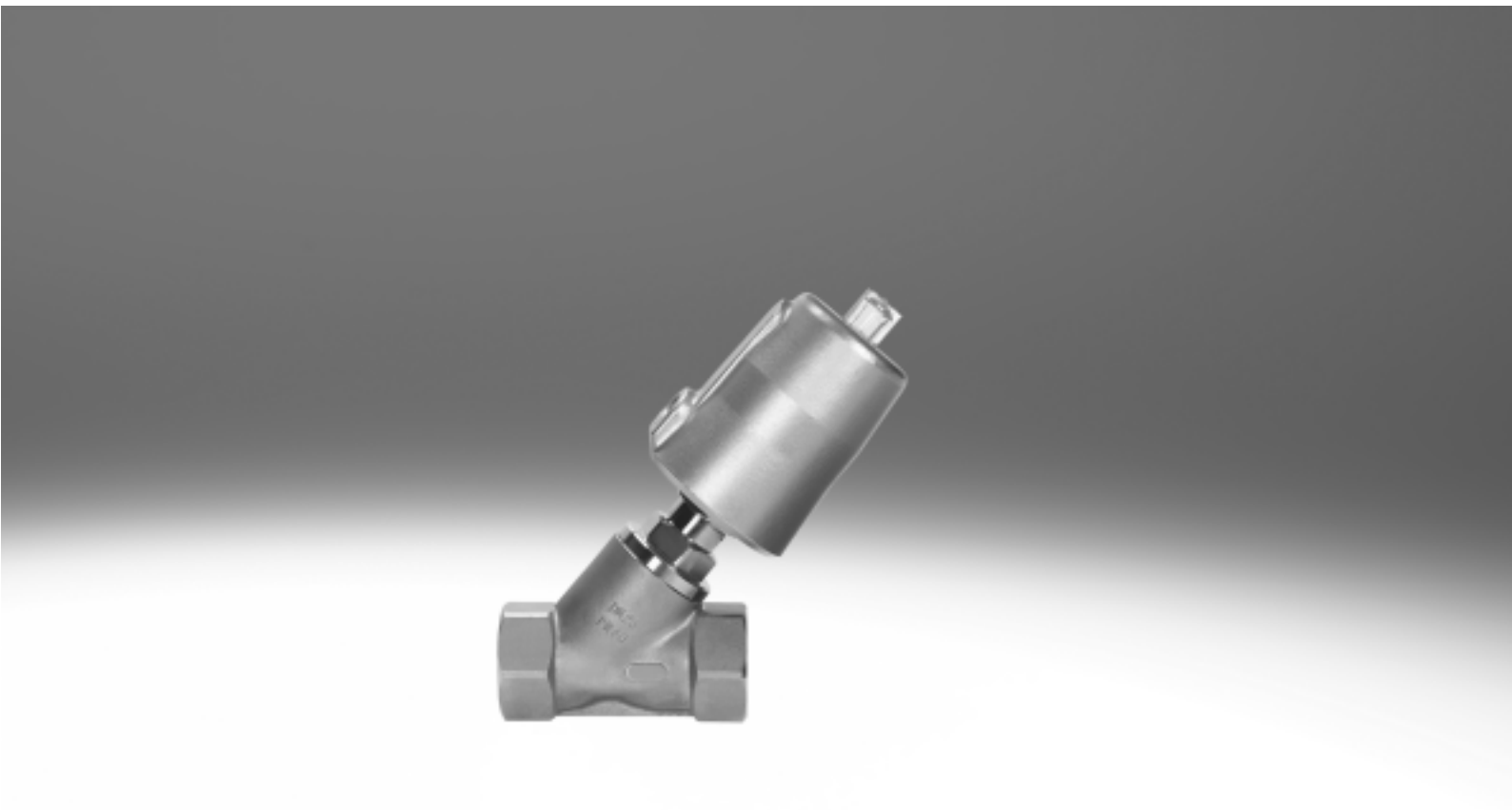
Angle seat valve VZXF, NPT

FESTO



New

Angle seat valve VZXF, NPT

Key features

Function

Angle seat valves are externally actuated valves. These valves are actuated by a direct supply of compressed air. In this process, the seat of the process valve is raised by means of a pneumatic actuator. In the normal position, the valve is closed by a spring. When the actuator is subjected to operating pressure, it raises the actuating piston and, at the same time, the valve disc too – the valve opens. The valve seat is slanted at an angle of approx. 50° in relation to the medium flow. The direction of flow is determined by the design of the valve. Angle seat valves are used in applications in which absolute purity of the medium cannot be ensured, in which highly viscous media are to be controlled or in steam applications.

