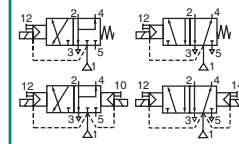




SOLENOID VALVES

pilot operated, spool type
single/dual solenoid (mono/bistable function)
aluminium body, "NAMUR" style, 1/4 - 1/2



3/2
5/2
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 have threaded port connections and "NAMUR" style interface
- The same spool valve can be adapted for 3/2 NC or 5/2 function for controlling double-acting and single-acting actuators
- 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)
- Ultra low power level for inside application, suitable to connect to process fieldbus remote I/O or valve couplers
- The solenoid valves satisfy all relevant EC Directives

GENERAL

Differential pressure 2 - 10,4 bar [1 bar = 100 kPa]
Flow (Qv at 6 bar) 1/4 = 700 l/min (ANR)
1/2 = 3000 l/min

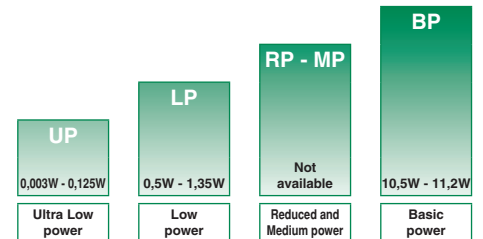
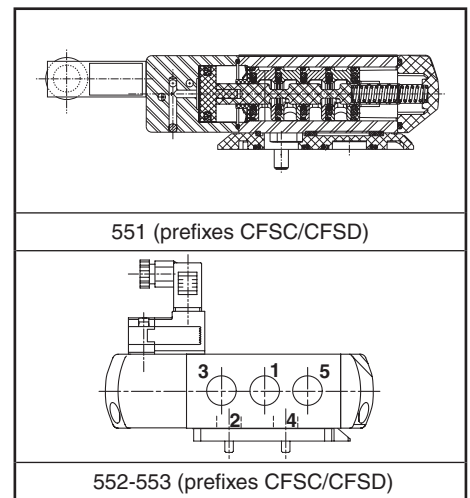
fluids (*)	temperature range (TS)	seal materials (*)
air, inert gas, filtered	- 25°C to + 40°C ⁽¹⁾	NBR (nitrile) + PUR (polyurethane)
	- 25°C to + 60°C	

⁽¹⁾ With series 302 pilots, suffixes CFSC/CFVT/CFSCIS/CFSCZN

MATERIALS IN CONTACT WITH FLUID

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

Body Aluminium, black anodized
End cover (spring) Glass-filled PA
Interface plates Glass-filled PA
Spool valve internal parts Zamak, stainless steel, (POM), aluminium
Pilot internal parts Size 30 (E06.05.80), refer to specific catalogue pages: 314/LPKF (contact us) and 195 (LISC) pilots
Size 15 (E06.36.120N), refer to specific catalogue pages: 302 pilots (CFSC/CFVT/CFSCIS/CFSCZN) and 630 piezotronic (PISC-PISCIS)
Pilot end covers Aluminium



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	
								ATEX / IECEx			IP65			CNOMO size 30	CNOMO size 15
								min.	max. (PS)		Ex d	Ex ia			
(*)	(mm)	(m³/h)	(l/min)	min.	air (*)		(3)	LISC	CFSCIS	PISCIS	CFSC	CFSCZN	PISC		

3/2 NC - 5/2 - Solenoid air pilot operated - spring return (monostable)

1/4	6	0,6	10	2	10	10	LP	-	-	-	-	●	○	-	-	❖551C501 ⁽²⁾
1/4	6	0,6	10	2	-	8	LP	-	-	○	-	-	-	-	-	❖551C501 ⁽²⁾
1/4	6	0,6	10	2	10	10	BP	●	-	-	-	-	-	-	-	❖551A201 ⁽²⁾
1/4	6	0,6	10	2	-	8	LP	-	○	-	-	-	-	-	-	❖551B201
1/4	6	0,6	10	2	8	8	UP	-	-	-	○	-	-	●	-	❖551C501 ⁽²⁾
1/2	13	2,49	41,5	2	10	10	LP	-	-	-	-	●	○	-	-	❖553A501 ⁽²⁾
1/2	13	2,49	41,5	2	-	8	LP	-	-	○	-	-	-	-	-	❖553A501 ⁽²⁾
1/2	13	2,49	41,5	2	10	10	BP	●	-	-	-	-	-	-	-	❖553A201 ⁽²⁾
1/2	13	2,49	41,5	2	-	8	LP	-	○	-	-	-	-	-	-	❖553B201
1/2	13	2,49	41,5	2	8	8	UP	-	-	-	○	-	-	●	-	❖553A501 ⁽²⁾

