Centra VDE/VXE/VYE

Small Linear Valves

Application

These small linear valves are used in combination with small electric linear valve actuators and thermoelectric actuators for the control of hot and/or chilled water for fan coil units and small reheaters/recoolers in electric/electronic temperature control systems.

VDE

VXE

VYE

Special Features

- Dezincification-resistant yellow brass
- No maintenance work is required
- Wide standardized range of k_{VS} values
- Reduced k_{VS} values in the bypass to facilitate hydronic balancing (VYE version)
- Range of fittings available for different connections (compression, soldered, threaded)
- Small size allows installation where space is limited
- Long stroke results in a high-quality characteristic
- Soft seat for low leakage rate and high rangeability
- High close-off pressure

Technical Data

Media	
Medium:	Water with max. 50 % glycol according to VDI 2035
Water temperature:	2...120 °C
Connection/Sizes	
Valve size:	DN15 ($G^1/_2$"), DN20 ($G^3/_4$"), DN25 ($G1^1/_4$")
Specifications	
Model:	2-way valve: VDE 3-way valve: VXE 3-way valve with bypass: VYE
Operation:	All models stem up to close, port A to B / AB
Nominal pressure rating:	PN 16
Capacity index (k_{VS}):	See chapter „Flow capacities and close-off pressure ratings“
Close-off pressures:	
Leakage rate:	≤0.02 % of k_{VS}
Port connection:	Conical and flat sealing connections in standard sizes

Modulating valves	
Stroke:	6.5 mm
Closure distance:	18 mm
Flow characteristic:	2-way valve: - modified equal % 3-way valve: - modified equal % for port A-AB - Linear for port B-AB
ON/OFF valves	
Stroke:	2.5 mm
Closure distance:	14 mm
Snap-on valves	
Stroke:	2.5 mm
Closure distance:	5 mm

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Construction

Overview		Components	Materials
	1	Valve body	Brass resistant to dezincification
		Not depicted components:	
		Stem	Stainless steel
		Plug	Brass, EPDM seals

Method of Operation

All types of valves should be mounted in the return flow. If the Δp-values exceed 300 kPa, attention should be paid to the development of noise.

In the case of the 2-way valve, the 3-way valve and the 3-way valve with bypass, the built-in spring produces a closing force on the A-B / A-AB ports.

The valves are supplied with a screwed-on adjustment cap for manual operation and for protection of the stem. If it should become necessary to flush the system, the valve can be opened between approx. 50 % and 75 % of the rated k_{VS} with the protection cap attached or fully opened via a connected actuator.

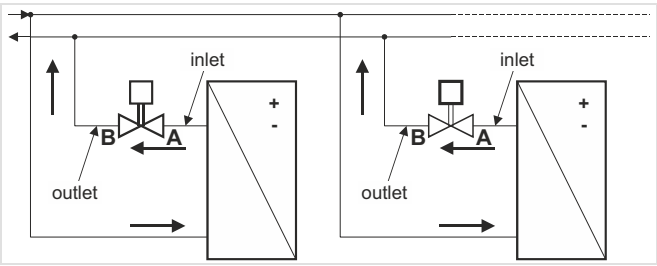
This allows the stem to be set up for filling or initial heating/ cooling during the building construction phase without the use of a controller or actuator.

The small electric valve actuators as well as the thermoelectric actuators provide automatic control over the opening and closing movement of the valve stem.

2-way valves

Direction of flow always from port A to port B

Port B: Outlet



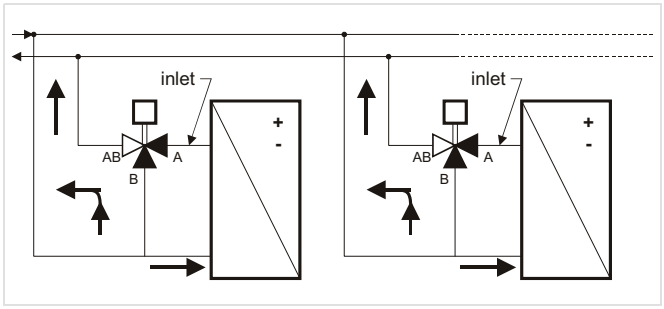
3-way valves

These valves are preferably used as mixing valves, this means:

