

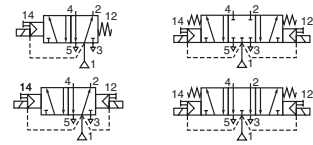


# SOLENOID VALVES

pilot operated, spool type

single/dual solenoid (mono/bistable function, W1/W3)

stainless steel body, 1/4 - 1/2



5/2

5/3

Series

551-553

## FEATURES

- The monostable spool valves have TÜV-EXIDA certified IEC 61508 Functional Safety data and can be used up to SIL 4 (551/TÜV)-SIL 3 (553/EXIDA)
- The 5/2 and 5/3 solenoid operated spool valves have threaded port connections
- All the exhaust ports of this 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)
- Can be externally piloted (external air pilot supply) to convert valve to zero minimum operation by flipping a gasket
- The solenoid valves satisfy all relevant EC Directives

## GENERAL

Differential pressure (\*)

2 - 10 bar [1 bar = 100 kPa]

Flow (Qv at 6 bar)

1/4 = 860 l/min (5/2) ; 760 l/min (5/3) (ANR)

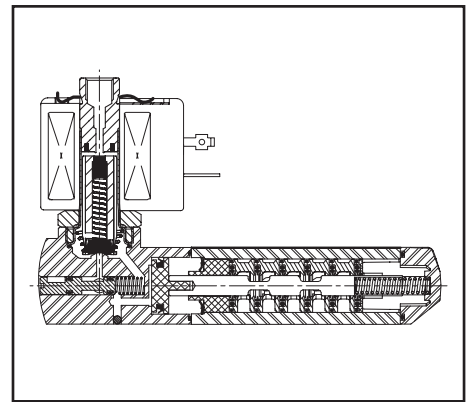
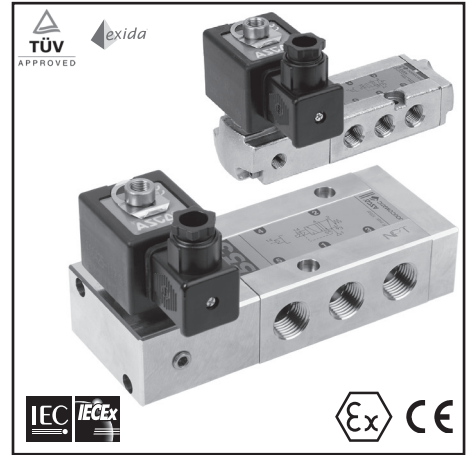
1/2 = 3000 l/min

fluids (*)	temperature range (TS)	seal materials (*)
air, inert gas, filtered	551 : - 40°C to + 80°C	VMQ (silicone) + PUR (polyurethane)
	553 : - 40°C to + 60°C	

## MATERIALS IN CONTACT WITH FLUID

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

Body	Stainless steel, AISI 316L
End cover (spring)	Stainless steel
Spool valve internal parts	Stainless steel, POM
Pilot end-cover	Stainless steel
Core tube	Stainless steel
Core and plugnut	Stainless steel
Core spring	Stainless steel
Sealings & discs	NBR
Top disc	FPM
Disc holder	POM
Cartridge (Low power)	Welded, packless AISI 430
Seat	Stainless steel
Seat insert	POM
Shading coil	Copper
Rider ring (Low power)	PTFE



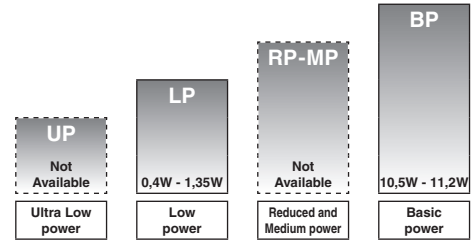
## SPECIFICATIONS

pipe size	orifice size	flow coefficient kv		operating pressure differential (bar)		power level	prefix optional solenoids											basic catalogue number
							min. <sup>(2)</sup>	max. (PS)		ATEX / IECEx					IP65			
								air (*)	~	=	~/=	NEMA 7 & 9	Ex d	Ex e mb		Ex mb	Ex ia	
(*)	(mm)	(m³/h)	(l/min)				EF	LPKF	NF		EM	PV	LI	IS	ZN	SC		
<b>5/2 - Solenoid air pilot operated - spring return (monostable)</b>																		
1/4	6	0,75	12,5	0 / 2	10	10	BP	-	-	●	-	●	-	-	●	●	❖551A421 <sup>(1)</sup>	
1/4	6	0,75	12,5	0 / 2	10	10	BP	●	-	-	-	-	-	-	-	-	❖551G421 <sup>(1)</sup>	
1/4	6	0,75	12,5	0 / 2	10	10	LP	-	○	●	-	●	○	○	○	○	●	❖551A321 <sup>(1)</sup>
1/4	6	0,75	12,5	0 / 2	10	10	LP	○	-	-	-	-	-	-	-	-	●	❖551G321 <sup>(1)</sup>
1/2	13	3,15	52,5	0 / 2	10	10	BP	-	-	●	-	●	-	-	●	●	❖553A421 <sup>(1)</sup>	
1/2	13	3,15	52,5	0 / 2	10	10	BP	●	-	-	-	-	-	-	-	-	❖553G421 <sup>(1)</sup>	
1/2	13	3,15	52,5	0 / 2	10	10	LP	-	○	●	-	●	○	○	○	○	●	❖553A321 <sup>(1)</sup>
1/2	13	3,15	52,5	0 / 2	10	10	LP	○	-	-	-	-	-	-	-	-	●	❖553G321 <sup>(1)</sup>
<b>5/2 - Solenoid air pilot operated and return (bistable)</b>																		
1/4	6	0,75	12,5	0 / 2	10	10	BP	-	-	●	-	●	-	-	●	●	❖551A422	
1/4	6	0,75	12,5	0 / 2	10	10	BP	●	-	-	-	-	-	-	-	-	❖551G422	
1/4	6	0,75	12,5	0 / 2	10	10	LP	-	○	●	-	●	○	○	○	○	●	❖551A322
1/4	6	0,75	12,5	0 / 2	10	10	LP	○	-	-	-	-	-	-	-	-	●	❖551G322
1/2	13	3,15	52,5	0 / 2	10	10	BP	-	-	●	-	●	-	-	●	●	❖553A422	
1/2	13	3,15	52,5	0 / 2	10	10	BP	●	-	-	-	-	-	-	-	-	❖553G422	
1/2	13	3,15	52,5	0 / 2	10	10	LP	-	○	●	-	●	○	○	○	○	●	❖553A322
1/2	13	3,15	52,5	0 / 2	10	10	LP	○	-	-	-	-	-	-	-	-	●	❖553G322

❖ Select 8 for NPT ANSI 1.20.3 or select G for ISO G (228/1) ● Available feature ○ Available feature in DC only

(1) Certified IEC 61508 Functional Safety data, use suffix "SL".

