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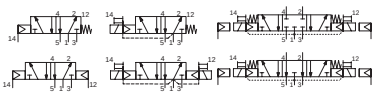
ASCO™ Spool Valves

single/dual solenoid (mono/bistable function) - pilot operated or air operated aluminium body - 1/4 and 1/2 tapped

5/2 - 5/3 SERIES 551 - 553



Features

- *The monostable spool valves in conformity with IEC 61508 Standard (2010 route 2_H version) have TÜV (551 series) and EXIDA (551-553 series) certified with integrity levels: SIL 2 for HFT = 0 / SIL 3 for HFT = 1*
- *The spool valves 5/2 and 5/3 have threaded port connections*
- *All the exhaust ports of the spool valve are connectable, providing better environmental protection. Particularly recommended for sensitive areas, such as clean rooms, and applications in the pharmaceutical and food processing sectors*
- *The valve offers environmental protection against the ingress of liquids, dusts or any other foreign matter (environmentally-protected construction)*
- *Epoxy moulded coil for general service applications*
- *The solenoid valves satisfy all relevant EU Directives*

General

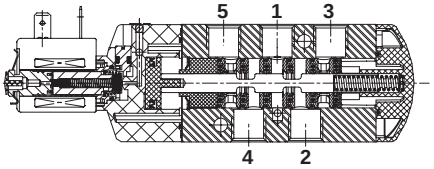
Differential pressure 2 - 10,4 bar [1 bar =100 kPa]
Flow (Qv at 6 bar) 1/4 = 860 l/min (5/2) ; 760 l/min (5/3)(ANR)
1/2 = 3800 l/min (5/2, 5/3)

fluids (∗)	temperature range (TS)	seal materials (∗)
air, inert gas, filtered	-25°C to +60°C	NBR (nitrile) + PUR (polyurethane)

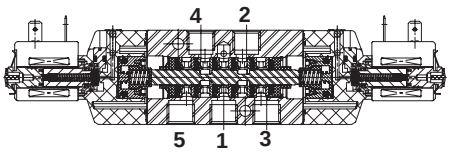
Materials in contact with fluid

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

Body	Aluminium, black anodised
End cover (spring return)	Glass-filled PA
Spool valve internal parts	Zamak, stainless steel, POM, aluminium
Seals	NBR + PUR
Core tube	Brass
Core and plugnut	Stainless steel
Shading coil	Copper



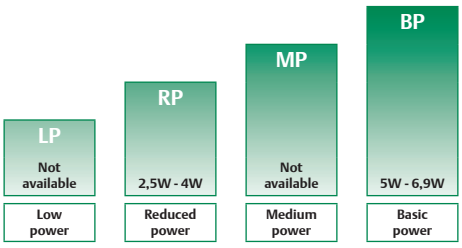
5/2 function, monostable



5/3 function

Air operated specifications

pipe size	orifice size	flow coefficient Kv		operating pressure differential (bar) min..	max. (PS) air (∗)	prefix optional	basic catalogue number
(❖)	(mm)	(m³/h)	(l/min)		-		
5/2 - Air pilot operated - spring return (monostable)							
1/4	6	0,75	12,5	2	10	-	❖551A117 (1)
1/2	13	3,15	52,5	2	10	-	❖553A117 (1)
5/2 - Air pilot operated and return (bistable)							
1/4	6	0,75	12,5	2	10	-	❖551A118
1/2	13	3,15	52,5	2	10	-	❖553A118
5/3 - W1 - pressure held, air pilot operated and return							
1/4	6	0,75	12,5	2	10	-	❖551A167
5/3 - W3 - pressure release, air pilot operated and return							
1/4	6	0,75	12,5	2	10	-	❖551A168



POWER LEVELS - cold electrical holding values (watt)

Pilot operated specifications (5/2)

pipe size	orifice size	flow coefficient Kv		operating pressure differential (bar) min.	max. (PS) air (∗)		power level	prefix optional solenoids NEMA 7 & 9	ATEX / IECEx Ex e mb	ATEX / IECEx Ex mb	IP65	basic catalogue number
(❖)	(mm)	(m³/h)	(l/min)		~	=	~/=	EF (2)	WBLP	PV	SC	
5/2 - Solenoid air pilot operated - spring return (monostable)												
1/4	6	0,75	12,5	2	10	10	RP	-	●	-	●	❖551A017 (1)
							BP	●	-	-	-	❖551G017 (1)
							RP	-	-	●	-	X❖551A017 20787 (1)
1/2	13	3,15	52,5	2	10	10	RP-BP	-	●	●	●	❖553A017 (1)
							BP	●	-	-	-	❖553G017 (1)

❖ Select 8 for NPT ANSI 1.20.3 or select G for ISO G (228/1) ● Available feature - Not available
(1) Certified IEC 61508 Functional Safety data, use suffix "SL".
(2) UL CSA

