

702-703 XS-F VALVE WITH SF SWITCH BOX

FEATURES

The 702-703XS ball valve + SF is a switch box is intended for the manual shut-off of non-loaded industrial fluids up to a pressure of 137 bar and a temperature of 220°C with direct display of position and feedback information control. This high-performance valve is a 3-piece countersunk tie-bolt full-bore ball valve. Due to its double body and stem leak-proofing, the antistatic system and its fire safety, it can be used in the gas and oil industry. The valve is EC-, FIRE SAFE- and ATEX-approved. The SF switch box is equipped, as standard, with 2 dry contacts. Due to its IP67 leak-tightness, it can be installed both indoors and outdoors. Different contacts and detectors are available as options. Lockable handle.



en option

AVAILABLE MODELS

702 XS-F: carbon steel body.

703 XS-F: 1.44.08 SS body.

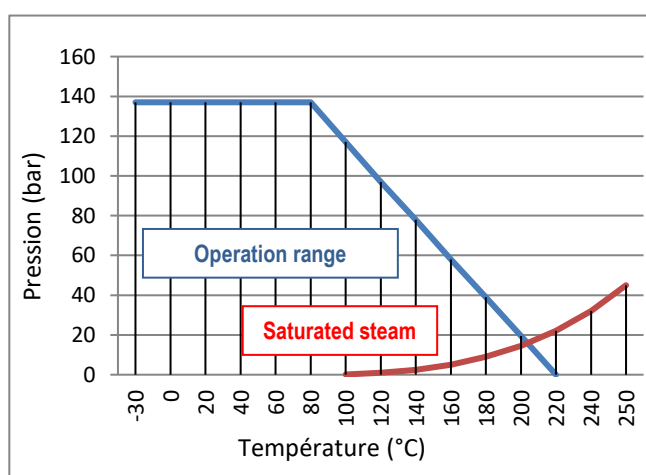
Diameters: 1/2" to 2".

Connections: G and NPT threaded, SW and BW to be welded.

Electrical connection: 2 x M20x1.5.

LIMITS OF USE

Fluid pressure: WP	137 bar
Fluid temperature: WT°	Steel: -20°C / +220°C
Operation under saturated steam	15 bar / +200°C
Ambient temperature	-20°C / +80°C
IP Code	IP67



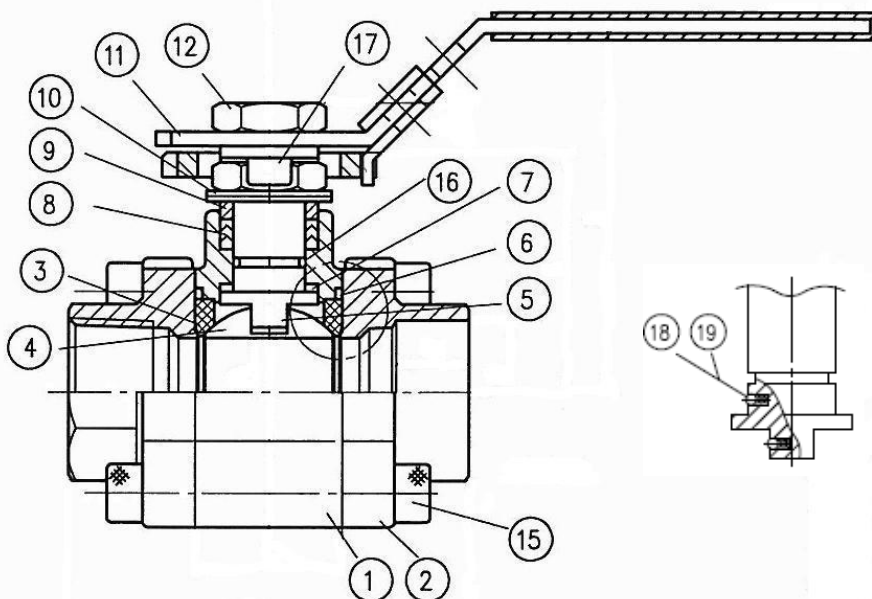
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DIRECTIVES AND MANUFACTURING STANDARDS