Design

Connecting thread
NPT1/2 ... NPT2

Flow rate Kv
3.3 ... 43 m^3/h

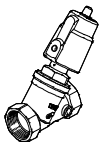
- Gunmetal (red brass) variant
- Stainless steel casting variant
- Stainless steel casting variant with nickel-plated actuator head

General

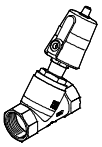
- Angle seat valves are simple and sturdy and are thus perfectly suitable for almost all media with a viscosity of up to 600 mm^2/s
- Angle seat valves control suitable gaseous and liquid media in rigid piping systems without the need for any pressure differential
- No pressure differential required between the inlet and outlet
- Low flow resistance
- Insensitive to steam or slightly contaminated media
- Long service life
- Low maintenance
- The valves have a high chemical and thermal resistance by virtue of their design
- The N/C function ensures that the valve is closed in the event of pressure loss in the control circuit
- Different designs of angle seat valves are available depending on the pressure of the medium
- There is a choice of two versions: “closing in the direction of medium flow” is used for gaseous media; “closing against the direction of media flow” is used for liquid media
- “Suitable for vacuum” is used for angle seat valves in packaging machines which need to generate a vacuum

Variants

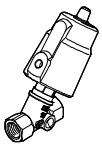
VZXF-L-...-M-A-N112-350-H3B1-50-8



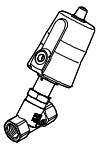
VZXF-L-...-M-A-N112-350-M1-V4V4T-50-7



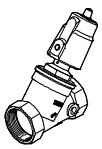
VZXF-L-...-M-A-N12-120-M1-H3B1-50-16



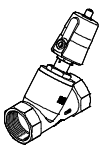
VZXF-L-...-M-B-N12-130-M1-V4V4T-50-40



VZXF-L-...-M-B-N2-430-H3B1-50-3



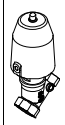
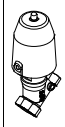
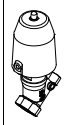
VZXF-L-...-M-B-N2-450-M1-V4V4T-50-3



New

Angle seat valve VZXF, NPT

Product range overview

Version	Type	Process valve connection	Nominal size DN	Temperature of medium [°C]	Flow rate Kv [m³/h]	Process valve nominal pressure PN	➔ Page/Internet
Gunmetal (red brass)							
	VZXF-L-...-H3B1-...	NPT½	15	–10 ... +80	3.5 ... 28	16	6
		NPT¾	20				
		NPT1	25				
		NPT1¼	32				
		NPT1½	40				
		NPT2	50				
Stainless steel casting							
	VZXF-L-...-V4V4T-...	NPT½	15	–40 ... +200	3.3 ... 43	40	9
		NPT¾	20				
		NPT1	25				
		NPT1¼	32				
		NPT1½	40				
		NPT2	50				
Stainless steel casting with nickel-plated actuator head							
	VZXF-L-...-V4B2T-...	NPT½	15	–40 ... +200	3.3 ... 34.5	40	13
		NPT¾	20				
		NPT1	25				
		NPT1¼	32				
		NPT1½	40				
		NPT2	50				

New

Angle seat valve VZXF, NPT

Type codes

FESTO

VZXF – L – M22C – M – A – N12 – 130 – M1 –

Type	
VZXF	Angle seat valve, externally actuated

Type of directional control valve	
L	In-line valve

Valve function	
M22C	2/2-way valve, normally closed

Reset method for monostable valves	
M	Mechanical spring

Media flow	
A	Above valve seat for gaseous media
B	Below valve seat for gaseous and liquid media

Process valve connection	
N12	Thread NPT½
N34	Thread NPT¾
N1	Thread NPT1
N114	Thread NPT1¼
N112	Thread NPT1½
N2	Thread NPT2

Nominal width	
120	12 mm
130	13 mm
160	16 mm
180	18 mm
230	23 mm
240	24 mm
290	29 mm
310	31 mm
350	35 mm
430	43 mm
450	45 mm

Temperature range of medium	
	Standard, –10 … +80 °C
M1	–40 … +200 °C

Angle seat valve VZXF, NPT

Type codes

H3	B1		–	50	–	10

Housing material	
H3	Gunmetal (red brass)
V4	Stainless steel

Housing, actuator material	
AL	Aluminium
AN	Nickel-plated aluminium
B1	Brass
B2	Nickel-plated brass
V4	Stainless steel

Sealing materials	
	Standard, NBR
T	PTFE
V	FPM

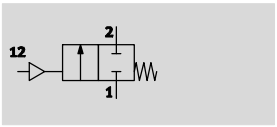
Actuator size	
50	50 mm
80	80 mm

Medium pressure	
V	–0.9 ... 0 bar
3	Max. 3 bar
4	Max. 4 bar
5	Max. 5 bar
6	Max. 6 bar
7	Max. 7 bar
8	Max. 8 bar
9	Max. 9 bar
10	Max. 10 bar
12	Max. 12 bar
16	Max. 16 bar
20	Max. 20 bar
22	Max. 22 bar
25	Max. 25 bar
40	Max. 40 bar