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Pilot operated specifications

pipe size	orifice size	flow coefficient Kv		operating pressure differential (bar)			power level	prefix optional solenoids				basic catalogue number
				min.	max. (PS)			NEMA	ATEX / IECEx		IP65	
					air (✶)			7 & 9	Ex **e mb**	Ex **mb**		
(❖)	(mm)	(m^3/h)	(l/min)		~	=	~/=	**EF** (1)	**WBLP**	**PV**	**SC**	
5/2 - Solenoid air pilot operated and return (bistable)												
1/4	6	0,75	12,5	2	10	10	RP	-	●	-	●	**❖551A018**
							BP	●	-	-	-	**❖551G018**
							RP	-	-	●	-	**X❖551A018 20787**
1/2	13	3,15	52,5	2	10	10	RP-BP	-	●	●	●	**❖553A018**
							BP	●	-	-	-	**❖553G018**
5/3 - W1 - pressure held, solenoid air pilot operated and return												
1/4	6	0,75	12,5	2	10	10	RP	-	●	-	●	**❖551A067**
							RP	-	-	●	-	**X❖551A067 20787**
1/2	13	3,15	52,5	2	10	10	RP-BP	-	●	●	●	**❖553A067**
5/3 - W3 - pressure release, solenoid air pilot operated and return												
1/4	6	0,75	12,5	2	10	10	RP	-	●	-	●	**❖551A068**
							RP	-	-	●	-	**X❖551A068 20787**
1/2	13	3,15	52,5	2	10	10	RP-BP	-	●	●	●	**❖553A068**

❖ Select 8 for NPT ANSI 1.20.3 or select G for ISO G (228/1) ● Available feature - Not available
(1) UL CSA

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Prefix table

prefix							description	power level			
1	2	3	4	5	6	7		LP	RP	MP	BP
E	F						Explosionproof - NEMA 7, 9 - Zinc plated steel conduit (18" continuous leads)	-	-	-	●
E	F	H	T				EF (18" continuous leads) + high temperature	-	-	-	●
E	F	H	T	L			EF + high temperature + 72" continuous leads	-	-	-	●
E	F	L					EF + 72" continuous leads	-	-	-	●
J	B	E	F				EF + Junction box (conduit in 1/2" NPT)	-	-	-	●
J	B	E	F	M	F		EF + Junction box (conduit in 1/2" NPT) + surge suppression coils	-	-	-	●
J	C	E	F				EF + Junction box (conduit in 3/4" NPT)	-	-	-	●
J	C	E	F	H	T		EF + Junction box (conduit in 3/4" NPT) + high temperature	-	-	-	●
P	V						Encapsulated epoxy moulded (EN/IEC 60079-18)*	-	●	-	●
W	B	L	P				I.S./encapsulation with PBT IP67 enclosure (EN/IEC 60079-7, -18, -31)*	-	●	-	-
S	C						Solenoid with spade plug connector (EN/IEC 60730)	-	●	-	●
						X	Other special constructions	-	●	-	●

Suffix table

suffix							description	power level			
1	2	3	4	5				LP	RP	MP	BP
	G	D					Non-electrical, 2 GD, construction safety, gas/dust (EN ISO 80079-36/37)	-	-	-	-
			M	S			Screw type manual operator	-	●	-	●
	S	L					Certified IEC 61508 Functional Safety data (1)	-	●	-	●

Product selection guide

STEP 1
Select basic catalogue number, including pipe thread indentification letter. Refer to the specifications table on page: 1 or 2
Example: G551A017

STEP 2
Select prefix (combination). Refer to the specifications table and the prefix table, respect the indicated power level.
Air operated version, does not use prefix.
Example: SC

STEP 3
Select suffix (combination) if required. Refer to the suffix table, respect the indicated power level.
GD suffix available for air operated version only (do not use manual operator suffix).
Example: MS

STEP 4
Select voltage. Refer to standard voltages on page: 4
Example: 230V / 50Hz

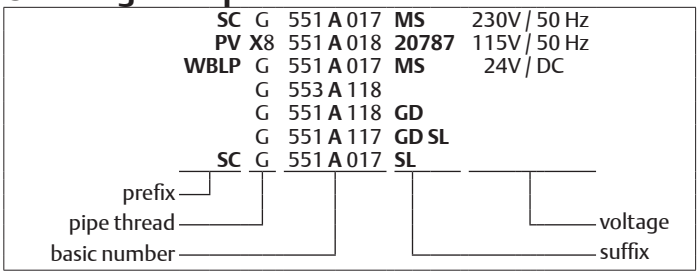
STEP 5
Final catalogue / ordering number
Example:
SCG551A017MS 230 V / 50 Hz

Options & Accessories

series	pipe size	exhaust protector (stainless steel)		
		G	NPT	(M)
551	1/4	**34600419** (2)	**34600483** (2)	-
553	1/2	**34600479** (2)	**34600481** (2)	-
551/553	M5	-	-	**34600484** (2)