OBJECT	Standard	ON	OBJECT	Standard
Pressure Equipment Directive 14/68/EC	1/2" to 1" : not subject		Final test	API 598
	1"1/4 to 2": category III	TÜV 0035	Material certificate	EN 10204
Design	ANSI B16.34		Fire safe	API 607/4
Size	EN 12516-1		Steel grades	EN 1503-2
ATEX Directive	II 2G/D Tx zones 1,2,21 and 22	SIRA 0518	G Connection	ISO 228-1
	EN 13463-1			



CONSTRUCTION

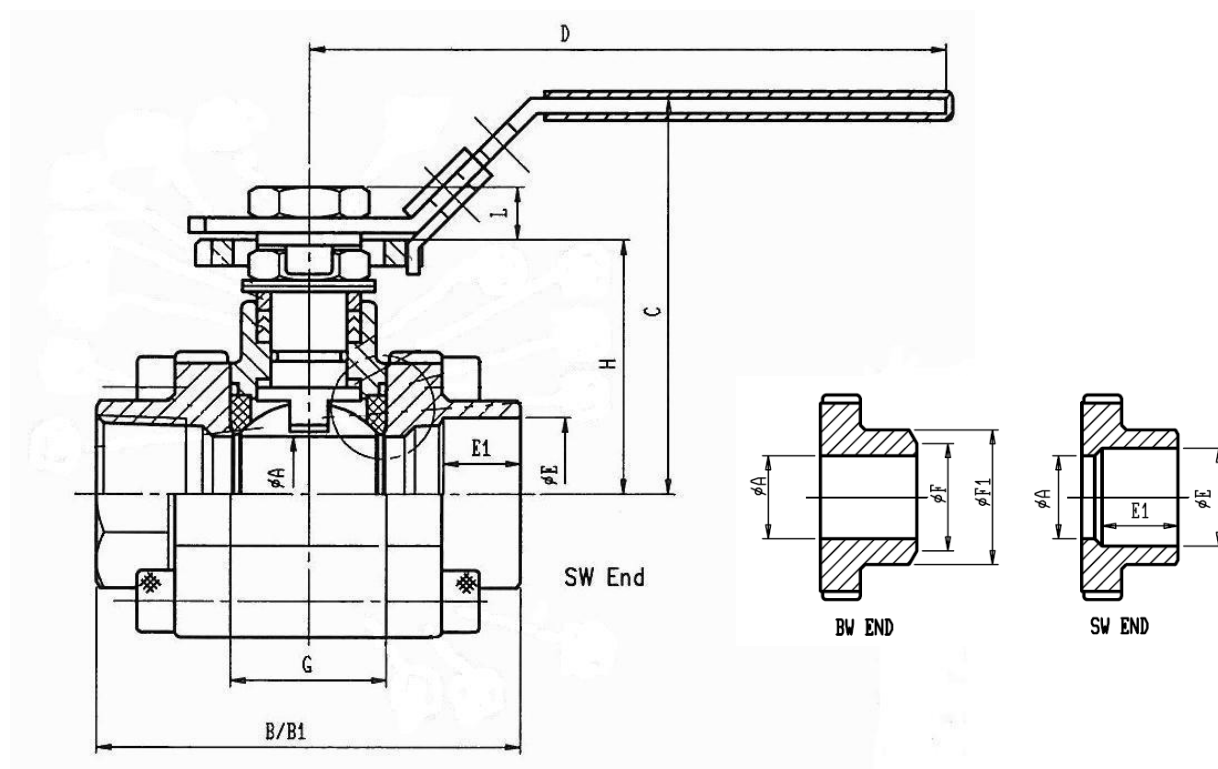
No.	Name	Steel	Stainless steel	No.	Name	Steel	Stainless steel
1	Body	1.0619 carbon steel	1.4408 SS	11	Lever		304 SS
2	Ends	1.0619 carbon steel	1.4408 SS	12	Lever nut		304 SS
3	Seats	PTFE + 50% stainless steel		13	Stop		304 SS
4	Sphere	316 SS		14	Coupling		PVC
5	Stem	316 SS		15	Screw		ISO 89812.9
6	Body gasket	Graphite		16	O-ring		FPM
7	Washer	PTFE + 50% SS		17	Padlocking		304 SS
8	CG gasket	Graphite		18	Ball		316 SS
9	Washer	304 SS		19	Spring		316 SS
10	Belleville spring	301 SS					