Angle seat valve VZXF, NPT

Technical data – Gunmetal (red brass), temperature of medium –10 … +80 °C

Function



- Flow rate Kv
  3.5 … 28 m^3/h

- Connecting thread
  NPT½ … NPT2

General technical data				
Process valve connection		NPT½	NPT¾	NPT1
Auxiliary pilot air port		G⅛		
Nominal size DN		15	20	25
Nominal width	[mm]	12	16	23
Valve function		2/2-way, closed, monostable		
Design		Poppet valve with spring return		
Type of mounting		In-line installation		
Mounting position		Any		
Direction of flow		Non-reversible		
Exhaust function		No flow control		
Sealing principle		Soft		
Reset method		Mechanical spring		
Type of actuation		Pneumatic		
Type of pilot control		With external control		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]		

Process valve connection		NPT1¼	NPT1½	NPT2
Auxiliary pilot air port		G⅛		
Nominal size DN		32	40	50
Nominal width	[mm]	29	35	43
Valve function		2/2-way, closed, monostable		
Design		Poppet valve with spring return		
Type of mounting		In-line installation		
Mounting position		Any		
Direction of flow		Non-reversible		
Exhaust function		No flow control		
Sealing principle		Soft		
Reset method		Mechanical spring		
Type of actuation		Pneumatic		
Type of pilot control		With external control		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]		

Angle seat valve VZXF, NPT

Technical data – Gunmetal (red brass), temperature of medium –10 … +80 °C

Operating and environmental conditions				
Process valve connection		NPT1½	NPT¾	NPT1
Nominal pressure of process valve PN		16		
Medium		Filtered compressed air, grade of filtration 200 µm		
		Mineral oil-based hydraulic oil		
		Inert gases		
		Mineral oil		
		Neutral fluids		
		Water		
Max. viscosity	[mm²/s]	600		
Ambient temperature	[°C]	–10 … +60		
Temperature of medium	[°C]	–10 … +80		
CE marking (see declaration of conformity)		–		

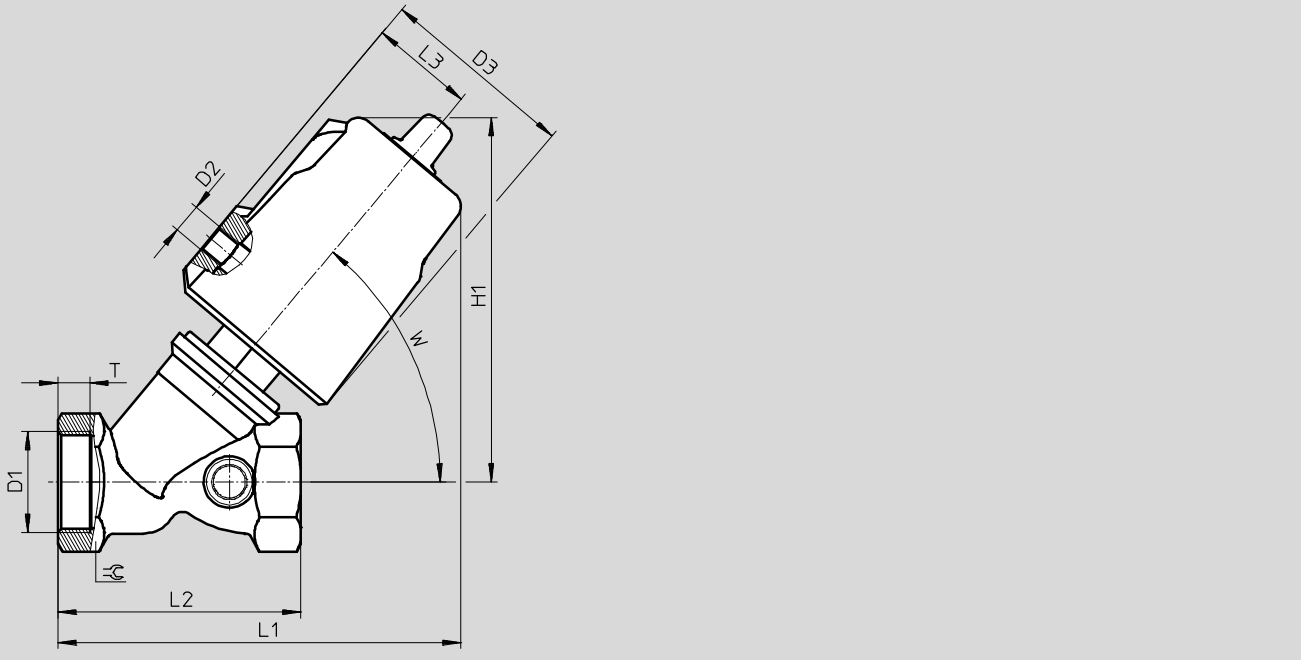
Process valve connection		NPT1¼	NPT1½	NPT2
Nominal pressure of process valve PN		16		
Medium		Filtered compressed air, grade of filtration 200 µm		
		Mineral oil-based hydraulic oil		
		Inert gases		
		Mineral oil		
		Neutral fluids		
		Water		
Max. viscosity	[mm²/s]	600		
Ambient temperature	[°C]	–10 … +60		
Temperature of medium	[°C]	–10 … +80		
CE marking (see declaration of conformity)		To EU Pressure Equipment Directive		

