

T 8048-2 EN

Type 3349 Aseptic Angle Valve

With USP-VI diaphragm



Application

Control valve for aseptic applications in the food and pharmaceutical industries according to DIN or ANSI standards with USP-VI diaphragm

Valve sizes	DN 6 to 100	• NPS ¼ to 4
Maximum pressure	25 bar	• 360 psi
Temperature range	-10 to 160 °C	• 14 to 320 °F



Type 3349 Angle Valve with

- Type 3271 Pneumatic Actuator
- Type 3277 Pneumatic Actuator for integral positioner attachment
- Type 3379 Pneumatic Piston Actuator with an optional Type 3724 Positioner

Special features

- Aseptic design ensures safe product handling
- Plug with flow characteristic for good control accuracy
- Valve body made of stainless steel with low delta ferrite content (1.4435/316 L)
- Wetted inside surfaces with a precision-lathed or polished finish
- Wetted sealing materials comply with FDA regulations
- USP Class VI-121 °C compliance

The valve body is designed without cavities and can be fitted with various end connections, depending on the version. The valves are suitable for CIP (cleaning-in-place) or SIP (sterilization-in-place). The plug stem guide is sealed by a PTFE diaphragm. A test connection allows the diaphragm to be monitored for leakage. The valve is suitable for aseptic applications.

Versions

Standard version · Hardware version HV01 · Angle valve in bar stock with USP-VI certification, DN 15 to 100 (NPS ½ to 4) · Maximum operating pressure according to Table 5 · Valve with bolted-on bonnet · Plug stem sealed by PTFE diaphragm

Micro-flow valve version · Angle valve in bar stock with USP-VI certification, DN 6 to 25 (NPS ¼ to 1) · Maximum operating pressure according to Table 5 · Valve with bolted-on bonnet · Plug stem sealed by PTFE diaphragm

- Type 3349 Valve with Type 3271 and Type 3277 Pneumatic Actuator (Data Sheet ► T 8310-1)



Fig. 1: Type 3349 Valve with Type 3277 Pneumatic Actuator and Type 3730 Positioner

- Type 3349 Valve with Type 3379 Pneumatic Piston Actuator (Mounting and Operating Instructions ► EB 8315)

Further versions

- Plug and seat surface with **Stellite® facing**
- Valve plug with **PEEK soft seal** (seat bore 6 and larger)
- **V-port plug** for high pressure drops (seat bore 12 and larger)
- **V-port plug with PEEK soft seal** (seat bore 12 and larger)
- **Body materials:** Hastelloy® C22, Hastelloy® C4, Hastelloy® C276, Uranus B, Duplex, 14547/254SMO, Alloy 20 (N08020) · On request
- **Possible end connections** (on request) · Welding ends, threaded connections (aseptic), clamp connections (aseptic), flanges (aseptic) · See Table 2
- With **Type 3724 Positioner** · See Data Sheet ▶ T 8395 (only in combination with Type 3379 Pneumatic Piston Actuator)
- **Surface finishes** on request: peak-to-valley height for external surfaces down to R_a 0.6 μm , inside surfaces down to R_a 0.4 μm
- **Packing** (optional) for micro-flow valve version

Principle of operation

Standard version

The process medium flows through the valve preferably in the flow-to-open (FTO) ¹⁾ direction or in the flow-to-close (FTC) ¹⁾ direction. The flow direction is indicated by an arrow on the valve body. The position of the valve plug determines the flow rate across the cross-sectional area of flow released between the plug and lathed seat. **In both flow directions, the valve body must be drained over the lateral valve connection.**

Micro-flow valve version

The process medium flows through the valve in the flow-to-close (FTC) ¹⁾ direction as indicated by the arrow. The position of the valve plug determines the flow rate across the cross-sectional area of flow released between the plug and lathed seat.

Optional packing: in the version with backup packing, the test connection is sealed by a stopper.

All versions

The plug stem in all versions is sealed by the diaphragm.

The test connection allows the diaphragm to be monitored for leakage (except when a backup packing is used). The test connection is fitted with a pipe to allow the safe drainage of any medium that escapes.

Fail-safe position

Depending on how the compression springs are arranged in the pneumatic actuator, the valve has two fail-safe positions that become effective when the supply air fails:

- **Actuator stem extends (fail-close):** The valve closes when the supply air fails.
- **Actuator stem retracts (fail-open):** The valve opens when the supply air fails.

¹⁾ FTO: Flow-to-open (flow under the plug)
FTC: Flow-to-close (flow over the plug)

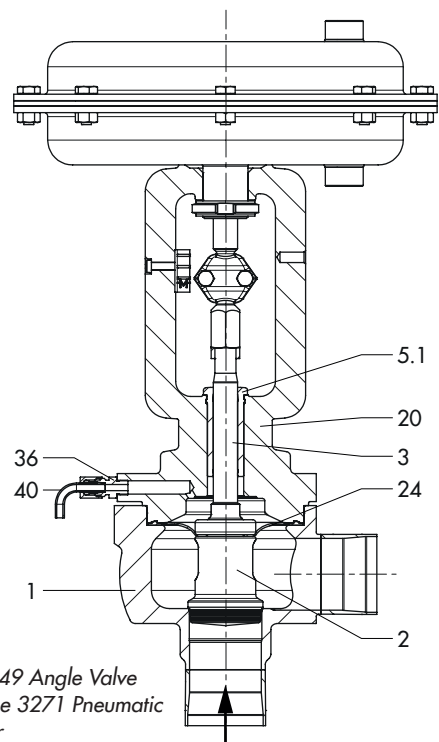


Fig. 2: Type 3349 Angle Valve with Type 3271 Pneumatic Actuator

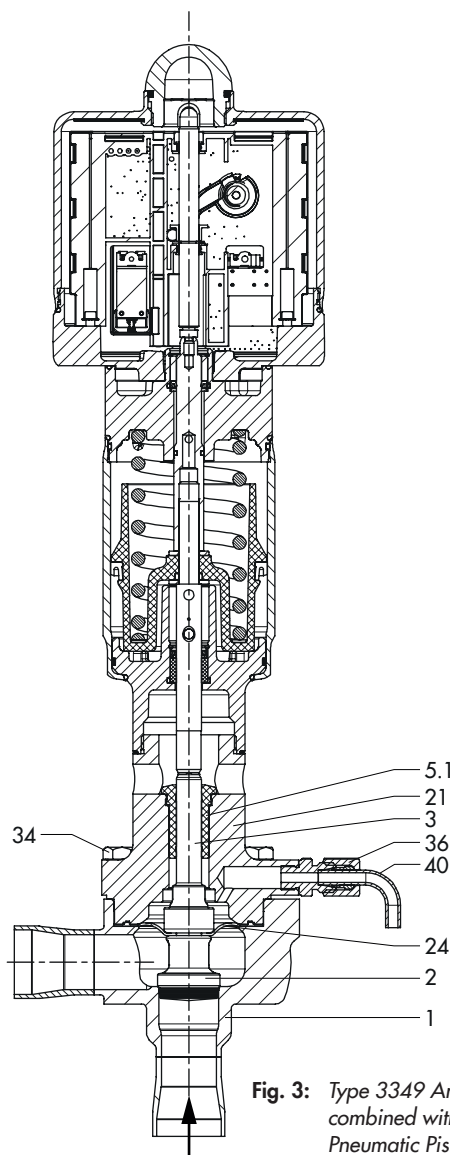


Fig. 3: Type 3349 Angle Valve combined with Type 3379 Pneumatic Piston Actuator and Type 3724 Positioner

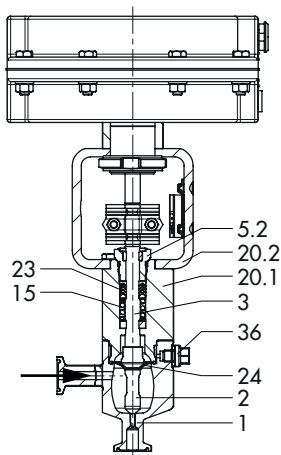


Fig. 4: Type 3349 Micro-flow Valve with Type 3271 Pneumatic Actuator

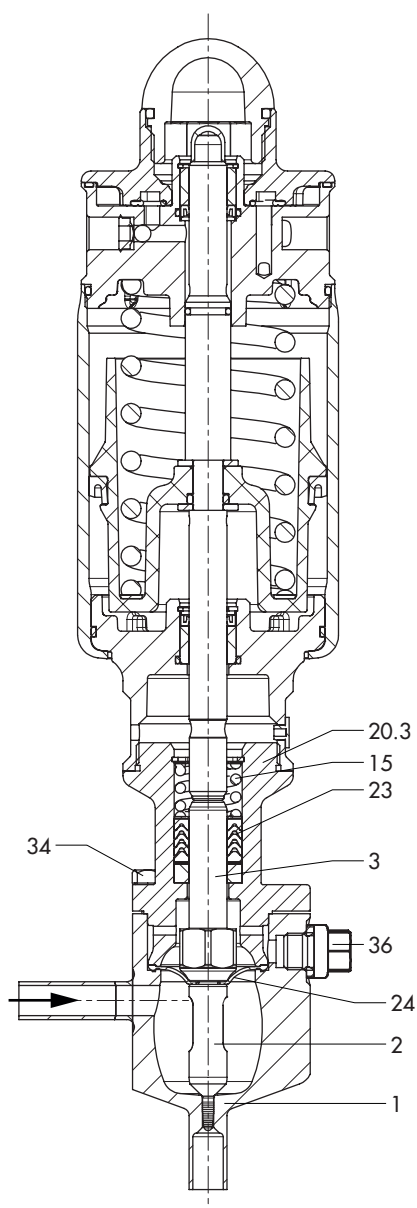


Fig. 5: Type 3349 Angle Valve with Type 3379 Pneumatic Piston Actuator

Legend for Fig. 2 to Fig. 5

- 1 Body
- 2 Plug
- 3 Plug stem
- 5.1 Stem seal
- 5.2 Threaded bushing
- 15 Spring
- 20 Standard yoke for Type 3271/3277 Actuator
- 20.1 Valve bonnet for micro-flow valve version with Type 3271/3277 Actuator
- 20.2 Yoke for micro-flow valve version with Type 3271/3277 Actuator
- 20.3 Valve bonnet for micro-flow valve version with Type 3379 Actuator
- 21 Standard valve bonnet with Type 3379 Actuator
- 23 Packing
- 24 Diaphragm
- 34 Screw
- 36 Screw plug or nipple
- 40 Pipe

