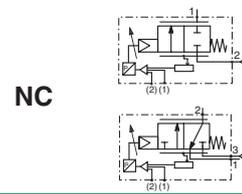




PROPORTIONAL VALVES WITH POSITIONER^D

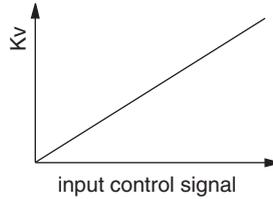
pressure operated
all standard connection types



2 way
3 way
Series
290/390

FEATURES

- Precise, quick-acting and robust valve suitable for use in outside industrial environments
- Exceptional long service life
- Variable flow proportional to the control signal
- Real-time control
- Ready-to-use valve
- The positioner can be directly connected to an external sensor (double loop control)
- Power saving function and no air consumption when position is reached
- Manual valve operator
- LED indicators for valve status display

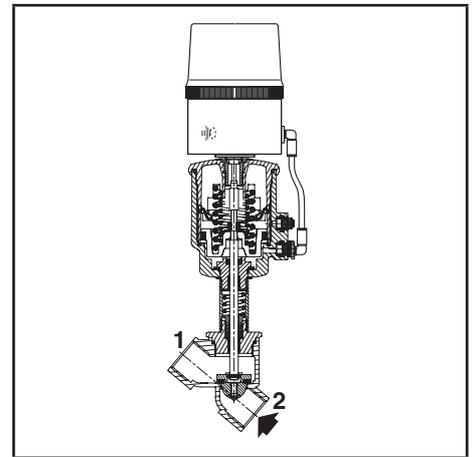


GENERAL

Differential pressure	0 to 16 bar [1 bar = 100 kPa]
Maximum allowable pressure	16 bar
Ambient temperature range	0°C to +50°C
Maximum viscosity	600 cSt (mm ² /s)
Pilot fluid	Air or inert gas, filtered 25 µm, unlubricated, condensate-free and water-free (observe the pressure dew point) ⁽⁶⁾
Pilot pressure	4 to 8 bar
Pilot fluid temperature	0°C to +50°C
Response time	See Pressure Operated Valves (2/2) , page 7 (www.asco.com)
Fluids	For type, temperature and materials compatibility, see the catalogue pages for the standard valves See Pressure Operated Valves (2/2) , 290 Series - (3/2), 390 Series

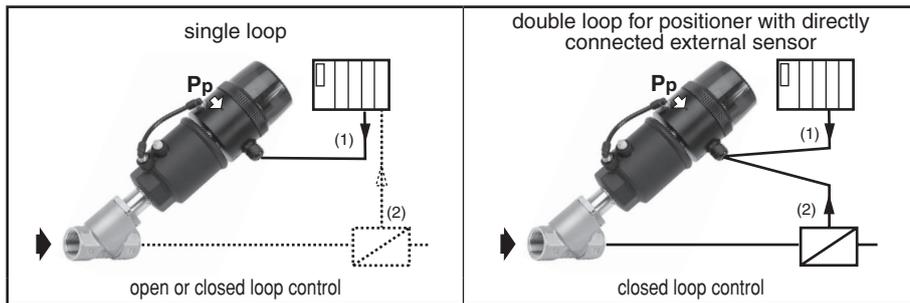
ELECTRICAL CHARACTERISTICS

Setpoint reached output	ON/OFF, 24 V PNP / max. 500 mA
Analog position feedback signal	0-10 V / 4-20 mA
Analog setpoint	0-10V (R _{in} = 200 kΩ); 4-20 mA (R _{in} = 250 Ω)
Nominal supply voltage	24 V DC ± 10%, max. ripple 10%
Power	7,6 W (3,6 W, setpoint reached)
Connection	Screw terminals, cable gland (cable Ø 5-10 mm) or connection M12 (CNOMO E03.62.520.N)
Degree of protection	IP66 (EN 60529)
Electromagnetic compatibility	EMC 2004/108/EC
Regulation characteristics	Hysteresis < 2% ; Accuracy < 2% ; Repeatability < 1%



CONSTRUCTION

Valve construction	See Pressure Operated Valves (2/2) - (3/2)
Valve disc (2/2)	Profiled disc, stainless steel and PTFE
Valve disc (3/2)	Standard disc
Positioner body	Aluminium anodised
Cable gland	Plastic (cable Ø 5-10 mm)
Cover	PA 12, transparent



