

FEATURES

- These spool valves are qualified for used in water ballast equipment for marine application
- The NAMUR version has all ports on the same side and with the same threads for a better resistance to water, dust and better fitting connection
- The valve technology 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 valve is available with solenoid for safe area or explosion proof area (Ex d, Ex mb, Ex ia)

GENERAL

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

Ambient temperature range -25°C to +55°C

fluids (*)	temperature range (TS)	seal materials (*)
air, inert gas, filtered	-25°C to +55°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 anodized with PBT spring return or 316L stainless steel
End cover (spring return)	Glass-filled PA or 316L stainless steel
Interface plates	Glass-filled PA
Spool valve internal parts	Stainless steel, (POM), aluminium
Pilot internal parts	Refer to specific solenoid catalogue pages
Pilot end covers	Aluminium or 316L stainless steel
Core tube	Stainless steel
Core and plugnut	Stainless steel
Core spring	Stainless steel
Seals	NBR + PUR
Top disc	PA
Disc holder	POM
Cartridge (low power)	Welded, packless AISI 430
Seat	Brass
Seat insert	POM
Shading coil	Copper
Rider rings (low power)	PTFE

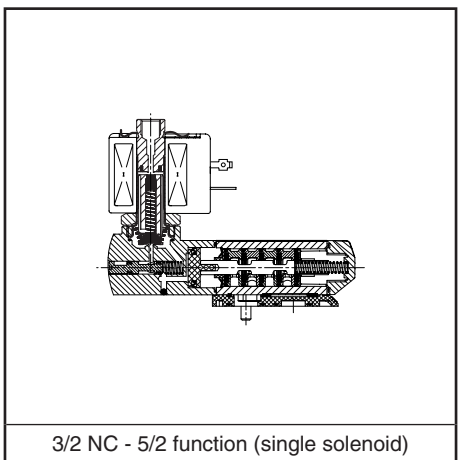
CONSTRUCTION

Screws of valve assembly Stainless steel

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	aluminium	stainless steel
(*)	(mm)	(m³/h)	(l/min)	=	air (*)	hot/cold	Ex d	Ex mb	Ex ia			
3/2 NC - 5/2 - Solenoid air pilot operated - spring return (monostable)												
1/4	6	0,6	10	2	10	9W/11,2W	○	○	○	○	*X❖551A482MO.24/DC.20897	*X❖551A409MO.24/DC.20897
1/2	13	2,49	41,5	2	10	9W/11,2W	○	○	○	○	*X❖553A482MO.24/DC.20897	*X❖553A409MO.24/DC.20897
3/2 NC - 5/2 - Solenoid air pilot operated and return (bistable)												
1/4	6	0,6	10	2	10	9W/11,2W	○	○	○	○	*X❖551A484MO.24/DC.20897	*X❖551A410MO.24/DC.20897
1/2	13	2,49	41,5	2	10	9W/11,2W	○	○	○	○	*X❖553A484MO.24/DC.20897	*X❖553A410MO.24/DC.20897

- * Select the good prefix.
- ❖ Select **8** for NPT ANSI 1.20.3 or select **G** for ISO G (228/1)
- Available feature in DC only



ELECTRICAL CONNECTIONS

prefix	connection
SC	Spade plug connector with cable gland EN175301-803A (ISO 4400) for cables with an outer diameter from 6 to 10 mm
NFIS, WSNFIS	M20 plastics cable gland for cables with an outer diameter from 7 to 12 mm
NF, WSNF	1/2" NPT threaded cable entry. Enclosures are supplied without cable gland
PV	Moulded-in cable, standard length 2 m

ADDITIONAL OPTIONS

- Valves configured for external pilot air supply, TPL 20547
- Other pipe threads are available on request
- Ex mb (prefix "PV") solenoid can be supplied with various cable lengths
- Ex ia Prefix "NFIS" execution: solenoid enclosure has a cable gland with integral strain relief for cables with an o.d. from 7 to 12 mm and housing is provided with an internal and external connection facility for an earthing or bonding conductor
- 1/2" NPT, prefix "T" 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). 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)
- Prefix "NF" enclosure is provided with a 1/2" NPT threaded entry hole. Both are supplied without cable gland