Port A: Controlled flow inlet

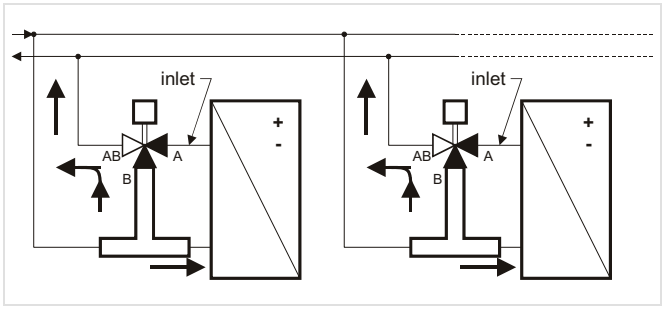
Port B: Outlet

Port AB: Total flow outlet



3-way valves with Bypass

These valves simplify the installation, which is depending on the layout of the pipework, as the bypass pipe is part of the valve. The information for the normal 3-way valves is also valid for this type.



Installation Guidelines

Mounting

When installing the valve care must be taken that the flow direction is correct. The valve must not be mounted with the stem pointing downward.

The adjustment cap must be removed from the valve only when the actuator is fitted. The valve should be installed as stress-free as possible with a tightening torque of 25 to 30 Nm.

The valve is supplied complete with mounting instructions.

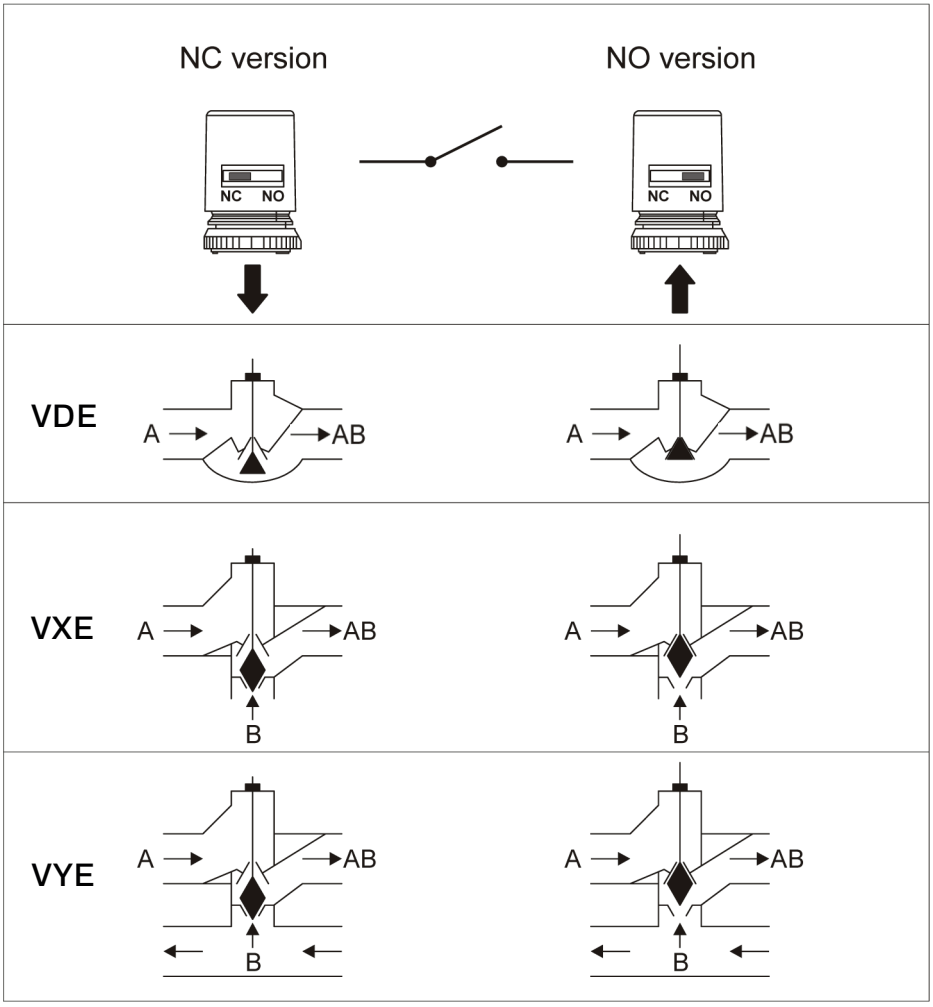
Note: Mount the actuator by hand, only. Do not use a tool, as this could result in damage.