(1) Setpoint
(2) Value measured by the process sensor

SPECIFICATIONS (NC valves, fluid entry under the disc)

analog setpoint	suffix for proportional valve and positioner ⁽³⁾ delivered assembled							
	fail in last position ⁽⁴⁾				fail close ⁽⁵⁾			
	2 way		3 way ⁽⁷⁾		2 way		3 way ⁽⁷⁾	
	cable gland	M12	cable gland	M12	cable gland	M12	cable gland	M12
Positioner^D, single loop								
0 - 10 V DC	PDB64	PDB68	B64	B68	PDB66	PDB70	B66	B70
4 - 20 mA	PDB65	PDB69	B65	B69	PDB67	PDB71	B67	B71
Positioner^D, double loop								
0 - 10 V DC	-	-	-	-	PDB72	PDB74	B72	B74
4 - 20 mA	-	-	-	-	PDB73	PDB75	B73	B75

(3) Place the indicated suffix after the catalogue number of the valve selected.

(4) Valve disc remains in its last position on loss of power.

(5) Valve returns to closed position on loss of power.

(6) The actuator exhaust air is used to ventilate the electronics housing.

(7) Top orifice of this version is not tight, for the tight version contact us.

VALVE SPECIFICATIONS

pipe size (DN)	orifice size	pilot pressure (bar)		operator diameter	flow coefficient (Kv), programmable opening of proportional valve						
					2 way, threaded		2 way, flanges		3 way, threaded		
					bronze / stainless steel [E290 (www.asco.com)]		bronze [T290 (www.asco.com)]		bronze [E390 (www.asco.com)]		
					clamp / butt welding [S290 (www.asco.com)]						
(mm)	2 way ⁽²⁾	3 way	(mm)	(m ³ /h)	(l/min)	(m ³ /h)	(l/min)	(m ³ /h)	(l/min)		
NC - Normally closed, entry under the disc											
1/2 (15)	15	3 / 5	2 / 3	8	63	4,6	77	-	-	6	100
3/4 (20)	20	3 / 5	-	8	63	7,1	118	-	-	-	-
		-	3 / 5	8	63	-	-	-	-	9,6	160
1 (25)	25	3 / 5	3 / 5	8	63/90	15	250	11	183	16,2	270
1 1/4 (32)	32	3 / 5	5	8	63/90	21	350	14	233	24	400
		3 / 5	3 / 5	8	125	22	367	15	250	-	-
1 1/2 (40)	40	4	3 / 5	8	63/90	29	483	21	350	42,9	715
		4	5	8	125	44	733	32	533	42,9	715
2 (50)	50	4	5	8	63/90	40	667	26,5	442	52,8	880
		4	5	8	125	66	1100	44	733	52,8	880
2 1/2 (65)	65	4	-	8	90	72	1200	-	-	-	-
		4	-	8	125	84	1400	-	-	-	-

⁽¹⁾ For best control loop operation, we recommend the following pilot pressures:
 max. 3 bar (valve with 1,5 bar operator) ; max. 5 bar (valve with 2,5 bar operator) ; max. 7 bar (valve with 4 bar operator)
⁽²⁾ 3 bar (valve with 2,5 bar operator) ; 5 bar or 4 bar (valve with 4 bar operator)

OPTIONS AND ACCESSORIES

- Standard 2/2 NC valve, fluid entry under the disc, with profiled disc only, use suffix PD, example: E290A016PD
- Female M12 connector: straight catalogue number: **88100256**
- 5 pins, with screw terminals, 5 x 0,25 mm², catalogue number: **88130212**
- Supply cable 5 m, 6 x 0,5 mm², catalogue number: **88100728**
- Supply cable 10 m, 6 x 0,5 mm², catalogue number: **88100730**
- APC software for modification of control parameters (software required for double loop control) available for download at: www.asco.com
- RS-232 converter, 2 m cable with 9 pin Sub-D connector for PC link, catalogue number **88100732**
- Oxygen service (except DN 65), pressure limited to 15 bar, temperature limited to + 60°C, suffix **N**
- Vacuum applications up to 1,33 10⁻³ mbar, suffix **VM**
- Other pipe connections are available on request

INSTALLATION

- Pilot port G 1/8 according to ISO 228/1
- Compatible with ASTM 1, 2 and 3 oils
- Installation/maintenance instructions are included with each valve
- LED indicators for operating status display and diagnostic functions (Unit can be rotated through 360° around the centreline of the valve operator)

status	hold position
	valve OPEN
	valve CLOSED
	valve moves to open
	valve moves to close
	positioner in initialisation mode
	positioner in manual mode
diagnostics	setpoint > 20,5 mA / 10,25 V
	setpoint < 3,5 mA
	positioner not initialised
	component error