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DIMENSIONS (mm)



DN	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
A	16	20	24.5	32	38	50
B (SW)	75	80	90	110	120	140
B1 (BW)	75	90	100	110	125	150
C	70.9	73.4	84.1	89.3	109.5	118.9
D	110	110	135	135	165	165
E	21.8	27.2	33.9	42.7	48.8	61.2
E1	11.2	14.3	15.8	17.5	19.1	21.3
F (BW)	17	22	28	37	43	54
F1 (BW)	21.3	26.9	33.7	42.4	48.3	60.3
G	25.2	27.7	33	41.2	49.3	63.6
H	42.3	44.8	54	59.2	73.5	82.9
L	8	8	10	10	14.8	14.8

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ASSEMBLY AND MAINTAINANCE INSTRUCTIONS

1 - Installation

1.1 - Checks

- Check that the material of the valve body is chemically compatible with the fluid.
- Check that the pressure and service conditions are compatible with the (P, T) diagram of the valve. See § "Service limits"
- Check that the fluid is clean and free of particles. The latter could scratch the ball and damage the seats, hence causing the valve to leak. If need be, install an upstream filter.
- Check that the upstream and downstream pipes are correctly aligned and that the supports are suitable for the weight of the valve. Do not rely on the valve to compensate for pipe misalignment. For heat transfer fluids, provide for expansion compensation. All these piping defects may lead to leaks, blockages and even mechanical failure.
- Check that there is no risk of thermal expansion of the fluid, which could damage the seats. In the open position, a hole at the top of the ball balances the pressures between the body cavity and the flow of the fluid. As an option, we recommend a relief hole upstream of the valve for equalising the pressures for fluids such as ammonia, LPG, chlorine, etc.
- On a cold service, check that there is no risk of ice forming and blocking the tap spindle. If necessary, provide a spindle extension with suitable insulation or permanent spindle heating. Please consult us for a special model.
- Check that the valve is not used for flow or pressure control since it is not intended for this use and there is a risk of premature wear of the seats, in particular in the event of high pressure and/or temperature. For this special application, preferably use our "V-port" version with a V-shaped hole in the ball. Please contact us.
- Check that the valve is not used on a gas which might condense at certain times during the process. In such a case, the pressure within the body cavity could become negative, which could lead to a significant deformation of the seats. Please contact us.
- Static electricity: the valve will be supplied with a ball-stem-body internal electrical continuity tester. If the service conditions require the electrical continuity of the installation, check its earthing.
- If the valve is installed in an explosive zone, you must follow the additional "IMEVMATEX" instructions.

1.2 - Storage before installation

- Follow our general "IMESTOCK" instructions for storage.

1.3 - Installation

- Before any installation, isolate the piping upstream and downstream, depressurize the piping and bring the installation to ambient temperature. Carefully clean the piping of any particle (foreign body, dust, rust, etc.) or shavings by water rinsing or air blowing.
- Remove the protective tips from the valve ends.
- Check the cleanliness of the internal surfaces of the valve and if need be, clean them.
- Direction of mounting: the valves do not have a preferred direction of mounting, unless a relief hole was drilled into the ball.
- Check the perfect alignment and the proper support of the pipe installation upstream and downstream of the valve. Alignment defects cause mechanical deformations which can block the valve or lead to leaks at the body gaskets.

