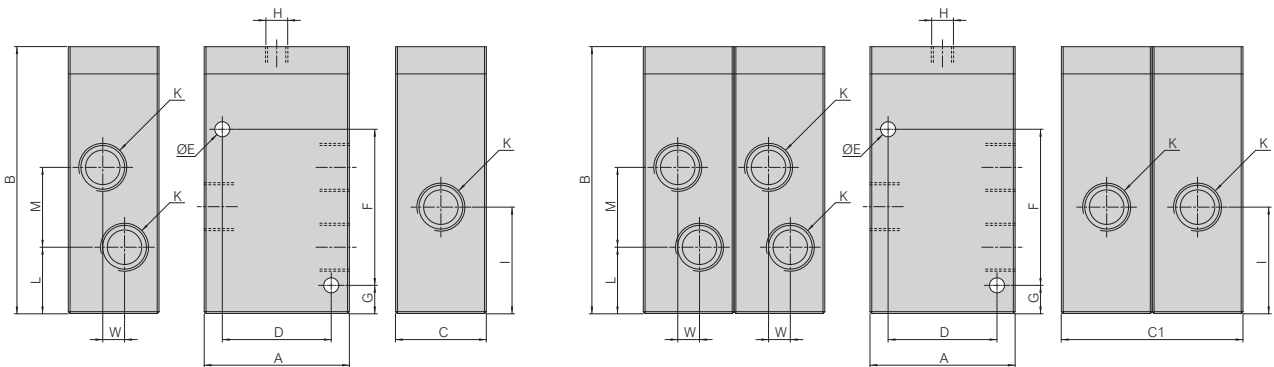
**MATERIALS - PNEUMATIC VALVES - X VERSION**

ITEM	DESCRIPTION	MATERIAL	ITEM	DESCRIPTION	MATERIAL
①	Body	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑨	Self-locking nut	Stainless steel AISI A2 70
②	Top cover	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑩	End cover	Stainless steel AISI 316 (X5CrNiMo17-12-2)
③	Poppet rod	Zinc plated steel	⑪	Screw	Stainless steel AISI A2 80
④	Guide rod	Anodized aluminium	⑫	Silencer	Stainless steel AISI 316 (X5CrNiMo17-12-2)
⑤	Piston	Anodized aluminium	⑬	O-ring	NBR / FKM / PUR
⑥	Poppet holder	Zinc plated steel	⑭	Tightness seal	NBR / FKM / PUR
⑦	Anti-extrusion washer	Hostaform	⑮	Poppet seal	NBR / FKM / PUR
⑧	Seeger ring	Stainless steel AISI 420B (X30Cr13)	⑯	Spring	Stainless steel AISI 302 (X10CrNi18-09)


**DIMENSIONS - PNEUMATIC VALVES - X VERSION**

Version 2/2 and 3/2 NC or NO

Version 5/2



K	A	B	C	C1	D	Ø E	F	G	H	I	L	M	W
Gas - NPT	0 -0,2	± 0,3	0 -0,2	0 -0,5	± 0,3		± 0,3	± 0,2	Gas - NPT	± 0,2	± 0,2	± 0,3	± 0,3
1/8" Gas - 1/8" NPT	40	70	20	40	29	4,25	33,5	11,5	1/8" Gas - 1/8" NPT	26	16	20	0
1/4" Gas - 1/4" NPT	50	80,5	25	50	34	5,25	39	14,5	1/8" Gas - 1/8" NPT	29,5	17,5	24	0
1/2" Gas - 1/2" NPT	70	99,5	35	70	50	6,25	54,5	15	1/8" Gas - 1/8" NPT	37	21	32	0
3/4" Gas - 3/4" NPT	79	147	50	100	60	8,25	86	15,5	1/4" Gas - 1/4" NPT	58,5	36,5	44	12
1" Gas - 1" NPT	100	166	60	120	82	10,5	85	33	1/8" Gas - 1/4" NPT	64,5	30	61	0