● Available feature
- Not available
* ATEX/IECEx valves using these solenoids are approved according to EN ISO 80079-36 (2016) and EN ISO 80079-37 (2016) [non electrical]
(1) Not to use with MS suffix
(2) Provided with "SL" suffix

Ordering examples valves:



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Explanation of temperature ranges of solenoid valves

Valve temperature range	The valve temperature range (TS) is determined by the selected seal material, the temperature range for proper operation of the valve and sometimes by the fluid (e.g. steam)
Operator ambient temperature range	The operator ambient temperature range is determined by the selected power level and the safety code
Total temperature range	The temperature range of the complete solenoid valve is determined by the limitations of both temperature ranges above

Electrical characteristics

Coil insulation class F
Electrical safety IEC 335
Standard voltages DC (=) 24V - 48V
AC (~) 24V - 48V - 115V - 230V/50Hz; other voltages and 60Hz are available on request

prefix option	power ratings				operator ambient temperature range (TS)	safety code	electrical enclosure protection (EN 60529)	replacement coil		type (1)
	inrush ~	holding ~		hot/cold =				~	=	
	(VA)	(VA)	(W)	(W)	(C°)			230 V/50 Hz	24V/DC	
Basic power (BP)										
SC	15	7	5	4/5	-25 to +60	EN 60730	IP65, moulded	400727-117	400727-185	02
PV	-	-	6,3	-	-40 to +65	II2G Ex mb IIC T3 Gb,II2D Ex mb IIIC Db	IP67 moulded	- (2)	- (2)	04
PV	-	-	-	6,9	-40 to +40	II2G Ex mb IIC T3 Gb,II2D Ex mb IIIC Db	IP67 moulded	- (2)	- (2)	04
EF	55	23	10,5	9/11,2	-40 to +52/40	NEMA type 7 and 9	NEMA 4X	-	-	07-08
EFHT	55	23	10,5	9/11,2	-40 to +52/40	NEMA type 7 and 9	NEMA 4X	-	-	07-08
JBEF	55	23	10,5	9/11,2	-40 to +52/40	NEMA type 7 and 9	NEMA 4X	-	-	09-10
JBEFHT	55	23	10,5	9/11,2	-40 to +52/40	NEMA type 7 and 9	NEMA 4X	-	-	09-10
Reduced power (RP)										
SC	6	3,5	2,5	2,5/3	-25 to +60	EN 60730	IP65, moulded	400127-097	400904-542	01
PV	-	-	4	-	-40 to +60/65	II2G Ex mb IIC T4-T3 Gb,II2D Ex mb IIIC Db	IP67 moulded	- (2)	- (2)	03
PV	-	-	-	3	-40 to +40/60/60	II2G Ex mb IIC T5-T4-T3 Gb,II2D Ex mb IIIC Db	IP67 moulded	- (2)	- (2)	03
WBLP	-	-	3,5	-/4	-40 to +65	II2G Ex e mb IIC T4 Gb, II2D Ex tb IIIC Db	IP67 PBT	- (2)	- (2)	05-06

(1) Refer to the dimensional drawings on pages: 5 to 6 (Air operated versions: Refer to the dimensional drawings on pages: 8).
(2) Multiple coil kits are available under ATEX/IECEx, contact us

Electrical connections

prefix	connection
SC	Type 01: Spade plug connector with cable gland DIN 43650, 11 mm, industry standard B, for cables with an outer diameter from 6 to 8 mm Type 02: Spade plug connector with cable gland EN175301-803A (ISO 4400) for cables with an outer diameter from 6 to 10 mm
PV	Moulded-in cable, standard length 2 m
WBLP	M20 cable gland for cables with an outer diameter from 7 to 8,5 mm
EF	1/2" NPT conduits
JBEF	EF + Junction box

Additional options

- Other pipe threads are available on request
- Ex mb (prefix "PV") solenoid can be supplied with various cable lengths

Installation

- Multi language installation/maintenance instructions are included with each valve
- The valves can be mounted in any position without affecting operation
- Do not connect the pressure supply to the exhaust port 3. The “environmentally-protected” construction is not adapted for a “distributing” function or use in NO function. Contact us for functions available in specific versions
- IEC 61508 Functional Safety (suffix SL). Check temperature range of valve body and solenoid for suitability. For probability of failure, contact us
- It is necessary to connect pipes or fittings to the exhaust ports to protect the internal parts of the spool valve and its pneumatic operator if used outside or in harsh environments (dusts, liquids etc.)
- Threaded pipe connection identifier is 8 = NPT (ANSI 1.20.3); G = G (ISO 228/1)

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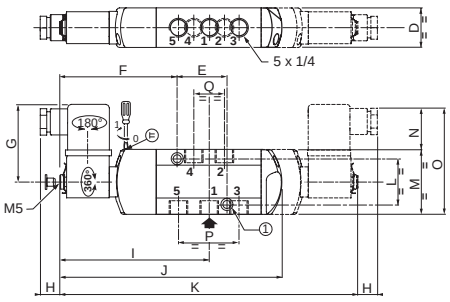
Dimensions (mm), Weight (kg)

