

SPOOL VALVES

direct operated / pilot operated
monostable or bistable
3/8 - 1/2

NC



3/2

Series

231
(type T)

FEATURES

- Accepts a wide range of operators
- Used in fluid remote control and servo systems
- The solenoid valves satisfy all relevant EC directives

GENERAL

fluid (*)	temperature range (TS)	seal materials (*)
water, air, inert gas, oil	-10°C to +80°C	NBR (nitrile)

Differential pressure 0 to 12 bar [1 bar = 100 kPa]
0 to 10 bar (with "ET" pilots) see overleaf

Maximum allowable pressures and functions:

symbol	operators	(C)	pipe size (G*)	maximum allowable pressure		
				air (*) (bar)	water (*) (bar)	oil (*) (bar)
air operated - spring return (monostable function)						
	piston	1	3/8	35	30	25
		1	1/2	30	25	20
	diaphragm	2	3/8	35	30	25
		2	1/2	30	25	20
air operated - air return (bistable function)						
	piston	3	3/8	35	30	25
		3	1/2	30	25	20
	diaphragm	4	3/8	35	30	25
		4	1/2	30	25	20
solenoid-air operated - spring return (monostable function)						
	pilot type MB (1) (series 121)	5	3/8	35 (1)	30 (1)	25
		5	1/2	30 (1)	25	20
solenoid-air operated and return (bistable function)						
	pilot type MB (1) (series 121)	6	3/8	35 (1)	30 (1)	25
		6	1/2	30 (1)	25	20
direct electric operated and return (bistable function)						
	"ET" type electromagnets	~	7	30	20	10
		=	8			

Maximum viscosity 40 cSt (mm²/s)
Ambient temperature range (TS) -10°C to +40°C
Pilot fluid Water, air, inert gas, oil (40 cSt max.)
Pilot pressure See "Specification" overleaf
Pilot fluid temperature (TS) +60°C max.

MATERIALS IN CONTACT WITH FLUID

(*) Ensure that the compatibility of the fluids in contact with the materials is verified

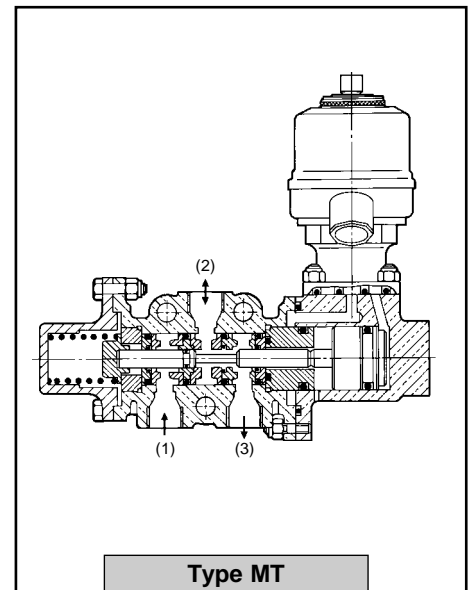
Body Brass (G3/8) - Bronze (G1/2)
Internal parts Stainless steel
Spring Steel
Seals NBR
Pressure operators:
 piston Stainless steel, NBR seals
 diaphragm NBR
Shading coil Copper

OTHERS MATERIALS

3/2 solenoid-air operator:
 series 121 (type MB) see V575
 solenoid head in metal housing to IP65
Direct electric operator:
 solenoid "ET" heads **MPV1** (AC ~) and **CPV1** (DC =), see V902-12
 MPV1 (AC ~) Metal housing to IP54
 CPV1 (DC =) Cast housing to IP65

(C) Construction type, see "Dimensions"

(1) Maximum allowable pressure > 25 bar, use option: external pilot supply (see "Options")



Type MT

ELECTRICAL CHARACTERISTICS

Coil isolation class	E (class B for CPV1)
Coil connection	Terminals integral with coil
Cable entry	Cable gland Pg 11M [MB] or Pg 11P [ET]
Electrical safety	IEC 335
Standard voltages	DC (=) : 24V
(Other voltages and 60 Hz on request)	AC (~) : 24V - 115V - 230V / 50 Hz

pilot type	solenoid head	nominal power rating				ambient temperature range (TS) (°C)	coil class	coil construction
		inrush (VA)	holding		= (W)			
			(VA)	(W)				
MB (series 121)	terminals -12W	75	22	12	8	-10 to +40	E	wrapped
ET	MPV1(-) CPV1(=) (1)	600	55	15	- 80	-10 to +40	E B	wrapped moulded