❖ Select **B** for NPT ANSI 1.20.3 or select **G** for ISO G (228/1) ● Available feature ○ Available feature in DC only - Not available
⁽²⁾ Certified IEC 61508 Functional Safety data, use suffix "SL". ⁽³⁾ 314/LPKF: Contact us

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			IP65	IP65	CNOMO size 30	CNOMO size 15			
					air (*)	~		=	Ex d	Ex ia					IP65	Ex nA	
(*)	(mm)	(m³/h)	(l/min)				~/=	(3)	LISC	CFSCIS	PISCIS	CFSC	CFSCZN	PISC			
3/2 NC - 5/2 - Solenoid air pilot operated and return (bistable)																	
1/4	6	0,6	10	2	10	10	LP	-	-	-	-	●	○	-	-	-	❖551C502
1/4	6	0,6	10	2	-	8	LP	-	-	○	-	-	-	-	-	-	❖551C502
1/4	6	0,6	10	2	10	10	BP	●	-	-	-	-	-	-	-	-	❖551A202
1/4	6	0,6	10	2	-	8	LP	-	○	-	-	-	-	-	-	-	❖551B202
1/4	6	0,6	10	2	8	8	UP	-	-	-	○	-	-	●	-	-	❖551C502
1/2	13	2,49	41,5	2	10	10	LP	-	-	-	-	●	○	-	-	-	❖553A502
1/2	13	2,49	41,5	2	-	8	LP	-	-	○	-	-	-	-	-	-	❖553A502
1/2	13	2,49	41,5	2	10	10	BP	●	-	-	-	-	-	-	-	-	❖553A202
1/2	13	2,49	41,5	2	-	8	LP	-	○	-	-	-	-	-	-	-	❖553B202
1/2	13	2,49	41,5	2	8	8	UP	-	-	-	○	-	-	●	-	-	❖553A502

(3) 314/LPKF: Contact us

PREFIX TABLE

prefix							description	power level			
1	2	3	4	5	6	7		UP	LP	RP	BP
CNOMO solenoid (pilot) interface size 30											
L	I	S	C				Intrinsically safe, pilot 195, ATEX (EN/IEC 60079-11+26, 61241-11)*	-	○	-	-
							(3) Flameproof with pilot 314/LPKF, aluminium (EN 60079-1 / 60079-31)*	-	-	-	●
CNOMO solenoid (pilot) interface size 15											
C	F	S	C				Solenoid + spade plug AMP 2,5x0,5, 9,4 mm, (EN 60730), 302 pilot	-	●	-	-
C	F	V	T				Solenoid with M12 connection, LED + protection (EN 60730), 302 pilot	-	○	-	-
C	F	S	C	I	S		Intrinsically safe, 9,4 mm, pilot 302; ATEX (EN/IEC 60079-11/26) *	-	○	-	-
C	F	S	C	Z	N		Non sparking, connector 9,4 mm cable 2 m, pilot 302 (EN 60079-15/31) *	-	○	-	-
P	I	S	C				Solenoid with spade plug connector (EN 60730), 630 piezotronic pilot	●	-	-	-
P	I	S	C	I	S		Intrinsically safe, piezotronic 630 pilot, ATEX (EN/IEC 60079-11/6079-26) *	○	-	-	-

SUFFIX TABLE

suffix					description	power level			
1	2	3	4	5		UP	LP	RP	BP
CNOMO solenoid (pilot) interface size 30									
			M	S	Screw type manual operator (2) (5)	-	-	-	●
				M	Exhaust reducer (series 551 only)	○	●	-	●
	S	L			Certified IEC 61508 Functional Safety data (monostable)	-	-	-	●
CNOMO solenoid (pilot) interface size 15									
			M	S	Screw type manual operator (2)	-	●	-	-
			M	O	Push type manual operator	○/●	○/●	-	-
				M	Exhaust reducer (series 551 only)	○/●	●	-	●
	S	L			Certified IEC 61508 Functional Safety data (monostable)	○/●	○/●	-	-

PRODUCT SELECTION GUIDE

STEP 1

Select the fluid temperature range and seal material from the general table on page 15. Select basic catalogue number, including pipe thread identification letter. Refer to the specifications tables on pages 15 and 16.