DIMENSIONS (mm), WEIGHT (kg)

Others dimensions: **Aluminium** ; **Stainless steel**



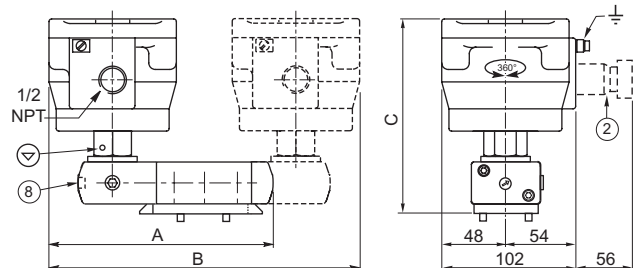
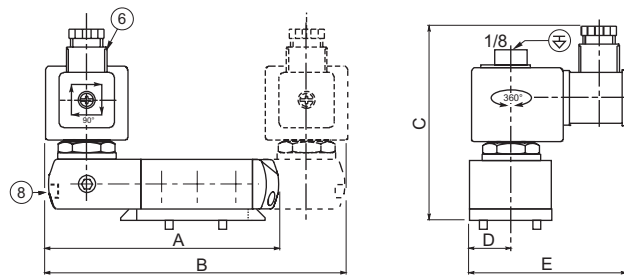
TYPE 01:

Epoxy moulded
SC: IEC 335 / ISO 4400



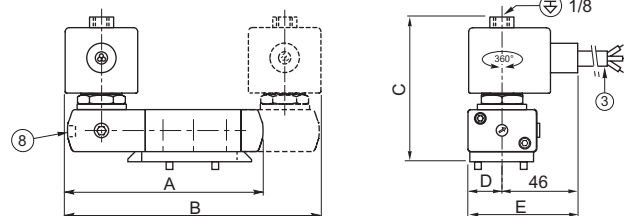
TYPE 02:

Aluminium; epoxy coated / AISI 316L SS
NF/WSNF: EN/IEC 60079-1, 60079-31
NFIS / WSNFIS : EN/IEC 60079-11, 60079-31



TYPE 05:

Epoxy encapsulated
PV: EN/IEC 60079-18



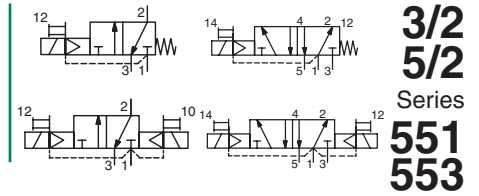
- ② NF/WSNF: Ex d certified cable gland (on request)
NFIS/WSNFIS: M20 plastics cable gland for cables with an outer diameter from 7 to 12 mm
- ③ Three-core cable, length 2 m
- ⑥ Connector rotatable by 90° increments, cable Ø 6 - 10 mm
- ⑧ Push type or screw type manual operator, suffix MO
- ⊕ Connectable pilot exhaust port

type	prefix option	A				B				C				D				E			
		aluminium		st. steel		aluminium		st. steel		aluminium		st. steel		aluminium		st. steel		aluminium		st. steel	
		551	553	551	553	551	553	551	553	551	553	551	553	551	553	551	553	551	553	551	553
01	SC	125	179,5	132	182	174	225	172	229	107,7	121,2	108	117	22,5	36,15	22,5	87	86,5	100,2	36,5	101
02	(WS)NF/(WS)NFIS	152	224,3	159	209	218	314,6	225	282	146,8	160,3	148	157	-	-	-	-	-	-	-	-
03	PV	126	179,5	132	182	166	225	172	229	93	106,5	93	102	22,5	36,15	22,5	69	67,5	81,2	36,5	83



SOLENOID VALVES

pilot operated valve
aluminium, stainless steel 1/4 and 1/2
with DNV-GL approval
(Ballast Water Treatment application)



FEATURES

- These spool valves are qualified for used in water ballast equipment for marine application
- The spool valve exists in 3/2 NC, 5/2, threaded ports
- 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 valve is available with solenoid for safe area or explosion proof area (Ex d, Ex mb, Ex ia)