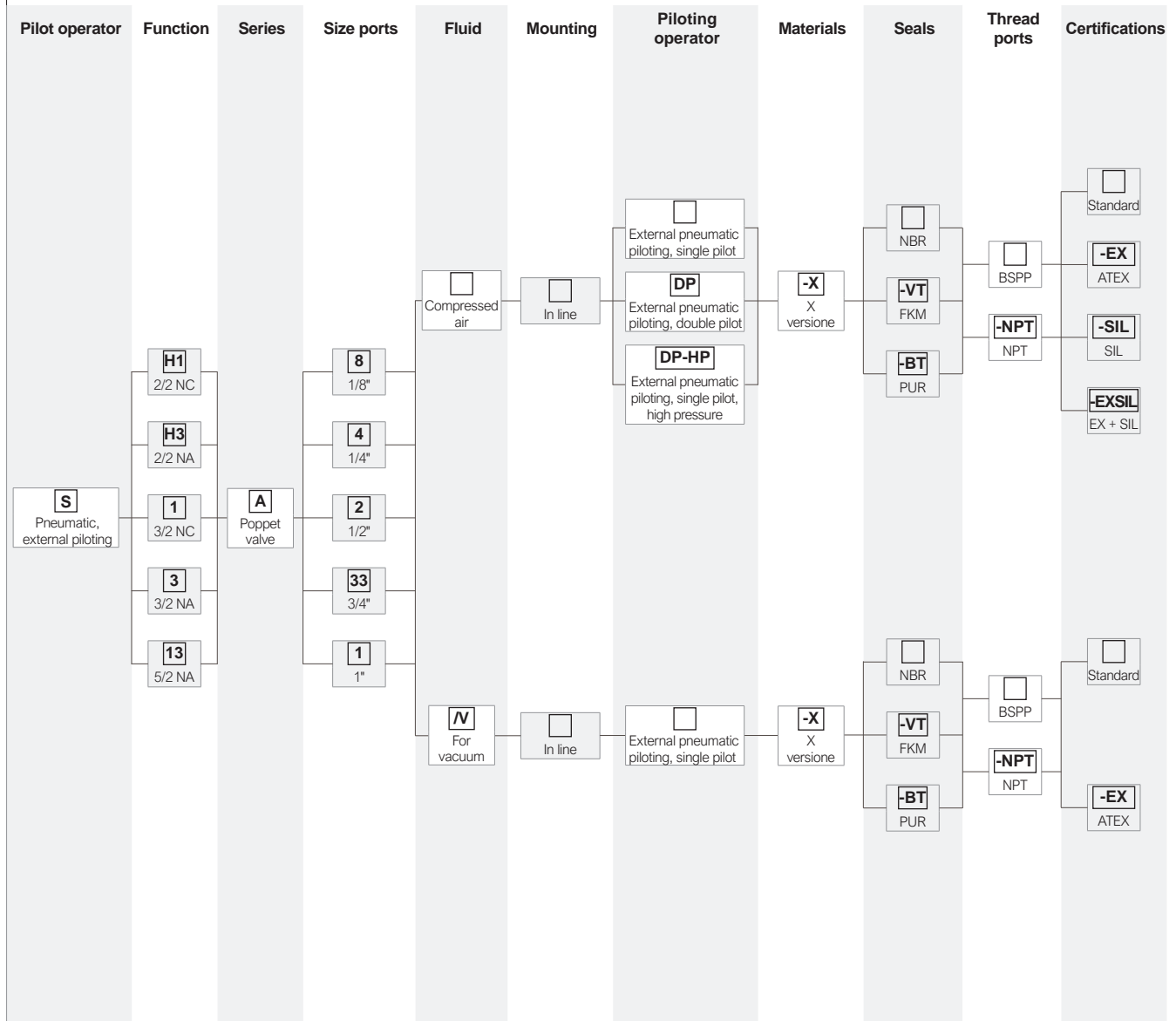
3.4.05.8



ORDERING CODE - PNEUMATIC VALVES - X VERSION

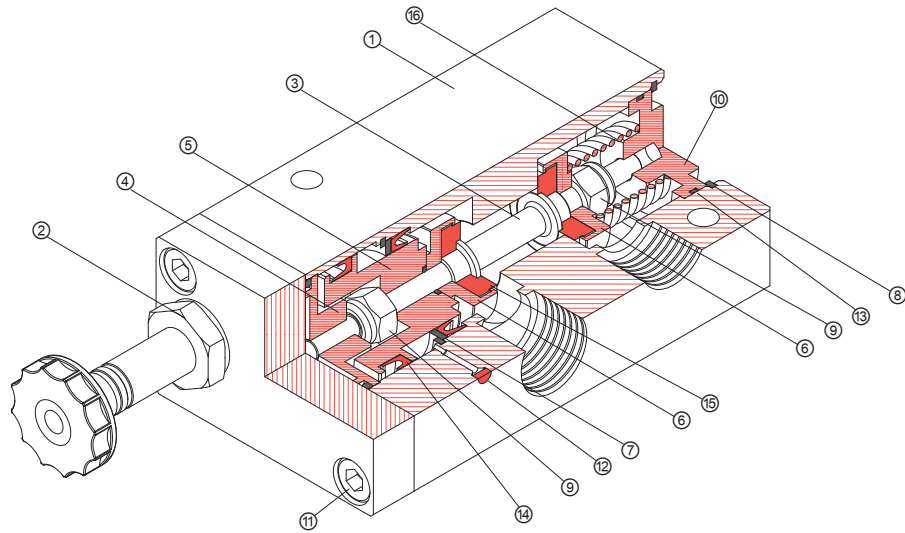
Pilot operator	Function	Series	Size ports	Fluid	Mounting	Piloting operator	Materials	Seals	Thread ports	Certifications
<b>S</b>	<b>1</b>	<b>A</b>	<b>2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>S</b> = Pneumatic, external piloting		<b>A</b> = Poppet valve	<b>8</b> = 1/8" <b>4</b> = 1/4" <b>2</b> = 1/2" <b>33</b> = 3/4" <b>1</b> = 1"	<input type="checkbox"/>	<b>NULL</b> = In line			<b>NULL</b> = NBR <b>-VT</b> = FKM <b>-BT</b> = PUR	<b>NULL</b> = BSPP <b>-NPT</b> = NPT	
<b>H1</b> = 2/2 Pilot-spring Normally closed				<b>NULL</b> = For compressed air <b>V</b> = For vacuum			<b>-X</b> = Body and covers in stainless steel AISI 316 Internal components in carbon steel - aluminium - brass			
<b>H3</b> = 2/2 Pilot-spring Normally open										
<b>1</b> = 3/2 Pilot-spring Normally closed										
<b>3</b> = 3/2 Pilot-spring Normally open										
<b>13</b> = 5/2 Pilot-spring Monostable										
										<b>NULL</b> = Standard <b>-EX</b> = For compressed air in potentially explosive environment (ATEX) <b>-SIL</b> = Suitable for use in safety related system up to SIL3 <b>-EXSIL</b> = Both certifications: -EX and -SIL

AVAILABLE CONFIGURATION



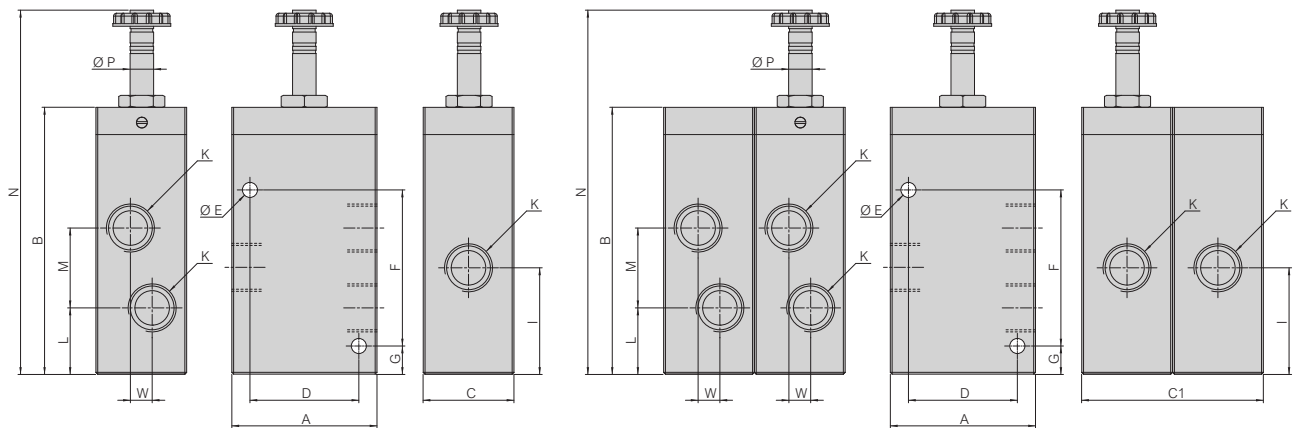
**MATERIALS - ELECTROPNEUMATIC VALVES - X VERSION**

ITEM	DESCRIPTION	MATERIAL	ITEM	DESCRIPTION	MATERIAL
①	Body	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑩	End cover	Stainless steel AISI 316 (X5CrNiMo17-12-2)
②	Top cover	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑪	Screw	Stainless steel AISI A2 80
③	Poppet rod	Zinc plated steel	⑫	Silencer	Stainless steel AISI 316 (X5CrNiMo17-12-2)
④	Guide rod	Anodized aluminium	⑬	O-ring	NBR / FKM / PUR
⑤	Piston	Anodized aluminium	⑭	Tightness seal	NBR / FKM / PUR
⑥	Poppet holder	Zinc plated steel	⑮	Poppet seal	NBR / FKM / PUR
⑦	Anti-extrusion washer	Hostaform	⑯	Spring	Stainless steel AISI 302 (X10CrNi18-09)
⑧	Seeger ring	Stainless steel AISI 420B (X30Cr13)	⑰	Operator	Magnetic stainless steel
⑨	Self-looking nut	Stainless steel AISI A2 70	⑱	Knurled nut	Stainless steel


**DIMENSIONS - ELECTROPNEUMATIC VALVES - X VERSION**

Version 2/2 and 3/2 NC or NO

Version 5/2



K	A	B	C	C1	D	Ø E	F	G	I	L	M	N	Ø P	W
Gas - NPT	0 -0,2	± 0,3	0 -0,2	0 -0,5	± 0,3		± 0,3	± 0,2	± 0,2	± 0,2	± 0,3	± 0,3		± 0,3
1/8" Gas - 1/8" NPT	40	70	20	40	29	4,25	33,5	11,5	26	16	20	105	8 <sup>(3)</sup>	0
1/4" Gas - 1/4" NPT	50	80,5	25	50	34	5,25	39	14,5	29,5	17,5	24	115,5	8 <sup>(3)</sup>	0
1/2" Gas - 1/2" NPT	70	99,5	35	70	50	6,25	54,5	15	37	21	32	134,5 / 153,5 <sup>(2)</sup>	8 <sup>(3)</sup> / 13 <sup>(3)</sup>	0
3/4" Gas - 3/4" NPT	79	147	50	100	60	8,25	86	15,5	58,5	36,5	44	201	13 <sup>(3)</sup>	12
1" Gas - 1" NPT	100	166	60	120	82	10,5	85	33	64,5	30	61	220	13 <sup>(3)</sup>	0