Table 1: Technical data for Type 3349

Version			DIN	ANSI
Body			Bar stock	
Valve size		Micro-flow valve version	DN 6 to 25	NPS ¼ to 1
		Standard version	DN 15 to 100	NPS ½ to 4
Maximum pressure	Without end connections	Micro-flow valve version	10 bar	145 psi
		Standard version	25 bar ³⁾	360 psi ³⁾
	With end connections		Refer to Table 5	
Seat-plug seal		Leakage class according to	EN 60534-4	ANSI/FCI 70-2
		Metal seal	IV	
		PEEK soft seal ¹⁾	VI	
Plug stem seal			PTFE diaphragm certified according to USP Class VI	
Characteristic			Equal percentage or linear	
Flow direction		Micro-flow valve version	FTC (flow to close)	
		Standard version	FTO (flow to open)/FTC (flow to close) ⁴⁾	
Flow coefficients		Micro-flow valve version	K _{VS} : 0.01 to 0.25/C _V : 0.012 to 0.3	
		Standard version	K _{VS} : 0.4 to 160/C _V : 0.5 to 190	
Rangeability			Refer to Table 6	
Cleaning			CIP (cleaning in place) or SIP (sterilization in place)	
Actuators			Refer to Table 7	
Permissible temperatures ²⁾		Operating temperature	-10 to 160 °C	14 to 320 °F
		Sterilization temperature	180 °C for up to 30 min	356 °F for up to 30 min
Peak-to-valley height and surface finish		External	Glass bead blasted	
			R _a ≤0.6 µm · Polished	
		Internal	R _a ≤0.8 µm · Fine machine finish	
			R _a ≤0.6 µm · Polished	
			R _a ≤0.4 µm · Satin finish	
			R _a ≤0.4 µm · Mirror finish	
Dimensions of end connections			Refer to Table 12	
Certificates			CFR Title 21 FDA Regulation (EC) No. 1935/2004 Regulation (EU) No. 10/2011 Regulation (EC) No. 2023/2006 USP-VI 121 °C ADI free EHEDG and 3-A certification, standard 53-07 (see Table 2)	
Conformity			CE · EAC	

1) Special version (not for micro-flow valve version)

2) Observe normative restrictions (see Table 5)

3) Mechanical design: 25 bar; functional design: 20 bar (see Table 4)

4) When the flow-to-close direction is used, the valve body must be drained over the lateral valve connection.

Table 2: Certification for valve versions

Valve		Type 3349
Hardware version		HV01
Body version		Bar stock
Versions with 3-A certification (53-07)	Valve size DN/NPS	15 to 100/½ to 4
	Flow coefficients K_{VS}/C_V	0.4 to 160/0.5 to 190
	Bonnet	Bolted bonnet
	Welding ends	All standards
	Threaded connection	DIN 11864-1, form A · DIN 11853-1, Form A · DIN 11851-2 ¹⁾ · DIN 11887-1 ¹⁾ · ISO 2853 ¹⁾
	Clamp connections	DIN 11864-3, form A · DIN 11853-3, form A · DIN 32676 ¹⁾ · ISO 2852 ¹⁾ · BS 4825 ¹⁾ · ASME BPE · NFE 29521 · JIS G3447 · JIS G3459
	Flange connection (aseptic)	DIN 11864-2, form A · DIN 11853-2, form A
	Body material	1.4435/316L and 1.4404/316L AISI 300 series (except for 301, 302, 303)
	Internal surface finish	$R_a \leq 0.8 \mu\text{m}$
	Plug	Parabolic plug · V-port plug
	Seat-plug seal	Metal seal · Soft seal (PEEK)
	Diaphragm	100% PTFE
	Other	Actuator and valve accessories mounted to meet 3-A regulation requirements.
Versions with EHEDG certification (Type EL Class I)	Valve size DN/NPS	DN 15, 20, 25, 32, 40 ²⁾ , 50, 65/NPS ½, ¾, 1, 1¼, 1½ ²⁾ , 2, 2½
	Flow coefficients K_{VS}/C_V	0.4, 0.63, 1, 1.6, 2.5, 4, 6.3, 10, 16, 25 ²⁾ , 40, 60/ 0.5, 0.75, 1.2, 2, 3, 5, 7.5, 12, 20, 30 ²⁾ , 47, 70
	Bonnet	Bolted bonnet
	Welding ends	All standards
	Threaded connection	DIN 11864-1, form A · DIN 11853-1, form A · DIN 11851-2 ¹⁾ · ISO 2853 ¹⁾
	Clamp connections	DIN 11864-3, form A · DIN 11853-3, form A · DIN 32676 ¹⁾ · ISO 2852 ¹⁾ · BS 4825 ¹⁾
	Flange connection (aseptic)	DIN 11864-2, form A · DIN 11853-2, form A
	Body material	1.4435/316L and 1.4404/316L
	Internal surface finish	$R_a \leq 0.8 \mu\text{m}$
	Plug	Parabolic plug
	Seat-plug seal	Metal seal
	Leakage detection	Yes
	Diaphragm	100% PTFE

¹⁾ Seals compliant with 3-A and EHEDG requirements must be used on site by the end user.

²⁾ Except for DN 40/NPS 1½ and K_{VS} 25/ C_V 30

Table 3: Materials¹⁾

Version		DIN	ANSI
Body		1.4435	316L
Plug stem		1.4404	316L
Plug		1.4435	316L
Diaphragm		PTFE	
Bonnet	Micro-flow valve DN 6 to 25	1.4404	316L
	DN 15 to 65	1.4409	316L
	DN 80/DN 100	1.4404	316L
Plug stem guide		PTFE	
Micro-flow valve: packing (special version)		PTFE	

¹⁾ Other materials on request

Table 4: Diaphragm resistance

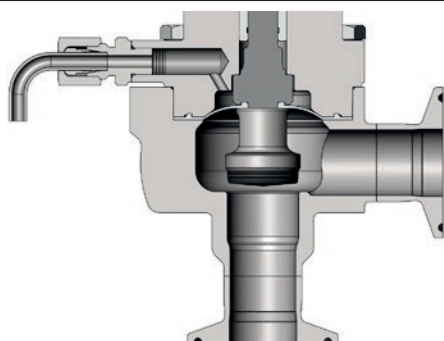
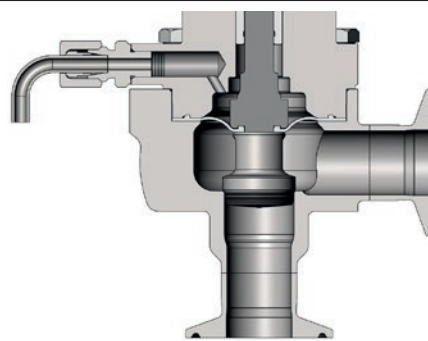
SAMSON has tested the service life of diaphragms used in the Type 3349 Control Angle Valve. For preventive maintenance, we recommend replacing the diaphragm after 300,000 strokes. Depending on the operating conditions (in particular pressure and temperature of the fluid), this replacement frequency can be extended based on feedback from individual use cases and with the help of the following tables.

Scope of testing All diaphragm sizes (valve sizes DN 15 to 100)

Test conditions 144 strokes per minute (one stroke corresponds to a valve being stroked from 0 to 100 % or from 100 to 0 % travel)

Testing	Result
Continuous stroking of the valve with water at ambient temperature and 10 bar	Average service life: 1,000,000 strokes Minimum service life: 500,000 strokes
Continuous stroking of the valve with steam at 160 °C and 6 bar for three hours followed by 180 °C and 10 bar for one hour	Minimum service life: 200,000 strokes

	Valve		
	DN 15/25 (OD 21.3/33.7) NPS ½/1	DN 32/65 (OD 42.4/76.1) NPS 1¼/2½	DN 80/100 (OD 88.9/114.3) NPS 3/4
Diaphragm's service life at ambient temperature and 10 bar	3,600,000 strokes	3,200,000 strokes	600,000 strokes
Diaphragm's service life at 100 °C and 20 bar	500,000 strokes	500,000 strokes	400,000 strokes

**Fig. 6: Valve OPEN****Fig. 7: Valve CLOSED****Table 5: Maximum pressures in bar: Standard version (N) and micro-flow valve version (M)**

The maximum pressures are determined by taking either P_{max} specified in the standard or P_{max} of the valve (whichever is the lowest).