(2) Zero minimum is only achieved if external pressure is applied



POWER LEVELS - cold electrical holding values (watt)

## SPECIFICATIONS

pipe size	orifice size	flow coefficient kv		operating pressure differential (bar)			power level	prefix optional solenoids							basic catalogue number	
				min. <sup>(2)</sup>	max. (PS)			NEMA 7 & 9	ATEX / IECEx					IP65		
					air (*)				EF	NF	NK	EM	PV			IS
(*)	(mm)	(m³/h)	(l/min)	~	=	-/=										
<b>5/3 - W1 - pressure held, solenoid air pilot operated and return</b>																
1/4	6	0,66	11	0/2	10	10	BP	-	●	●	●	●	-	●	●	❖551A438
1/4	6	0,66	11	0/2	10	10	BP	●	-	-	-	-	-	-	-	❖551G438
1/4	6	0,66	11	0/2	10	10	LP	-	●	-	●	○	○	○	●	❖551A338
1/4	6	0,66	11	0/2	10	10	LP	○	-	-	-	-	-	-	-	❖551G338
<b>5/3 - W3 - pressure release, solenoid air pilot operated and return</b>																
1/4	6	0,66	11	0/2	10	10	BP	-	●	●	●	●	-	●	●	❖551A439
1/4	6	0,66	11	0/2	10	10	BP	●	-	-	-	-	-	-	-	❖551G439
1/4	6	0,66	11	0/2	10	10	LP	-	●	-	●	○	○	○	●	❖551A339
1/4	6	0,66	11	0/2	10	10	LP	○	-	-	-	-	-	-	-	❖551G339

❖ Select **8** for NPT ANSI 1.20.3 or select **G** for ISO G (228/1) ● Available feature ○ Available feature in DC only  
 (2) Zero minimum is only achieved if external pressure is applied

## PREFIX TABLE

prefix							description	power level			
1	2	3	4	5	6	7		LP	RP	MP	BP
S	C			D	U		Dustproof ATEX (EN 50281-1-1) *	-	-	-	●
E	F						Explosionproof - NEMA 3, 4, 6, 7, 9	○	-	-	●
E	V						Explosionproof - NEMA 3, 4, 6, 7, 9 - 316 SS	○	-	-	●
E	M						Encapsulated ATEX + IECEx (EN/IEC 60079 / 61241)*	●	-	-	●
		E	T				Threaded conduit/hole (M20 x 1.5)	●	-	-	●
I	S			S	C		Intrinsically safe ATEX + IECEx (EN/IEC 60079 / 61241) *	○	-	-	-
L	P	K	F				Flameproof - Alum. ATEX (IEC/ISA/EN: 60079 / 61241) *	○	-	-	-
N	F						Flameproof - Alum. ATEX + IECEx (EN/IEC 60079 / 61241)*	●	-	-	●
P	V						Encapsulated ATEX + IECEx (EN/IEC 60079 / 61241)*	○	-	-	●
S	C						Solenoid with spade plug connector (EN 60730)	●	-	-	●
W	P						Waterproof IP67 - Metal enclosure (EN 60730)	●	-	-	●
W	P			D	U		Dustproof ATEX (EN 50281-1-1) - Metal enclosure *	-	-	-	●
L	I						I.S., alu. enclosure IP67 ATEX-IECEx (EN/IEC 60079 / 64241) *	○	-	-	-
W	P			I	S		Intrinsically safe ATEX + IECEx (EN/IEC 60079 / 61241) *	○	-	-	-
W	P			Z	N		N.S. metal enclosure ATEX (EN 50021)*	●	-	-	●
W	S						Waterproof IP67 - 316 SS enclosure (EN 60730)	●	-	-	●
W	S			D	U		Dustproof ATEX (EN 50281-1-1) - 316 SS enclosure *	-	-	-	●
W	S	L	P	K	F		Flameproof - St. steel ATEX (IEC/ISA/EN: 60079 / 61241)	○	-	-	-
W	S	E	M				316 SS "EM" encl. ATEX + IECEx (EN/IEC 60079/61241)*	●	-	-	●
W	S			L	I		I.S., 316L SS, IP67 ATEX-IECEx (EN/IEC 60079 / 64241) *	○	-	-	-
W	S			I	S		Intrinsically safe ATEX + IECEx (EN/IEC 60079 / 61241) *	○	-	-	-
W	S	N	F				Flameproof - St. steel 316 ATEX + IECEx (EN/IEC 60079 / 61241)*	●	-	-	●
W	S	Z	N				N.S. 316 SS enclosure ATEX (EN 50021)*	●	-	-	●
Z	N						Encapsulated Non Sparking ATEX (EN 50021) *	○	-	-	●
						T	Threaded conduit (1/2" NPT)	●	-	-	●
						H	Class H - High temperature, +80°C ambient temp.	-	-	-	●
						X	Other special constructions	●	-	-	●

## SUFFIX TABLE

suffix							description	power level			
1	2	3	4	5	6	7		LP	RP	MP	BP
			M	O			Push type or screw type manual operator	○/●	-	-	●
S	L						Certified IEC 61508 Functional Safety data <sup>(2)</sup>	○/●	-	-	●

## OPTIONS & ACCESSORIES

series	pipe size	stainless steel exhaust protector		
		G	NPT	(M)
551-553	1/8	34600418 <sup>(1)</sup>	34600482 <sup>(1)</sup>	-
551	1/4	34600419 <sup>(1)</sup>	34600483 <sup>(1)</sup>	-
553	1/2	34600479 <sup>(1)</sup>	34600479 <sup>(1)</sup>	-
551	M5	-	-	34600484 <sup>(1)</sup>

- Available feature
- Available feature in DC only
- Not available
- \* ATEX solenoids are also approved according to EN/IEC 61241 (Dust) and EN 13463-1 (non electrical valves)
- <sup>(1)</sup> Provided with "SL" suffix
- <sup>(2)</sup> Not to use with MO suffix

## ORDERING EXAMPLES:

SC	G	551	A	421	230V / 50 Hz
SC	G	553	A	421	230V / 50 Hz
SC	G	551	A	421	SL 230V / 50 Hz
SC	G	551	A	422	MO 230V / 50 Hz
SCHT	8	551	A	422	MO 230V / 50 Hz
ISSC	G	551	A	422	MO 24V / DC
WLSLPKF	G	551	A	321	MO 24V / DC
WLSLI	G	551	A	321	24V / DC
WPIS	G	551	A	322	24V / DC
EM	8	551	A	421	MO 230V / 50 Hz
EF	G	551	G	421	MO 240V / 60 Hz

prefix <sup>(3)</sup> — pipe thread — basic number <sup>(3)</sup> — voltage — suffix

<sup>(3)</sup> Prefixes EF and EV should always be used with the letter G in the basic number.