Materials			
Angle seat valves			Material number
1	Housing	Gunmetal (red brass)	CC499K
2	Actuator head	Brass	–
3	Stem seal	NBR	–
	Seat seal	PTFE	–
–	Note on materials	Contains paint-wetting impairment substances, RoHS compliant	–

Angle seat valve VZXF, NPT

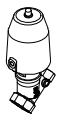
Technical data – Gunmetal (red brass), temperature of medium –10 … +80 °C

Dimensions Download CAD data ➔ **www.festo.com**



	D1	D2	D3 ∅	H1	L1	L2	L3	T	W	⫧
VZXF-L-...-N12-...-H3B1-50-...	NPT½	G⅛	62	112	123	66	34	8	50°	27
VZXF-L-...-N34-...-H3B1-50-...	NPT¾			117	130	75		9		33
VZXF-L-...-N1-...-H3B1-50-...	NPT1			121	133	80		10.5		41
VZXF-L-...-N114-...-H3B1-50-...	NPT1¼			139	154	97		12.5		50
VZXF-L-...-N112-...-H3B1-50-...	NPT1½			145	161	107		14.5		56
VZXF-L-...-N2-...-H3B1-50-...	NPT2			154	171	124		16.5		68

Ordering data – Angle seat valve VZXF

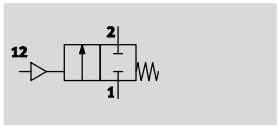
	Process valve connection	Flow rate Kv [m³/h]	Medium pressure [bar]	Corrosion resistance CRC[1]	Product weight [g]	Part No.	Type
	NPT½	3.5	0 … 16	1	1200	**1002533**	**VZXF-L-M22C-M-A-N12-120-H3B1-50-16**
		3.7				**1002534**	**VZXF-L-M22C-M-B-N12-120-H3B1-50-16**
	NPT¾	6.7	0 … 16		1300	**1002535**	**VZXF-L-M22C-M-A-N34-160-H3B1-50-16**
		5.2				**1002536**	**VZXF-L-M22C-M-B-N34-160-H3B1-50-16**
	NPT1	10.8	0 … 16		1500	**1002537**	**VZXF-L-M22C-M-A-N1-230-H3B1-50-16**
		9.6	0 … 10			**1002538**	**VZXF-L-M22C-M-B-N1-230-H3B1-50-10**
	NPT1¼	19	0 … 10		1900	**1002539**	**VZXF-L-M22C-M-A-N114-290-H3B1-50-10**
		6	0 … 7			**1002540**	**VZXF-L-M22C-M-B-N114-290-H3B1-50-7**
	NPT1½	23	0 … 8		2300	**1002541**	**VZXF-L-M22C-M-A-N112-350-H3B1-50-8**
		16.5	0 … 6			**1002542**	**VZXF-L-M22C-M-B-N112-350-H3B1-50-6**
	NPT2	28	0 … 4		2800	**1002543**	**VZXF-L-M22C-M-A-N2-430-H3B1-50-4**
		23	0 … 3			**1002544**	**VZXF-L-M22C-M-B-N2-430-H3B1-50-3**

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Angle seat valve VZXF, NPT

Technical data – Stainless steel casting, temperature of medium –40 … 200 °C

Function



- Flow rate Kv
  3.3 … 43 m^3/h

- Connecting thread
  NPT½ … NPT2

General technical data				
Process valve connection		NPT½	NPT¾	NPT1
Auxiliary pilot air port		G⅛		
Nominal size DN		15	20	25
Nominal width	[mm]	13	18	24
Valve function		2/2-way, closed, monostable		
Design		Poppet valve with spring return		
Type of mounting		In-line installation		
Mounting position		Any		
Direction of flow		Non-reversible		
Exhaust function		No flow control		
Sealing principle		Soft		
Reset method		Mechanical spring		
Type of actuation		Pneumatic		
Type of pilot control		Externally actuated		
Pilot medium		Compressed air to ISO 8573-1:2010 [7:4:4]		