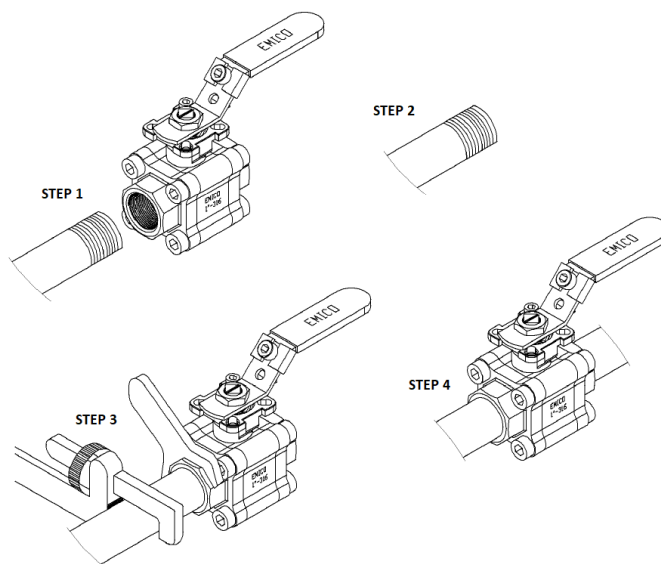
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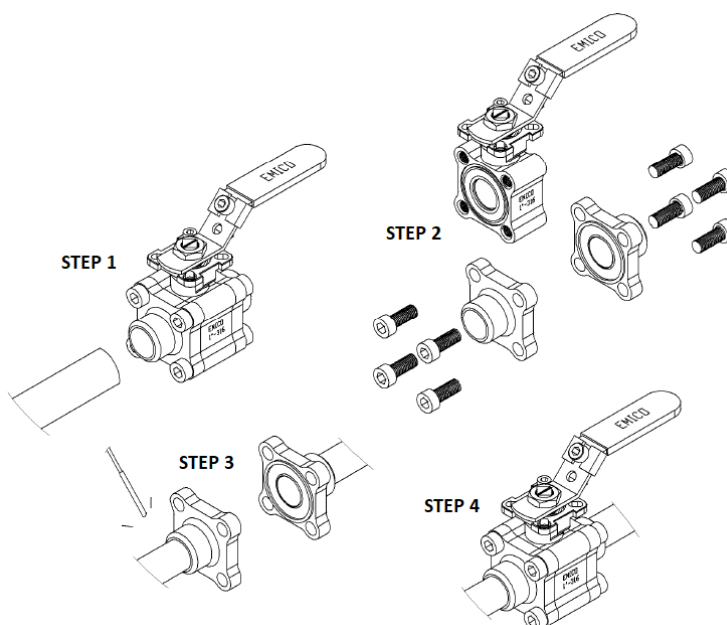
○ Threaded valve connection:

- Check that the standards for the valve internal thread and pipe thread are the same.
- Cover the pipe threads using a sealing material (tow, PTFE tape, sealing glue, etc.) which is suitable for the fluids.
- Screw the tube into the valve end clockwise, as shown in the diagram below.
- Check the sealing of the connection using a suitable test (hydrostatic test or leak detection spray).



○ Connection of weld-on valves:

- Remove the end (items 2) by unscrewing the tie-bolts, and remove the central body.
- Weld each end onto the upstream or downstream pipe, following the alignment of the tie-bolt holes.
- Cool down to the room temperature the welded ends, then put back the central body complying with the tightening torques shown in the table below.
- Check the sealing of the connection using a suitable test (hydrostatic test or leak detection spray).



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- Hydraulic test of the installation
 - Valves were tested at the factory at 1.5 x WP.
 - If a hydrostatic test is carried out on the installation, do not exceed the authorised pressure.

2 - Service

- If a hot fluid flows across the valve, do not touch the valve surface.
- Always operate the valve slowly and smoothly.
- Opening clockwise, closing anti-clockwise.