### 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 (LP, RP, MP or BP) 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<sup>(6)</sup>/50Hz; other voltages and 60Hz are available on request

prefix option	power ratings				operator ambient temperature range (TS) (C°) <sup>(1)</sup>	safety code	electrical enclosure protection (EN 60529)	replacement coil / kit		type <sup>(2)</sup>
	inrush ~ (VA)	holding		hot/cold = (W)				~ 230 V/50 Hz	= 24V/DC	
		(VA)	(W)							
<b>Basic power (BP)</b>										
SC	55	23	10,5	9/11,2	-40 to +75	EN 60730	IP65 moulded	400425-117	400425-142	01
SCDU	55	23	10,5	9/11,2	-40 to +75	II3D IP65 T 200°C(-)/135°C(=)	IP65 moulded	- <sup>(4)</sup>	- <sup>(4)</sup>	01
WP/WS	55	23	10,5	9/11,2	-40 to +75	EN 60730	IP67 steel/SS	400405-117	400405-142	04
WPDU/WSDU	55	23	10,5	9/11,2	-40 to +75	II3D IP67 T 200°C	IP67 steel/SS	- <sup>(4)</sup>	- <sup>(4)</sup>	04
NF/WSNF	55	23	10,5	-	(-60) <sup>(7)</sup> -40 to +25/40/60	II2G Ex d IIC T6/T5/T4, II2D Ex tD	IP67 alum./SS	400405-117	-	02
NF/WSNF	-	-	-	9/11,2	(-60) <sup>(7)</sup> -40 to +40/60/75	II2G Ex d IIC T6/T5/T4, II2D Ex tD	IP67 alum./SS	-	400405-142	02
EM/WSEM	55	23	10,5	9/11,2	-40 to +40	II2G Ex e mb II T3, II2D Ex tD	IP67 steel/SS	400909-117	400913-142	04
PV	55	23	10,5	9/11,2	-40 to +65	II2G Ex mb II T3(-)/T4(=), II2D Ex mD 21	IP67 moulded	- <sup>(4)</sup>	- <sup>(4)</sup>	05
EF/EV	55	23	10,5	9/11,2	-40 to +54/40	NEMA type 7 and 9	4X moulded	238614-058	238714-006	06
ZN	55	23	10,5	9/11,2	-20 to +50	II3GD EEx nA II T3	IP65 moulded	- <sup>(4)</sup>	- <sup>(4)</sup>	01
WPZN/WSZN	55	23	10,5	9/11,2	-40 to +50/60	II3GD EEx nA II T3(-)/T4(=)	IP67 steel/SS	- <sup>(4)</sup>	- <sup>(4)</sup>	04
<b>Low power (LP)</b>										
SC	1,5	1,5	1,5	1,7/1,7	-40 to +60	EN 60730	IP65 moulded	400925-097	400925-042	07
WP/WS	1,5	1,5	1,5	1,7/1,7	-40 to +60	EN 60730	IP67 steel/SS	400926-097	400926-042	09
LPKF/WSLPKF <sup>(6)</sup>	-	-	-	0,5/0,5	-40 to +60	II2G Ex d IIB+H2 T6, II2D Ex tD A21	IP67 alum./SS	-	- <sup>(4)</sup>	13
NF/WSNF	-	-	1,9	- /1,9	(-60) <sup>(7)</sup> -40 to +75/80	II2G Ex d IIC T6/T5, II2D Ex tD	IP67 alum./SS	- <sup>(4)</sup>	- <sup>(4)</sup>	08
EM/WSEM	1,5	1,5	1,5	1,7/1,7	-40 to +40/55	II2G Ex e mb II T6/T5, II2D Ex tD	IP67 steel/SS	- <sup>(4)</sup>	- <sup>(4)</sup>	09
PV	-	-	-	1,7/1,7	-40 to +65	II2G Ex mb II T6 / II2D Ex mD 21	IP67 moulded	-	- <sup>(4)</sup>	10
EF/EV	-	-	-	1,7/1,7	-40 to +60	NEMA type 7 and 9	4X moulded	-	- <sup>(4)</sup>	11
ISSC <sup>(3)</sup>	-	-	-	0,4/0,4	-40 to +60	II1G Ex ia IIC T6, II2D Ex iaD 21	IP65 moulded	-	268976-001	12
LI <sup>(6)</sup>	-	-	-	0,5/0,5	-40 to +60	II2G Ex ia IIC Gb T6, II2D Ex t IIIC Db	IP67 alum.,	-	- <sup>(4)</sup>	14
WSLI <sup>(6)</sup>	-	-	-	0,5/0,5	-40 to +60	II1G Ex ia IIC Ga T6, II2D Ex t IIIC Db	IP67 SS	-	- <sup>(4)</sup>	14
WPIS/WSIS <sup>(3)</sup>	-	-	-	0,4/0,4	-40 to +60	II1G Ex ia IIC T6, II2D Ex iaD 21	IP67 steel	-	268900-001	09
ZN	-	-	-	1,7/1,7	-20 to +50	II3GD EEx nA II T3	IP65 moulded	-	- <sup>(4)</sup>	07
WPZN/WSZN	1,5	1,5	1,5	1,7/1,7	-40 to +60	II3GD EEx nA II T6	IP67 steel/SS	- <sup>(4)</sup>	- <sup>(4)</sup>	09

prefix option	safety parameters				
	U <sub>i</sub> = (DC) (V)	I <sub>i</sub> (mA)	P <sub>i</sub> (W)	L <sub>i</sub> (H)	C <sub>i</sub> (µF)
<b>Low power (LP)</b>					
ISSC	32	500	1,5	0	0
WPIS/WSIS	32	500	1,5	0	0
LI/WSLI	32	500	1,5	0	0

<sup>(1)</sup> Temperature range can be limited by sealings

<sup>(2)</sup> Refer to the dimensional drawings on pages:4 to 7

<sup>(3)</sup> ISSC/WPIS/WSIS/LI/WSLI: Check the electrical characteristics in the corresponding catalogue pages

<sup>(4)</sup> Multiple coil kits are available under ATEX/IECEx, contact us

<sup>(5)</sup> Low Power, 230 V AC does not exist. Maximum voltage in AC is 115 V

<sup>(6)</sup> LPKF/WSLPKF/LI/WSLI: Low Power, 24 V DC only

<sup>(7)</sup> The certified minimum temperature of this operator

- Not available

### ELECTRICAL CONNECTIONS

prefix	connection
SC, SCDU, ZN, ISSC	Spade plug connector with cable gland EN175301-803A (ISO 4400) for cables with an outer diameter from 6 to 10 mm
WP, WS, EM, WSEM, WPDU, WSDU, WPZN, WSZN, WPIS, WSIS	M20 cable gland for cables with an outer diameter from 7 to 12 mm. With an internal and external facility for an earthing or bonding conductor
NF, WSNF, LPKF, WSLPKF	1/2" NPT threaded cable entry. Enclosures are supplied without cable gland
PV	Moulded-in cable, standard length 2 m
LI, WSLI	1/2 cable gland for cables with an outer diameter from 6 to 12 mm. With an internal and external facility for an earthing or bonding conductor
EF, EV	1/2" NPT conduits, standard length 35 cm