Example : G553A501

STEP 2

Select prefix (combination). Select the appropriate operator from the tables on pages 15 and 16. Select for this operator in the electrical characteristics table on page 17: the power level (UP, 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.

Example : CFSC

STEP 3

Select suffix. Suffix **MO** mandatory for the pilot 302 (CFSCIS/CFSDIS/CFVTIS/CFSCZN/CFVTZN). Refer to the suffix table on page 16, respect the indicated power level.

Example : MO

STEP 4

Selection of TPL is mandatory for the 630 pilot (PISCIS), 12 HV DC (32 mW) and 24 HV DC (125 mW). Add "X" between the prefix "PISCIS" and the basic catalogue number.

STEP 5

Select voltage.

Refer to standard voltages on page 17.

Example : 230V / 50Hz

STEP 6

Final catalogue / ordering number.

Example :

CFSCG553A501MO 230 V / 50 Hz

OPTIONS & ACCESSORIES

series	pipe size	exhaust protector (stainless steel)		
		(G)	(NPT)	(M)
551	1/8	34600418 (4)	34600482 (4)	-
553	1/2	34600479 (4)	34600481 (4)	-
551/553	M5	-	-	34600484 (4)

❖ Select **8** for NPT ANSI 1.20.3 or select **G** for ISO G (228)

● Available feature

○ Available feature in DC only

- Not available

* ATEX solenoids are also approved according to EN 13463-1 (non electrical valves)

(2) Not to use with SL suffix

(4) Provided with SL suffix (series 551)

(5) Not to use with LISC prefix

ORDERING EXAMPLES:

LISC	G	551	B	201	12.24V / DC		
CFSC	G	553	C	502	230V / 50 Hz		
CFSC	8	553	C	501	MO	230V / 50 Hz	
CFSC	G	553	C	501	SLMO	230V / 50 Hz	
CFVTZN	G	551	C	501		24V / DC	
PISCIS	G	551	C	502	MO	6V / DC	
PISCIS	G	551	C	501	SLMO	6V / DC	
PISCIS X	G	551	C	501	MO	TPL20666	24HV / DC

prefix — pipe thread — basic number — voltage — TPL — suffix

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⁽³⁾ DC (=) ⁽⁸⁾ : 24V - 48V ; CFSC/CFSCZN/CFVT : 24V
CFSCIS : 12V - 24V ; LISC : 12..24V
PISC : 24V to 70V ; PISCIS : 6V, 8V, 12V, 24V
AC (~) ⁽⁸⁾ : 24V - 48V - 115V - 230V/50Hz ; CFSC : 24V - 115V - 230V/50Hz ;
PISC : 24V to 70V - other voltages and 60Hz are available on request