Disposal

Statutory regulations and/or environmental protection considerations may require special handling in disposing of the valves

Technical Characteristics

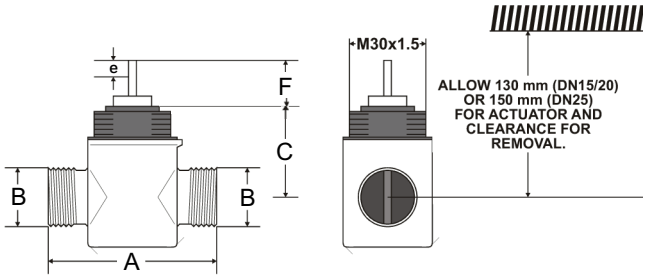
Valve action with MT4/MT8-Series Smart-T Thermal Actuators



Dimensions

VDE... (2-way)

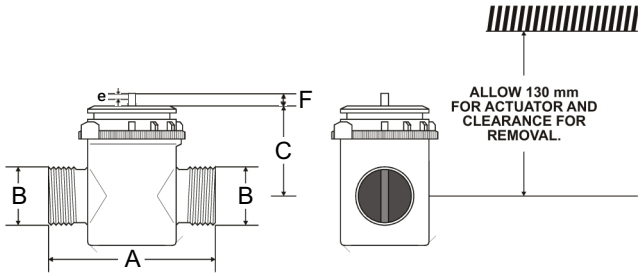
Overview



Type	DN	A	B	C	Stroke	Closure distance
					e	F
Conical sealing	15	56	G 1/2" A*	32	Modulating: 6.5 mm On/Off: 2.5 mm	Modulating: 18 mm On/Off: 14 mm
	20	66	1 1/8 14 BS84	34		
	25	76	G 1 1/4" A*	48		
Flat sealing	15	56	G 1/2" A*	32		
	20	66	G 3/4" A*	34		
	25	76	G 1 1/4" A*	48		

VDE...SN (2-way with snap-on)

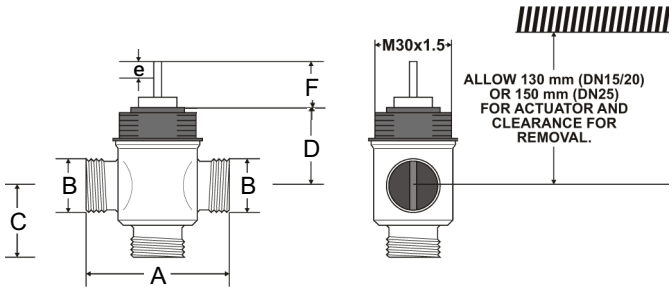
Overview



Type	DN	A	B	C	Stroke	Closure distance
					e	F
Flat sealing	20	66	G 3/4" A*	36.6	Modulating: 2.5 mm	Modulating: 5 mm

VXE... (3-way)