### ADDITIONAL OPTIONS

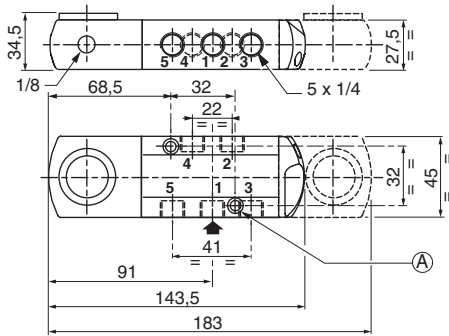
- Valves configured for external pilot air supply, TPL 20547
- Other pipe threads are available on request
- Ex mb/mD (prefix "PV") solenoid can be supplied with various cable lengths
- Compliance with "UL", "CSA" and other local approvals available on request
- 1/2" NPT (prefix "T") and M20 x 1.5 (prefix "ET") conduits (aluminium or 316 SS) available for steel solenoid housing

### INSTALLATION

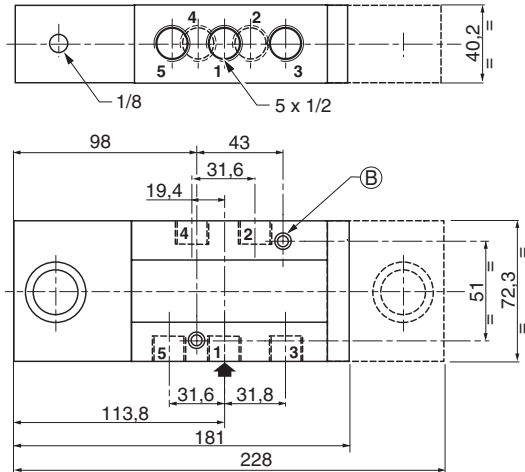
- Multi language installation/maintenance instructions are included with each valve
- The solenoid valves can be mounted in any position without affecting operation
- Do not connect the pressure supply to the exhaust port 3. The "environmentally-protected" construction is not adapted for a "distributing" function or use in NO function. Contact us for functions available in specific versions
- IEC 61508 Functional Safety (suffix SL), allowable temperature range: -40°C to +60°C. 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)
- Prefix "NF/WSNF" enclosure is provided with a 1/2" NPT threaded entry hole, M20 x 1,5 (prefix "ET") is optional. Both are supplied without cable gland

## DIMENSIONS (mm), WEIGHT (kg)

### Series 551



### Series 553



2 mounting holes

- (A) 5.3 mm dia.; Spotfacing: 9 mm dia., depth 5 mm
- (B) 6.5 mm dia.; Spotfacing: 11 mm dia., depth 6 mm



#### TYPE 01:

SC, SCDU and ZN  
Epoxy moulded  
IEC 335 / ISO 4400 (SC, SCDU)  
EN 50021 (ZN)

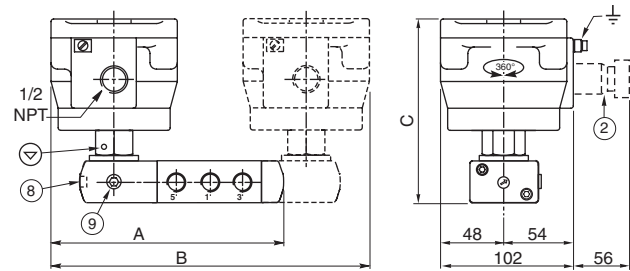
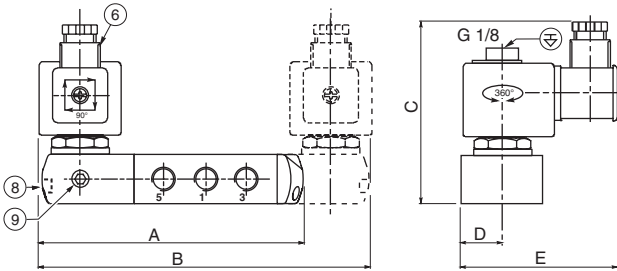
551A421 / 551A422 / 551A438 / 551A439 / 553A421 / 553A422



#### TYPE 02:

NF / WSNF  
Aluminium; epoxy coated / AISI 316 SS  
EN/IEC 60079-1 and EN/IEC 61241-1

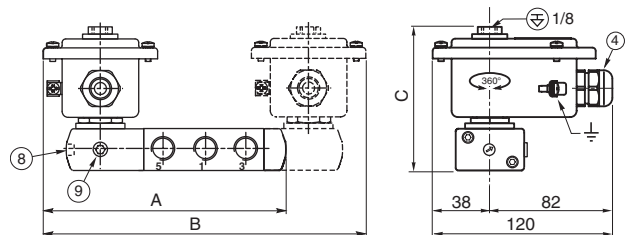
551A421 / 551A422 / 551A438 / 551A439 / 553A421 / 553A422



#### TYPE 04:

WP / WS  
EM / WSEM  
WPDU / WSDU  
WPZN / WSNZ  
Steel; epoxy coated / AISI 316 SS  
IEC 335/EN 60079-7, 50021 and EN 60079-7, 50281-1-1

551A421 / 551A422 / 551A438 / 551A439 / 553A421 / 553A422



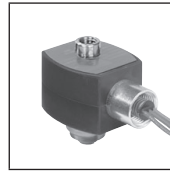
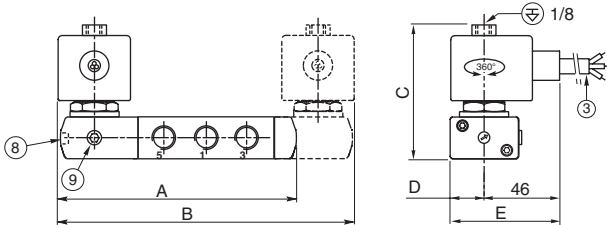


### DIMENSIONS (mm), WEIGHT (kg)



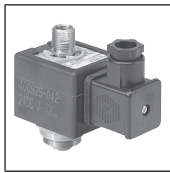
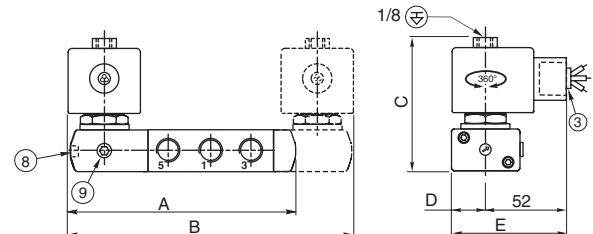
**TYPE 05:**  
 PV  
 Epoxy encapsulated  
 EN/IEC 60079-18 and EN/IEC 61241-18

551A421 / 551A422 / 551A438 / 551A439 / 553A421 / 553A422



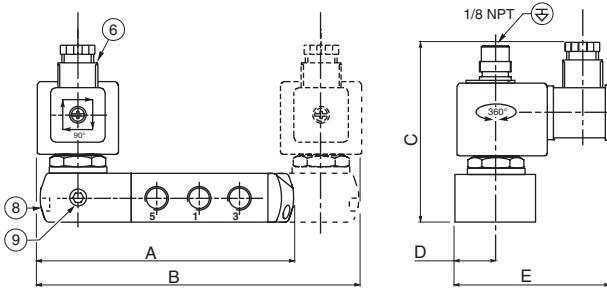
**TYPE 06:**  
 EF and EV: NEMA type 7 and 9  
 Epoxy encapsulated  
 ICS-6 ANSI  
 NOTE: applicable to solenoid only