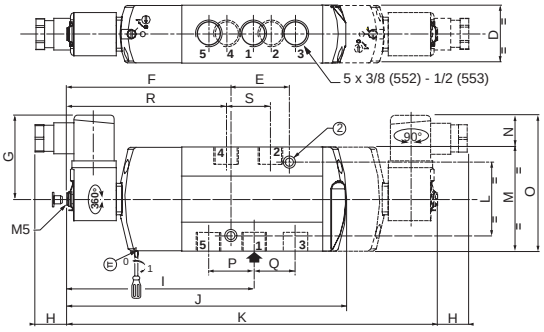
TYPE 01:
Epoxy moulded
SC: IEC 335 / ISO 4400

551A017/A017MS/A018/A018MS/A067/A067MS/A068/A068MS



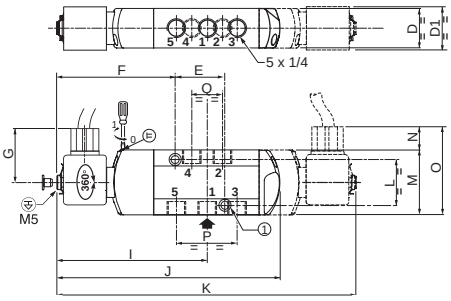
TYPE 02:
Epoxy moulded
SC: IEC 335 / ISO 4400

553A017/A0017MS/A018/A018MS/A067/A067MS/A068/A068MS



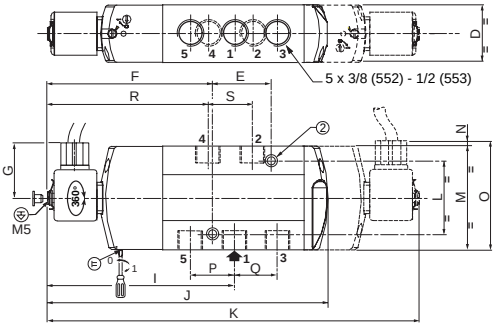
TYPE 03:
Epoxy encapsulated
PV: EN/IEC 60079-18

551A017 20787 / A017MS 20787 / A018 20787 / A018MS 20787
551A067 20787 / A067MS 20787 / A068 20787 / A068MS 20787



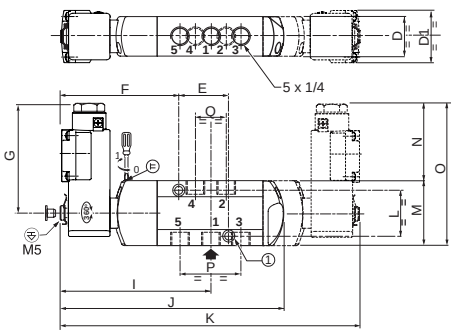
TYPE 04:
Epoxy encapsulated
PV: EN/IEC 60079-18

553A017/A017MS/A018/A018MS/A067/A067MS/A068/A068MS



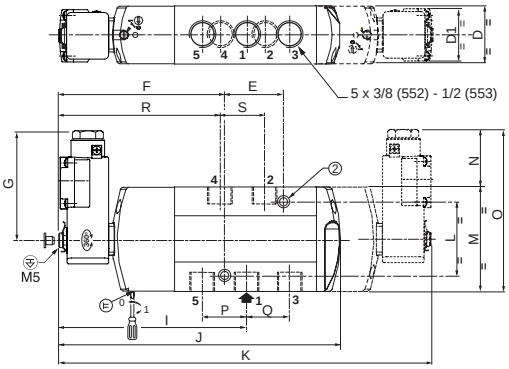
TYPE 05:
PBT
WBLP: EN/IEC 60079-7 +18 + 31

551A017/A017MS/A018/A018MS/A067/A067MS/A068/A068MS



TYPE 06:
PBT
WBLP: EN/IEC 60079-7 +18 + 31

553A017/A017MS/A018/A018MS/A067/A067MS/A068/A068MS



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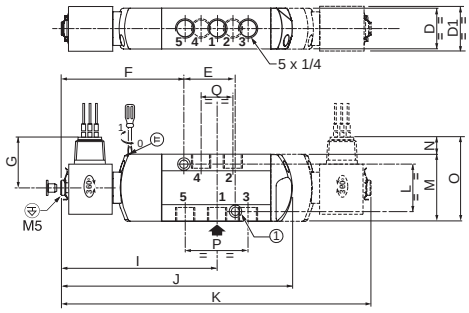
Dimensions (mm), Weight (kg)

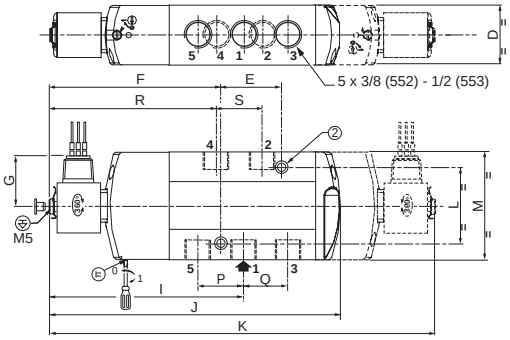
TYPE 07:
Epoxy encapsulated
EF: NEMA type 7, 9 / ICS-6 ANSI