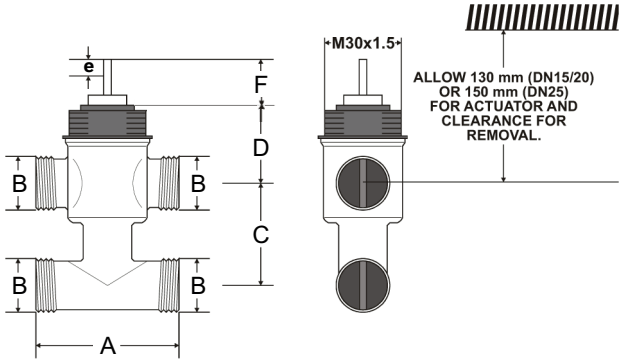
Overview



Type	DN	A	B	C	D	Stroke	Closure distance
						e	F
Conical sealing	15	56	G 1/2" A*	24.5	32	Modulating: 6.5 mm On/Off: 2.5 mm	Modulating: 18 mm On/Off: 14 mm
	20	66	1 1/8 14 BS84	33	34		
	25	76	G 1 1/4" A*	38	48		
Flat sealing	15	56	G 1/2" A*	25.5	32		
	20	66	G 3/4" A*	33	34		
	25	76	G 1 1/4" A*	38	48		

VYE... (3-way with bypass)

Overview



Type	DN	A	B	C	D	Stroke	Closure distance
						e	F
Conical sealing	15	56	G 1/2" A*	40	32	Modulating: 6.5 mm On/Off: 2.5 mm	Modulating: 18 mm On/Off: 14 mm
	20	66	1 1/8 14 BS84	40	34		
	25	76	G 1 1/4" A*	62.5	48		
Flat sealing	15	56	G 1/2" A*	40	32		
	20	66	G 3/4" A*	40	34		
	25	76	G 1 1/4" A*	62.5	48		

*ISO 228/1

Note: All dimensions in mm unless stated otherwise.

Ordering Information

The following tables contain all the information you need to make an order of an item of your choice.

Naming key linear valves

VD	E	15	B	1.6	OF
Type of valve	Type of thread	DN (mm)	PN (bar)	k_{VS}-value	Special (optional)
VD = 2-way small linear valve VX = 3-way small linear valve VY = 3-way small linear valve with bypass	E = External	15 20 25	B = 16	0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 5.5 6.3 8.0	OF = On/Off M = Modulating P = Pressure balanced C/CS = Conical Sealing SN = Snap-On

Flow capacities and close off pressure ratings

VDE Valves (2-way valves)

DN	K_{VS} A-B	Type	Stroke	Close-off pressure	Pressure balanced	Item No.
2-way valves modulating with flat sealing						
15	0.16	MOD	6.5	600 kPa		VDE15B0.16M
15	0.25	MOD	6.5	600 kPa		VDE15B0.25M
15	0.40	MOD	6.5	600 kPa		VDE15B0.4M
15	0.63	MOD	6.5	600 kPa		VDE15B0.63M
15	1.0	MOD	6.5	600 kPa		VDE15B1.0M
15	1.6	MOD	6.5	300 kPa		VDE15B1.6M
15	2.5	MOD	6.5	100 kPa		VDE15B2.5M
20	2.5	MOD	6.5	150 kPa		VDE20B2.5M
20	4.0	MOD	6.5	50 kPa		VDE20B4.0M
25	6.3	MOD	6.5	250 kPa	•	VDE25B6.3MP
25	8.0	MOD	6.5	250 kPa	•	VDE25B8.0MP
2-way valves on-off with flat sealing						
15	1.0	ON-OFF	2.5	600 kPa		VDE15B1.0OF
15	1.6	ON-OFF	2.5	300 kPa		VDE15B1.6OF
15	2.5	ON-OFF	2.5	150 kPa		VDE15B2.5OF
20	2.5	ON-OFF	2.5	200 kPa		VDE20B2.5OF
20	2.5	ON-OFF, Snap on*	2.5	200 kPa		VDE20B2.5OFSN
20	4.0	ON-OFF	2.5	100 kPa		VDE20B4.0OF
25	4.0	ON-OFF	2.5	200 kPa	•	VDE25B4.0OFP
20	4.0	ON-OFF, Snap on*	2.5	200 kPa		VDE20B4.0OFSN
25	5.5	ON-OFF	2.5	200 kPa	•	VDE25B5.5OFP
2-way valves modulating with conical sealing						
15	0.16	MOD	6.5	600 kPa		VDE15B0.16MCS
15	0.25	MOD	6.5	600 kPa		VDE15B0.25MCS
15	0.40	MOD	6.5	600 kPa		VDE15B0.4MCS
15	0.63	MOD	6.5	600 kPa		VDE15B0.63MCS
15	1.0	MOD	6.5	600 kPa		VDE15B1.0MCS
15	1.6	MOD	6.5	300 kPa		VDE15B1.6MCS
15	2.5	MOD	6.5	100 kPa		VDE15B2.5MCS
20	2.5	MOD	6.5	150 kPa		VDE20B2.5MCS
20	4.0	MOD	6.5	50 kPa		VDE20B4.0MCS
25	6.3	MOD	6.5	250 kPa	•	VDE25B6.3MPC
25	8.0	MOD	6.5	250 kPa	•	VDE25B8.0MPC
2-way valves on-off with conical sealing						
15	1.6	ON-OFF	2.5	300 kPa		VDE15B1.6OFCS
20	2.5	ON-OFF	2.5	200 kPa		VDE20B2.5OFCS