551G421 / 551G422 / 551G438 / 551G439 / 553G421 / 553G422



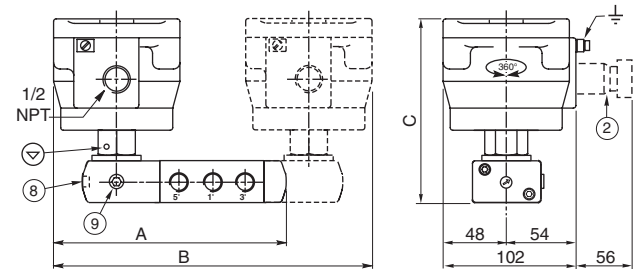
**TYPE 07:**  
 SC and ZN  
 Epoxy moulded  
 IEC 335 / ISO 4400 (SC)

551A321 / 551A322 / 551A338 / 551A339 / 553A321 / 553A322



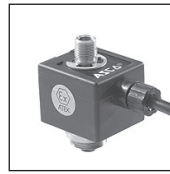
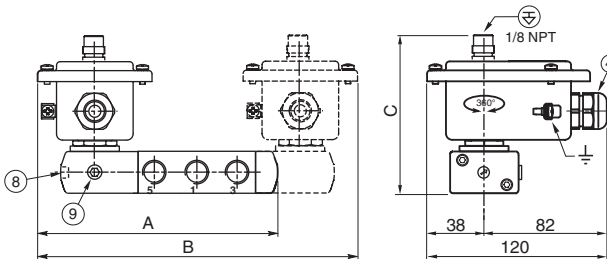
**TYPE 08:**  
 NF / WSNF  
 Aluminium; epoxy coated / AISI 316 SS  
 EN/IEC 60079-1 and EN/IEC 61241-1

551A321 / 551A322 / 551A338 / 551A339 / 553A321 / 553A322



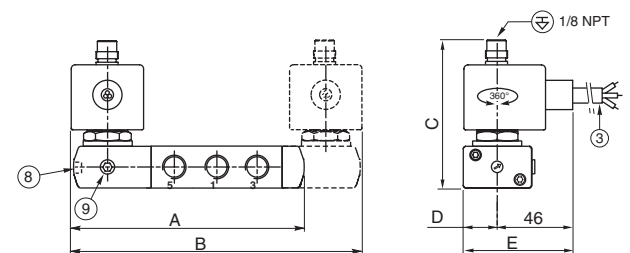
**TYPE 09:**  
 WP / WS  
 EM / WSEM  
 WPZN / WSNZ  
 WPIS / WSIS  
 Steel; epoxy coated / AISI 316 SS  
 IEC 335/EN 60079-7/11/18/26 and EN 61241-1/11

551A321 / 551A322 / 551A338 / 551A339 / 553A321 / 553A322

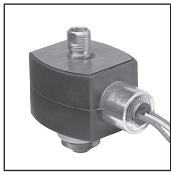


**TYPE 10:**  
 PV  
 Epoxy encapsulated  
 EN/IEC 60079-18 and EN/IEC 61241-18

551A321 / 551A322 / 551A338 / 551A339 / 553A321 / 553A322



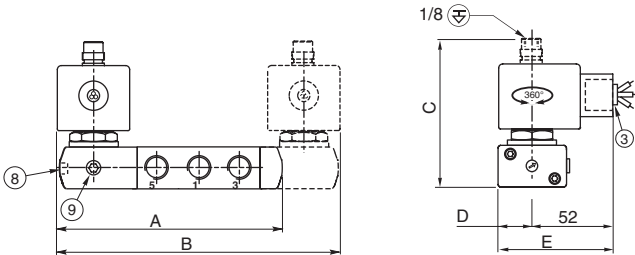
### DIMENSIONS (mm), WEIGHT (kg)



#### TYPE 11:

EF and EV: NEMA type 7 and 9  
Epoxy encapsulated  
ICS-6 ANSI  
NOTE: applicable to solenoid only

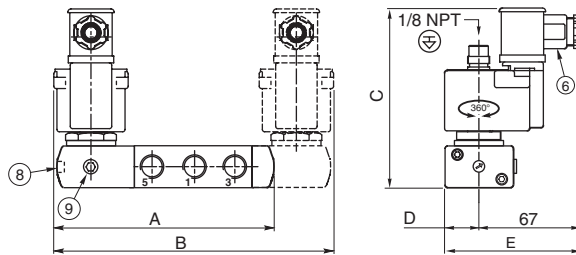
551G321 / 551G322 / 551G338 / 551G339 / 553G321 / 553G322



#### TYPE 12:

ISSC  
Polypropylene moulded  
Epoxy moulded  
IEC 335/EN 60079-11/26 and EN/IEC 61241-11

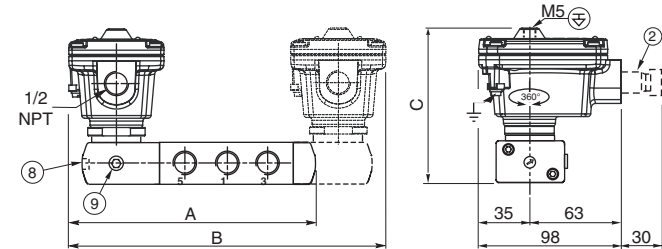
551A321 / 551A322 / 551A338 / 551A339 / 553A321 / 553A322



#### TYPE 13:

LPKF / WSLPKF  
Aluminium, cataphoresis black painting / AISI 316L SS  
EN/IEC/ISA 60079-1 and EN/IEC/ISA 61241-1

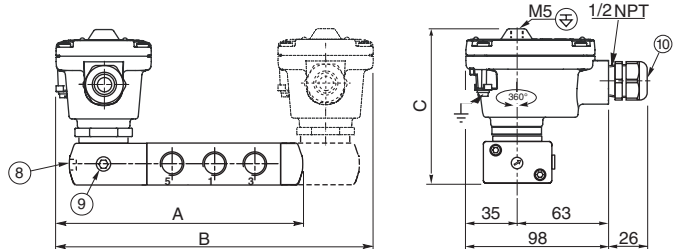
551A321 / 551A322 / 551A338 / 551A339 / 553A321 / 553A322



#### TYPE 14:

LI: II 2G Ex ia IIC Gb T6, II 2D Ex t IIIC IP67 Db  
WSLI: II 1G Ex ia IIC Ga T6, II 2D Ex t IIIC IP67 Db  
Aluminium, cataphoresis black painting, AISI 316L SS  
IEC and EN: 60079-11, 61241-1