Valve		DN ¹⁾	8	10	15	20	25	32	40	50	65	80	100
		(OD) ²⁾	(13.5)	(17.2)	(21.3)	(26.9)	(33.7)	(42.4)	(48.3)	(60.3)	(76.1)	(88.9)	(114.3)
Connection	T _{max} in °C	NPS	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
Welding ends	DIN 11866, Series A (DIN 11850 Series 2) (DIN EN 10357)	150	P _{max} (N)	–	–	25	25	25	25	25	25	25	25
			P _{max} (M)	10	10	10	10	10	–	–	–	–	–
	DIN 11866, Series B	150	P _{max} (N)	–	–	25	25	25	25	25	25	25	25
			P _{max} (M)	10	10	10	10	10	–	–	–	–	–
	DIN 11866, Series C (ASME BPE)	150	P _{max} (N)	–	–	25	25	25	–	25	25	25	25
			P _{max} (M)	–	10	10	10	10	–	–	–	–	–
	DIN EN ISO 1127, Series 1	–	P _{max} (N)	–	–	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾
			P _{max} (M)	10	10	10	10	10	–	–	–	–	–
	SMS 3008	–	P _{max} (N)	–	–	10 ³⁾	–	10 ³⁾	–	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾
			P _{max} (M)	–	10	10	–	10	–	–	–	–	–
	ISO 2037	–	P _{max} (N)	–	–	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾
			P _{max} (M)	–	10	10	10	10	–	–	–	–	–
	BS 4825 Part 1	–	P _{max} (N)	–	–	–	–	10 ³⁾	–	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾
			P _{max} (M)	–	–	–	–	10	–	–	–	–	–
	JIS G 3347	–	P _{max} (N)	–	–	–	–	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾
			P _{max} (M)	–	–	–	–	10	–	–	–	–	–
	JIS G 3459	–	P _{max} (N)	–	–	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾
			P _{max} (M)	10	10	10	10	10	–	–	–	–	–

		Valve	DN ¹⁾	8	10	15	20	25	32	40	50	65	80	100
			(OD) ²⁾	(13.5)	(17.2)	(21.3)	(26.9)	(33.7)	(42.4)	(48.3)	(60.3)	(76.1)	(88.9)	(114.3)
Connection		T _{max} in °C	NPS	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
Threaded ends	DIN 11864-1 GS and DIN 11853-1 GS, Form A, Series A	140	P _{max} (N)	–	–	25	25	25	25	25	25	25	25	25
			P _{max} (M)		10	10	10	10	–	–	–	–	–	–
	DIN 11864-1 GS and DIN 11853-1 GS, Form A, Series B	140	P _{max} (N)	–	–	25	25	25	25	25	25	25	25	–
			P _{max} (M)			10	10	10	–	–	–	–	–	
	DIN 11864-1 GS and DIN 11853-1 GS, Form A, Series C	140	P _{max} (N)	–	–	–	–	25	–	25	25	25	25	–
			P _{max} (M)					10		–	–	–	–	
	SMS 1146	–	P _{max} (N)	–	–	–	–	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾
			P _{max} (M)					–	–	–	–	–	–	–
	DIN 11851, series 2 for pipes according to DIN 11866, Series A	140	P _{max} (N)	–	–	25	25	25	25	25	25	25	25	25
			P _{max} (M)			–	–	–	–	–	–	–	–	–
	ISO 2853	140	P _{max} (N)	–	–	–	–	25	25	25	25	25	25	–
			P _{max} (M)					–	–	–	–	–	–	
Clamp	DIN 11864-3 NKS and DIN 11853-3 NKS Form A, Series A	140	P _{max} (N)	–	–	25	25	25	25	25	25	25	16	16
			P _{max} (M)		10	10	10	10	–	–	–	–	–	–
	DIN 11864-3 NKS, Form A, Series B	140	P _{max} (N)	–	–	25	25	25	25	25	25	16	16	–
			P _{max} (M)		10	10	10	10	–	–	–	–	–	–
	DIN 11864-3 NKS Form A, Series C	140	P _{max} (N)	–	–	25	25	25	–	25	25	25	16	16
			P _{max} (M)			10	10	10		–	–	–	–	–
	DIN 32676, Series A	140	P _{max} (N)	–	–	25	25	25	25	25	16	16	10	10
			P _{max} (M)			–	–	–	–	–	–	–	–	–
	DIN 32676, Series B	140	P _{max} (N)	–	–	25	25	25	25	16	16	16	10	10
			P _{max} (M)			–	–	–	–	–	–	–	–	–
	DIN 32676, Series C	140	P _{max} (N)	–	–	25	25	25	–	25	16	16	16	10
			P _{max} (M)			–	–	–		–	–	–	–	–
	BS 4825 Part 3	–	P _{max} (N)	–	–	–	–	10 ³⁾	–	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾
			P _{max} (M)					–		–	–	–	–	–
	ASME BPE	20	P _{max} (N)	–	–	13.8	13.8	13.8	–	13.8	13.8	13.8	13.8	13.8
			P _{max} (M)			–	–	–		–	–	–	–	–
		121	P _{max} (N)			11.4	11.4	11.4		11.4	11.4	11.4	10.4	8.6
			P _{max} (M)			–	–	–		–	–	–	–	–
	OSS for JIS G 3447	–	P _{max} (N)	–	–	–	–	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾
			P _{max} (M)					–	–	–	–	–	–	–
	OSS for JIS G 3459	–	P _{max} (N)	–	–	–	–	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾	10 ³⁾
			P _{max} (M)					–	–	–	–	–	–	–
Flange	DIN 11864-2 NF and DIN 11853-2 NF, Form A, Series A	140	P _{max} (N)	–	–	25	25	25	25	25	16	16	16	16
			P _{max} (M)		10	10	10	10	–	–	–	–	–	–
	DIN 11864-2 NF and DIN 11853-2 NF, Form A, Series B	140	P _{max} (N)	–	–	25	25	25	16	16	16	16	16	10
			P _{max} (M)			10	10	10	–	–	–	–	–	–
	DIN 11864-2 NF and DIN 11853-2 NF, Form A, Series C	140	P _{max} (N)	–	–	25	25	25	–	25	16	16	16	16
			P _{max} (M)			–	–	10		–	–	–	–	–
	PN 40 DIN EN 1092-1 B2	160	P _{max} (N)	–	–	25	25	25	25	25	25	25	25	25
			P _{max} (M)			–	–	–	–	–	–	–	–	–
	Class 150 ASME B16.5	20	P _{max} (N)	–	–	19	19	19	–	19	19	19	19	19
			P _{max} (M)			–	–	–		–	–	–	–	–
		150	P _{max} (N)			14.5	14.5	14.5		14.5	14.5	14.5	14.5	14.5
			P _{max} (M)			–	–	–		–	–	–	–	–

1) DN 6 on request

2) Values in parentheses according to DIN 11866 Series B

3) Higher pressure on request

Table 6: Flow coefficients and rangeability**Table 6.1:** K_{VS} and C_V coefficient (micro-flow valve version)

		K_{VS}	0.01	0.016	0.025	0.04	0.063	0.1	0.16	0.25
		C_V	0.012	0.02	0.03	0.05	0.075	0.12	0.2	0.3
Standard plug		Parabolic plug								
Rangeability	Parabolic plug	15:1 20:1 25:1 35:1 45:1 50:1								
	V-port plug	Not available								
Seat Ø in mm	Parabolic plug	3								
	V-port plug	Not available								
DN ¹⁾	NPS	(OD) ²⁾	Rated travel							
8	¼	(13.5)	7.5 mm	•	•	•	•	•	•	•
10	⅜	(17.2)		•	•	•	•	•	•	•
15	½	(21.3)		•	•	•	•	•	•	•
20	¾	(26.9)		•	•	•	•	•	•	•
25	1	(33.7)		•	•	•	•	•	•	•

1) DN 6 on request

2) Values in parentheses according to DIN 11866 Series B

Table 6.2: K_{VS} and C_V coefficient (standard version)

				K _{VS}	0.4	0.63	1.0	1.6	2.5	4	6.3	10	6.3	10	16	25	40	60	80	100	160	
				C _V	0.5	0.75	1.2	2	3	5	7.5	12	7.5	12	20	30	47	70	95	120	190	
Standard plug				Parabolic plug												V-port plug						
Rangeability		Parabolic plug		50:1					50:1			50:1			50:1			Not available				
		V-port plug		Not available			50:1		50:1			50:1			50:1							
Seat Ø [mm]		Parabolic plug		6			12			24		31			38	48	63	Not available				
		V-port plug		Not available			12		24	24		31			38	48	63	80		100		
DN	NPS	(OD) ¹⁾	Rated travel																			
15	½	(21.3)	7.5	•	•	•	•	•	•													
20	¾	(26.9)		•	•	•	•	•	•													
25	1	(33.7)		•	•	•	•	•	•	•	•											
32	1¼	(42.4)	15									•	•	•								
40	1½	(48.3)											•	•	•	•						
50	2	(60.3)											•	•	•	•	•					
65	2½	(76.1)											•	•	•	•	•	•				
80	3	(88.9)											•	•	•	•	•	•				
80	3	(88.9)	30																•			
100	4	(114.3)																	•	•	•	•

¹⁾ Values in parentheses according to DIN 11866 Series B**Table 7:** Possible actuator combinations**Table 7.1:** Actuators for micro-flow valve version

Actuator	K_{VS}	0.01	0.016	0.025	0.04	0.063	0.1	0.16	0.25
	C_V	0.012	0.02	0.03	0.05	0.075	0.12	0.2	0.3
Type 3271/3277		•	•	•	•	•	•	•	•
Type 3379		•	•	•	•	•	•	•	•