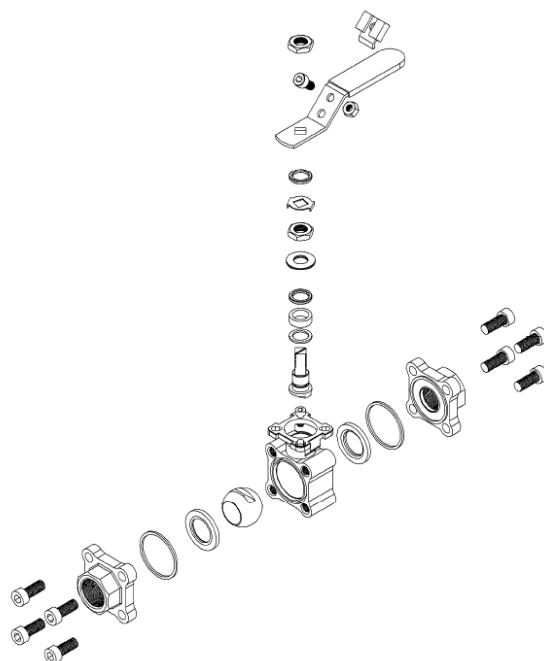
3 - Servicing

3.1 - Frequency of servicing

- The servicing frequency depends upon the use of the valve, of the type of fluid, of its velocity, of its frequency of operation, of the cycles of rise and fall in pressure and temperature.
- Before any intervention, isolate the upstream and downstream pipe installation using the valves provided for this purpose. Depressurize the pipe installation and bring it to ambient temperature.
- If the lever has to be removed, do that before disassembling the body.
- To remove the central body, unscrew the tie-bolts symmetrically. Then gently remove the central part avoiding to drop the ball.
- To remove the ball from the body, turn the stem by a quarter turn.

3.2 – Inspecting the state of the valve and possible repair

- Check the state of the ball (Item 4): it has to be clean and unscratched. If the cleaning or polishing is not possible, replace it (see the § on spare parts).
- Check the state of the seats (3.1 and 3.2): they must not be deformed, nor scratched, nor worn, or dirty. Otherwise, replace them with parts from the gasket kit.
- Check the state of the packing gland (7, 8, 9 and 16): no leak at the stem should be found, and the rings should not be excessively worn. If need be, replace the gaskets.
- Check the state of the body gaskets (6.1 and 6.2). Replace them if necessary.
- Reassemble the different parts of the valve, following the tightening torques shown in the table below.
- Check that the stem manoeuvring is smooth. Perform about ten manoeuvres.



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TABLE OF THE TIGHTENING TORQUES OF THE TIE-BOLTS AND OF THE LEVER NUT