(2) Pilot operator type /D and /PS/D, Ø13 with coil type "D", available also for solenoid valve size 1/2"

(3) Ø9 for version -EX (ATEX)

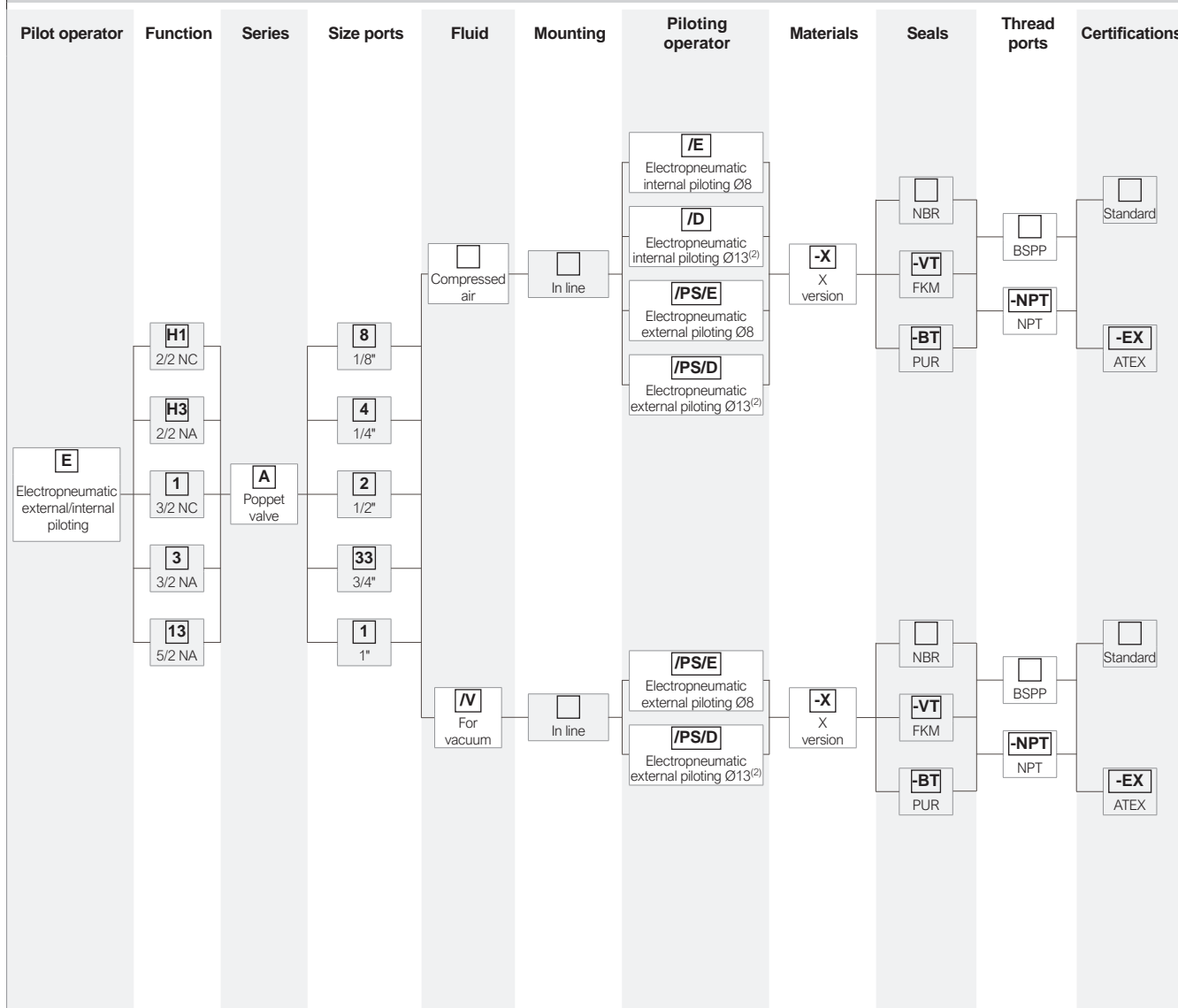


ORDERING CODE - ELECTROPNEUMATIC VALVES - X VERSION

Pilot operator	Function	Series	Size ports	Fluid	Mounting	Piloting operator	Materials	Seals	Thread ports	Certifications
<b>E</b>	<b>1</b>	<b>A</b>	<b>2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>E</b> = Electropneumatic, internal / external piloting		<b>A</b> = Poppet valve	<b>8</b> = 1/8" <b>4</b> = 1/4" <b>2</b> = 1/2" <b>33</b> = 3/4" <b>1</b> = 1"	<b>NULL</b> = In line				<b>NULL</b> = NBR <b>-VT</b> = FKM <b>-BT</b> = PUR	<b>NULL</b> = BSPP <b>-NPT</b> = NPT	
<b>H1</b> = 2/2 Pilot-spring Normally closed				<b>NULL</b> = For compressed air <b>/V</b> = For vacuum			<b>-X</b> = Body and covers in stainless steel AISI 316 Internal components in carbon steel - aluminium - brass			
<b>H3</b> = 2/2 Pilot-spring Normally open										
<b>1</b> = 3/2 Pilot-spring Normally closed										
<b>3</b> = 3/2 Pilot-spring Normally open										
<b>13</b> = 5/2 Pilot-spring Monostable										
						<b>/E</b> = Electropneumatic internal piloting, Ø8 coil type "E" (22 mm for solenoid valves size 1/8" - 1/4" - 1/2") <b>/D</b> = Electropneumatic internal piloting, Ø13 coil type "D" (30 mm for solenoid valves size 1/2" - 3/4" - 1") <b>/PS/E</b> = Electropneumatic external piloting, Ø8 coil type "E" (22 mm for solenoid valves size 1/8" - 1/4" - 1/2") <b>/PS/D</b> = Electropneumatic external piloting, Ø13 coil type "D" (30 mm for solenoid valves size 1/2" - 3/4" - 1")			<b>NULL</b> = Standard <b>-EX</b> = For compressed air in potentially explosive environment (ATEX)	

(2) Pilot operator type /D and /PS/D, Ø13 with coil type "D", available also for solenoid valve size 1/2"