* To be used directly with MT4/MT8 thermoelectric actuator without adapter because of integrated Snap-On connection

VXE Valves (3-way valves)

DN	K_{VS}		Type	Application	Stroke	Close-off pressure	Pressure balanced	Item No.
	A-AB	B-AB						
3-way valves modulating with flat sealing								
15	0.25	0.16	MOD	MIX	6.5	600 kPa		VXE15B0.25M
15	0.40	0.25	MOD	MIX	6.5	600 kPa		VXE15B0.4M
15	0.63	0.40	MOD	MIX	6.5	600 kPa		VXE15B0.63M
15	1.0	0.63	MOD	MIX	6.5	600 kPa		VXE15B1.0M
15	1.6	1.0	MOD	MIX	6.5	300 kPa		VXE15B1.6M
15	2.5	1.6	MOD	MIX	6.5	100 kPa		VXE15B2.5M
20	2.5	1.6	MOD	MIX	6.5	150 kPa		VXE20B2.5M
20	4.0	2.5	MOD	MIX	6.5	50 kPa		VXE20B4.0M
25	6.3	4.0	MOD	MIX	6.5	250 kPa	•	VXE25B6.3MP
25	8.0	5.5	MOD	MIX	6.5	250 kPa	•	VXE25B8.0MP
3-way valves on-off with flat sealing								
15	1.0	0.63	ON-OFF	MIX/DIV	2.5	600/200 kPa		VXE15B1.0OF
15	1.6	1.0	ON-OFF	MIX/DIV	2.5	300/200 kPa		VXE15B1.6OF
15	2.5	1.6	ON-OFF	MIX	2.5	150 kPa		VXE15B2.5OF
20	2.5	1.6	ON-OFF	MIX	2.5	200 kPa		VXE20B2.5OF
20	4.0	2.5	ON-OFF	MIX	2.5	100 kPa		VXE20B4.0OF
25	4.0	2.5	ON-OFF	MIX	2.5	200 kPa	•	VXE25B4.0OFP
25	5.5	3.5	ON-OFF	MIX	2.5	200 kPa	•	VXE25B5.5OFP
3-way valves modulating with conical sealing								
15	0.25	0.16	MOD	MIX	6.5	600 kPa		VXE15B0.25MCS
15	0.40	0.25	MOD	MIX	6.5	600 kPa		VXE15B0.4MCS
15	0.63	0.40	MOD	MIX	6.5	600 kPa		VXE15B0.63MCS
15	1.0	0.63	MOD	MIX	6.5	600 kPa		VXE15B1.0MCS
15	1.6	1.0	MOD	MIX	6.5	300 kPa		VXE15B1.6MCS
15	2.5	1.6	MOD	MIX	6.5	100 kPa		VXE15B2.5MCS
20	2.5	1.6	MOD	MIX	6.5	150 kPa		VXE20B2.5MCS
20	4.0	2.5	MOD	MIX	6.5	50 kPa		VXE20B4.0MCS
25	6.3	4.0	MOD	MIX	6.5	250 kPa	•	VXE25B6.3MPC
25	8.0	5.5	MOD	MIX	6.5	250 kPa	•	VXE25B8.0MPC
3-way valves on-off with conical sealing								
15	1.6	1.0	ON-OFF	MIX/DIV	2.5	300/200 kPa		VXE15B1.6OFCS
20	2.5	1.6	ON-OFF	MIX	2.5	200 kPa		VXE20B2.5OFCS