Table 7.2: Actuators for standard valve version

Actuator	K_{VS}	0.4	0.63	1	1.6	2.5	4	6.3	10	16	25	40	60	80	100	160
	C_V	0.5	0.75	1.2	2	3	5	7.5	12	20	30	47	70	95	120	190
Type 3271/3277		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Type 3379		•	•	•	•	•	•	•	•	•	•	•	Not available			

Table 8: Permissible differential pressures for Type 3349 with *fail-safe position "actuator stem extends"* · Metal seal (leakage class IV)

Table 8.1: Type 3349 Valve with Type 3271/3277 Actuator · Pressures in bar

Valve size		Seat Ø [mm]	K _{VS}	Actuator area in cm ²	Bench range in bar	Operating range in bar when p ₂ = 0 bar (valve CLOSED)	
DN	NPS					Δp = 5 bar	Δp = 10 bar ¹⁾
15 to 25	½ to 1	6	0.4 to 1.0	120	0.4 to 2.0	1.2 to 2.0	1.2 to 2.0
		12	1.6 to 4.0				
25	1	24	6.3 to 10				
15 to 25	½ to 1	6	0.4 to 1.0	175v2	0.4 to 2.0	1.2 to 2.0	1.2 to 2.0
		12	1.6 to 4.0				
25	1	24	6.3 to 10				
32 to 65	1¼ to 2½	31	6.3 to 16	350	0.6 to 3.0	0.6 to 3.0	1.2 to 3.6
40 to 65	1½ to 2½	38	25				
50 to 65	2 to 2½	48	40				
65	2½	63	60				
32 to 65	1¼ to 2½	31	6.3 to 16	355v2	0.4 to 2.0	1.2 to 2.0	1.2 to 2.0
40 to 65	1½ to 2½	38	25				
50 to 65	2 to 2½	48	40				
65	2½	63	60				
80	3	80	80	750v2	1.9 to 3.1	1.9 to 3.1	2.2 to 3.4
100	4	80	100				
100	4	100	100				

¹⁾ Higher pressure on request

Table 8.2: Type 3349 Valve with Type 3271/3277 Actuator · Pressures in psi

Valve size		Seat Ø [mm]	C _v	Actuator area in cm ²	Bench range in psi	Operating range in psi when p ₂ = 0 psi (valve CLOSED)	
DN	NPS					Δp = 73 psi	Δp = 145 psi ¹⁾
15 to 25	½ to 1	6	0.5 to 1.2	120	6 to 30	18 to 30	18 to 30
		12	2 to 5				
25	1	24	7.5 to 12				
15 to 25	½ to 1	6	0.5 to 1.2	175v2	6 to 30	18 to 30	18 to 30
		12	2 to 5				
25	1	24	7.5 to 12				
32 to 65	1¼ to 2½	31	7.5 to 20	350	9 to 44	9 to 44	18 to 53
40 to 65	1½ to 2½	38	30				
50 to 65	2 to 2½	48	46				
65	2½	63	70				
32 to 65	1¼ to 2½	31	7.5 to 20	355v2	6 to 30	18 to 30	18 to 30
40 to 65	1½ to 2½	38	30				
50 to 65	2 to 2½	48	46				
65	2½	63	70				
80	3	80	95	750v2	28 to 45	28 to 45	32 to 50
100	4	80	120				
100	4	100	190				

¹⁾ Higher pressure on request

Table 8.3: Type 3349 Valve with Type 3379 Actuator · Pressures in bar

Valve size		Seat Ø [mm]	K_{VS}	Actuator area in cm ²	Bench range in bar	Operating range in bar	Δp_{max} in bar
DN ¹⁾	NPS						
8 to 25 ²⁾	¼ to 1 ²⁾	3	0.01 to 0.25	31	2.3 to 3.7	2.3 to 3.0	10
15 to 25	½ to 1	6	0.4 to 1.0	31	2.3 to 3.7	2.3 to 3.0	7
15 to 25	½ to 1	6	0.4 to 1.0	63	2.5 to 4.0	2.5 to 3.3	10 ³⁾
15 to 25	½ to 1	12	1.6 to 4.0	31	2.3 to 3.7	2.3 to 3.0	7
15 to 25	½ to 1	12	1.6 to 4.0	63	2.5 to 4.0	2.5 to 3.3	10 ³⁾
25	1	24	6.3 to 10	31	2.3 to 3.7	2.3 to 3.0	7
25	1	24	6.3 to 10	63	2.5 to 4.0	2.5 to 3.3	10 ³⁾
25	1	24	6.3 to 10	63	3.3 to 5.6	3.3 to 4.5	–
32 to 50	1¼ to 2	31	6.3 to 16	63	3.3 to 5.6	3.3 to 5.6	7
40 to 50	1½ to 2	38	25	63	3.3 to 5.6	3.3 to 5.6	8
50	2	48	40	63	3.3 to 5.6	3.3 to 5.6	8

¹⁾ DN 6 on request

²⁾ Micro-flow valve version

³⁾ Higher pressure on request

Table 8.4: Type 3349 Valve with Type 3379 Actuator · Pressures in psi

Valve size		Seat Ø [mm]	C_v	Actuator area in cm ²	Bench range in psi	Operating range in psi	Δp_{max} in psi
DN ¹⁾	NPS						
8 to 25 ²⁾	¼ to 1 ²⁾	3	0.01 to 0.3	31	33 to 53	33 to 43	145
15 to 25	½ to 1	6	0.5 to 1.2	31	33 to 53	33 to 43	102
15 to 25	½ to 1	6	0.5 to 1.2	63	36 to 58	36 to 47	145 ³⁾
15 to 25	½ to 1	12	2 to 5	31	33 to 53	33 to 43	102
15 to 25	½ to 1	12	2 to 5	63	36 to 58	36 to 47	145 ³⁾
25	1	24	7.5 to 12	31	33 to 53	33 to 43	102
25	1	24	7.5 to 12	63	36 to 58	36 to 47	145 ³⁾
25	1	24	7.5 to 12	63	47 to 81	47 to 65	–
32 to 50	1¼ to 2	31	7.5 to 20	63	47 to 81	47 to 81	102
40 to 50	1½ to 2	38	30	63	47 to 81	47 to 81	116
50	2	48	47	63	47 to 81	47 to 81	116

¹⁾ DN 6 on request

²⁾ Micro-flow valve version

³⁾ Higher pressure on request

Table 9: Permissible differential pressures for Type 3349 with **fail-safe position "actuator stem retracts"** · Metal seal (leakage class IV)

Table 9.1: Type 3349 Valve with Type 3271/3277 Actuator · Pressures in bar

Valve size		Seat Ø [mm]	K _{VS}	Actuator area in cm ²	Bench range in bar	Operating range in bar when p ₂ = 0 bar (valve CLOSED)		
DN	NPS					Δp = 5 bar	Δp = 10 bar ¹⁾	
15 to 25	½ to 1	6	0.4 to 1.0	120	0.4 to 2.0 (0.4 to 1.3 operating range)	1.8	2.1	
		12	1.6 to 4.0					
25	1	24	6.3 to 10					
15 to 25	½ to 1	6	0.4 to 1.0	175v2			1.6	1.8
		12	1.6 to 4.0					
25	1	24	6.3 to 10					
32 to 65	1¼ to 2½	31	6.3 to 16	350	0.2 to 1.0 ²⁾		1.6	2.1
40 to 65	1½ to 2½	38	25					
50 to 65	2 to 2½	48	40					
65	2½	63	60					
32 to 65	1¼ to 2½	31	6.3 to 16	355v2	0.4 to 2.0 (0.4 to 1.3 operating range)	1.8	2.3	
40 to 65	1½ to 2½	38	25					
50 to 65	2 to 2½	48	40					
65	2½	63	60					
80	3	80	80	750v2	0.2 to 1.0 ²⁾	2.1	3.0	
100	4	80	100					
100	4	100	100					

¹⁾ Higher pressure on request

²⁾ Operating range corresponds to bench range

Table 9.2: Type 3349 Valve with Type 3271/3277 Actuator · Pressures in psi

Valve size		Seat Ø [mm]	C _v	Actuator area in cm ²	Bench range in psi	Operating range in psi when p ₂ = 0 psi (valve CLOSED)	
DN	NPS					Δp = 73 psi	Δp = 145 psi ¹⁾
15 to 25	½ to 1	6	0.5 to 1.2	120	6 to 30 (6 to 18 operating range)	27	31
		12	2 to 5				
25	1	24	7.5 to 12				
15 to 25	½ to 1	6	0.5 to 1.2	175v2		24	27
		12	2 to 5				
25	1	24	7.5 to 12				
32 to 65	1¼ to 2½	31	7.5 to 20	350	3 to 15 ²⁾	24	30
40 to 65	1½ to 2½	38	30				
50 to 65	2 to 2½	48	46				
65	2½	63	70				
32 to 65	1¼ to 2½	31	7.5 to 20	355v2	6 to 30 (6 to 18 operating range)	27	33
40 to 65	1½ to 2½	38	30				
50 to 65	2 to 2½	48	46				
65	2½	63	70				
80	3	80	95	750v2	3 to 15 ²⁾	31	44
100	4	80	120				
100	4	100	190				