Process valve connection		NPT1¼	NPT1½	NPT2
Auxiliary pilot air port		G⅛		
Nominal size DN		32	40	50
Nominal width	[mm]	31	35	45
Valve function		2/2-way, closed, monostable		
Design		Poppet valve with spring return		
Type of mounting		In-line installation		
Mounting position		Any		
Direction of flow		Non-reversible		
Exhaust function		No flow control		
Sealing principle		Soft		
Reset method		Mechanical spring		
Type of actuation		Pneumatic		
Type of pilot control		Externally actuated		
Pilot medium		Compressed air to ISO 8573-1:2010 [7:4:4]		

Angle seat valve VZXF, NPT

Technical data – Stainless steel casting, temperature of medium –40 … +200 °C

Operating and environmental conditions				
Process valve connection		NPT1½	NPT3¾	NPT1
Nominal pressure of process valve PN		40		
Medium		Filtered compressed air, grade of filtration 200 µm		
		Mineral oil-based hydraulic oil		
		Inert gases		
		Mineral oil		
		Neutral fluids		
		Water		
		Steam		
Max. viscosity	[mm²/s]	600		
Ambient temperature	[°C]	–10 … 60		
Temperature of medium	[°C]	–40 … 200		
CE marking (see declaration of conformity)		–		

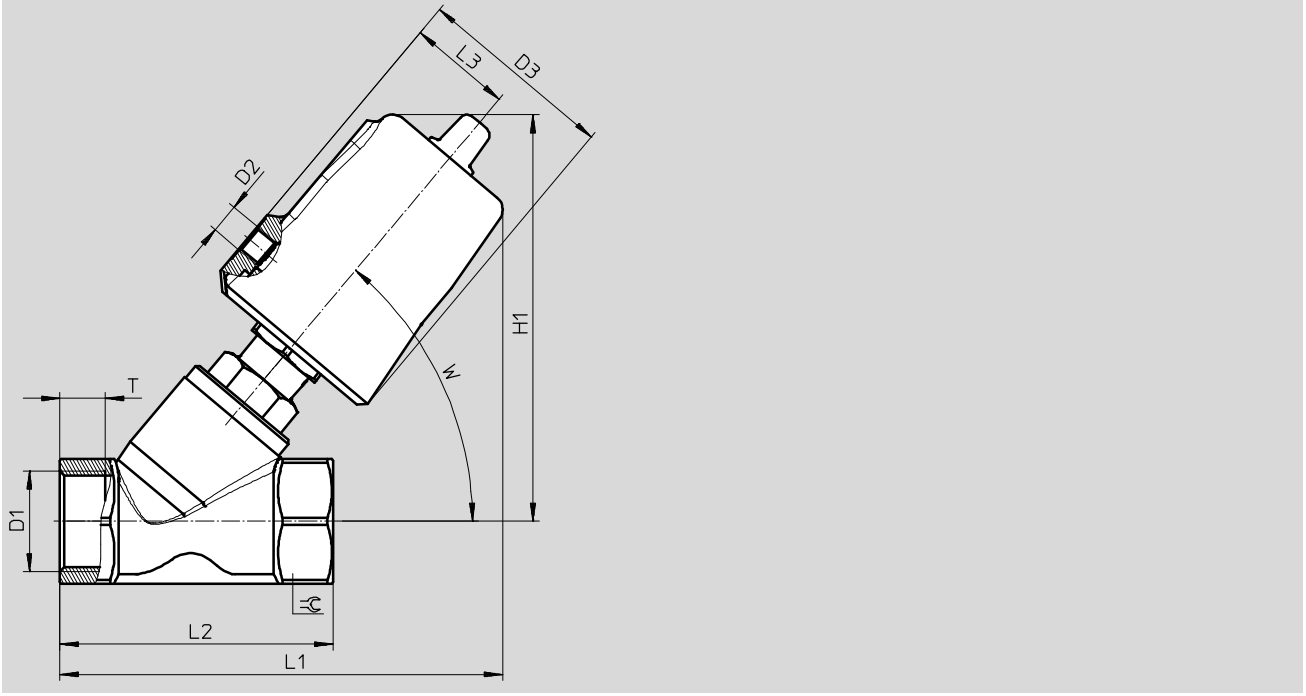
Process valve connection		NPT1¼	NPT1½	NPT2
Nominal pressure of process valve PN		40		
Medium		Filtered compressed air, grade of filtration 200 µm		
		Mineral oil-based hydraulic oil		
		Inert gases		
		Mineral oil		
		Neutral fluids		
		Water		
		Steam		
Max. viscosity	[mm²/s]	600		
Ambient temperature	[°C]	–10 … 60		
Temperature of medium	[°C]	–40 … 200		
CE marking (see declaration of conformity)		To EU Pressure Equipment Directive		