551A321 / 551A322 / 551A338 / 551A339 / 553A321 / 553A322



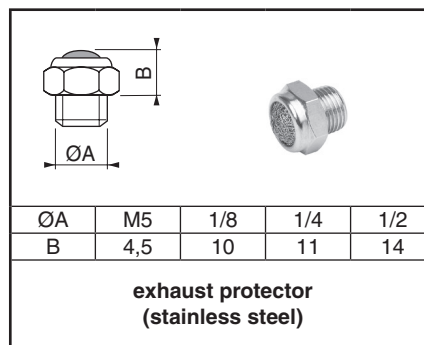
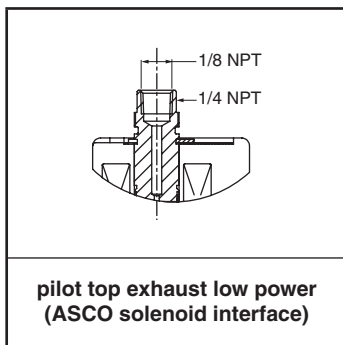
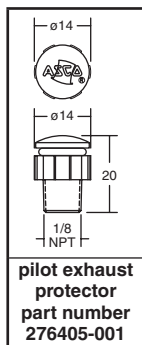
### DIMENSIONS (mm), WEIGHT (kg)

type	prefix option	power level	551					553					weight <sup>(1)</sup>			
			A	B	C	D	E	A	B	C	D	E	monostable		bistable	
													551	553	551	553
01	SC / SCDU / ZN	basic power	144	184	103	22,5	87	182	229	109	36,5	101	1,27	3,06	2,03	4,38
02	NF	basic power	170	236	142	-	-	208	281	148	-	-	2,42	4,21	4,13	6,48
02	WSNF	basic power	170	236	142	-	-	208	281	148	-	-	3,72	5,51	6,73	9,08
04	WP/WPDU/WS/WSDU/EM/WSEM	basic power	160	216	103	-	-	198	261	109	-	-	1,70	3,49	2,69	5,04
05	PV	basic power	144	184	88	22,5	69	182	229	94	36,5	82,5	1,37	3,16	2,03	4,38
06	EF / EV	basic power	145	185	86	22,5	75	183	230	92	36,5	88,5	1,37	3,16	2,03	4,38
07	SC / ZN	low power	145	185	102	22,5	88	183	230	108	36,5	102	1,27	3,06	2,03	4,38
08	NF	low power	170	236	142	-	-	208	281	148	-	-	2,42	4,21	4,13	6,48
08	WSNF	low power	170	236	142	-	-	208	281	148	-	-	3,72	5,51	6,73	9,08
09	WP / WS / EM / WSEM / WPIS / WSIS	low power	160	216	102	-	-	198	261	108	-	-	1,70	3,49	2,69	5,04
10	PV	low power	144	184	101	22,5	69	182	229	107	36,5	82,5	1,37	3,16	2,03	4,38
11	EF / EV	low power	145	185	101	22,5	75	182	230	107	36,5	88,5	1,37	3,16	2,03	4,38
12	ISSC	low power	146	187	125	22,5	90	184	232	131	36,5	103,5	1,37	3,16	2,23	4,38
13	LPKF	low power	153	204	113	-	-	193	252	118,7	-	-	1,39	4,48	2,31	4,68
13	WSLPKF	low power	153	204	113	-	-	193	252	118,7	-	-	2,00	3,15	3,51	5,75
14	LI	low power	153	204	113	-	-	193	252	118,7	-	-	1,40	4,49	2,32	4,69
14	WSLI	low power	153	204	113	-	-	193	252	118,7	-	-	2,01	3,16	3,52	5,76

<sup>(1)</sup> Incl. coil(s) and connector(s)

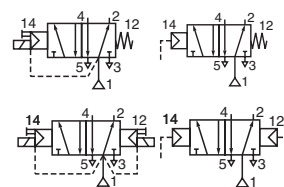
- ② Ex d certified cable gland (on request)
- ③ Three-core cable, length 2 m
- ④ Cable gland for unarmoured cable with 7 to 12 mm dia. sheath
- ⑥ Connector rotatable by 90° increments (cable Ø 6 - 10 mm)
- ⑧ Manual operator location, suffix MO
- ⑨ External pilot air supply, 1/8 pipe size
- ⑩ Cable gland for unarmoured cable with 6 to 12 mm dia. sheath
- ⊕ Connectable pilot exhaust port
- ⊖ Non-connectable pilot exhaust port

### ACCESSORIES









### FEATURES

- The monostable spool valves have TÜV-EXIDA certified IEC 61508 Functional Safety data and can be used up to SIL 4 (551/TÜV)-SIL 3 (553/EXIDA)
- Series 551 versions according to ATEX 94/9/EC, for zones 0, 1 and 2 and series 553 air-operated versions for zones 1 and 2
- The 3/2 NC solenoid operated spool valves have threaded port connections
- All the exhaust ports of this 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)
- The solenoid valves satisfy all relevant EC Directives

### GENERAL

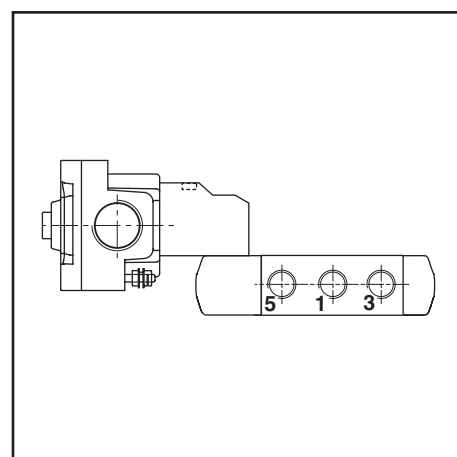
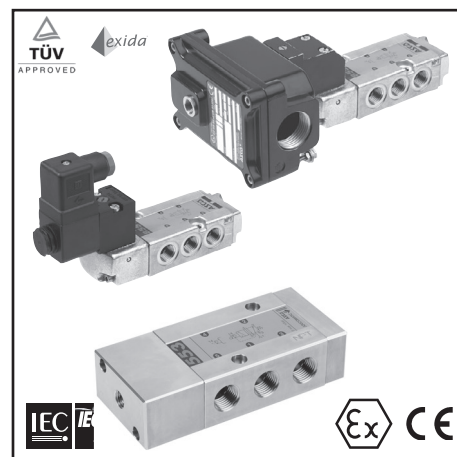
**Differential pressure** 2 - 10 bar [1 bar = 100 kPa]  
**Flow (Qv at 6 bar)** 1/4 = 860 l/min (ANR)  
1/2 = 3000 l/min

fluids (*)	temperature range (TS)	seal materials (*)
air, inert gas, filtered	551 : - 40°C to + 80°C	VMQ (silicone) + PUR (polyurethane)
	553 : - 40°C to + 60°C	