¹⁾ Higher pressure on request

²⁾ Operating range corresponds to bench range

Table 9.3: Type 3349 Valve with Type 3379 Actuator - Pressures in bar

Valve size		Seat Ø [mm]	K _{VS}	Actuator area in cm ²	Bench range in bar	Operating range in bar	Required supply pressure	Δp _{max} in bar
DN ¹⁾	NPS							
8 to 25 ³⁾	¼ to 1 ³⁾	3	0.01 to 0.25	31	2.3 to 3.7	3.0 to 3.7	6	9
15 to 25	½ to 1	6	0.4 to 1.0	31	2.3 to 3.7	3.0 to 3.7	6	7
15 to 25	½ to 1	6	0.4 to 1.0	63	1.0 to 1.9	1.5 to 1.9	3.4	10 ²⁾
15 to 25	½ to 1	12	1.6 to 4.0	31	2.3 to 3.7	3.0 to 3.7	6	7
15 to 25	½ to 1	12	1.6 to 4.0	63	1.0 to 1.9	1.5 to 1.9	3.4	10 ²⁾
25	1	24	6.3 to 10	31	2.3 to 3.7	3.0 to 3.7	6	7
25	1	24	6.3 to 10	63	1.0 to 1.9	1.5 to 1.9	3.9	10 ²⁾
32 to 50	1¼ to 2	31	6.3 to 16	63	1.0 to 1.9	1.0 to 1.9	5.6	7
							6	8
							5.2	7
40 to 50	1½ to 2	38	25	63	1.0 to 1.9	1.0 to 1.9	5.6	8
							6	9
							5.3	7
50	2	48	40	63	1.0 to 1.9	1.0 to 1.9	5.7	8
							6	9

¹⁾ DN 6 on request

²⁾ Higher pressure on request

³⁾ Micro-flow valve version

Table 9.4: Type 3349 Valve with Type 3379 Actuator - Pressures in psi

Valve size		Seat Ø [mm]	C _v	Actuator area in cm ²	Bench range in psi	Operating range in psi	Required supply pressure	Δp _{max} in psi
DN ¹⁾	NPS							
8 to 25 ³⁾	¼ to 1 ³⁾	3	0.01 to 0.3	31	33 to 53	43 to 53	87	130
15 to 25	½ to 1	6	0.5 to 1.2	31	33 to 53	43 to 53	87	102
15 to 25	½ to 1	6	0.5 to 1.2	63	14 to 27	21 to 27	49	145 ²⁾
15 to 25	½ to 1	12	2 to 5	31	33 to 53	43 to 53	87	102
15 to 25	½ to 1	12	2 to 5	63	14 to 27	21 to 27	49	145 ²⁾
25	1	24	7.5 to 12	31	33 to 53	43 to 53	87	102
25	1	24	7.5 to 12	63	14 to 27	21 to 27	56	145 ²⁾
32 to 50	1¼ to 2	31	7.5 to 20	63	14 to 27	21 to 27	81	102
							87	116
							75	102
40 to 50	1½ to 2	38	30	63	14 to 27	21 to 27	81	116
							87	130
							76	102
50	2	48	47	63	14 to 27	21 to 27	82	116
							87	130

¹⁾ DN 6 on request

²⁾ Higher pressure on request

³⁾ Micro-flow valve version

Table 10: Permissible differential pressures for Type 3349 with **fail-safe position "actuator stem extends"** · Soft PEEK seal (leak-age class VI)

Table 10.1: Type 3349 Valve with Type 3271/3277 Actuator · Pressures in bar

Valve size		Seat Ø [mm]	K _{VS}	Actuator area in cm ²	Bench range in bar	Operating range in bar when p ₂ = 0 bar (valve CLOSED)	
DN	NPS					Δp = 5 bar	Δp = 10 bar ¹⁾
32 to 65	1¼ to 2½	31	6.3 to 16	350	1.2 to 3.6	1.2 to 3.6	2.1 to 3.3
40 to 65	1½ to 2½	38	25				
50 to 65	2 to 2½	48	40				
65	2½	63	60				
32 to 65	1¼ to 2½	31	6.3 to 16	355v2	1.2 to 3.6	2.4 to 3.6	2.4 to 3.6
40 to 65	1½ to 2½	38	25				
50 to 65	2 to 2½	48	40				
65	2½	63	60				
80	3	80	80	750v2	1.9 to 3.1	1.9 to 3.1	2.5 to 4.2
100	4	80	100				
100	4	100	100				

¹⁾ Higher pressure on request

Table 10.2: Type 3349 Valve with Type 3271/3277 Actuator · Pressures in psi

Valve size		Seat Ø [mm]	C _v	Actuator area in cm ²	Bench range in psi	Operating range in psi when p ₂ = 0 psi (valve CLOSED)	
DN	NPS					Δp = 73 psi	Δp = 145 psi ¹⁾
32 to 65	1¼ to 2½	31	7.5 to 20	350	18 to 53	18 to 53	31 to 48
40 to 65	1½ to 2½	38	30				
50 to 65	2 to 2½	48	46				
65	2½	63	70				
32 to 65	1¼ to 2½	31	7.5 to 20	355v2	18 to 53	35 to 53	35 to 53
40 to 65	1½ to 2½	38	30				
50 to 65	2 to 2½	48	46				
65	2½	63	70				
80	3	80	95	750v2	28 to 45	28 to 45	37 to 61
100	4	80	120				
100	4	100	190				

¹⁾ Higher pressure on request

Table 10.3: Type 3349 Valve with Type 3379 Actuator · Pressures in bar

Valve size		Seat Ø [mm]	K_{VS}	Actuator area in cm ²	Bench range in bar	Operating range in bar	Δp_{max} in bar
DN ¹⁾	NPS						
8 to 25 ³⁾	¼ to 1 ³⁾	3	0.01 to 0.25	31	2.3 to 3.7	2.3 to 3.0	–
15 to 25	½ to 1	6	0.4 to 1.0	31	2.3 to 3.7	2.3 to 3.0	7
15 to 25	½ to 1	6	0.4 to 1.0	63	2.5 to 4.0	2.5 to 3.3	10 ²⁾
15 to 25	½ to 1	12	1.6 to 4.0	31	2.3 to 3.7	2.3 to 3.0	6
15 to 25	½ to 1	12	1.6 to 4.0	63	2.5 to 4.0	2.5 to 3.3	10 ²⁾
25	1	24	6.3 to 10	31	2.3 to 3.7	2.3 to 3.0	–
25	1	24	6.3 to 10	63	2.5 to 4.0	2.5 to 3.3	8
25	1	24	6.3 to 10	63	3.3 to 5.6	3.3 to 4.5	10 ²⁾
32 to 50	1¼ to 2	31	6.3 to 16	63	3.3 to 5.6	3.3 to 5.6	4
40 to 50	1½ to 2	38	25	63	3.3 to 5.6	3.3 to 5.6	4
50	2	48	40	63	3.3 to 5.6	3.3 to 5.6	3

¹⁾ DN 6 on request

²⁾ Higher pressure on request

³⁾ Micro-flow valve version

Table 10.4: Type 3349 Valve with Type 3379 Actuator · Pressures in psi

Valve size		Seat Ø [mm]	C_V	Actuator area in cm ²	Bench range in psi	Operating range in psi	Δp_{max} in psi
DN ¹⁾	NPS						
8 to 25 ³⁾	¼ to 1 ³⁾	3	0.01 to 0.3	31	33 to 53	33 to 43	–
15 to 25	½ to 1	6	0.5 to 1.2	31	33 to 53	33 to 43	102
15 to 25	½ to 1	6	0.5 to 1.2	63	36 to 58	36 to 47	145 ²⁾
15 to 25	½ to 1	12	2 to 5	31	33 to 53	33 to 43	87
15 to 25	½ to 1	12	2 to 5	63	36 to 58	36 to 47	145 ²⁾
25	1	24	7.5 to 12	31	33 to 53	33 to 43	–
25	1	24	7.5 to 12	63	36 to 58	36 to 47	116
25	1	24	7.5 to 12	63	47 to 81	47 to 65	145 ²⁾
32 to 50	1¼ to 2	31	7.5 to 20	63	47 to 81	47 to 81	58
40 to 50	1½ to 2	38	30	63	47 to 81	47 to 81	58
50	2	48	47	63	47 to 81	47 to 81	43

¹⁾ DN 6 on request

²⁾ Higher pressure on request

³⁾ Micro-flow valve version

Table 11: Permissible differential pressures for Type 3349 with *fail-safe position "actuator stem retracts"* · Soft PEEK seal (leak-class VI)

Table 11.1: Type 3349 Valve with Type 3271/3277 Actuator · Pressures in bar

Valve size		Seat Ø [mm]	K _{VS}	Actuator area in cm ²	Bench range in bar	Operating range in bar when p ₂ = 0 bar (valve CLOSED)	
DN	NPS					Δp = 5 bar	Δp = 10 bar ¹⁾
15 to 25	½ to 1	6	0.4 to 1.0	120	0.4 to 2.0 (0.4 to 1.2 operating range)	2.2	3.1
		12	1.6 to 4.0				
25	1	24	6.3 to 10				
15 to 25	½ to 1	6	0.4 to 1.0	175v2	0.4 to 2.0 (0.4 to 1.2 operating range)	1.9	2.6
		12	1.6 to 4.0				
25	1	24	6.3 to 10				
32 to 65	1¼ to 2½	31	6.3 to 16	350	0.2 to 1.0 ²⁾	2.0	2.8
40 to 65	1½ to 2½	38	25				
50 to 65	2 to 2½	48	40				
65	2½	63	60				
32 to 65	1¼ to 2½	31	6.3 to 16	355v2	0.4 to 2.0 (0.4 to 1.2 operating range)	2.2	2.9
40 to 65	1½ to 2½	38	25				
50 to 65	2 to 2½	48	40				
65	2½	63	60				
80	3	80	80	750v2	0.2 to 1.0 ²⁾	2.2	3.2
100	4	80	100				
100	4	100	100				