Materials			
Angle seat valves			Material number
1	Housing	Stainless steel casting	1.4408
2	Actuator head	Stainless steel	–
3	Stem seal	PTFE	–
	Seat seal	PTFE	–
–	Note on materials	Contains paint-wetting impairment substances, RoHS compliant	–

Angle seat valve VZXF, NPT

Technical data – Stainless steel casting, temperature of medium –40 … +200 °C

Dimensions Download CAD data ➔ **www.festo.com**



	D1	D2	D3 ∅	H1	L1	L2	L3	T	W	⌭
VZXF-L-…-N12-…-V4V4T-50-…	NPT½	G⅛	62	129	135	65	34	12	50°	27
VZXF-L-…-N34-…-V4V4T-50-…	NPT¾			130	138	75		13		32
VZXF-L-…-N1-…-V4V4T-50-…	NPT1			135	146	90		15		42
VZXF-L-…-N1-…-V4V4T-80-…	NPT1		94	177	184		48			
VZXF-L-…-N114-…-V4V4T-50-…	NPT1¼		62	151	155	110	34	17		50
VZXF-L-…-N114-…-V4V4T-80-…	NPT1¼		94	183	194		48			
VZXF-L-…-N112-…-V4V4T-50-…	NPT1½		62	155	174	120	34	19		55
VZXF-L-…-N112-…-V4V4T-80-…	NPT1½		94	187	202		48			
VZXF-L-…-N2-…-V4V4T-50-…	NPT2		62	167	193	150	34	21		70
VZXF-L-…-N2-…-V4V4T-80-…	NPT2		94	199	222		48			

Angle seat valve VZXF, NPT

Technical data – Stainless steel casting, temperature of medium –40 … +200 °C

Ordering data – Angle seat valve VZXF

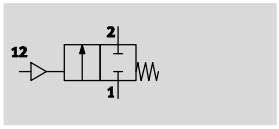
	Process valve connection	Flow rate Kv [m³/h]	Medium pressure [bar]	Corrosion resistance CRC[1]	Product weight [g]	Part No.	Type
	NPT1/2	3.8	0 … 25	3	1300	**1002545**	**VZXF-L-M22C-M-A-N12-130-M1-V4V4T-50-25**
		3.3	0 … 40			**1002546**	**VZXF-L-M22C-M-B-N12-130-M1-V4V4T-50-40**
	NPT3/4	7.5	0 … 20		1400	**1002547**	**VZXF-L-M22C-M-A-N34-180-M1-V4V4T-50-20**
		6.5	0 … 20			**1002548**	**VZXF-L-M22C-M-B-N34-180-M1-V4V4T-50-20**
	NPT1	12	0 … 16		1600	**1002549**	**VZXF-L-M22C-M-A-N1-240-M1-V4V4T-50-16**
		11	0 … 10			**1002550**	**VZXF-L-M22C-M-B-N1-240-M1-V4V4T-50-10**
		12.5	0 … 40		3600	**1002551**	**VZXF-L-M22C-M-A-N1-240-M1-V4V4T-80-40**
		12	0 … 22			**1002552**	**VZXF-L-M22C-M-B-N1-240-M1-V4V4T-80-22**
	NPT1 1/4	18.5	0 … 9		2200	**1002553**	**VZXF-L-M22C-M-A-N114-310-M1-V4V4T-50-9**
		10.7	0 … 7			**1002554**	**VZXF-L-M22C-M-B-N114-310-M1-V4V4T-50-7**
		19	0 … 25		3800	**1002555**	**VZXF-L-M22C-M-A-N114-310-M1-V4V4T-80-25**
		17.5	0 … 10			**1002556**	**VZXF-L-M22C-M-B-N114-310-M1-V4V4T-80-10**
	NPT1 1/2	25	0 … 7		2500	**1002557**	**VZXF-L-M22C-M-A-N112-350-M1-V4V4T-50-7**
		17.5	0 … 6			**1002558**	**VZXF-L-M22C-M-B-N112-350-M1-V4V4T-50-6**
		29	0 … 20		4300	**1002559**	**VZXF-L-M22C-M-A-N112-350-M1-V4V4T-80-20**
		28	0 … 8			**1002560**	**VZXF-L-M22C-M-B-N112-350-M1-V4V4T-80-8**
	NPT2	34.5	0 … 4		3500	**1002561**	**VZXF-L-M22C-M-A-N2-450-M1-V4V4T-50-4**
		19.5	0 … 3			**1002562**	**VZXF-L-M22C-M-B-N2-450-M1-V4V4T-50-3**
		43	0 … 12		5400	**1002563**	**VZXF-L-M22C-M-A-N2-450-M1-V4V4T-80-12**
		39	0 … 5			**1002564**	**VZXF-L-M22C-M-B-N2-450-M1-V4V4T-80-5**

1) Corrosion resistance class CRC 3 to Festo standard FN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional requirements for the surface and which are in direct contact with a normal industrial environment.