Electrical connection:

Positioner^D, single loop screw terminals



1	+ 24 V DC, supply	1
2	GND supply	3
3	+ setpoint (0-10 V or 4-20 mA)	2
4	GND setpoint	3
6	disc position feedback	4
7	+ 24V ON/OFF output	5

Positioner^D, double loop screw terminals



1	+ 24 V DC, supply	1
2	GND supply	3
3	+ setpoint (0-10 V or 4-20 mA)	2
4	GND setpoint	3
5	external sensor input	4
7	+ 24V ON/OFF output	5

SPARE PARTS KITS

	spare parts kit no.	
	cable gland (cable Ø 5-10 mm)	Positioner ^D only connection M12
Fail position maintained, single loop		
0-10 V	60566108	60567108
4-20 mA	60566308	60567308
Fail close, single loop		
0-10 V	60566118	60567118
4-20 mA	60566318	60567318
Fail close, double loop		
0-10 V	60566418	60567418
4-20 mA	60566518	60567518
Mounting kit		
all	C140423	C140423

pipe size (DN)	spare parts kit no.		
	bronze, stainless steel (E290) clamp / butt welding (S290)	bronze (T290)	bronze (E390)
Valve disc seals			
1/2 (15)	C131204 ⁽¹⁾	-	C140021 ⁽¹⁾
3/4 (20)	C131205 ⁽¹⁾	-	C140022 ⁽¹⁾
1 (25)	C131206 ⁽¹⁾	C140017 ⁽¹⁾	C140023 ⁽¹⁾
1 1/4 (32)	C131207 ⁽¹⁾	C140018 ⁽¹⁾	C140024 ⁽¹⁾
1 1/2 (40)	C131208 ⁽¹⁾	C140019 ⁽¹⁾	C140025 ⁽¹⁾
2 (50)	C131209 ⁽¹⁾	C140020 ⁽¹⁾	C140026 ⁽¹⁾
2 1/2 (65)	C131622 ⁽¹⁾	-	-

⁽¹⁾ Standard suffix VM also applies to kits. (www.asco.com)
- Not available.

ORDERING EXAMPLES:

E	290 A 016	PDB64
E	390 A 016	B64
E	290 A 059	PDB68
E	290 A 102	PDB71

pipe thread ———
basic number ———
suffix ———

ORDERING EXAMPLES KITS:

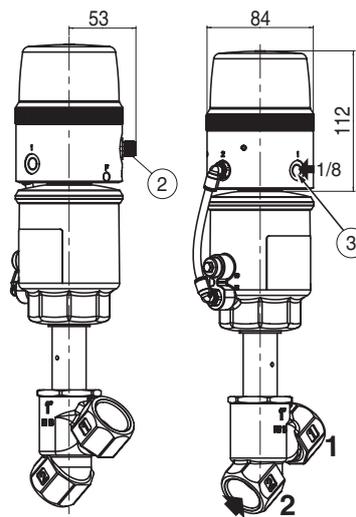
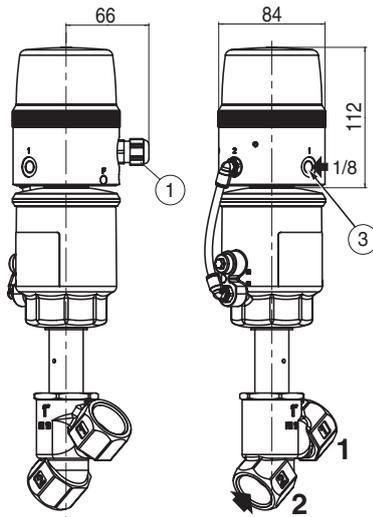
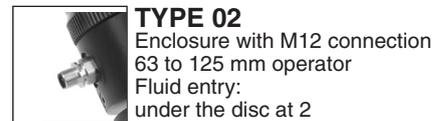
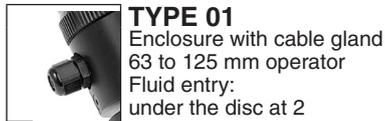
C131204	
C140206	
C140205	VM

basic number ———
suffix ———

DIMENSIONS (mm), WEIGHT (kg)



Configurator - CAD Files



- ① M16 x 1,5 mm cable gland (cable Ø 5-10 mm)
- ② M12 connection
- ③ G 1/8 pilot connection

Weight of positioner without valve: 0,3 kg