551G017 / G017MS / G018 / G018MS



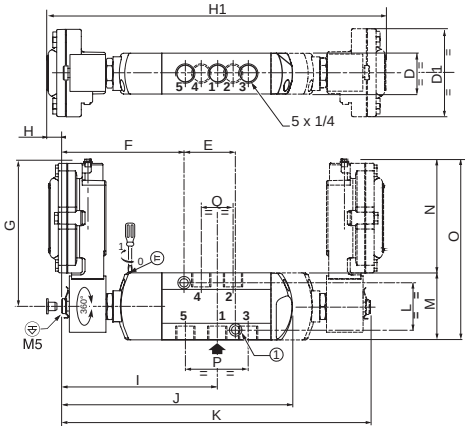
TYPE 08:
Epoxy encapsulated
EF: NEMA type 7, 9 / ICS-6 ANSI

553G017 / G017MS / G018 / G018MS



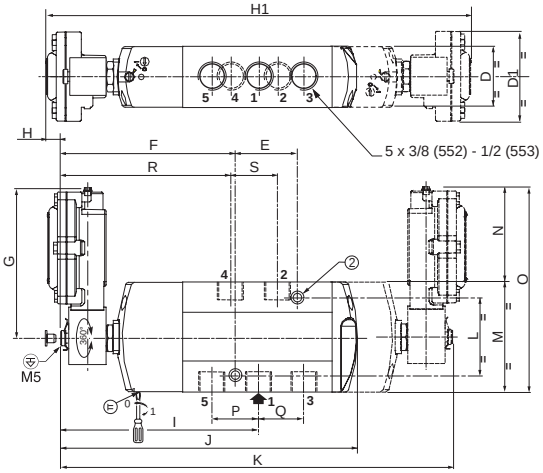
TYPE 09:
Epoxy encapsulated
JBEF: NEMA type 7, 9

551G017 / G017MS / G018 / G018MS



TYPE 10:
Epoxy encapsulated
JBEF: NEMA type 7, 9

553G017 / G017MS / G018 / G018MS



① 2 mounting holes: 5,3 mm dia.; Spotfacing: 9 mm dia., depth 5 mm
② 2 mounting holes: 6,5 mm dia.; Spotfacing: 11 mm dia., depth 6 mm
Ⓜ Connectable pilot exhaust port

type	prefix/ option	power level	D	D1	E	F	G	H	H1	I	J	K	L	M	N	O	P	Q	R	S	weight (1)	
																					monostable	bistable
01 (551)	SC	RP	27,5	-	32	82,5	52	13	-	105,5	157	210	32	45	27	72	41	22	-	-	0,35	0,43
02 (553)	SC	BP	40,2	-	43	114,5	59,2	21,8	-	130,5	197,5	261	51	72,3	20	92,3	31,6	31,8	111	31,6	0,69	0,99
03 (551)	PV	RP	27,5	29	32	82,5	36,5	-	-	104,5	157	210	32	45	13	58	41	22	-	-	0,37	0,49
04 (553)	PV	BP	40,2	-	43	114,5	36,5	-	-	130,5	197,5	261	51	72,3	0,3	72,6	31,6	31,8	111	31,6	0,72	1,02
05 (551)	WBLP	RP	27,5	37	32	82,5	81,5	-	-	104,5	157	210	32	45	59	104	41	22	-	-	0,43	0,63
06 (553)	WBLP	RP	40,2	37	43	114,5	81,5	-	-	130,5	197,5	261	51	72,3	45,35	117,65	31,6	31,8	111	31,6	0,79	1,16
07 (551)	EF	BP	27,5	30,5	32	82,5	53	-	-	105,5	157	210	32	45	-	-	41	22	-	-	0,45	0,63
08 (553)	EF	BP	40,2	87	43	114,5	53	-	-	130,5	197,5	261	51	72,3	-	-	31,6	31,8	111	31,6	0,79	1,19
09 (551)	JBEF	BP	27,5	30,5	32	82,5	151	13,5	237	104,5	157	210	32	45	151	187,15	41	22	-	-	1,36	2,48
10 (553)	JBEF	BP	40,2	87	43	114,5	151	13,5	288	130,5	197,5	261	51	72,3	151	187,15	31,6	31,8	111	31,6	1,83	3,13

(1) Incl. coil(s) and connector(s).