¹⁾ Higher pressure on request

²⁾ Operating range corresponds to bench range

Table 11.2: Type 3349 Valve with Type 3271/3277 Actuator · Pressures in psi

Valve size		Seat Ø [mm]	C _V	Actuator area in cm ²	Bench range in psi	Operating range in psi when p ₂ = 0 psi (valve CLOSED)	
DN	NPS					Δp = 73 psi	Δp = 145 psi ¹⁾
15 to 25	½ to 1	6	0.5 to 1.2	120	6 to 30 (6 to 18 operating range)	32	45
		12	2 to 5				
25	1	24	7.5 to 12				
15 to 25	½ to 1	6	0.5 to 1.2	175v2	6 to 30 (6 to 18 operating range)	28	38
		12	2 to 5				
25	1	24	7.5 to 12				
32 to 65	1¼ to 2½	31	7.5 to 20	350	3 to 15 ²⁾	30	41
40 to 65	1½ to 2½	38	30				
50 to 65	2 to 2½	48	46				
65	2½	63	70				
32 to 65	1¼ to 2½	31	7.5 to 20	355v2	6 to 30 (6 to 18 operating range)	32	43
40 to 65	1½ to 2½	38	30				
50 to 65	2 to 2½	48	46				
65	2½	63	70				
80	3	80	95	750v2	3 to 15 ²⁾	32	47
100	4	80	120				
100	4	100	190				

¹⁾ Higher pressure on request

²⁾ Operating range corresponds to bench range

Table 11.3: Type 3349 Valve with Type 3379 Actuator · Pressures in bar

Valve size		Seat Ø [mm]	K_{VS}	Actuator area in cm ²	Bench range in bar	Operating range in bar	Required supply pressure	Δp_{max} in bar
DN ¹⁾	NPS							
8 to 25 ³⁾	¼ to 1 ³⁾	3	0.01 to 0.25	31	2.3 to 3.7	3.0 to 3.7	–	–
15 to 25	½ to 1	6	0.4 to 1.0	31	2.3 to 3.7	3.0 to 3.7	6	7
15 to 25	½ to 1	6	0.4 to 1.0	63	1.0 to 1.9	1.5 to 1.9	3.6	10 ²⁾
15 to 25	½ to 1	12	1.6 to 4.0	31	2.3 to 3.7	3.0 to 3.7	6	6
15 to 25	½ to 1	12	1.6 to 4.0	63	1.0 to 1.9	1.5 to 1.9	3.8	10 ²⁾
25	1	24	6.3 to 10	31	2.3 to 3.7	3.0 to 3.7	–	–
25	1	24	6.3 to 10	63	1.0 to 1.9	1.5 to 1.9	4.8	10 ²⁾
32 to 50	1¼ to 2	31	6.3 to 16	63	1.0 to 1.9	1.0 to 1.9	6	5
40 to 50	1½ to 2	38	25	63	1.0 to 1.9	1.0 to 1.9	6	5
50	2	48	40	63	1.0 to 1.9	1.0 to 1.9	6	4

¹⁾ DN 6 on request

²⁾ Higher pressure on request

³⁾ Micro-flow valve version

Table 11.4: Type 3349 Valve with Type 3379 Actuator · Pressures in psi

Valve size		Seat Ø [mm]	C_V	Actuator area in cm ²	Bench range in psi	Operating range in psi	Required supply pressure	Δp_{max} in psi
DN ¹⁾	NPS							
8 to 25 ³⁾	¼ to 1 ³⁾	3	0.01 to 0.3	31	33 to 53	43 to 53	–	–
15 to 25	½ to 1	6	0.5 to 1.2	31	33 to 53	43 to 53	87	102
15 to 25	½ to 1	6	0.5 to 1.2	63	14 to 27	21 to 27	52	145 ²⁾
15 to 25	½ to 1	12	2 to 5	31	33 to 53	43 to 53	87	87
15 to 25	½ to 1	12	2 to 5	63	14 to 27	21 to 27	55	145 ²⁾
25	1	24	7.5 to 12	31	33 to 53	43 to 53	–	–
25	1	24	7.5 to 12	63	14 to 27	21 to 27	69	145 ²⁾
32 to 50	1¼ to 2	31	7.5 to 20	63	14 to 27	21 to 27	87	72
40 to 50	1½ to 2	38	30	63	14 to 27	21 to 27	87	72
50	2	48	47	63	14 to 27	21 to 27	87	58

¹⁾ DN 6 on request

²⁾ Higher pressure on request

³⁾ Micro-flow valve version

Table 12: Dimensions and weights · Dimensions in mm · Weights in kg**Table 12.1:** Standard version of Type 3349 Valve

Valve	DN	15	20	25	32	40	50	65	80	100
	(OD) ¹⁾	(21.3)	(26.9)	(33.7)	(42.4)	(48.3)	(60.3)	(76.1)	(88.9)	(114.3)
	NPS	½	¾	1	1¼	1½	2	2½	3	4
	With Type ... Actuator									
H1	3271/3277	234	231	228	262	260	271	271	336	348
	3379	90	90	90	136	136	136	–	–	–
G	3271/3277	86	86	86	113	113	113	113	155	155
	3379	85	85	85	113	113	113	–	–	–
Weight for valve without actuator DIN 11866, Series A	Seat bore (SB)	6/12	6/12	6/12/24	31	31/38	31/38/48	31/38/48/63	38/48/63/80	63/80/100
	3271/3277	5			12		14		38	44
	3379	3			11			–	–	–

¹⁾ Values in parentheses according to DIN 11866 Series B

Table 12.2: Micro-flow valve version of Type 3349

Valve	DN ¹⁾	8	10	15	20	25
	(OD) ²⁾	(13.5)	(17.2)	(21.3)	(26.9)	(33.7)
	NPS	¼	⅜	½	¾	1
	With Type ... Actuator					
H1	3271/3277	On request				
	DIN 11866, Series A	61	61	65	65	70
	3379 DIN 11866, Series B	61	65	65	70	70
	DIN 11866, Series C	–	61	61	65	70
G	3271/3277	On request				
	DIN 11866, Series A	83				
	3379 DIN 11866, Series B	83				
	DIN 11866, Series C	–	83			
Weight for valve with- out actua- tor	3271/3277	On request				
	DIN 11866, Series A	1				
	3379 DIN 11866, Series B	1				
	DIN 11866, Series C	1				

¹⁾ DN 6 on request

²⁾ Values in parentheses according to DIN 11866 Series B

Table 12.3: Type 3271 and Type 3277 Pneumatic Actuators

Actuator area		cm ²	120	175v2	240	350	355v2	700	750v2
Diaphragm ØD		mm	168	215	240	280	280	390	394
H ¹⁾		mm	69	78	62	82	121	199	236
H3 ²⁾		mm	110	110	110	110	110	190	190
H5		Type 3277 mm	88	101	101	101	101	101	101
Thread		Type 3271	M30x1.5						
		Type 3277	M30x1.5						
α		Type 3271	G ⅛ (⅛ NPT)	G ¼ (¼ NPT)	G ¼ (¼ NPT)	G ⅜ (⅜ NPT)	G ⅜ (⅜ NPT)	G ⅜ (⅜ NPT)	G ⅜ (⅜ NPT)
α2		Type 3277	–	G ⅜	G ⅜	G ⅜	G ⅜	G ⅜	G ⅜
Weight	Type 3271		2.5	6	5	8	15	22	36
	Type 3277		3.2	10	9	12	19	26	40

¹⁾ Height with welded-on lifting eyelet or height of eyebolt according to DIN 580. Height of the swivel hoist may differ. Actuators up to 355v2 cm² without lifting eyelet

²⁾ Minimum clearance required to remove the actuator

Table 12.4: Type 3379 Pneumatic Actuator

Actuator	Without positioner		With Type 3724 Positioner	
Actuator area cm²	31	63	31	63
Actuator diameter ØD2	69	96	107	
Height H	195		285	
Height H3 ¹⁾	150		150	
Length A2	20		30	
Weight	1.8	3.1	3.2	4.4