### MATERIALS IN CONTACT WITH FLUID

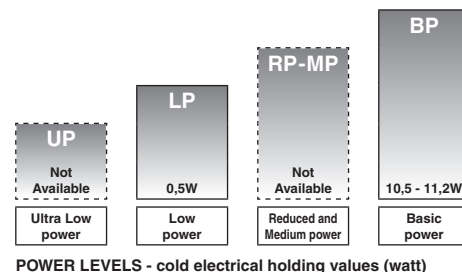
(\*) Ensure that the compatibility of the fluids in contact with the materials is verified

	Air operated (Series 551-553)	CNOMO solenoid (pilot) interface (Series 551)
<b>Body, end covers</b>	Stainless steel, AISI 316L	Stainless steel, AISI 316L
<b>Spool valve internal parts</b>	Stainless steel, POM	Stainless steel, POM
<b>Seals</b>	NBR	NBR
<b>Pilot internal parts</b>	-	Size 30 (E06.05.80N), refer to catalogue pages: 374 pilot (CTNK) and 195 pilot (ISSC)



### AIR OPERATED SPECIFICATIONS

pipe size	orifice size	flow coefficient kv		operating pressure differential (bar)			prefix optional	basic catalogue number
				min.	max. (PS)			
(*)	(mm)	(m³/h)	(l/min)		~	=		
<b>Pilot air operated - spring return (monostable)</b>								
1/4	6	0,75	12,5	2	10	10	-	❖551A121 <sup>(1)</sup>
1/2	13	3,15	52,5	2	10	10	-	❖553A121 <sup>(1)</sup>
<b>Pilot air operated and return (bistable)</b>								
1/4	6	0,75	12,5	2	10	10	-	❖551A122
1/2	13	3,15	52,5	2	10	10	-	❖553A122



### CNOMO SOLENOID (PILOT) INTERFACE SPECIFICATIONS

pipe size	orifice size	flow coefficient kv		operating pressure differential (bar)			power level	prefix optional solenoids		basic catalogue number
				min.	max. (PS)			ATEX / IECEx		
(*)	(mm)	(m³/h)	(l/min)		~	=	~/=	Ex d	Ex ia	
<b>Solenoid air pilot operated - spring return (monostable)</b>										
1/4	6	0,75	12,5	2	10	10	BP	●	-	❖551A221 <sup>(1)</sup>
1/4	6	0,75	12,5	2	-	8	LP	-	○	❖551B221 <sup>(1)</sup>
<b>Solenoid air pilot operated and return (bistable)</b>										
1/4	6	0,75	12,5	2	10	10	BP	●	-	❖551A222
1/4	6	0,75	12,5	2	-	8	LP	-	○	❖551B222

❖ Select 8 for NPT ANSI 1.20.3 or select G for ISO G (228/1) ● Available feature ○ Available feature in DC only.  
(1) Certified IEC 61508 Functional Safety data, use suffix "SL".

### PREFIX TABLE

prefix							description	power level			
1	2	3	4	5	6	7		UP	LP	RP	BP
C	T	N	K				Flameproof with pilot 374, ATEX (EN 60079 / 61241) *	-	-	-	●
I	S	S	C				Intrinsically safe, pilot 195, ATEX ((EN 60079 / 50281-1-1)	-	○	-	-

### SUFFIX TABLE

suffix							description	power level			
1	2	3	4	5	6	7		UP	LP	RP	BP
	G	D					Non-electrical, 1 GD c (551)/ 2 GD c (553), ATEX (EN 13463-5)	-	-	-	-
			M	S			Screw type manual operator	-	-	-	●
			M	O			Push type or screw type manual operator	-	○	-	-
	S	L					Certified IEC 61508 Functional Safety data (Series 551) <sup>(1)</sup>	-	○	-	●

### OPTIONS & ACCESSORIES

series	pipe size	stainless steel exhaust protector	
		G	NPT
551	1/8	<b>34600418</b> <sup>(2)</sup>	<b>34600482</b> <sup>(2)</sup>
551	1/4	<b>34600419</b> <sup>(2)</sup>	<b>34600483</b> <sup>(2)</sup>
553	1/2	<b>34600479</b> <sup>(2)</sup>	<b>34600479</b> <sup>(2)</sup>

- Available feature
- Available feature in DC only
- Not available
- \* ATEX solenoids are also approved according to EN/IEC 61241 (Dust) and EN 13463-1 (non electrical valves)
- <sup>(1)</sup> Not to use with MS or MO suffix
- <sup>(2)</sup> Provided with "SL" suffix

### PRODUCT SELECTION GUIDE

#### STEP 1

Select the fluid temperature range and seal material from the general table on page 7. Select basic catalogue number, including pipe thread identification letter. Refer to the specifications tables on page 7.

**Example: G551A221**

#### STEP 2

Select prefix (combination). Select the appropriate operator from the tables on page 7. Select for this operator in the electrical characteristics table on page 9: the power level (LP, BP), the type of electrical enclosure protection and the desired temperature class.

**Warning:** The ambient temperature range of your application may not exceed the temperature range of your operator.

Air operated version, does not use prefix.

**Example : CTNK**

#### 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 15.

**Example : 230V / 50Hz**

#### STEP 5

Final catalogue / ordering number.

**Example :**

**CTNK G551A221MS 230 V / 50 Hz**

### ORDERING EXAMPLES:

CTNK	G	551	A	221	230V / 50 Hz	
CTNK	G	551	A	221	SL	24V / DC
CTNK	G	551	A	221	MS	115V / 50 Hz
CTNK	G	551	A	222	MS	230V / 50 Hz
CTNK	G	551	A	222	MS	48V / DC
CTNK	8	551	A	221	MS	230V / 50 Hz
ISSC	G	551	B	221	SL	24V / DC
ISSC	G	551	B	221	SL	24V / DC
ISSC	G	551	B	221	MO	24V / DC
ISSC	G	551	B	222	MO	24V / DC
ISSC	G	551	B	222	MO	24V / DC
				G 551 A 121		
				G 551 A 121	GD	
				G 551 A 121	GD	
				G 551 A 122		
				G 553 A 121		
				G 551 A 122	GD	



## EXPLANATION OF TEMPERATURE RANGES OF SOLENOID VALVES

Valve temperature range	The valve temperature range 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 (LP or BP) and the ATEX 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

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

prefix option	power ratings				operator ambient temperature ranges (TS) (C°)	safety code	electrical enclosure protection (EN 60529)	replacement coil		type <sup>(1)</sup>
	inrush ~ (VA)	holding ~ (VA) (W)		hot/cold = (W)				~	=	
								-	-	
<b>Basic power (BP)</b>										
CTNK	55	23	10,5	9/11,2	-20 to +60	II 2G/D Ex d IIB+H <sub>2</sub> T4/Ex tD	moulded IP65	-	-	01
<b>Low power (LP)</b>										
ISSC <sup>(3)(4)</sup>	-	-	-	0,5	-40 to +50	II 2G Ex ia IIC T6/ II 2G Ex ia IIB T6	moulded IP65	-	-	02

- Not available

<sup>(1)</sup> Refer to the dimensional drawings on page 12.

prefix option	safety parameters				
	U <sub>I</sub> = (DC) (V)	I <sub>I</sub> (mA)	P <sub>I</sub> (W)	L <sub>I</sub> (µF)	C <sub>I</sub> (mF)
	<b>Low power (LP)</b>				
ISSC (II 2G Ex ia IIC T6)	28	115	1,6	0	0
ISSC (II 2G Ex ia IIB T6)	32	195	1,6	0	0

<sup>(3)</sup> Min. operating current (I<sub>min</sub>): 0,037 A

<sup>(4)</sup> Intrinsically safe pilots: Check the electrical characteristics in the corresponding catalogue pages (ISSC: 195 pilot).