GENERAL

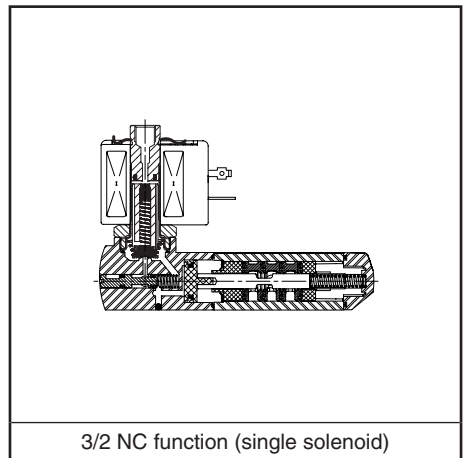
Differential pressure 2 - 10 bar [1 bar = 100 kPa]
Flow (Qv at 6 bar) 1/4: 860 l/min (ANR)
1/2: 3800 l/min
Ambient temperature range -25°C to +55°C

fluids (*)	temperature range (TS)	seal materials (*)
air, inert gas, filtered	-25°C to +55°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 anodized with PBT spring return or 316L stainless steel
End cover (spring return)	Glass-filled PA or 316L stainless steel
Spool valve internal parts	Zamak, stainless steel, (POM), aluminium
Pilot internal parts	Refer to specific solenoid catalogue pages
Pilot end covers	Aluminium or 316L stainless steel
Core tube	Stainless steel
Core and plugnut	Stainless steel
Core spring	Stainless steel
Seals	NBR + PUR
Top disc	PA
Disc holder	POM
Cartridge (low power)	Welded, packless AISI 430
Seat	Brass
Seat insert	POM
Shading coil	Copper
Rider rings (low power)	PTFE



CONSTRUCTION

Screws of valve assembly Stainless steel

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	aluminium	stainless steel		
(*)	(mm)	(m³/h)/(l/min)	air (*)	=	hot/cold	Ex d	Ex mb				Ex ia	(WS)NFIS
3/2 NC - Solenoid air pilot operated - spring return (monostable)												
1/4	6	0,6	10	2	10	9W/11,2W	○	○	○	○	*X❖551A491MO.24/DC.20897	*X❖551A413MO.24/DC.20897
1/2	13	2,49	41,5	2	10	9W/11,2W	○	○	○	○	*X❖553A491MO.24/DC.20897	*X❖553A413MO.24/DC.20897
3/2 NC - Solenoid air pilot operated and return (bistable)												
1/4	6	0,6	10	2	10	9W/11,2W	○	○	○	○	*X❖551A493MO.24/DC.20897	*X❖551A414MO.24/DC.20897
1/2	13	2,49	41,5	2	10	9W/11,2W	○	○	○	○	*X❖553A493MO.24/DC.20897	*X❖531A414MO.24/DC.20897
5/2 - Solenoid air pilot operated - spring return (monostable)												
1/4	6	0,6	10	2	10	9W/11,2W	○	○	○	○	*X❖551A497MO.24/DC.20897	*X❖551A421MO.24/DC.20897
1/2	13	2,49	41,5	2	10	9W/11,2W	○	○	○	○	*X❖553A497MO.24/DC.20897	*X❖553A421MO.24/DC.20897
5/2 - Solenoid air pilot operated and return (bistable)												
1/4	6	0,6	10	2	10	9W/11,2W	○	○	○	○	*X❖551A498MO.24/DC.20897	*X❖551A422MO.24/DC.20897
1/2	13	2,49	41,5	2	10	9W/11,2W	○	○	○	○	*X❖553A498MO.24/DC.20897	*X❖553A422MO.24/DC.20897

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NF, WSNF	1/2" NPT threaded cable entry. Enclosures are supplied without cable gland
PV	Moulded-in cable, standard length 2 m

ADDITIONAL OPTIONS

- Valves configured for external pilot air supply, TPL 20547
- Other pipe threads are available on request
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- Ex ia Prefix "NFIS" execution: solenoid enclosure has a cable gland with integral strain relief for cables with an o.d. from 7 to 12 mm and housing is provided with an internal and external connection facility for an earthing or bonding conductor
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- 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" enclosure is provided with a 1/2" NPT threaded entry hole. Both are supplied without cable gland