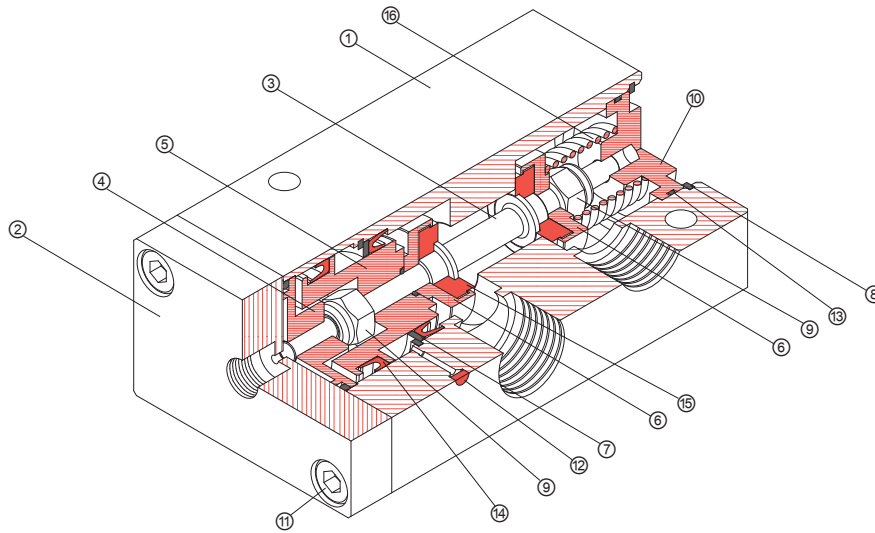
AVAILABLE CONFIGURATION





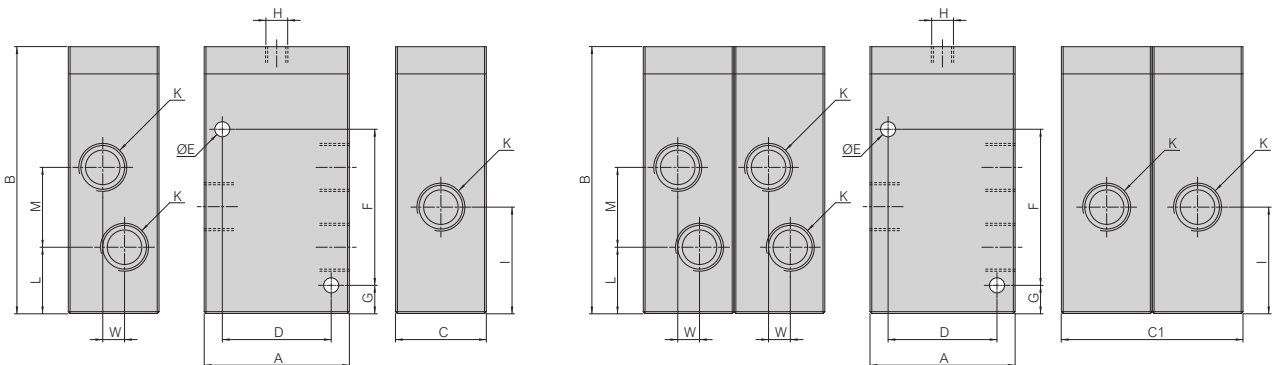
**MATERIALS - PNEUMATIC VALVES - XX VERSION**

ITEM	DESCRIPTION	MATERIAL	ITEM	DESCRIPTION	MATERIAL
①	Body	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑨	Self-looking nut	Stainless steel AISI A4 70
②	Top cover	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑩	End cover	Stainless steel AISI 316 (X5CrNiMo17-12-2)
③	Poppet rod	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑪	Screw	Stainless steel AISI A4 80
④	Guide rod	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑫	Silencer	Stainless steel AISI 316 (X5CrNiMo17-12-2)
⑤	Piston	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑬	O-ring	NBR / FKM / PUR
⑥	Poppet holder	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑭	Tightness seal	NBR / FKM / PUR
⑦	Anti-extrusion washer	Hostaform	⑮	Poppet seal	NBR / FKM / PUR
⑧	Seeger ring	Stainless steel AISI 420B (X30Cr13)	⑯	Spring	Stainless steel AISI 302 (X10CrNi18-09)


**DIMENSIONS - PNEUMATIC VALVES - XX VERSION**

Version 2/2 and 3/2 NC or NO

Version 5/2



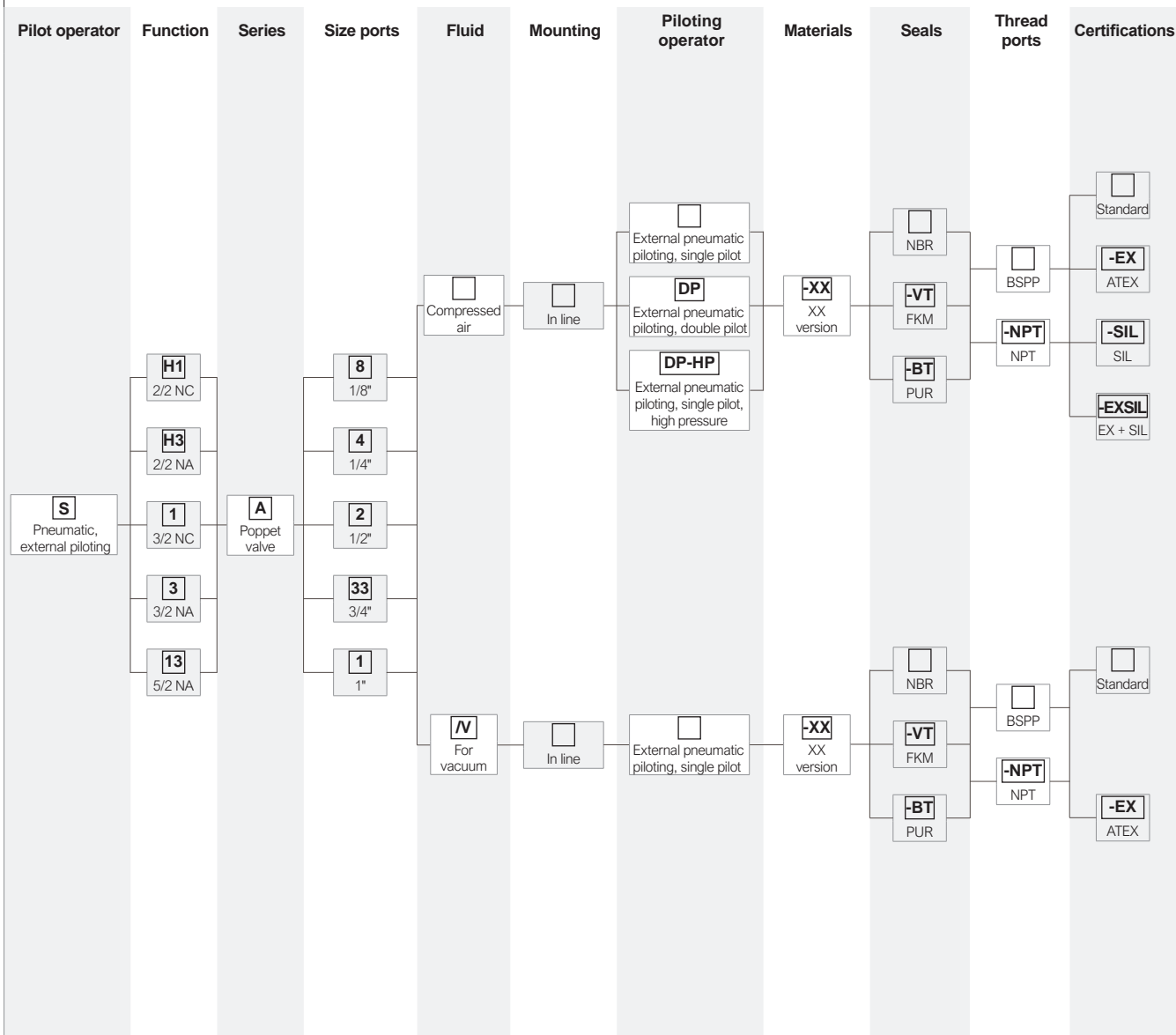
K	A	B	C	C1	D	Ø E	F	G	H	I	L	M	W
Gas - NPT	0 -0,2	± 0,3	0 -0,2	0 -0,5	± 0,3		± 0,3	± 0,2	Gas - NPT	± 0,2	± 0,2	± 0,3	± 0,3
1/8" Gas - 1/8" NPT	40	70	20	40	29	4,25	33,5	11,5	1/8" Gas - 1/8" NPT	26	16	20	0
1/4" Gas - 1/4" NPT	50	80,5	25	50	34	5,25	39	14,5	1/8" Gas - 1/8" NPT	29,5	17,5	24	0
1/2" Gas - 1/2" NPT	70	99,5	35	70	50	6,25	54,5	15	1/8" Gas - 1/8" NPT	37	21	32	0
3/4" Gas - 3/4" NPT	79	147	50	100	60	8,25	86	15,5	1/4" Gas - 1/4" NPT	58,5	36,5	44	12
1" Gas - 1" NPT	100	166	60	120	82	10,5	85	33	1/8" Gas - 1/4" NPT	64,5	30	61	0