¹⁾ Minimum clearance required to remove the actuator

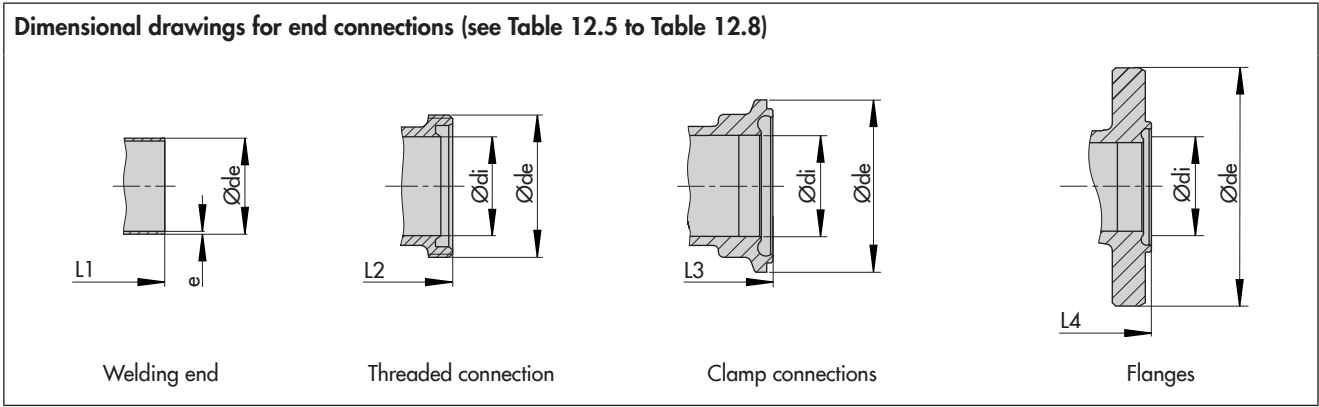
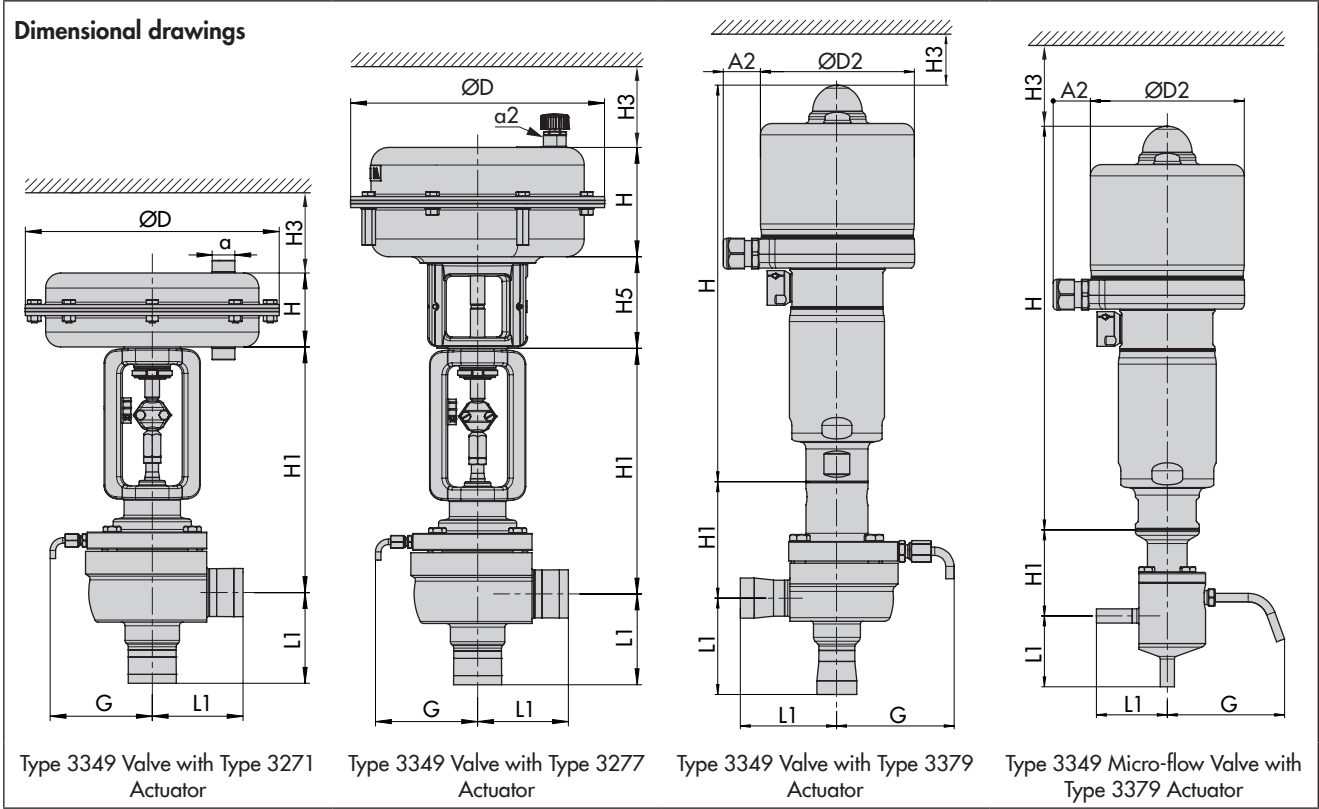


Table 12.5: Welding ends · Standard version (N) and micro-flow valve version (M)

Valve	DN ¹⁾ (OD) ²⁾	8 (13.5)	10 (17.2)	15 (21.3)	20 (26.9)	25 (33.7)	32 (42.4)	40 (48.3)	50 (60.3)	65 (76.1)	80 (88.9)	100 (114.3)
	NPS	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
DIN 11866, Series A (DIN 11850, Series 2) (DIN EN 10357)	L1 (N)	–	–	70	70	70	100	100	100	100	155	155
	L1 (M)	50	50	50	50	50	–	–	–	–	–	–
	Ød _i	8	10	16	20	26	32	38	50	66	81	100
	Ød _e	10	13	19	23	29	35	41	53	70	85	104
	e	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2
DIN 11866, Series B	L1 (N)	–	–	70	70	70	100	100	100	100	155	155
	L1 (M)	50	50	50	50	50	–	–	–	–	–	–
	Ød _i	10.3	14	18.1	23.7	29.7	38.4	44.3	56.3	72.1	84.3	109.7
	Ød _e	13.5	17.2	21.3	26.9	33.7	42.4	48.3	60.3	76.1	88.9	114.3
	e	1.6	1.6	1.6	1.6	2	2	2	2	2	2.3	2.3
DIN 11866, Series C (ASME BPE)	L1 (N)	–	–	70	70	70	–	100	100	100	155	155
	L1 (M)		50	50	50	50		–	–	–	–	–
	Ød _i		4.57	9.4	15.75	22.1		34.8	47.5	60.2	72.9	97.38
	Ød _e		6.35	12.7	19.05	25.4		38.1	50.8	63.5	76.2	101.6
	e		0.89	1.65	1.65	1.65		1.65	1.65	1.65	1.65	2.11
ISO 1127, Series 1	L1 (N)	–	–	70	70	70	100	100	100	100	155	155
	L1 (M)	50	50	50	50	50	–	–	–	–	–	–
	Ød _i	10.3	14	18.1	23.7	29.7	38.4	44.3	56.3	70.9	83.7	109.1
	Ød _e	13.5	17.2	21.3	26.9	33.7	42.4	48.3	60.3	76.1	88.9	114.3
	e	1.6	1.6	1.6	1.6	2	2	2	2	2.6	2.6	2.6
SMS 3008	L1 (N)	–	–	70	–	70	100	100	100	100	155	155
	L1 (M)		50	50		50	–	–	–	–	–	–
	Ød _i		10	16		22.6	31.3	35.6	48.6	60.3	72.9	97.6
	Ød _e		12	18		25	33.7	38	51	63.5	76.1	101.6
	e		1	1		1.2	1.2	1.2	1.2	1.6	1.6	2
ISO 2037	L1 (N)	–	–	70	70	70	100	100	100	100	155	155
	L1 (M)		50	50	50	50	–	–	–	–	–	–
	Ød _i		10	15.2	19.3	22.6	31.3	35.6	48.6	60.3	72.9	97.6
	Ød _e		12	17.2	21.3	25	33.7	38	51	63.5	76.1	101.6
	e		1	1	1	1.2	1.2	1.2	1.2	1.6	1.6	2
BS 4825 Part 1	L1 (N)	–	–	70	70	70	–	100	100	100	155	155
	L1 (M)			–	–	50		–	–	–	–	–
	Ød _i			13.48	16.65	22.2		34.9	47.6	60.3	73	97.6
	Ød _e			15.88	19.05	25.4		38.1	50.8	63.5	76.2	101.6
	e			1.2	1.2	1.6		1.6	1.6	1.6	1.6	2
JIS G 3447	L1 (N)	–	–	–	–	70	100	100	100	100	155	155
	L1 (M)					50	–	–	–	–	–	–
	Ød _i					23	29.4	35.7	47.8	59.5	72.3	97.6
	Ød _e					25.4	31.8	38.1	50.8	63.5	76.3	101.6
	e					1.2	1.2	1.2	1.5	2	2	2
JIS G 3459	L1 (N)	–	–	70	70	70	100	100	100	100	155	155
	L1 (M)	50	50	50	50	50	–	–	–	–	–	–
	Ød _i	11.4	14.9	18.4	23.9	30.7	39.4	45.3	57.2	72.1	84.9	110.1
	Ød _e	13.8	17.3	21.7	27.2	34	42.7	48.6	60.5	76.3	89.1	114.3
	e	1.2	1.2	1.65	1.65	1.65	1.65	1.65	1.65	2.1	2.1	2.1

¹⁾ DN 6 on request

²⁾ Values in parentheses according to DIN 11866 Series B

Table 12.6: Threaded connections · Standard version (N) and micro-flow valve version (M)