prefix option	power ratings				operator ambient temperature range (TS) (C°)	safety code	electrical enclosure protection (EN 60529)	replacement coil		type ⁽²⁾
	inrush ~ (VA)	holding ~ (VA) (W)		hot/cold = (W)				~	=	
Basic power = BP										
⁽⁸⁾	8,6	1,6	7,4	6/7,6	-25 à +80	II2G Ex d IIB+H2 Gb T4, II2D Ec t IIIC Db	aluminium IP65	-	-	01
Low power = LP										
CFSC	1,4	1,2	1,1	1/1,2	-25 to +60	EN 60730	moulded IP65	-	-	03
CFSC	2,1 ⁽⁷⁾	1,6 ⁽⁷⁾	1,5 ⁽⁷⁾	-	-25 to +60	EN 60730	moulded IP65	-	-	03
CFVT ⁽⁶⁾	-	-	-	1,15/1,35	-25 to +60	EN 60730	moulded IP67	-	-	04
CFSCZN	-	-	-	1/1,2	-25 to +40/55/60	II 3G Ex nA IIC T6/T5/T4 Gc, II 3D Ex tc IIIC Dc	moulded IP65	-	-	07
CFSCIS ⁽⁴⁾⁽⁵⁾	-	-	-	0,5	-10 to +40/60	II 2G Ex ia IIC T6/T4 Ga, II 2D Ex ia IIIC Db	moulded IP65	-	-	09
LISC ⁽³⁾⁽⁴⁾	-	-	-	0,5	-40 to +65	II 1G Ex ia IIC T6 Ga, II 2D Ex ib IIIC Db ⁽⁸⁾	moulded IP65	-	-	02
Ultra low power = UP										
PISC	-	-	-	0,007	-0 to +60	-	moulded IP65	-	-	06
PISCIS ⁽¹⁾⁽⁴⁾ 6V	-	-	-	0,003	-20 to +50	II 2G Ex ia IIC T6 Ga, II 2D Ex ia IIIC Db	moulded IP65	-	-	06
PISCIS ⁽¹⁾⁽⁴⁾ 8V	-	-	-	0,022	-20 to +50	II 2G Ex ia IIC T6 Ga, II 2D Ex ia IIIC Db	moulded IP65	-	-	06
PISCIS ⁽¹⁾⁽⁴⁾ 12LV	-	-	-	0,012	-20 to +50	II 2G Ex ia IIC T6 Ga, II 2D Ex ia IIIC Db	moulded IP65	-	-	06
PISCIS ⁽¹⁾⁽⁴⁾ 12HV	-	-	-	0,032	-20 to +50	II 2G Ex ia IIC T6 Ga, II 2D Ex ia IIIC Db	moulded IP65	-	-	06
PISCIS ⁽¹⁾⁽⁴⁾ 24LV	-	-	-	0,046	-20 to +50	II 2G Ex ia IIC T6 Ga, II 2D Ex ia IIIC Db	moulded IP65	-	-	06
PISCIS ⁽¹⁾⁽⁴⁾ 24HV	-	-	-	0,125	-20 to +50	II 2G Ex ia IIC T6 Ga, II 2D Ex ia IIIC Db	moulded IP65	-	-	06

⁽¹⁾ Piezotronic standard voltages:

Prefix PISC, 24 V to 70 V AC/DC, peak current max. : 80 mA, holding current max. : 1 mA

Prefix PISCIS:	6 V DC / 3 mW	8 V DC / 22 mW	12L V DC / 12 mW	12H V DC / 32 mW	24L V DC / 46 mW	24H V DC / 125 mW
Turn ON voltage U _{ON}	6 .. 9 V	7,2 .. 12 V	10,8 .. 16 V	10,8 .. 16 V	21,6 .. 28 V	21,6 .. 28 V
Turn OFF voltage U _{OFF}	3 V	3,2 V	3,3 V	3,3 V	5 V	5 V
Peak current	6 mA	10 mA	6,8 mA	8,1 mA	10 mA	14 mA
Holding current	0,5 mA	2,8 mA	1 mA	2,7 mA	1,9 mA	5,2 mA
Cable + max. barrier resistances (R _s + R _c)	1200 Ω max.	300 Ω max.	1200 Ω max.	470 Ω max.	1200 Ω max.	470 Ω max.

prefix option	safety parameters				
	U _f (DC) (V)	I _f (mA)	P _f (W)	L _f (H)	C _f (µF)
Low power = LP					
CFSCIS	28	300	1,6	0	0
LISC	30	300	1,6	0	0
Ultra low power = UP					
PISCIS	30	200	0,9	0	0

⁽²⁾ Refer to the dimensional drawings on pages 18 to 20.
⁽³⁾ Min. operating current (I_(ON) min.): 0,036 A / U_(ON) min. = 12,8 V (For use in zone 0 locations, see the installation conditions given in the I&M instructions)
⁽⁴⁾ Intrinsically safe pilots: Check the electrical characteristics in the corresponding catalogue pages (CFSCIS/LISC/PISCIS: 302/19500036/630 pilots).
⁽⁵⁾ CFSCIS (302 pilots):
12 V : I_(ON) min., with LED = 33 mA; U_(ON) min. = 11,9 V; U_(max) recommended = 23 V; U_(OFF) = 3,3 V; I_(OFF) = 10 mA
24 V : I_(ON) min., with LED = 25 mA; U_(ON) min. = 16,4 V; U_(max) recommended = 28 V; U_(OFF) = 5,7 V; I_(OFF) = 7 mA
⁽⁶⁾ Values for LED + protection.
⁽⁷⁾ AC : 230V
⁽⁸⁾ 314/LPK: Contact us
- Not available