**ORDERING CODE - PNEUMATIC VALVES - XX VERSION**

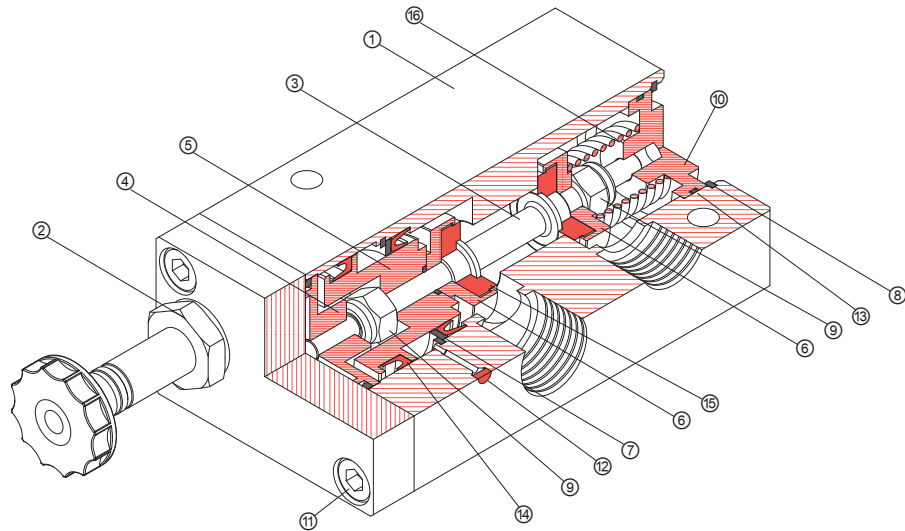
Pilot operator	Function	Series	Size ports	Fluid	Mounting	Piloting operator	Materials	Seals	Thread ports	Certifications
<b>S</b>	<b>1</b>	<b>A</b>	<b>2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>S</b> = Pneumatic, external piloting		<b>A</b> = Poppet valve	<b>8</b> = 1/8" <b>4</b> = 1/4" <b>2</b> = 1/2" <b>33</b> = 3/4" <b>1</b> = 1"	<input type="checkbox"/>	<b>NULL</b> = In line			<b>NULL</b> = NBR <b>-VT</b> = FKM <b>-BT</b> = PUR	<b>NULL</b> = BSPP <b>-NPT</b> = NPT	
<b>H1</b> = 2/2 Pilot-spring Normally closed				<b>NULL</b> = For compressed air <b>V</b> = For vacuum			<b>-XX</b> = Body and covers in stainless steel AISI 316 Internal components in stainless steel AISI 316			
<b>H3</b> = 2/2 Pilot-spring Normally open										
<b>1</b> = 3/2 Pilot-spring Normally closed										
<b>3</b> = 3/2 Pilot-spring Normally open										
<b>13</b> = 5/2 Pilot-spring Monostable										
										<b>NULL</b> = Standard <b>-EX</b> = For compressed air in potentially explosive environment (ATEX) <b>-SIL</b> = Suitable for use in safety related system up to SIL3 <b>-EXSIL</b> = Both certifications: -EX and -SIL

**AVAILABLE CONFIGURATION**



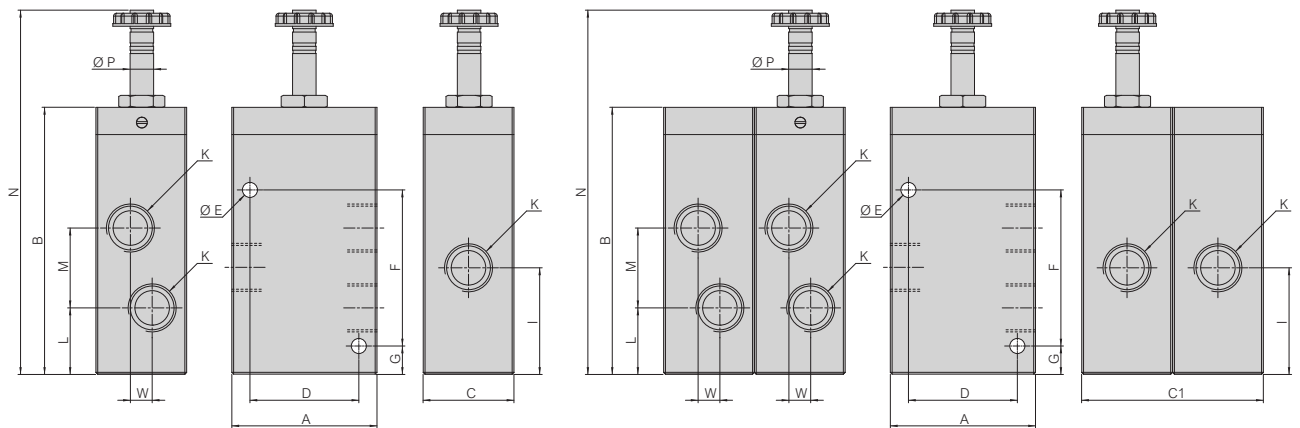
**MATERIALS - ELECTROPNEUMATIC VALVES - XX VERSION**

ITEM	DESCRIPTION	MATERIAL	ITEM	DESCRIPTION	MATERIAL
①	Body	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑩	End cover	Stainless steel AISI 316 (X5CrNiMo17-12-2)
②	Top cover	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑪	Screw	Stainless steel AISI A4 80
③	Poppet rod	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑫	Silencer	Stainless steel AISI 316 (X5CrNiMo17-12-2)
④	Guide rod	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑬	O-ring	NBR / FKM / PUR
⑤	Piston	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑭	Tightness seal	NBR / FKM / PUR
⑥	Poppet holder	Stainless steel AISI 316 (X5CrNiMo17-12-2)	⑮	Poppet seal	NBR / FKM / PUR
⑦	Anti-extrusion washer	Hostaform	⑯	Spring	Stainless steel AISI 302 (X10CrNi18-09)
⑧	Seeger ring	Stainless steel AISI 420B (X30Cr13)	⑰	Operator	Magnetic stainless steel
⑨	Self-looking nut	Stainless steel AISI A4 70	⑱	Knurled nut	Stainless steel


**DIMENSIONS - ELECTROPNEUMATIC VALVES - XX VERSION**

Version 2/2 and 3/2 NC or NO

Version 5/2



K	A	B	C	C1	D	ØE	F	G	I	L	M	N	ØP	W
Gas - NPT	0 -0,2	± 0,3	0 -0,2	0 -0,5	± 0,3		± 0,3	± 0,2	± 0,2	± 0,2	± 0,3	± 0,3		± 0,3
1/8" Gas - 1/8" NPT	40	70	20	40	29	4,25	33,5	11,5	26	16	20	105	8 <sup>(3)</sup>	0
1/4" Gas - 1/4" NPT	50	80,5	25	50	34	5,25	39	14,5	29,5	17,5	24	115,5	8 <sup>(3)</sup>	0
1/2" Gas - 1/2" NPT	70	99,5	35	70	50	6,25	54,5	15	37	21	32	134,5 / 153,5 <sup>(2)</sup>	8 <sup>(3)</sup> / 13 <sup>(3)</sup>	0
3/4" Gas - 3/4" NPT	79	147	50	100	60	8,25	86	15,5	58,5	36,5	44	201	13 <sup>(3)</sup>	12
1" Gas - 1" NPT	100	166	60	120	82	10,5	85	33	64,5	30	61	220	13 <sup>(3)</sup>	0