DIMENSIONS (mm), WEIGHT (kg)

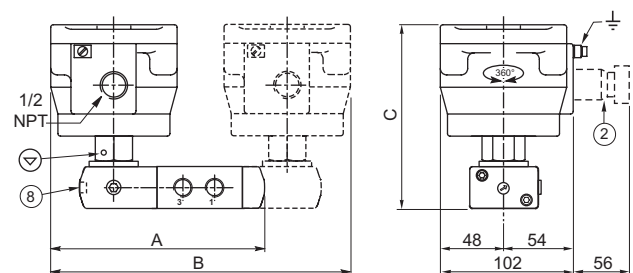
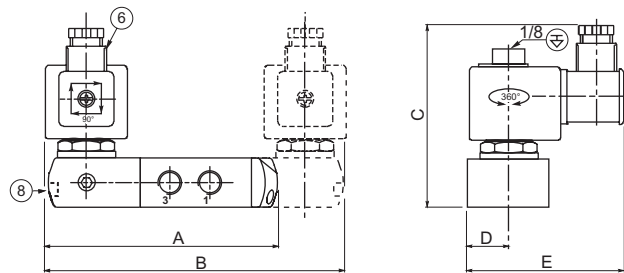
Others dimensions: Aluminium, 3/2 or 5/2 ; Stainless steel; 3/2 or 5/2



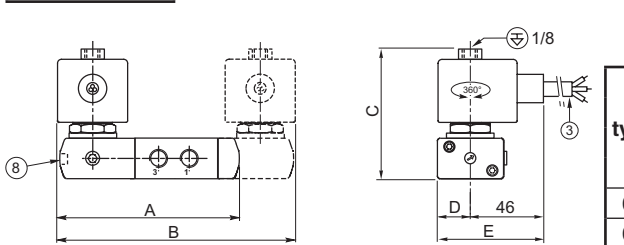
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Epoxy moulded
SC: IEC 335 / ISO 4400



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Aluminium; epoxy coated / AISI 316L SS
NF/WSNF: EN/IEC 60079-1, 60079-31
NFIS / WSNFIS : EN/IEC 60079-11, 60079-31



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



- ② NF/WSNF: Ex d certified cable gland (on request)
NFIS/WSNFIS: M20 plastics cable gland for cables with an outer diameter from 7 to 12 mm
- ③ Three-core cable, length 2 m
- ⑥ Connector rotatable by 90° increments, cable Ø 6 - 10 mm
- ⑧ Push type or screw type manual operator, suffix MO
- ⊕ Connectable pilot exhaust port

type	prefix option	A								B							
		aluminium				st. steel				aluminium				st. steel			
		551	553	551	553	551	553	551	553	551	553	551	553	551	553	551	553
01	SC	132	144	152,5	179,5	132	144	154	182	170	182	198	225	172	184	201	229
02	(WS)NF/(WS)NFIS	158	170	197,3	224,3	158	170	198,8	208	224	236	287,6	314,6	224	236	290,6	281
03	PV	132	144	152,5	179,5	132	144	154	182	172	184	198	225	172	184	201	229

type	prefix option	C								D								E							
		aluminium				st. steel				aluminium				st. steel				aluminium				st. steel			
		551	553	551	553	551	553	551	553	551	553	551	553	551	553	551	553	551	553	551	553	551	553	551	553
01	SC	102,7	102,7	112,2	112,2	103	103	108,4	109	22,5	22,5	36,15	36,15	22,5	22,5	36,5	36,5	86,5	86,5	100,2	100,2	86,5	87	101	101
02	(WS)NF/(WS)NFIS	141,8	141,8	151,3	151,3	142	142	147,5	148	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03	PV	88	88	97,5	97,5	88	88	93,7	94	22,5	22,5	36,15	36,15	22,5	22,5	36,5	36,5	67,5	67,5	81,2	81,2	68,5	69	82,5	82,5

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