ELECTRICAL CONNECTIONS

prefix	connection
⁽⁸⁾	1/2" NPT threaded cable entry. Enclosures are supplied without cable gland
LISC	Spade plug connector with cable gland EN175301-803A (ISO 4400) for cables with an outer diameter from 6 to 8 mm
CFSC, CFSCIS, PISC, PISCIS	Spade plug connector with cable gland DIN 43650, 9,4 mm, form C, for cables with an outer diameter from 4 to 6 mm
CFVT	M12 connection for M12 connector
CFSCZN	Spade plug connector, DIN 43650, 9,4 mm, form C, pre-wired connector length 2m
CFL	Moulded-in flying lead, standard length 0,3 m

ADDITIONAL OPTIONS

- TPL numbers: TPL **20665**: Piezotronic, PISCIS prefix, 12 HV (32 mW)
 TPL **20666**: Piezotronic, PISCIS prefix, 24 HV (125 mW)
- TPL numbers: TPL **20674**: LED and protection, CFSC prefix - Add 0,15 W (DC) and 0,4 W/VA (AC)
 Only available in 24 V AC/DC and 115 V AC
- Other pipe threads are available on request
- Set of stainless steel mounting screws, catalogue number **97802212** (series 551)
- Set of two exhaust reducers, G1/8, catalogue number **88100344** (series 551)

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). 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 valve if used outside or in harsh environments (dusts, liquids etc.)
- 3/2 NC-5/2 spool valve supplied with one or two interface plates with NAMUR mating surfaces. Depending on function (3/2 NC or 5/2), position the plate (series 551) or one of the two plates (series 553) on the spool valve body before installing on actuator
- 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.)
- Dowel pin (if necessary), bolts and gaskets are standard supplied
- Threaded pipe connection identifier is: 8 = NPT (ANSI 1.20.3); G = G (ISO 228/1)
- Valves with suffix "SL" are provided with specific exhaust protectors

DIMENSIONS (mm), WEIGHT (kg)

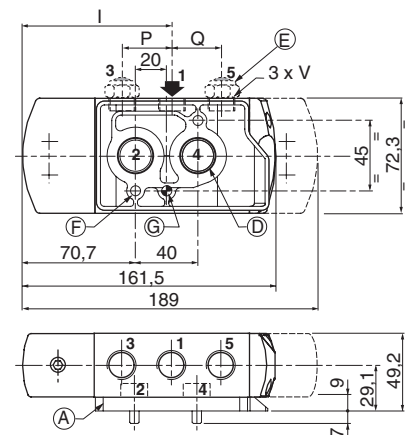
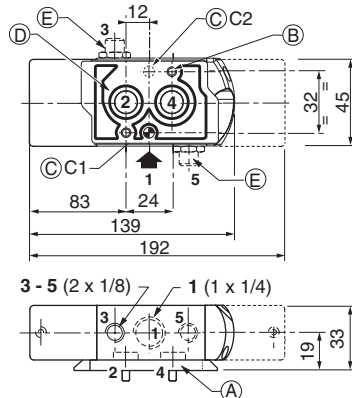
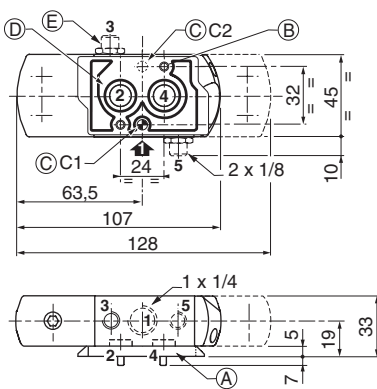
Series 551

Series 553

Types 01 et 02

Types 03 to 10

Types 01 to 10



	I	P	Q	V
553	94,3	31,6	31,8	1/2

- (A) Interface plates
- (B) 2 mounting holes dia. 5,3; Spotfacing: dia. 9, depth 5 mm
- (C) 1 dia. 5 mm hole for dowel pin (series 551)
 - in position C1: 3/2 NC function plate
 - in position C2: 5/2 function plate
- (D) 2 O-ring seals (supplied)

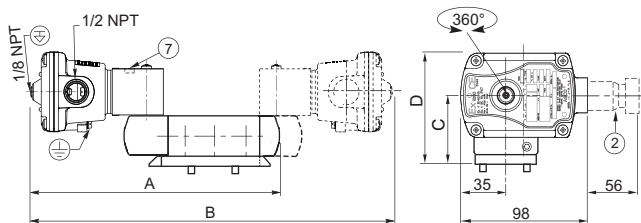
- (E) Exhaust reducers G 1/8 (series 551) or protectors adaptable on orifices 3 and 5
- (F) 2 mounting holes dia. 6,5 ; Spotfacing: dia. 11, depth 6 mm
- (G) 1 dia. 6,5 mm hole for dowel pin (series 553).
 Same position for interface plate 3/2 NC or 5/2