## ELECTRICAL CONNECTIONS

prefix	connection
CTNK	3/4" NPT threaded cable entry. Enclosures are supplied without cable gland
ISSC	Spade plug connector with cable gland EN175301-803A (ISO 4400) for cables with an outer diameter from 6 to 8 mm

## ADDITIONAL OPTIONS

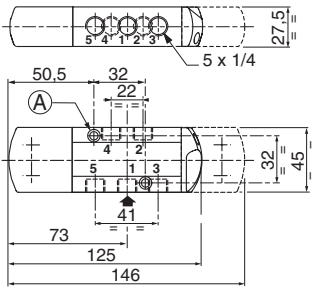
- TPL **20819**: ISSC (195 pilot), temperature class T4
- Mounting on aluminium supply rail, 1/4 or 1/2
- Other pipe threads are available on request

## INSTALLATION

- Installation/maintenance instructions are included with each valve
- The valves can be mounted in any position without affecting operation
- IEC 61508 Functional Safety (Suffix SL), allowable temperature range: -40°C to +60°C. Probability of failure on demand, contact us
- It is necessary to connect pipes or fittings to the exhaust ports to protect the internal parts of the valve 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)
- Ex d (prefix "CTNK") enclosure is provided with a 3/4" NPT threaded entry hole [optionally, 1/2" NPT (prefix "T") or M20 x 1,5 (prefix "ET")] and is supplied without cable gland
- Valves with suffix "SL" are provided with specific exhaust protectors

### DIMENSIONS (mm), WEIGHT (kg)

#### Type 01-02: CNOMO (Series 551) size 30 (E06.05.80)



2 mounting holes

- (A) 5.3 mm dia.; Spotfacing: 9 mm dia., depth 5 mm
- (B) 6.5 mm dia.; Spotfacing: 11 mm dia., depth 6 mm



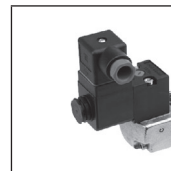
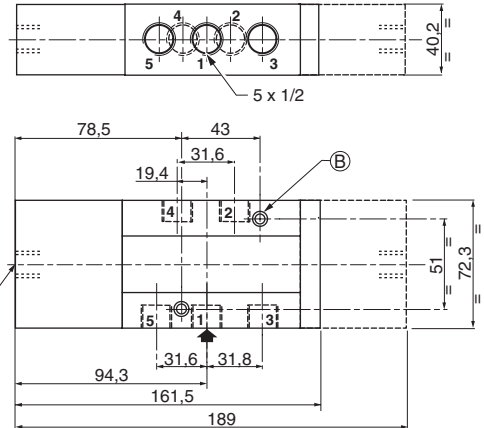
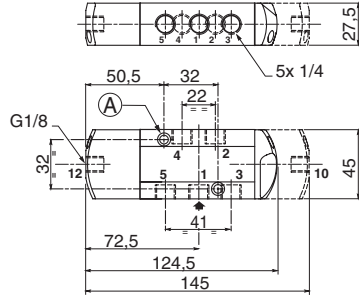
**TYPE 01:**  
CTNK  
Light alloy, cataphoresis black painting  
EN 60079-1 and EN 61241-1

551A221 / 551A222  
551A221MS / 551A222MS

#### Type 03: Air operated

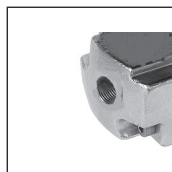
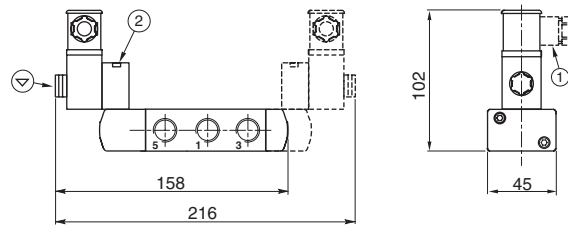
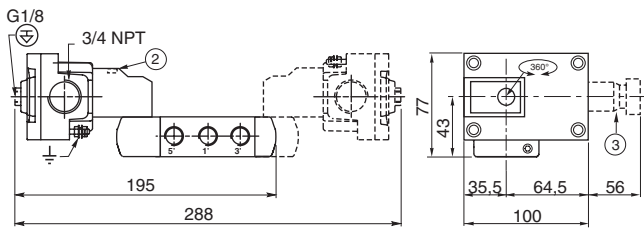
#### Series 551

#### Series 553



**TYPE 02:**  
ISSC  
PA, thermoplastic resin  
EN 60079-11/26 and EN 50281-1-1

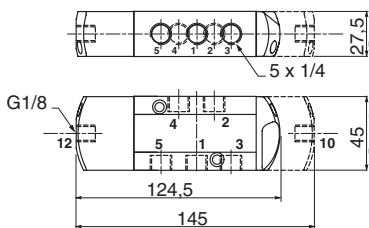
551B221 / 551B222  
551B221MO / 551B222MO



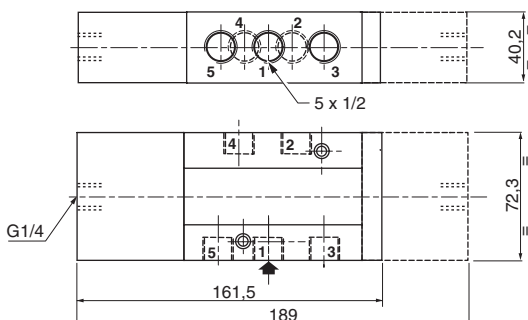
**TYPE 03:**  
No prefix, IP65  
[suffixes 551: GD (II 1 GD c) ; SL (SIL) ;  
GDSL (SIL, II 1 GD c)  
suffix 553: GD (II 2 GD c) ; SL (SIL) ;  
GDSL (SIL, II 2 GD c)]  
Air operated version

551A121 / 551A122

- ① Connector rotatable by 90° increments (cable 6 - 10 mm)
- ② Manual operator location
- ③ Ex d certified cable gland (on request)
- ⊖ Connectable pilot exhaust port
- ⊕ Non-connectable pilot exhaust port



553A121 / 553A122



type	prefix option	power level	weight <sup>(1)</sup>			
			monostable		bistable	
			551	553	551	553
01	CTNK	basic power	1,66	-	2,60	-
02	ISSC	low power	1,05	-	1,39	-
03	-	-	0,86	2,52	0,99	3,07

<sup>(1)</sup> Incl. connector(s), except CFVT.

#### ACCESSORIES