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Accessories (551/553 Series)

• Supply rail (supplied with seals and banjo bolts, without mounting brackets)

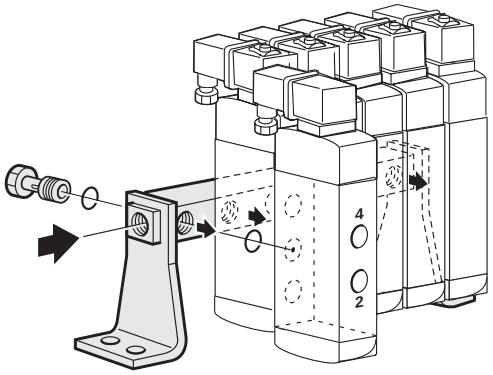
supply rail for "n" valves	catalogue number			
	551 Series		553 Series	
	G 1/4	NPT 1/4	G 1/2	NPT 1/2
2	**88100034**	**88100053**	**88100759**	**88100766**
3	**88100035**	(1)	**88100760**	**88100767**
4	**88100036**	**88100054**	**88100761**	**88100768**
5	**88100037**	**88100058**	**88100762**	**88100769**
6	**88100038**	**88100055**	**88100763**	**88100770**
7	**88100039**	**88100059**	**88100764**	**88100771**
8	**88100040**	**88100060**	**88100765**	**88100772**

(1) Available on request.

Mounting brackets (set of 2)

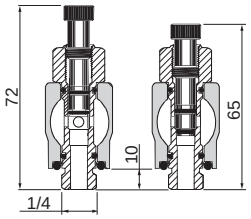
551 Series
catalogue number:
88100049

553 Series
catalogue number:
88100773

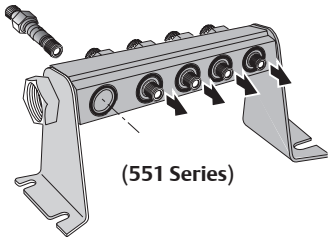


supply rail with isolation valves with mounting brackets
(Allows the isolation of one or more valves from the general pressure supply)

supply rail for "n" valves	catalogue number	
	G 1/4	NPT
2	**88100915**	-
3	**88100916**	-
4	**88100917**	-
5	**88100918**	-
6	**88100919**	-
7	**88100920**	-
8	**88100921**	-
9	**88100922**	-
10	**88100923**	-
11	**88100924**	-
12	**88100925**	-



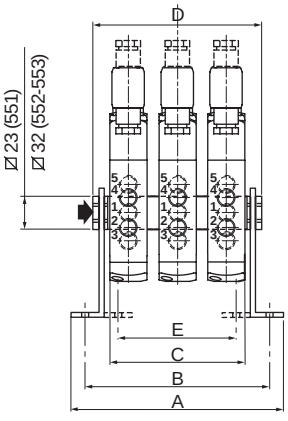
supply rail with isolation valves with mounting brackets

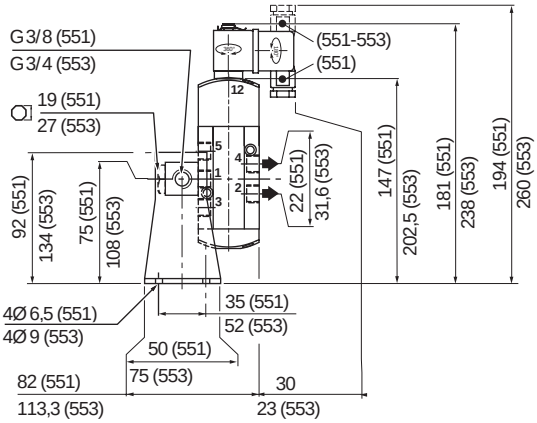


(551 Series)

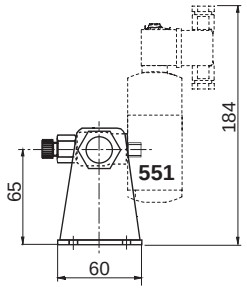
551 Series	number of valves						
	2	3	4	5	6	7	8
A	108	136	164	192	220	248	276
B	92	120	148	176	204	232	260
C	55	83	111	139	167	195	223
D	78	106	134	162	190	218	246
E	42	70	98	126	154	182	210
type	**weight** (kg)						
01, monostable	1,0	1,4	1,8	2,1	2,5	2,9	3,3
01, bistable	1,3	1,8	2,2	2,7	3,2	3,7	4,2

553 Series	number of valves						
	2	3	4	5	6	7	8
A	136	117	218	259	300	341	382
B	116	157	198	239	280	321	362
C	81	122	163	204	245	286	327
D	117	158	199	240	281	322	363
type	**weight** (kg)						
02, monostable	2,4	3,4	4,4	5,5	6,5	7,5	8,6
02, bistable	2,8	4,1	5,4	6,7	8,0	9,2	10,5



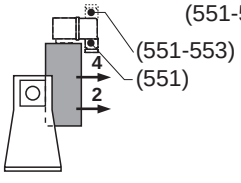


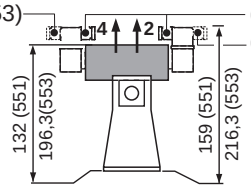
Supply rail with isolation valves



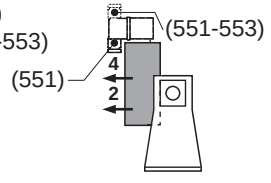
(551 Series)

This mounting arrangement allows valves to be mounted in the positions bellow.