DIMENSIONS (mm), WEIGHT (kg)



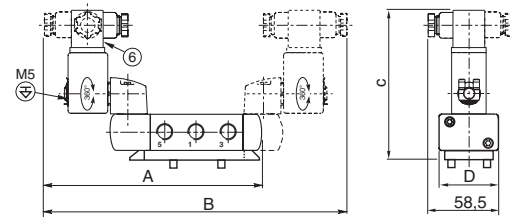
TYPE 01:
314 pilot/LPKF operator
EN/IEC 60079-1 and EN/IEC 60079-31

551/552/553: Contact us



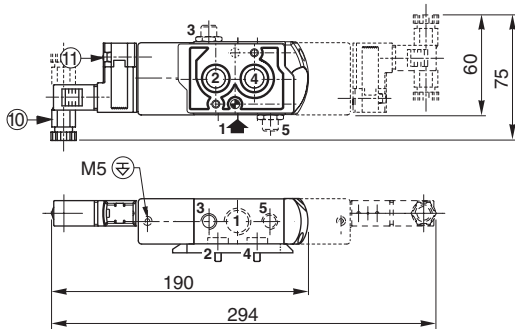
TYPE 02:
LISC
Aluminium
IEC 335/EN 60079-11/26 and EN/IEC 61241-11

551B201 / B202
553B201 / B202

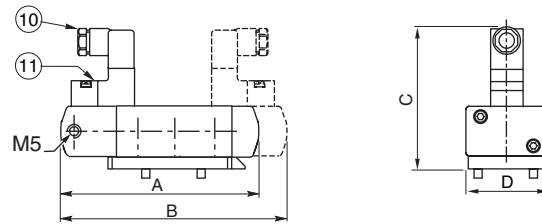


TYPE 03:
CFSC
302 pilot
Polyarylamide
IEC 335 / DIN 43650

551C501 / 551C502
551C501MS / 551C501MO / C502MS / C502MO

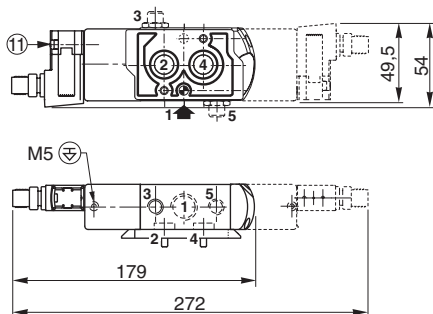


553A501 / A501MS / A501MO / A502 / A502MS / A502MO

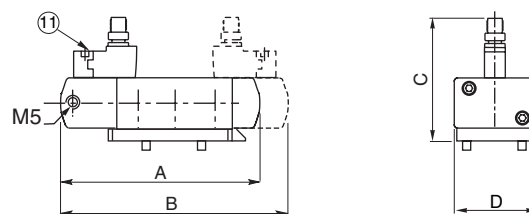


TYPE 04:
CFVT
302 pilot
Polyarylamide
IEC 335 / connection M12 + LED and protection

551C501 / 551C502
551C501MS / 551C501MO / C502MS / C502MO



553A501 / A501MS / A501MO / A502 / A502MS / A502MO

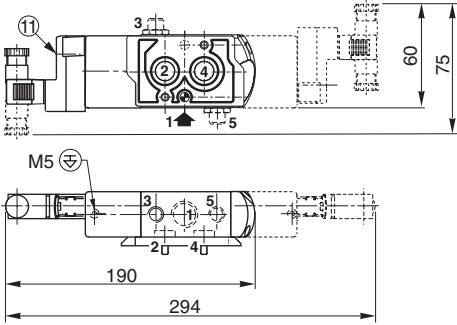


DIMENSIONS (mm), WEIGHT (kg)

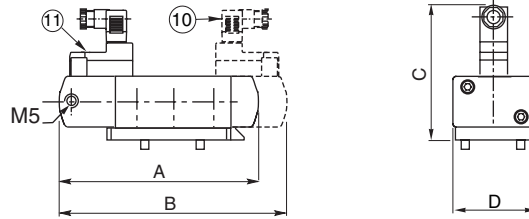


TYPE 06:
PISC / PISCIS
Piezotronic pilot
Polyamide
IEC 335 / DIN 43650
EN 60079-11/26