SPECIFICATIONS

pipe size (G*)	orifice size (mm)	flow coefficient Kv		maximum differential pressure (bar)			pilot pressure		operator type	(C)	(M)	catalogue number	reference	
		(m³/h)	(l/min)	min.	maximum (PS) air water/oil (*)	max.	min.	max.						
NC - normally closed - air operated spring return														
3/8	9	1,14	19	0	12	12	3	30	piston	1	×	23100037	T302 RH	
1/2	15	3,18	53	0	12	12	3	30	piston	1	×	23100085	T303 RH	
3/8	9	1,14	19	0	12	12	1	15	diaphragm	2	×	23100038	T302 RN	
1/2	15	3,18	53	0	12	12	1,5	15	diaphragm	2	×	23100053	T303 RN	
NC - normally closed - air operated and return														
3/8	9	1,14	19	0	12	12	3	30	pistons	3	×	23100097	T302 H2	
1/2	15	3,18	53	0	12	12	3	30	pistons	3	×	23100099	T303 H2	
3/8	9	1,14	19	0	12	12	0,7	15	diaphragms	4	×	23100096	T302 N2	
1/2	15	3,18	53	0	12	12	1	15	diaphragms	4	×	23100098	T303 N2	
NC - normally closed - solenoid-air operated - spring return (2)														
												(~)	(=)	
3/8	9	1,14	19	3 (3)	12	12	3 (3)	12	MB pilot	5	×	23100039	23100042	MT 302
1/2	15	3,18	53	3 (3)	12	12	3 (3)	12	MB pilot	5	×	23100055	23100058	MT 303
NC - normally closed - solenoid-air operated and return (2)														
3/8	9	1,14	19	3 (3)	12	12	3 (3)	12	MB pilots	6	×	23100075	23100100	M2T 302
1/2	15	3,18	53	3 (3)	12	12	3 (3)	12	MB pilots	6	×	23100051	23100052	M2T 303
NC - normally closed - direct electric operated and return														
3/8	9	1,14	19	0	10	10	-	-	ET-MPV1 (~)	7	×	23100036	-	ET 302 (~)
									ET-CPV1 (=)	8	×	-	23100353	ET 302 (=)

(M) Manual operator: X : without (manual operator on request, see "Options" below)

(C) Construction type, see "Dimensions"

(1) With DC, control must be by pulse. If voltage is maintained, each solenoid must be provided with a fuse (consult us)

(2) With internal pilot fluid supply (external supply optional)

(3) Working pressure < 3 bar, use external pilot supply option

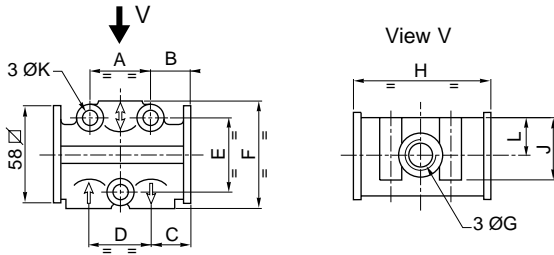
OPTIONS

- **Valve body:**
 - Impulse or holding manual return
 - FPM seal (fluoroelastomer) - maximum allowable pressure 20 bar max.
 - Oxygen rated, code **970521**
 - Chrome plating, code **165506**
 - Control valve for pressure differential > 12 bar max. (limited by maximum allowable pressure) (Kv reduced by 30%)
 - Closed centre neutral position control valve (W1) - only in versions with air operated and return (piston type) or solenoid-air operated and return (MB pilots) - maximum differential pressure 12 bar
 - Universal function (distributor or mixer function - maximum pressure differential 12 bar)
- **With air operated:**
 - Impulse or maintained manual operator
- **With solenoid-air operated:**
 - External pilot fluid supply
 - Button or impulse manual operator
 - Flameproof enclosure to EEx d, for potentially explosive atmospheres according to "ATEX/CENELEC":
 - . pilot MB (series 121) see X019-105
 - . solenoid ET (series 131) see X019-110
 - Pilots certified to EEx m, for potentially explosive atmospheres according to "ATEX/CENELEC" (contact us)
 - Options concerning pilot MB, see 05-75
 - Options concerning solenoid ET, see 09-05-15

INSTALLATION

- Possible spool valve control configurations:
 - air operators: **all positions**
 - solenoid-air operator, pilot MB (series 121): all positions, **except solenoid head downwards**
 - direct operated, solenoid ET: **magnetic head must remain horizontal**
 - all operator and return systems can be oriented at 90° increments in relation to pipes
- For electrically-operated control valve "ET" on DC: observe power supply precautions, note (2) on preceding page
- Pipe connections (G) have standard combination thread according to ISO 228/1 and ISO 7/1
- Spare parts kits and replacement coils are available

DIMENSIONS (mm), WEIGHT (kg)



G 3/8 and G 1/2 body

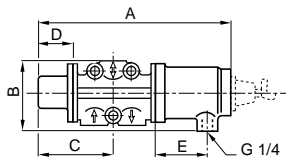
(G*)	A	B	C	D	E	F	H	J	Ø K	L
3/8	36	25	24,5	37	44	64	86	66	8,5	26
1/2	50	30	30	50	60	84	110	82	10,5	31

Ø K: 3 fixing holes

NOTE: all operators and return systems are rotatable at 90° increments in relation to pipes