(2) Pilot operator type /D and /PS/D, Ø13 with coil type "D", available also for solenoid valve size 1/2"

(3) Ø9 for version -EX (ATEX)

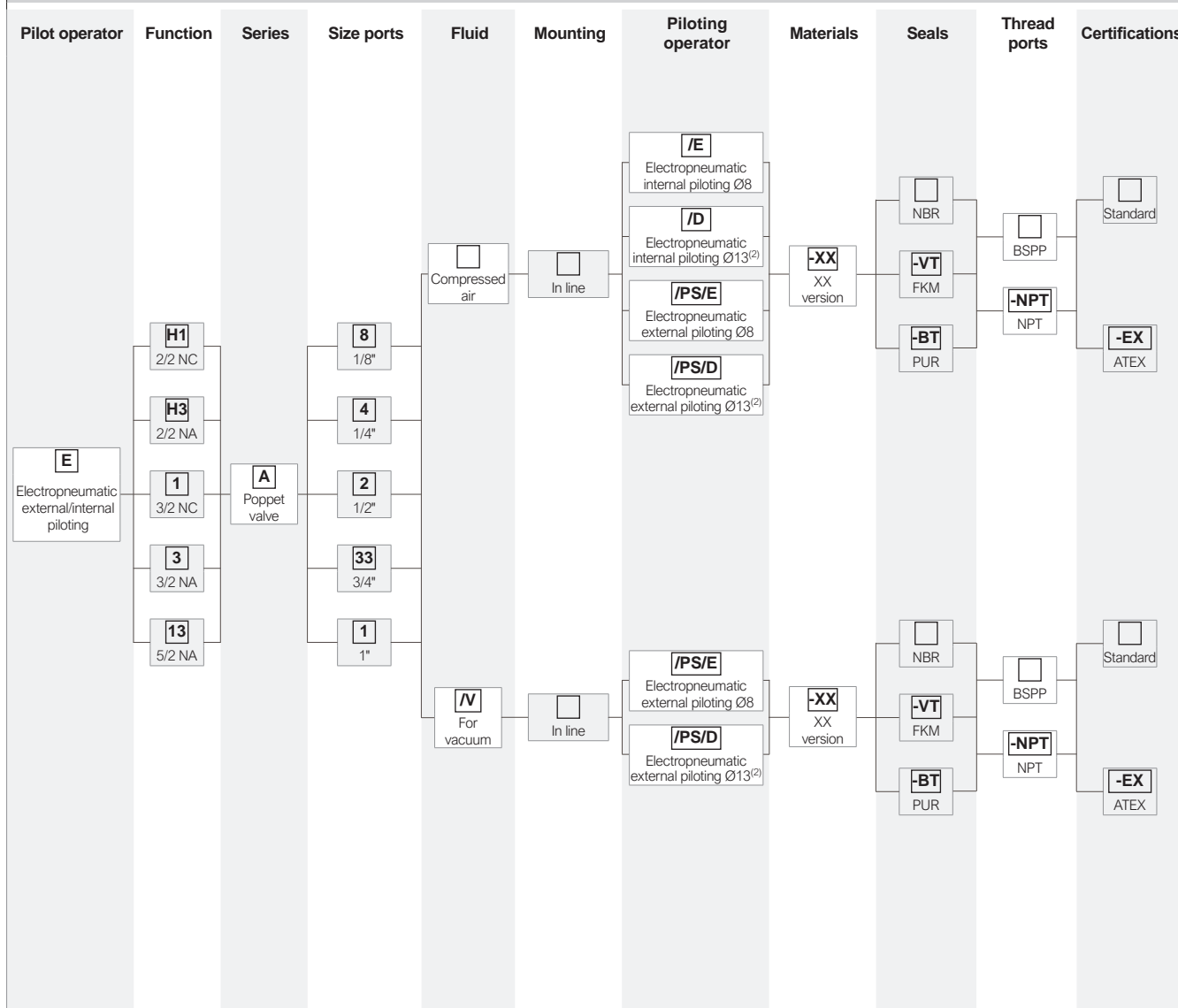


ORDERING CODE - ELECTROPNEUMATIC VALVES - XX VERSION

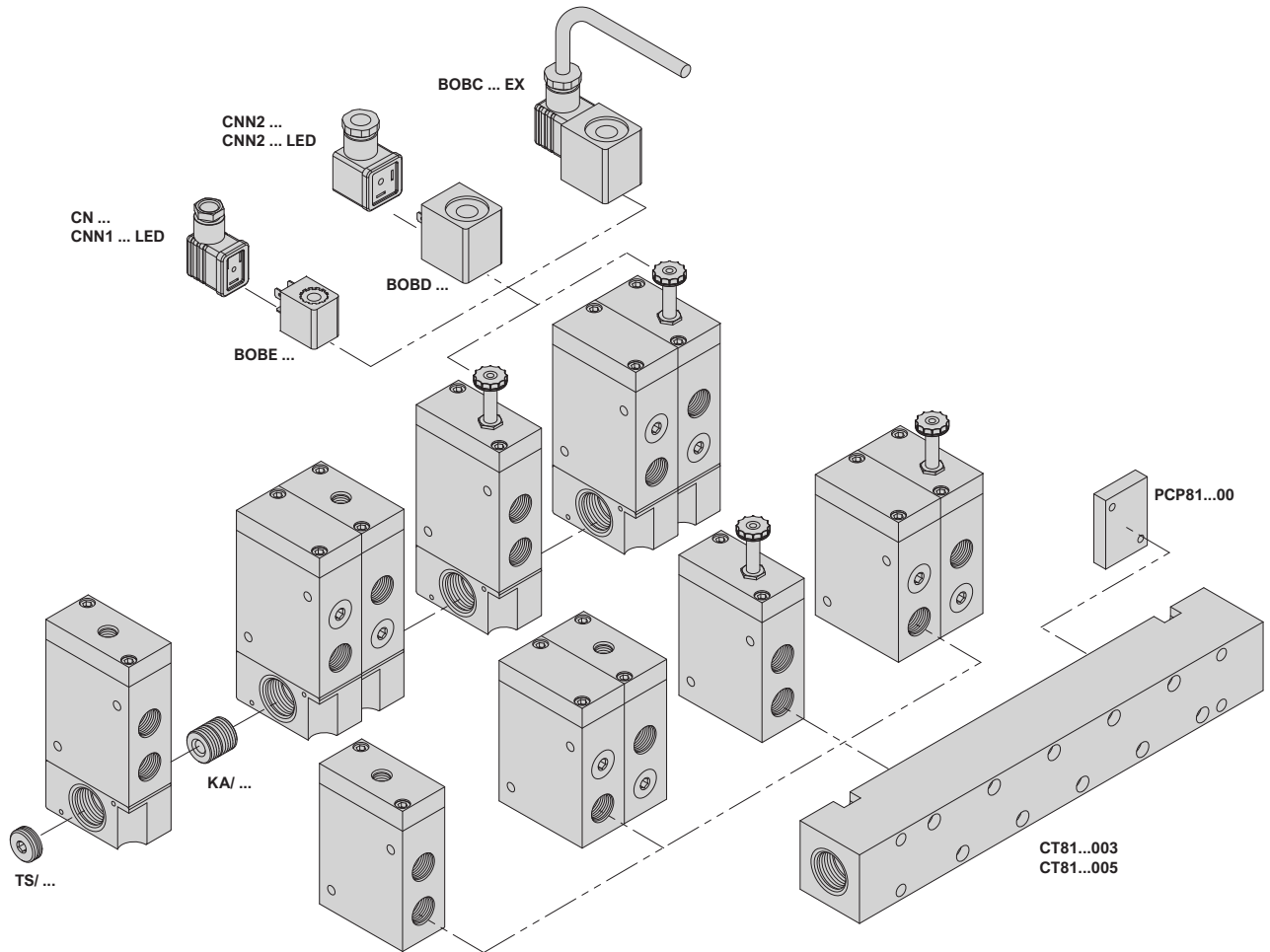
Pilot operator	Function	Series	Size ports	Fluid	Mounting	Piloting operator	Materials	Seals	Thread ports	Certifications
<b>E</b>	<b>1</b>	<b>A</b>	<b>2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>E</b> = Electropneumatic, internal / external piloting		<b>A</b> = Poppet valve	<b>8</b> = 1/8" <b>4</b> = 1/4" <b>2</b> = 1/2" <b>33</b> = 3/4" <b>1</b> = 1"	<input type="checkbox"/>	<b>NULL</b> = In line			<b>NULL</b> = NBR <b>-VT</b> = FKM <b>-BT</b> = PUR	<b>NULL</b> = BSPP <b>-NPT</b> = NPT	
<b>H1</b> = 2/2 Pilot-spring Normally closed				<input type="checkbox"/>						
<b>H3</b> = 2/2 Pilot-spring Normally open				<input type="checkbox"/>						
<b>1</b> = 3/2 Pilot-spring Normally closed				<input type="checkbox"/>						
<b>3</b> = 3/2 Pilot-spring Normally open				<input type="checkbox"/>						
<b>13</b> = 5/2 Pilot-spring Monostable				<input type="checkbox"/>						
				<b>NULL</b> = For compressed air <b>/V</b> = For vacuum			<b>-XX</b> = Body and covers in stainless steel AISI 316 Internal components in stainless steel AISI 316			
				<b>/E</b> = Electropneumatic internal piloting, Ø8 coil type "E" (22 mm for solenoid valves size 1/8" - 1/4" - 1/2") <b>/D</b> = Electropneumatic internal piloting, Ø13 coil type "D" (30 mm for solenoid valves size 1/2" - 3/4" - 1") <b>/PS/E</b> = Electropneumatic external piloting, Ø8 coil type "E" (22 mm for solenoid valves size 1/8" - 1/4" - 1/2") <b>/PS/D</b> = Electropneumatic external piloting, Ø13 coil type "D" (30 mm for solenoid valves size 1/2" - 3/4" - 1")						
				<b>NULL</b> = Standard <b>-EX</b> = For compressed air in potentially explosive environment (ATEX)						