551C501MO / 551C502MO

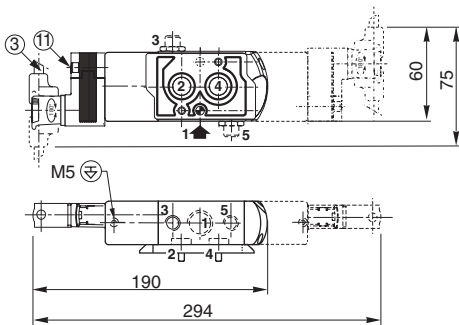


553A501MO / A502MO

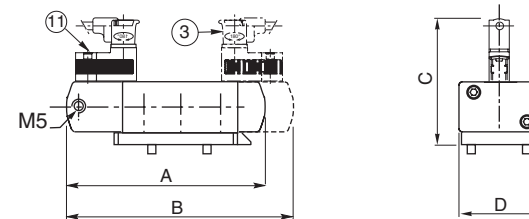


TYPE 07:
CFSCZN
302 pilot
Polyarylamide
IEC 335 / DIN 43650, cable 2 m
EN 60079-15 and EN 60079-31

551C501MO / 551C502MO

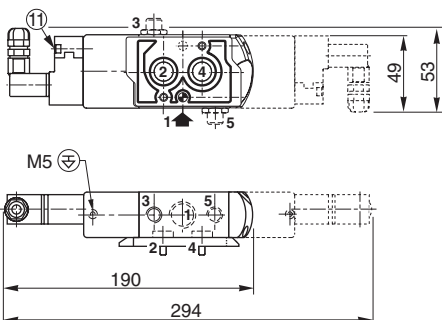


553A501MO / A502MO

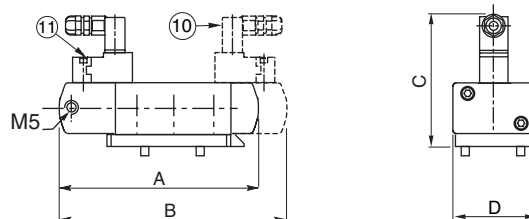


TYPE 09:
CFSCIS
302 pilot
Polyarylamide
IEC 335 / DIN 43650
EN/IEC 60079-11/26

551C501MO / 551C502MO



553A501MO / A502MO



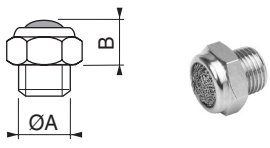
DIMENSIONS (mm), WEIGHT (kg)

- ② Ex d certified cable gland (on request)
- ⑥ Connector rotatable by 90° increments, cable Ø 6 - 8 mm
- ⑦ Screw type manual operator, suffix MS
- ⑧ Push type or screw type manual operator, suffix MO
- ⑩ Connector rotatable by 90° increments, cable Ø 6 - 7 mm
- ⑪ Push type manual operator, suffix MO
- ⊕ Connectable pilot exhaust port
- ⊖ Non-connectable pilot exhaust port

type	prefix option	power level	A		B		C		D		E		weight ⁽¹⁾					
			551		553		551		553		551		552/553		monostable		bistable	
			551	553	551	553	551	553	551	553	551	552/553	551	553	551	553		
01	⁽²⁾	BP	179	246	272	357	48	64,7	74	94,7	1,19	2,04	1,94	3,12	3,02	2,95		
02	LISC	LP	158	231,5	216	311	112	125,5	45	72,3	-	-	0,59	1,34	0,80	2,42		
03	CFSC	LP	-	161,5	-	189	-	99,2	-	72,3	-	-	0,33	1,00	0,38	2,08		
04	CFVT	LP	-	161,5	-	189	-	99,2	-	72,3	-	-	0,33	1,02	0,38	2,12		
06	PISC / PISCIS	UP	-	161,5	-	189	-	99,2	-	72,3	-	-	0,31	1,00	0,32	2,08		
07	CFSCZN	LP	-	161,5	-	189	-	99,2	-	72,3	-	-	0,41	1,08	0,54	2,24		
09	CFSCIS	LP	-	161,5	-	189	-	100,2	-	72,3	-	-	0,34	1,02	0,4	2,12		

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

ACCESSORIES



ØA	M5	1/8	1/4	3/8	1/2
B	4,5	-	11	11	14

**exhaust protector
(stainless steel)**