Angle seat valve VZXF, NPT

Technical data – Stainless steel casting with nickel-plated actuator head

Function



Flow rate Kv
3.3 ... 34.5 m^3/h

NPT½ ... NPT2

General technical data				
Process valve connection		NPT½	NPT¾	NPT1
Pneumatic connection		G ⅛		
Nominal size DN		15	20	25
Nominal width	[mm]	13	18	24
Valve function		2/2-way, closed, monostable		
Design		Poppet valve with spring return		
Type of mounting		In-line installation		
Mounting position		Any		
Direction of flow		Non-reversible		
Exhaust function		No flow control		
Sealing principle		Soft		
Reset method		Mechanical spring		
Type of actuation		Pneumatic		
Type of pilot control		Externally actuated		

Process valve connection		NPT1¼	NPT1½	NPT2
Pneumatic connection		G ⅛		
Nominal size DN		32	40	50
Nominal width	[mm]	31	35	45
Valve function		2/2-way, closed, monostable		
Design		Poppet valve with spring return		
Type of mounting		In-line installation		
Mounting position		Any		
Direction of flow		Non-reversible		
Exhaust function		No flow control		
Sealing principle		Soft		
Reset method		Mechanical spring		
Type of actuation		Pneumatic		
Type of pilot control		Externally actuated		

New

Angle seat valve VZXF, NPT

Technical data – Stainless steel casting with nickel-plated actuator head

Operating and environmental conditions							
Process valve connection		NPT1½		NPT3¾		NPT1	
Variant		...-M-A-...	...-M-B-...	...-M-A-...	...-M-B-...	...-M-A-...	...-M-B-...
Nominal pressure of process valve PN		40					
Operating pressure	[bar]	6 ... 10					
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]					
Medium		Vapour					
		Inert gases					
		Filtered compressed air, grade of filtration 200 µm					
		–	Mineral oil-based hydraulic oil	–	Mineral oil-based hydraulic oil	–	Mineral oil-based hydraulic oil
		–	Mineral oil	–	Mineral oil	–	Mineral oil
		–	Neutral fluids	–	Neutral fluids	–	Neutral fluids
		–	Water	–	Water	–	Water
Max. viscosity	[mm²/s]	600					
Ambient temperature	[°C]	–10 ... +60					
Temperature of medium	[°C]	–40 ... +200					
CE marking (see declaration of conformity)		–					

Process valve connection		NPT1¼		NPT1½		NPT2	
Variant		...-M-A-...	...-M-B-...	...-M-A-...	...-M-B-...	...-M-A-...	...-M-B-...
Nominal pressure of process valve PN		40					
Operating pressure	[bar]	6 ... 10					
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]					
Medium		Vapour					
		Inert gases					
		Filtered compressed air, grade of filtration 200 µm					
		–	Mineral oil-based hydraulic oil	–	Mineral oil-based hydraulic oil	–	Mineral oil-based hydraulic oil
		–	Mineral oil	–	Mineral oil	–	Mineral oil
		–	Neutral fluids	–	Neutral fluids	–	Neutral fluids
		–	Water	–	Water	–	Water
Max. viscosity	[mm²/s]	600					
Ambient temperature	[°C]	–10 ... +60					
Temperature of medium	[°C]	–40 ... +200					
CE marking (see declaration of conformity)		To EU Pressure Equipment Directive					