Piston type air operator - spring return

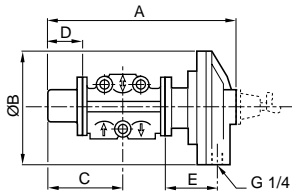
Construction 1



(G*)	A	B	C	D	E	weight (kg)
3/8	183	64	77	34	39	2,6
1/2	231	72	101	46	50	3,9

Diaphragm type air operator - spring return

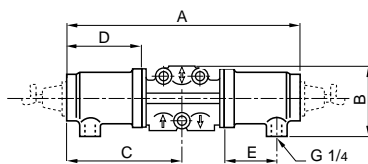
Construction 2



(G*)	A	B	C	D	E	weight (kg)
3/8	189	114	77	34	52	3,2
1/2	225	114	101	46	52	4,5

Piston type air operator and return

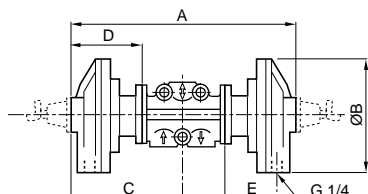
Construction 3



(G*)	A	B	C	D	E	weight (kg)
3/8	212	64	106	63	39	3,5
1/2	260	72	130	75	50	4,8

Diaphragm type air operator and return

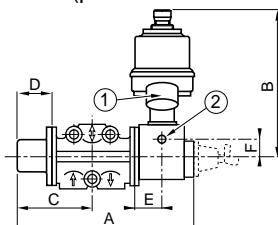
Construction 4



(G*)	A	B	C	D	E	weight (kg)
3/8	224	114	112	69	52	4,7
1/2	248	114	124	69	52	6

Solenoid-air operator (pilot MB series 121) - spring return

Construction 5



(G*)	A	B	C	D	E	F	weight (kg)
3/8	182	137	77	34	26,5	20	2,7
1/2	248	143	101	46	53,5	26	4

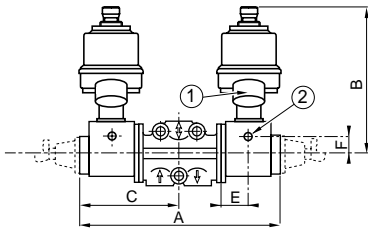
① Cable gland (Pg 11P)

② Optional external supply (G 1/4)

Solenoid-air operator and return - pilot MB (series 121)

WEIGHT (kg)

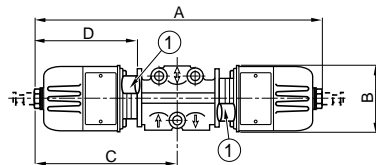
Construction 6



(G*)	A	B	C	E	F	weight (kg)
3/8	210	137	105	26,5	20	4,3
1/2	294	143	147	53,5	26	5,6

AC direct electric operator and return (solenoid heads MPV1)

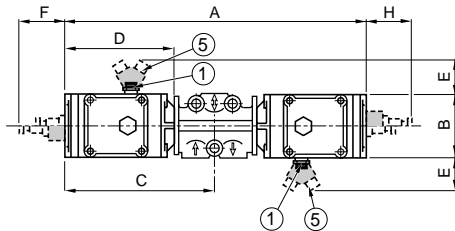
Construction 7



(G*)	A	B	C	D	E	weight (kg)
3/8	360	95	180	137	34	5,2

DC direct electric operator and return (magnetic heads CPV1)

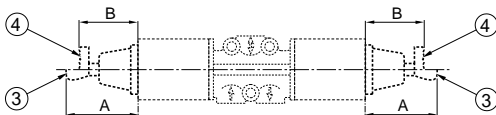
Construction 8



(G*)	A	B	C	D	E	F	H	weight (kg)
3/8	428	97	214	171	66	46	67	13,6
1/2	452	97	226	171	66	46	67	15,5

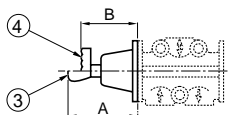
OPTIONS

Additional manual operator



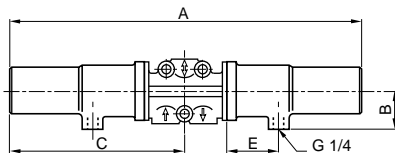
(G*)	A	B	weight (kg)
3/8	74	68	0,21
1/2	74	68	0,21

Manual return device on control valve



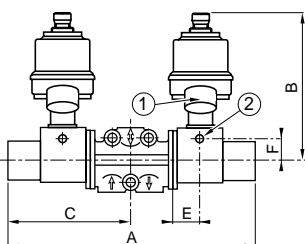
(G*)	A	B	weight (kg)
3/8	79	73	0,35
1/2	82	76	1

Control valve with neutral position (centre closed W1), operated by pistons



(G*)	A	B	C	E	weight (kg)
3/8	282	30	141	30	4,8
1/2	360	36	180	36	8

Control valve with neutral position (centre closed W1), operated by MB pilots



(G*)	A	B	C	E	F	weight (kg)
3/8	282	137	141	26,5	20	5,4
1/2	386	143	193	53,5	26	8,6

① Cable gland (Pg 11P)

③ Impulse manual operator

⑤ Optional auxiliary contact

② External supply (G 1/4) option

④ Screwdriver manual operator

with 2 cable glands (Pg 11P)

All leaflets are available on: www.ascojoucomatic.com