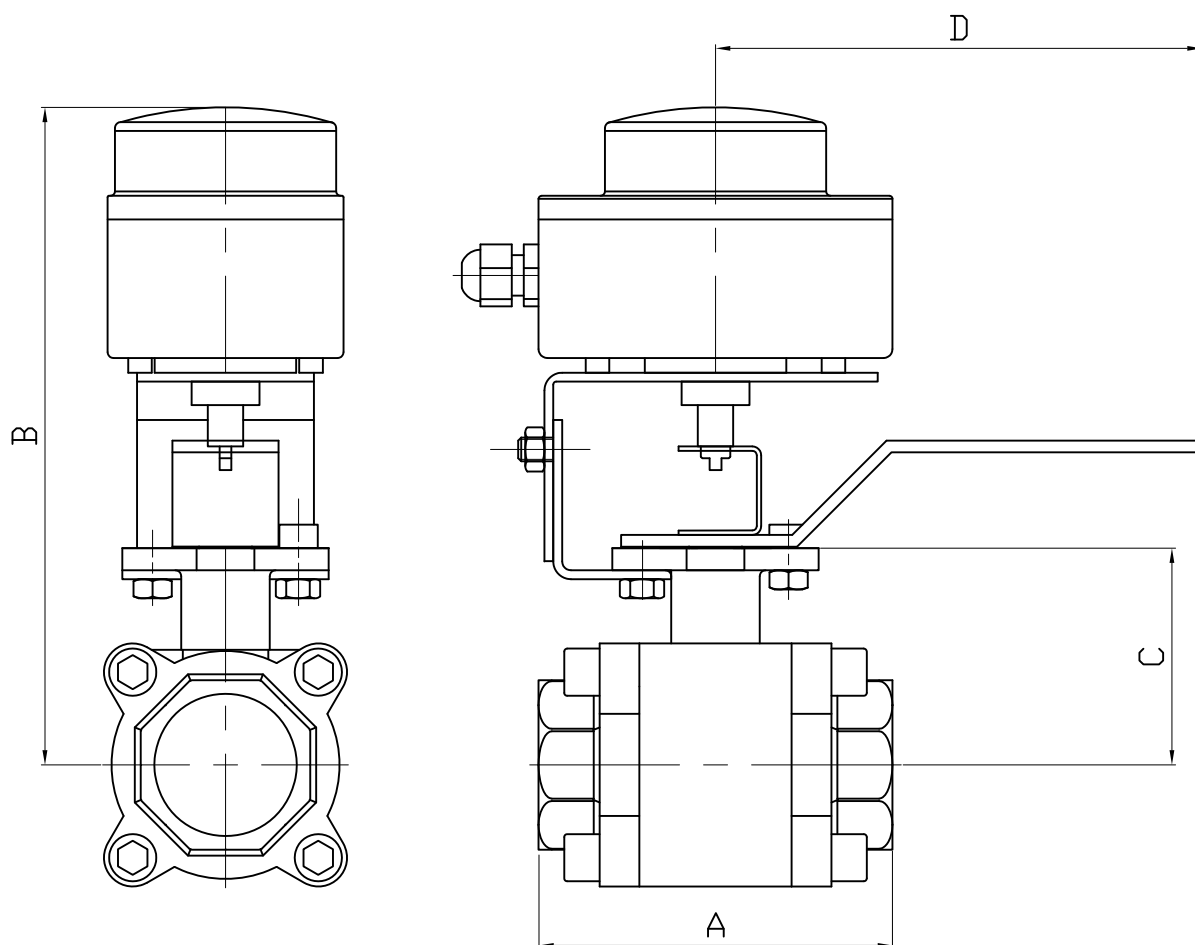
DN	Thread	Torque (Nm)	Lever nut (Nm)
1/2" - 15	M8	22	4
3/4" - 20	M8	22	4
1" - 25	M10	40	4.5
1 1/4" - 32	M12	100	4.5
1 1/2" - 40	M12	100	5.5
2" - 50	M12	100	5.5

SPARE PARTS

DN	PTFE-STAINLESS STEEL gasket kit	PEEK gasket kit	Ball	V30° ball	V60° ball	Lever
Reference mark	3-6-7-8-16	3-6-7-8-16	4	4	4	11
1/2" - 15	982712	982722	980032	980042	980052	982802
3/4" - 20	982713	982723	980033	980043	980053	982802
1" - 25	982714	982724	980034	980044	980054	982804
1 1/4" - 32	982715	982725	980035	980045	980055	982804
1 1/2" - 40	982716	982726	980036	980046	980056	982806
2" - 50	982717	982727	980037	980047	980057	982806

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DN	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
A	75	80	90	110	120	140
B	211.8	214.3	223.5	228.7	243	252.4
C	42.3	44.8	54	59.2	73.5	82.9
D	110	110	135	135	165	165
KG	2	2.2	2.9	3.7	4.8	7.7

Informations données à titre indicatif et sous réserve de modifications éventuelles
data subject to alteration

Ech: /	Date :13/10/2014	Dessiné par : E.D.	Tolérances générales : +/- 0.2	Modifications	Date	REV.
ROBINET A TOURNANT SPHERIQUE 703XS "SF"/BALL VALVE 703XS "SF" + BFC/LIMIT SWITCH BOX  45, Rue du Ruisseau 38297 SAINT QUENTIN FALLAVIER				Matière :		
				Poids (Kg) :		
				Traitement : SANS		
				Plan n° Ens 1196		

SF-TYPE SOLDO SWITCH BOXES

FEATURES

The SF-type switch box is intended for equipping quarter-turn pneumatic actuators and manual valves. It makes it possible to have an easy, direct view of the valve position and of the feedback information to control. Of robust construction, it can be installed outdoors. The position indicator provides a very good visual reading of the valve position. The SF switch box can be equipped with many switches and detectors (see below). The notched cams can be manually adjusted with great accuracy, and are insensitive to vibrations.