(2) Pilot operator type /D and /PS/D, Ø13 with coil type "D", available also for solenoid valve size 1/2"

AVAILABLE CONFIGURATION



## ACCESSORIES



	<b>BOBE ...</b> Coils type "E" AC / DC	<b>BOBD ...</b> Coils type "D" AC / DC	<b>BOBC ... EX</b> Coils ATEX AC / DC	<b>CNN1 ...</b> Connectors for coils type "E"	<b>CNN1 ... LED</b> Connectors for coils type "E"	<b>CNN2 ...</b> Connectors for coils type "D"	<b>CNN2 ... LED</b> Connectors for coils type "D"
	Page 3.4.05.7	Page 3.4.05.7	Page 3.4.05.8	Page 3.4.05.9	Page 3.4.05.9	Page 3.4.05.9	Page 3.4.05.9
<b>1/8"</b>	✓	X	✓	X	X	X	X
<b>1/4"</b>	✓	X	✓	X	X	X	X
<b>1/2"</b>	✓	✓	✓	✓	✓	✓	✓
<b>3/4"</b>	X	✓	✓	✓	✓	✓	✓
<b>1"</b>	X	✓	✓	✓	✓	✓	✓
	Encapsulated NYLON + GLASS FIBER	Encapsulated PA 6.6 + GLASS FIBER	Encapsulated PA self-extinguish + GLASS FIBER	PA6 GF	PA6 GF - PA12	PA6 GF	PA6 GF - PA12
	<b>TS/...</b> Closing cap	<b>KA/...</b> Connection nipple	<b>CT81...003</b> In line connector 3 positions	<b>CT81...005</b> In line connector 5 positions	<b>PCP81...00</b> Closing plate		
<b>1/8"</b>	TS/4	KA/8	X	X	X		
<b>1/4"</b>	TS/3	KA/4	X	X	X		
<b>1/2"</b>	TS/34	KA/2	X	X	X		
<b>3/4"</b>	X	X	CT8134003	CT8134005	PCP813400		
<b>1"</b>	X	X	CT8101003	CT8101005	PCP810100		
	Passivated brass	Passivated brass	Aluminium	Aluminium	Aluminium		



**COILS type "E" (22 mm)**

<p><b>BOBE ...</b> Direct current coils</p> <p>Connector type B INDUSTRIAL (AMP 6.3 x 0.8)</p>	<b>Technical features</b>			
	<b>Code</b>	BOBE012DC	BOBE024DC	
	<b>Operating voltage</b>	12 VDC	24 VDC	
	<b>Power consumption (max.)</b>	5,5 W		
	<b>Voltage tolerance</b>	±10% (of the nominal voltage)		
	<b>Encapsulation class</b>	155°C (F)		
	<b>Wire insulation class</b>	200°C (H)		
	<b>Energising duration</b>	100% (a 20°C)		
	<b>Temperature range</b>	-40°C ÷ +50°C		
	<b>Electrical connection</b>	INDUSTRIAL (AMP 6.3 x 0.8) type B		
<b>Protection class</b>	IP54 (with connector) IP65 (with connector and suitable seals)			
<b>Material</b>	Encapsulated NYLON + Glass fiber			
BOBE... / 1 piece each package				

<p><b>BOBE ...</b> Alternate current coils</p> <p>Connector type B INDUSTRIAL (AMP 6.3 x 0.8)</p>	<b>Technical features</b>				
	<b>Code</b>	BOBE024AC	BOBE048AC	BOBE110AC	BOBE220AC
	<b>Operating voltage</b>	24 VAC	48 VAC	110 VAC	220 VAC
	<b>Power consumption (max.)</b>	6,5 VA			
	<b>Voltage tolerance</b>	±10% (of the nominal voltage)			
	<b>Encapsulation class</b>	155°C (F)			
	<b>Wire insulation class</b>	200°C (H)			
	<b>Energising duration</b>	100% (a 20°C)			
	<b>Temperature range</b>	-40°C ÷ +50°C			
	<b>Electrical connection</b>	INDUSTRIAL (AMP 6.3 x 0.8) type B			
<b>Protection class</b>	IP54 (with connector) IP65 (with connector and suitable seals)				
<b>Material</b>	Encapsulated NYLON + Glass fiber				
BOBE... / 1 piece each package					

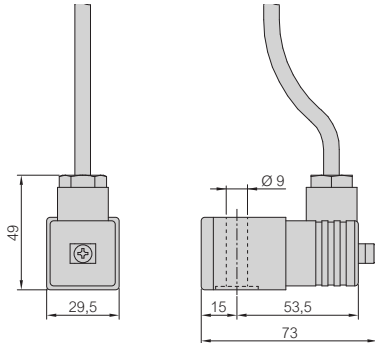
**COILS type "D" (30 mm)**

<p><b>BOBD ...</b> Direct current coils</p> <p>Connector type A EN 175301-803</p>	<b>Technical features</b>			
	<b>Code</b>	BOBD012DC	BOBD024DC	
	<b>Operating voltage</b>	12 VDC	24 VDC	
	<b>Power consumption (max.)</b>	10 W		
	<b>Voltage tolerance</b>	±10% (of the nominal voltage)		
	<b>Encapsulation class</b>	155°C (F)		
	<b>Wire insulation class</b>	200°C (H)		
	<b>Energising duration</b>	100% (a 20°C)		
	<b>Temperature range</b>	-40°C ÷ +50°C		
	<b>Electrical connection</b>	EN175301-803 type A		
<b>Protection class</b>	IP54 (with connector) IP65 (with connector and suitable seals)			
<b>Material</b>	Encapsulated PA 6.6 + Glass fiber			
BOBD... / 1 piece each package				