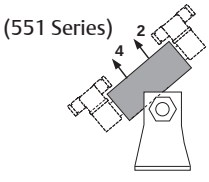




Not possible with supply rail and isolation valves



Only with supply rail with isolation valves



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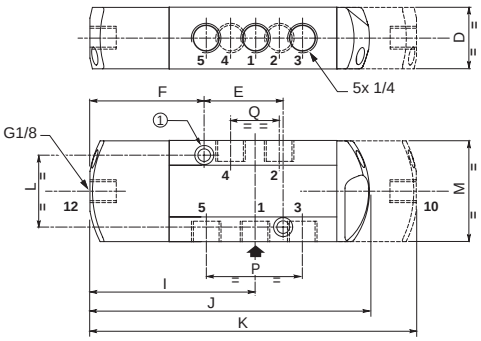
Dimensions (mm), Weight (kg)

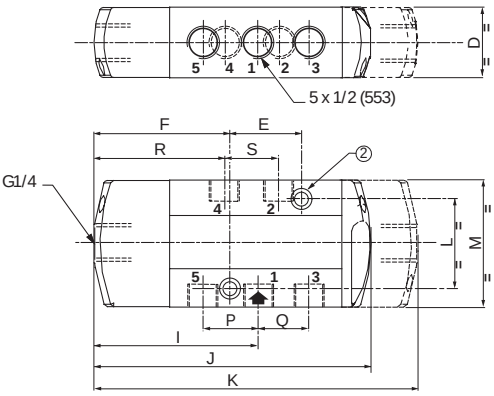
TYPE 11:
No prefix, IP65
Suffixes: GD (II 2 GD) ; SL (SIL) ; GDSL (SIL, II 2 GD)]
Air operated version

551A117 / 551A118 / 551A167 / 551A168



TYPE 12:
No prefix, IP65
Suffixes: GD (II 2 GD) ; SL (SIL) ; GDSL (SIL, II 2 GD)]
Air operated version

553A117 / 553A118



(1) 2 mounting holes: 5,3 mm dia.; Spotfacing: 9 mm dia., depth 5 mm
(2) 2 mounting holes: 6,5 mm dia.; Spotfacing: 11 mm dia., depth 6 mm

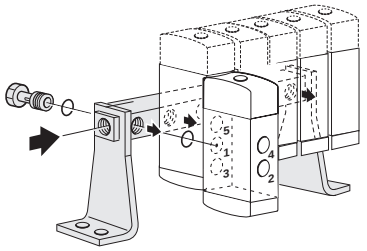
type	D	E	F	I	J	K	L	M	P	Q	R	S	weight	
													monostable	bistable
11 (551)	27,5	32	50,5	72	125	146	32	45	41	22	-	-	0,32	0,40
12 (553)	40,2	43	78,5	94,5	161,5	189	51	72,3	31,6	31,8	76	31,6	0,79	1,05

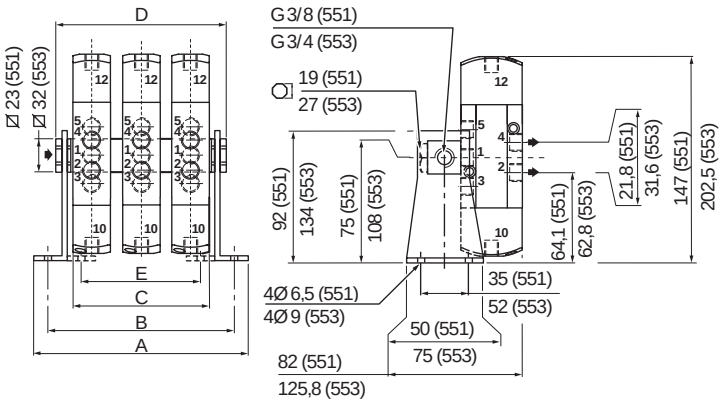
Accessories (551/553 Series)

• Supply rails: (See catalogue numbers on preceding page)

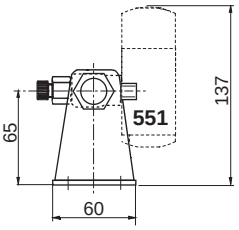
551 Series	number of valves						
	2	3	4	5	6	7	8
A	108	136	164	192	220	248	276
B	92	120	148	176	204	232	260
C	55	83	111	139	167	195	223
D	78	106	134	162	190	218	246
E	42	70	98	126	154	182	210
type	**weight** (kg)						
07, monostable	1,0	1,3	1,6	2,0	2,3	2,6	2,9
07, bistable	1,1	1,5	2,0	2,4	2,8	3,2	3,6