AVAILABLE MODELS

SF: IP67 model



LIMITS OF USE

Ambiant temperature	-20°C / +80°C
IP Code	IP 67
SF	Outside ATEX zone

MECHANICAL CONNECTION

Axis dimension	According to VDI/VDE 3845
Attachment	ISO 5211 F05
Stainless steel arches for attachment on to the actuator	<u>NAMUR 0</u> : 50x25x20 mm <u>NAMUR 1</u> : 80x30x20 mm <u>NAMUR 2</u> : 80x30x30 mm <u>NAMUR 3</u> : 130x30x30 mm <u>NAMUR 4</u> : 130x30x50 mm

ELECTRICAL CONNECTION

Standard cable inputs	2 x M20x1.5
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CONSTRUCTION

Casing and lid	Aluminium
Coating	Polyester paint
Stem	Stainless steel
Dome	Polycarbonate



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SF-TYPE SOLDO SWITCH BOXES

SWITCH DETAILS SF model

Ref.	Switch	Features
01	SPDT el.mech. switch silver plated contacts	Max 5A-250Vac / min 50mA-250Vac Max 5A-125Vac / min 50mA-125Vac Max 3A-24Vdc / min 50mA-24Vdc
03	SPDT el.mech. switch gold plated contacts (for Exia cert)	Max 1,8A/3A-250Vac / min 5mA-250Vac Max 2A/3A-125vac / min 5mA-125Vac Max 1,2A/1,5A-24Vdc / min 1mA-24Vdc
1F	DPDT el.mech. switch silver plated contacts	
C4	SPDT magnetic hermetically sealed reed switch.	Max 0,1A-120Vac / 1A-24Vdc
C8	DPDT magnetic hermetically sealed reed switch.	Max 0,1A-120Vac / 1A-24Vdc
N1	SPDT magnetic hermetically sealed silver plated snap acting contacts	Max 5A-250Vac / 5A-28Vdc
N3	SPDT magnetic hermetically sealed gold plated snap acting contacts	Max 1A-250Vac / 1A-30Vdc
N4	DPDT magnetic hermetically sealed silver plated snap acting contacts	Max 5A-250Vac / 5A-28Vdc
60	Inductive proximity NAMUR sensor SJ3,5-N	2 wire NC logic (for Exia cert)
62	Inductive proximity NAMUR sensor SJ3,5-SN	2 wire NC logic (for Exia cert, safety funct. low temp)
63	Inductive proximity NAMUR sensor - SJ3,5-S1N	2 wire NO logic (for Exia cert, safety funct)
70	Inductive proximity NAMUR - NJ2-V3-N	2 wire (for Exia cert)
73	Inductive proximity sensor (+70°C max.) - NBB2-V3-E2	P+F - 3 wire PNP NO amplified 10-30 Vdc, 100 mA
75	Inductive proximity sensor - IS 5026	IFM - 2 wire NO/NC amplified 5-36 Vdc, 200 mA
83	Inductive proximity sensor - NBB3-V3-Z4	P+F - 2 wire NO amplified 5-60 Vdc, 100 mA
TO	4-20 mA position transmitter	12-30 Vdc
HO	4-20 mA HART position transmitter	Atex Ex ia IIC T6 / T4 – certified 8-30Vdc

OPTIONS

There are many options for which you are invited to contact our sales service:

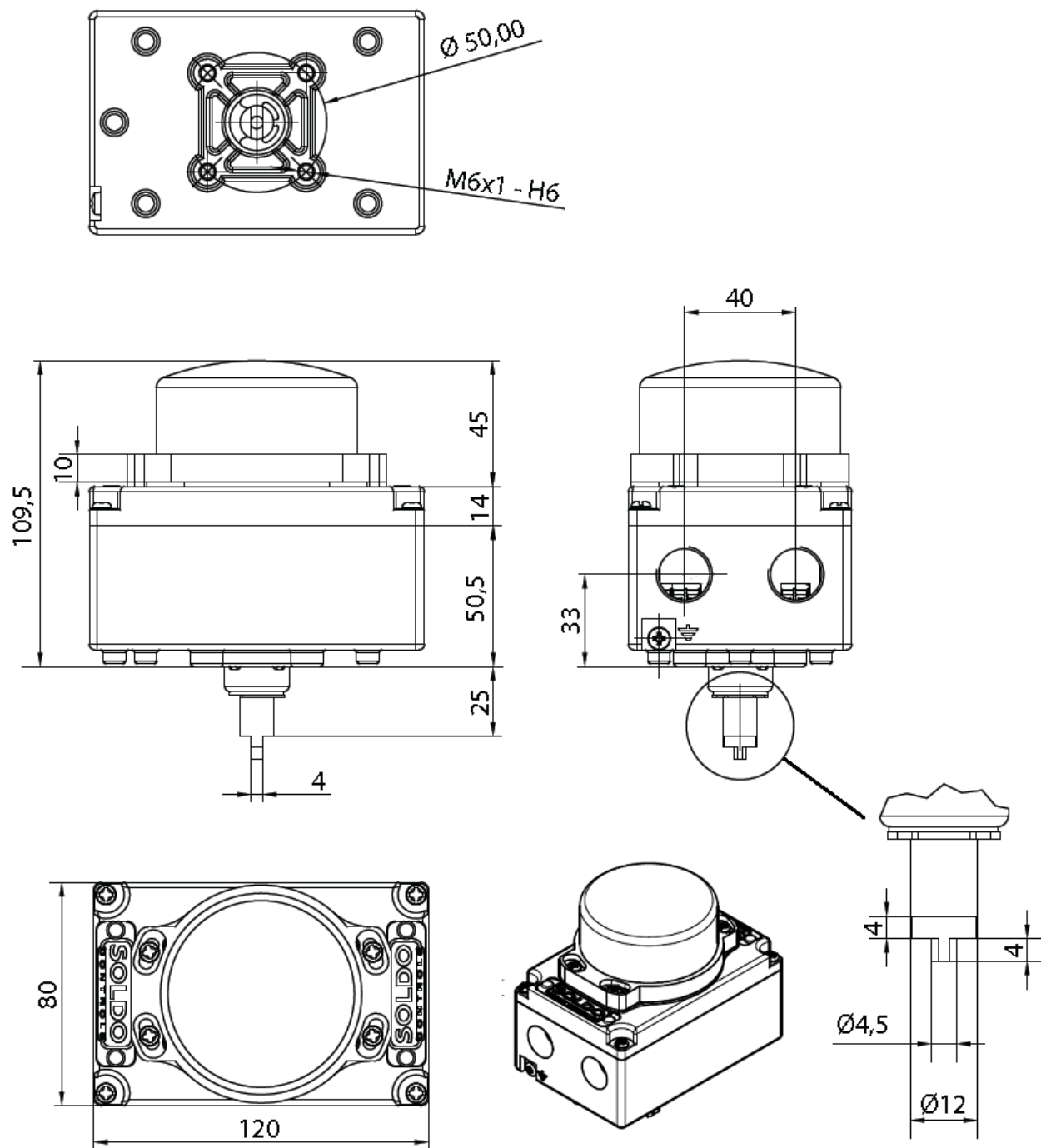
	SS : stainless steel box
	3-Channel L or T indicators
L	LT : version -40°C (according to the type of switch)
P	LT 1 : version -55°C (according to the type of switch)
1	Cable inputs 1/2" NPT
	Pilot-solenoid valve wiring
G	EAC Certificate
U	UL Certificate

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DIMENSIONS (mm)



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