<p><b>BOBD ...</b> Alternate current coils</p> <p>Connector type A EN 175301-803</p>	<b>Technical features</b>				
	<b>Code</b>	BOBD024AC	BOBD048AC	BOBD110AC	BOBD220AC
	<b>Operating voltage</b>	24 VAC	48 VAC	110 VAC	220 VAC
	<b>Power consumption (max.)</b>	13 VA			
	<b>Voltage tolerance</b>	±10% (of the nominal voltage)			
	<b>Encapsulation class</b>	155°C (F)			
	<b>Wire insulation class</b>	200°C (H)			
	<b>Energising duration</b>	100% (a 20°C)			
	<b>Temperature range</b>	-40°C ÷ +50°C			
	<b>Electrical connection</b>	EN175301-803 type A			
<b>Protection class</b>	IP54 (with connector) IP65 (with connector and suitable seals)				
<b>Material</b>	Encapsulated PA 6.6 + Glass fiber				
BOBD... / 1 piece each package					

**COILS "ATEX"**
**BOBC ... EX**

ATEX direct current coils

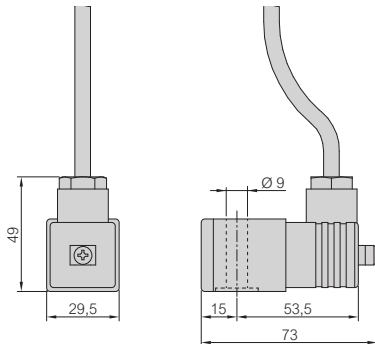

**Technical features**


<b>Code</b>	BOBC024DCEX
<b>Operating voltage</b>	24 VDC
<b>Power consumption (max.)</b>	5,3 W
<b>Voltage tolerance</b>	±10% (of the nominal voltage)
<b>Wire insulation class</b>	200°C (H)
<b>Energising duration</b>	100% (at the showed power and temperature)
<b>Temperature range</b>	-20°C ÷ +40°C (at the showed power)
<b>ATEX marking (*)</b>	II 2G Ex mb IIC T4 Gb II 2D Ex mb IIIC T135°C Db
<b>Electrical connection</b>	Tripolar cable 3x0,75 mm <sup>2</sup> Lenght 3000 mm Lenght 5000 mm (available on request)
<b>Protection class</b>	IP65 (with suitable seals)
<b>Material</b>	Encapsulated PA self-extinguish + Glass fiber
<b>Visual indicator</b>	None
<b>Color</b>	Black
<b>Protection circuit</b>	Internal fuse

BOBC ... EX / 1 piece each package

**BOBC ... EX**

ATEX alternate current coils


**Technical features**


<b>Code</b>	BOBC024ACEX	BOBC048ACEX	BOBC110ACEX	BOBC220ACEX
<b>Operating voltage</b>	24 VAC	48 VAC	110 VAC	220 VAC
<b>Power consumption (max.)</b>	5,3 W (voltage rectifier inside the coil)			
<b>Voltage tolerance</b>	±10% (of the nominal voltage)			
<b>Wire insulation class</b>	200°C (H)			
<b>Energising duration</b>	100% (at the showed power and temperature)			
<b>Temperature range</b>	-20°C ÷ +40°C (at the showed power)			
<b>ATEX marking (*)</b>	II 2G Ex mb IIC T4 Gb II 2D Ex mb IIIC T135°C Db			
<b>Electrical connection</b>	Tripolar cable 3x0,75 mm <sup>2</sup>		Lenght 3000 mm Lenght 5000 mm (available on request)	
<b>Protection class</b>	IP65 (with suitable seals)			
<b>Material</b>	Encapsulated PA self-extinguish + Glass fiber			
<b>Visual indicator</b>	None			
<b>Color</b>	Black			
<b>Protection circuit</b>	Internal fuse			

BOBC ... EX / 1 piece each package

(\*) T6 temperature class ATEX coils available on request - For the assembly of ATEX coils the valve will be equipped with an Ø 9 electropilot

**CONNECTORS for coils type "E" (22 mm)**

CNN1... Connectors for coils type "E"		Technical features				
		<b>Code</b>	CNN1	CNN1 2 LED	CNN1 3 LED	CNN1 4 LED
		<b>Operating voltage (max.)</b>	0÷250 V AC/DC	12/24 V AC/DC	115 V AC/DC	230 V AC/DC
		<b>Power consumption (max.)</b>	10 A	5 A	5 A	5 A
		<b>Contact resistance (max.)</b>	15 mΩ			
		<b>Overvoltage category</b>	III			
		<b>Conductor size (max.)</b>	1,5 mm <sup>2</sup> (without terminals)			
		<b>Cable gland</b>	PG9			
		<b>Temperature range</b>	-40°C ÷ +100°C	-20°C ÷ +80°C	-20°C ÷ +80°C	-20°C ÷ +80°C
		<b>Electrical connection</b>	INDUSTRIAL (AMP 6.3 x 0.8) type B			
		<b>Protection class</b>	IP65 (correctly assembled)			
CNN1	CNN1...LED	<b>Material</b>	PA6 GF - PA6 GF	PA6 GF - PA12	PA6 GF - PA12	PA6 GF - PA12
		<b>Visual indicator</b>	None	LED yellow diode	LED yellow diode	LED yellow diode
		<b>Color</b>	Black	Trasparent	Trasparent	Trasparent
		<b>Protection circuit</b>	None	VDR circuit	VDR circuit	VDR circuit
		<b>Mounting system</b>	Screw M3x32,5			
CNN1... / Contact holder, housing, seal and mounting screw - 1 piece each package						

**CONNECTORS for coils type "D" (30 mm)**

CNN2... Connectors for coils type "D"		Technical features				
		<b>Code</b>	CNN2	CNN2 2 LED	CNN2 3 LED	CNN2 4 LED
		<b>Operating voltage (max.)</b>	0÷250 V AC/DC	12/24 V AC/DC	115 V AC/DC	230 V AC/DC
		<b>Power consumption (max.)</b>	10 A	5 A	5 A	5 A
		<b>Contact resistance (max.)</b>	15 mΩ			
		<b>Overvoltage category</b>	III			
		<b>Conductor size (max.)</b>	1,5 mm <sup>2</sup> (without terminals)			
		<b>Cable gland</b>	PG9			
		<b>Temperature range</b>	-40°C ÷ +100°C	-20°C ÷ +80°C	-20°C ÷ +80°C	-20°C ÷ +80°C
		<b>Electrical connection</b>	EN175301-803 type A			
		<b>Protection class</b>	IP65 (correctly assembled)			
CNN2	CNN2...LED	<b>Material</b>	PA6 GF - PA6 GF	PA6 GF - PA12	PA6 GF - PA12	PA6 GF - PA12
		<b>Visual indicator</b>	None	LED yellow diode	LED yellow diode	LED yellow diode
		<b>Color</b>	Black	Trasparent	Trasparent	Trasparent
		<b>Protection circuit</b>	None	VDR circuit	VDR circuit	VDR circuit
		<b>Mounting system</b>	Vite centrale M3x32,5			
CNN2... / Contact holder, housing, seal and mounting screw - 1 piece each package						







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**BONESI PNEUMATIK** manufactures all its own products in Italy

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