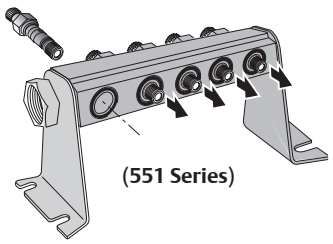
553 Series	number of valves						
	2	3	4	5	6	7	8
A	136	117	218	259	300	341	382
B	116	157	198	239	280	321	362
C	81	122	163	204	245	286	327
D	117	158	199	240	281	322	363
type	**weight** (kg)						
08, monostable	2,3	3,2	4,2	5,2	6,2	7,1	8,2
08, bistable	2,6	3,8	5,0	6,2	7,4	8,5	9,4



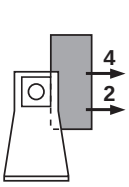


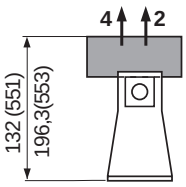
supply rail with isolation valves with mounting brackets

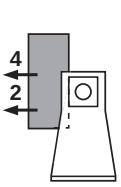




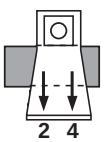
This mounting arrangement allows valves to be mounted in the positions bellow.



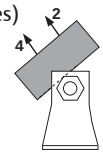




Not possible with supply rail and isolation valves



Only with supply rail with isolation valves
(551 Series)



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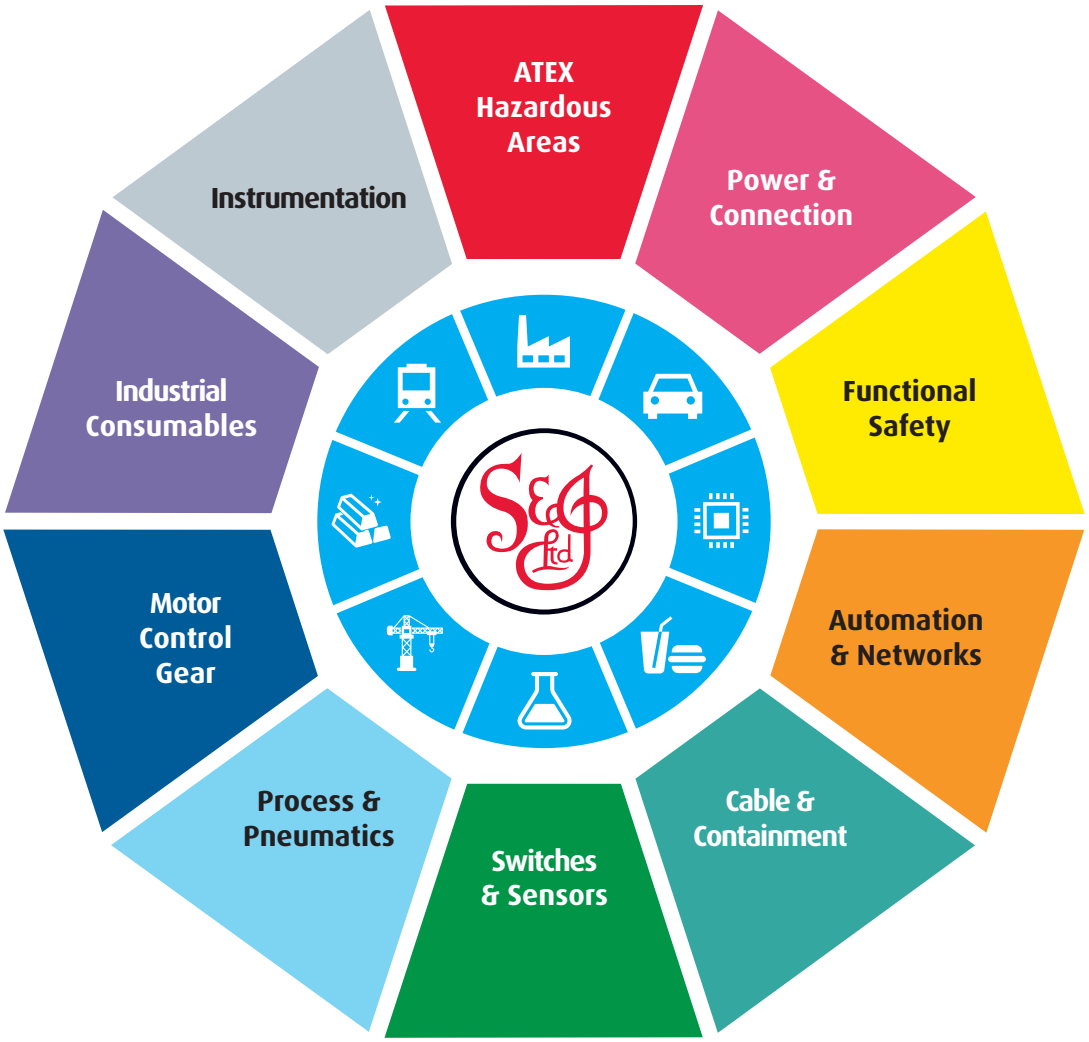

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