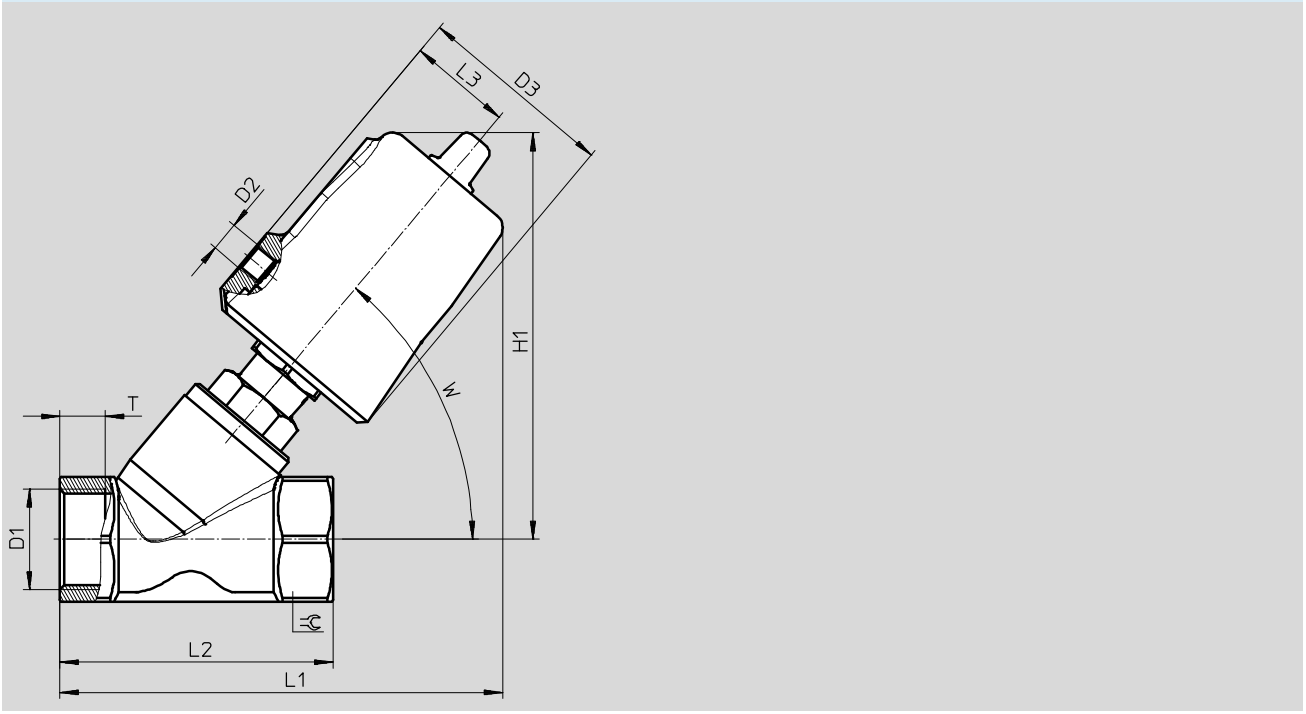
Materials			
Angle seat valves			Material number
1	Housing	Stainless steel casting	1.4408
2	Actuator head	Nickel-plated brass	–
3	Stem seal	PTFE	–
	Seat seal	PTFE	–
–	Note on materials	Contains paint-wetting impairment substances, RoHS compliant	

Angle seat valve VZXF, NPT

Technical data – Stainless steel casting with nickel-plated actuator head

FESTO

Dimensions Download CAD data ➔ **www.festo.com**



	D1	D2	D3 ∅	H1	L1	L2	L3	T	W	⫧
VZXF-L-...-N12-...-V4B2T-50-...	NPT1½	G1⅛	62	128	133	65	34	12	50°	27
VZXF-L-...-N34-...-V4B2T-50-...	NPT¾			128	136.5	75		13		32
VZXF-L-...-N1-...-V4B2T-50-...	NPT1			133	145	90		15		41
VZXF-L-...-N114-...-V4B2T-50-...	NPT1¼			150	163.5	110		17		50
VZXF-L-...-N112-...-V4B2T-50-...	NPT1½			153	172	120		19		55
VZXF-L-...-N2-...-V4B2T-50-...	NPT2			167	193	150		21		70

Ordering data – Angle seat valve VZXF

	Process valve connection	Flow rate Kv [m³/h]	Medium pressure [bar]	Corrosion resistance CRC[1)]	Product weight [g]	Part No.	Type
	NPT1½	3.8	0 ... 40	2	1300	**3539721**	**VZXF-L-M22C-M-A-N12-130-M1-V4B2T-50-40**
		3.3				**3539722**	**VZXF-L-M22C-M-B-N12-130-M1-V4B2T-50-40**
	NPT¾	7.5	0 ... 20		1400	**3539746**	**VZXF-L-M22C-M-A-N34-180-M1-V4B2T-50-20**
		6.5				**3539747**	**VZXF-L-M22C-M-B-N34-180-M1-V4B2T-50-20**
	NPT1	12	0 ... 16		1600	**3539784**	**VZXF-L-M22C-M-A-N1-240-M1-V4B2T-50-16**
		11	0 ... 10			**3539785**	**VZXF-L-M22C-M-B-N1-240-M1-V4B2T-50-10**
	NPT1¼	18.5	0 ... 9		2200	**3539817**	**VZXF-L-M22C-M-A-N114-310-M1-V4B2T-50-9**
		10.7	0 ... 7			**3539818**	**VZXF-L-M22C-M-B-N114-310-M1-V4B2T-50-7**
	NPT1½	25	0 ... 7		2500	**3539928**	**VZXF-L-M22C-M-A-N112-350-M1-V4B2T-50-7**
		17.5	0 ... 6			**3539929**	**VZXF-L-M22C-M-B-N112-350-M1-V4B2T-50-6**
	NPT2	34.5	0 ... 4		3500	**3540143**	**VZXF-L-M22C-M-A-N2-450-M1-V4B2T-50-4**
		19.5	0 ... 3			**3540144**	**VZXF-L-M22C-M-B-N2-450-M1-V4B2T-50-3**

2) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.