VYE Valves (3-way valves with bypass)

DN	K_{VS}		Type	Application	Stroke	Close-off pressure	Pressure balanced	Item No.
	A-AB	B-AB						
3-way valves with bypass modulating with flat sealing								
15	0.25	0.16	MOD	MIX	6.5	600 kPa		VYE15B0.25M
15	0.40	0.25	MOD	MIX	6.5	600 kPa		VYE15B0.4M
15	0.63	0.40	MOD	MIX	6.5	600 kPa		VYE15B0.63M
15	1.0	0.63	MOD	MIX	6.5	600 kPa		VYE15B1.0M
15	1.6	1.0	MOD	MIX	6.5	300 kPa		VYE15B1.6M
15	2.5	1.6	MOD	MIX	6.5	100 kPa		VYE15B2.5M
20	2.5	1.6	MOD	MIX	6.5	150 kPa		VYE20B2.5M
20	4.0	2.5	MOD	MIX	6.5	50 kPa		VYE20B4.0M
25	6.3	4.0	MOD	MIX	6.5	250 kPa	•	VYE25B6.3MP
25	8.0	5.5	MOD	MIX	6.5	250 kPa	•	VYE25B8.0MP
3-way valves with bypass on-off with flat sealing								
15	1.0	0.63	ON-OFF	MIX/DIV	2.5	600/200 kPa		VYE15B1.0OF
15	1.6	1.0	ON-OFF	MIX/DIV	2.5	300/200 kPa		VYE15B1.6OF
15	2.5	1.6	ON-OFF	MIX	2.5	150 kPa		VYE15B2.5OF
20	2.5	1.6	ON-OFF	MIX	2.5	200 kPa		VYE20B2.5OF
20	4.0	2.5	ON-OFF	MIX	2.5	100 kPa		VYE20B4.0OF
25	4.0	2.5	ON-OFF	MIX	2.5	200 kPa	•	VYE25B4.0OFP
3-way valves with bypass modulating with conical sealing								
15	0.25	0.16	MOD	MIX	6.5	600 kPa		VYE15B0.25MCS
15	0.40	0.25	MOD	MIX	6.5	600 kPa		VYE15B0.4MCS
15	0.63	0.40	MOD	MIX	6.5	600 kPa		VYE15B0.63MCS
15	1.0	0.63	MOD	MIX	6.5	600 kPa		VYE15B1.0MCS
15	1.6	1.0	MOD	MIX	6.5	300 kPa		VYE15B1.6MCS
15	2.5	1.6	MOD	MIX	6.5	100 kPa		VYE15B2.5MCS
20	2.5	1.6	MOD	MIX	6.5	150 kPa		VYE20B2.5MCS
20	4.0	2.5	MOD	MIX	6.5	50 kPa		VYE20B4.0MCS
25	6.3	4.0	MOD	MIX	6.5	250 kPa	•	VYE25B6.3MPC
25	8.0	5.5	MOD	MIX	6.5	250 kPa	•	VYE25B8.0MPC
3-way valves with bypass on-off with conical sealing								
15	1.6	1.0	ON-OFF	MIX	2.5	300/200 kPa		VYE15B1.6OFCS
20	2.5	1.6	ON-OFF	MIX	2.5	200 kPa		VYE20B2.5OFCS

Accessories

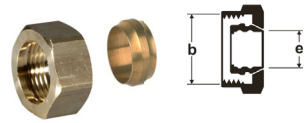
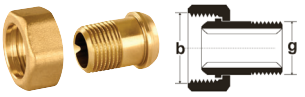
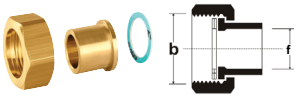
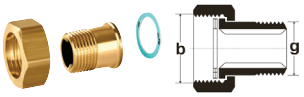
Overview associated actuators

	Control signal				
Valve stroke	**On/Off 230 V**	**On/Off 24 V**	**3-point 230 V**	**3-point 24 V**	**0/2...10 V 24 V**
2.5 mm	MT4-230...NC/NO	MT4-024...NC/NO			
6.5 mm	MT8-230...NC/NO M5410L1001	MT8-024...NC/NO M5410C1001	MSHF-B018-151	MSLF-B018-150 MSLF-B018-151	MSLM-B018-150 MSLM-B018-151

	Description		Power Supply	Item No.
	MT4	**Actuator: 4.0 mm stroke, 90 N, on/off, thermoelectric**		
		NO = Normally open	24 V AC/DC	MT4-024-NO
		NC = Normally closed		MT4-024-NC
		NO = Normally open	230 V AC	MT4-230-NO
		NC = Normally closed		MT4-230-NC
	MT8	**Actuator: 8.0 mm stroke, 90 N, on/off, thermoelectric**		
		NO = Normally open	24 V AC/DC	MT8-024-NO
		NC = Normally closed		MT8-024-NC
		NO = Normally open	230 V AC	MT8-230-NO
		NC = Normally closed		MT8-230-NC
	M5410	**Actuator: 6.5 mm stroke, 100 N, on/off, fast motorized**		
			24 V AC/DC	M5410C1001
			230 V AC	M5410L1001
	MSLF-B018	**Actuator: 6.5 mm stroke, 180 N, 3-point (floating)**		
			24 V AC/DC	MSLF-B018-150
	MSLF-B018/ MSHF-B018	**Actuator: 6.5 mm stroke, 180 N, 3-point (floating)**		
		Manual override	24 V AC/DC	MSLF-B018-151
			230 V AC	MSHF-B018-151
	MSLM-B018	**Actuator: 6.5 mm stroke, 180 N, 0/2 - 10 V, modulating**		
			24 V AC/DC	MSLM-B018-150
		Manual override		MSLM-B018-151

Naming key linear valves accessories

ASV	-CS	-20	-O	-F
Accessories for V&A	Connection set	DN (mm)	Fitting type	Sealing type
ASV = Accessories for V&A	CS = Connection set	15 20 25	F = CONEX Fitting S = Solded O = Outer thread	F = Flat C = Conical

	Description		Dimension	Item No.
	**ASV-CS-xx-F-C**	**Conical connection set** Consisting of one union nut and one ferrule, compression connection		
		b = G1/2, e = 15 mm	DN15	ASV-CS-15-F-C
		b = 1 1/8 x 14 BS 84, e = 22 mm	DN20	ASV-CS-20-F-C
	**ASV-CS-xx-O-C**	**Conical connection set** Consisting of one union nut and one tailpiece, external thread		
		b = G 1/2, g = R 3/8"	DN15	ASV-CS-15-O-C
		b = 1 1/8 x 14 BS 84, g = R 1/2"	DN20	ASV-CS-20-O-C
		b = G1 1/4 g = R 1"	DN25	ASV-CS-25-O-C
	**ASV-CS-xx-S-F**	**Flat connection set** Consisting of one union nut, one solder bush and one gasket, soldering connection		
		b = G1/2, f = 12 mm	DN15	ASV-CS-15-S-F
		b = G3/4 f = 15 mm	DN20	ASV-CS-20-S-F
	**ASV-CS-xx-O-F**	**Flat connection set** Consisting of one union nut, one tailpiece with external thread and one gasket		
		b = G1/2, g = R3/8"	DN15	ASV-CS-15-O-F
		b = G3/4 g= R1/2"	DN20	ASV-CS-20-O-F
		b = G1 1/4 g= R1"	DN25	ASV-CS-25-O-F2

Note: VDE needs two connection sets, VXE needs thee connection sets, VYE needs four connection sets

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