Valve	DN ¹⁾ (OD) ²⁾	8 (13.5)	10 (17.2)	15 (21.3)	20 (26.9)	25 (33.7)	32 (42.4)	40 (48.3)	50 (60.3)	65 (76.1)	80 (88.9)	100 (114.3)
	NPS	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
DIN 11864-1 GS and DIN 11853-1 GS, Form A, Series A	L2 (N)	-	-	-	70	70	70	100	100	100	155	155
	L2 (M)			50	50	50	50	-	-	-	-	-
	Ød _i			10	16	20	26	32	38	50	66	81
	Ød _e			Rd 28 x ⅛"	Rd 34 x ⅛"	Rd 44 x ⅛"	Rd 52 x ⅛"	Rd 58 x ⅛"	Rd 65 x ⅛"	Rd 78 x ⅛"	Rd 95 x ⅛"	Rd 110 x ¼"
DIN 11864-1 GS and DIN 11853-1 GS, Form A, Series B	L2 (N)	-	-	70	70	70	100	100	100	100	155	-
	L2 (M)			50	50	50	-	-	-	-	-	
	Ød _i			18.1	23.7	29.7	38.4	44.3	56.3	72.1	84.3	
	Ød _e			Rd 44 x ⅛"	Rd 52 x ⅛"	Rd 58 x ⅛"	Rd 65 x ⅛"	Rd 78 x ⅛"	Rd 95 x ⅛"	Rd 110 x ¼"	Rd 130 x ¼"	
DIN 11864-1 GS and DIN 11853-1 GS, Form A, Series C	L2 (N)	-	-	-	-	70	-	100	100	100	155	-
	L2 (M)					50		-	-	-	-	-
	Ød _i					22.1		34.8	47.5	60.2	72.9	97.38
	Ød _e					Rd 52 x ⅛"		Rd 65 x ⅛"	Rd 78 x ⅛"	Rd 95 x ⅛"	Rd 110 x ¼"	Rd 130 x ¼"
SMS 1146	L2 (N)	-	-	-	-	70	100	100	100	100	155	155
	L2 (M)					-	-	-	-	-	-	-
	Ød _i					22.6	29.6	35.6	48.6	60.3	72.9	100
	Ød _e					Rd 40 x ⅛"	Rd 48 x ⅛"	Rd 60 x ⅛"	Rd 70 x ⅛"	Rd 85 x ⅛"	Rd 98 x ⅛"	Rd 125 x ¼"
DIN 11851 For pipes according to DIN 11866, Series A	L2 (N)	-	-	70	70	70	100	100	100	100	155	155
	L2 (M)			-	-	-	-	-	-	-	-	-
	Ød _i			16	20	26	32	38	50	66	81	100
	Ød _e			Rd 34 x ⅛"	Rd 44 x ⅛"	Rd 52 x ⅛"	Rd 58 x ⅛"	Rd 65 x ⅛"	Rd 78 x ⅛"	Rd 95 x ⅛"	Rd 110 x ¼"	Rd 130 x ¼"
ISO 2853	L2 (N)	-	-	-	-	70	100	100	100	100	155	-
	L2 (M)					-	-	-	-	-	-	
	Ød _i					22.6	31.3	35.6	48.6	60.3	72.9	
	Ød _e					Rd 37 x ⅛"	Rd 45.9 x ⅛"	Rd 50.6 x ⅛"	Rd 64.1 x ⅛"	Rd 77.6 x ⅛"	Rd 91.1 x ⅛"	

1) DN 6 on request

2) Values in parentheses according to DIN 11866 Series B

Table 12.7: Clamp connections · Standard version (N) and micro-flow valve version (M)

Valve	DN ¹⁾ (OD) ²⁾	8 (13.5)	10 (17.2)	15 (21.3)	20 (26.9)	25 (33.7)	32 (42.4)	40 (48.3)	50 (60.3)	65 (76.1)	80 (88.9)	100 (114.3)
	NPS	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
DIN 11864-3 NKS and DIN 11853-3, Form A, Series A	L3 (N)	-	-	-	60.3	60.3	60.3	88.9	88.9	88.9	150	150
	L3 (M)			50	50	50	50	-	-	-	-	-
	Ød _i			10	16	20	26	32	38	50	66	81
	Ød _e			34	34	50.5	50.5	50.5	64	77.5	91	106
DIN 11864-3 NKS, Form A, Series B	L3 (N)	-	-	-	60.3	60.3	60.3	88.9	88.9	88.9	150	-
	L3 (M)			50	50	50	50	-	-	-	-	-
	Ød _i			14	18.1	23.7	29.7	38.4	44.3	56.3	72.1	84.3
	Ød _e			34	34	50.5	50.5	64	64	91	106	119
DIN 11864-3 NKS Form A, Series C	L3 (N)	-	-	60.3	60.3	60.3	-	88.9	88.9	88.9	150	150
	L3 (M)			50	50	50		-	-	-	-	-
	Ød _i			9.4	15.75	22.1		34.8	47.5	60.2	72.9	97.38
	Ød _e			34	34	50.5		64	77.5	91	106	130

Valve	DN ¹⁾	8	10	15	20	25	32	40	50	65	80	100
	(OD) ²⁾	(13.5)	(17.2)	(21.3)	(26.9)	(33.7)	(42.4)	(48.3)	(60.3)	(76.1)	(88.9)	(114.3)
	NPS	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
DIN 32676, Series A	L3 (N)	–	–	60.3	60.3	60.3	88.9	88.9	88.9	88.9	150	150
	L3 (M)			–	–	–	–	–	–	–	–	–
	Ød _i			16	20	26	32	38	50	66	81	100
	Ød _e			34	34	50.5	50.5	50.5	64	91	106	119
DIN 32676, Series B	L3 (N)	–	–	60.3	60.3	60.3	88.9	88.9	88.9	88.9	150	150
	L3 (M)		–	–	–	–	–	–	–	–	–	–
	Ød _i		–	18.1	23.7	29.7	38.4	44.3	56.3	72.1	84.3	109.7
	Ød _e		–	50.5	50.5	50.5	64	64	77.5	91	106	130
DIN 32676, Series C	L3 (N)	–	–	60.3	60.3	60.3	–	88.9	88.9	88.9	150	150
	L3 (M)		–	–	–	–		–	–	–	–	–
	Ød _i		–	9.4	15.75	22.1		34.8	47.5	60.2	72.9	97.38
	Ød _e		–	25	25	50.5		50.5	64	77.5	91	119
BS 4825 Part 3	L3 (N)	–	–	–	–	60.3	–	88.9	88.9	88.9	150	150
	L3 (M)					–		–	–	–	–	–
	Ød _i					22.2		34.9	47.6	60.3	73	97.6
	Ød _e					50.5		50.5	64	77.5	91	119
ASME BPE	L3 (N)	–	–	60.3	60.3	60.3	–	88.9	88.9	88.9	150	150
	L3 (M)			–	–	–		–	–	–	–	–
	Ød _i			9.4	15.75	22.1		34.8	47.5	60.2	72.9	97.38
	Ød _e			25	25	50.5		50.5	64	77.5	91	119
OSS for JIS G 3447	L3 (N)	–	–	–	–	60.3	88.9	88.9	88.9	88.9	150	150
	L3 (M)					–	–	–	–	–	–	–
	Ød _i					23	29.4	35.7	47.8	59.5	72.3	97.6
	Ød _e					50.5	50.5	50.5	64	77.5	91	119
OSS for JIS G 3459	L3 (N)	–	–	–	–	60.3	88.9	88.9	88.9	88.9	150	150
	L3 (M)					–	–	–	–	–	–	–
	Ød _i					30.7	39.4	45.3	57.2	72.1	84.9	110.1
	Ød _e					50.5	50.5	50.5	64	77.5	91	119

¹⁾ DN 6 on request

²⁾ Values in parentheses according to DIN 11866 Series B

Table 12.8: Flanges · Standard version (N) and micro-flow valve version (M)

Valve	DN ¹⁾	8	10	15	20	25	32	40	50	65	80	100
	(OD) ²⁾	(13.5)	(17.2)	(21.3)	(26.9)	(33.7)	(42.4)	(48.3)	(60.3)	(76.1)	(88.9)	(114.3)
	NPS	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
DIN 11864-2 NF and DIN 11853-2 NF, Form A, Series A	L4 (N)	–	–	90	95	100	105	115	125	145	155	175
	L4 (M)		90	90	95	100	–	–	–	–	–	–
	Ød _i		10	16	20	26	32	38	50	66	81	100
	Ød _e		54	59	64	70	76	82	94	113	133	159
DIN 11864-2 NF and DIN 11853-2 NF, Form A, Series B	L4 (N)	–	–	90	95	100	105	115	125	145	155	175
	L4 (M)			90	95	100	–	–	–	–	–	–
	Ød _i			18.1	23.7	29.7	38.4	44.3	56.3	71.1	84.3	109.7
	Ød _e			62	69	74	82	88	103	125	137	168
DIN 11864-2 NF and DIN 11853-2 NF, Form A, Series C	L4 (N)	–	–	100	100	100	–	115	125	145	155	175
	L4 (M)			–	–	100		–	–	–	–	–
	Ød _i			9.4	15.75	22.1		34.8	47.5	60.2	72.9	97.38
	Ød _e			54	59	66		79	92	107	125	157

Valve	DN ¹⁾ (OD) ²⁾	8 (13.5)	10 (17.2)	15 (21.3)	20 (26.9)	25 (33.7)	32 (42.4)	40 (48.3)	50 (60.3)	65 (76.1)	80 (88.9)	100 (114.3)
	NPS	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
PN 40: DIN EN 1092-1 B2	L4 (N)	–	–	90	95	100	105	115	125	145	155	175
	L4 (M)			–	–	–	–	–	–	–	–	–
	Ød _i			16	20	26	32	38	50	66	81	100
	Ød _e			95	105	115	140	150	165	185	200	220
Class 150: ASME B16.5	L4 (N)	–	–	90	95	100	–	115	125	145	155	175
	L4 (M)			–	–	–		–	–	–	–	–
	Ød _i			–	–	–		–	–	–	–	–
	Ød _e			–	–	–		–	–	–	–	–

¹⁾ DN 6 on request

²⁾ Values in parentheses according to DIN 11866 Series B

Ordering text

Control valve for aseptic service	Type 3349 with USP-VI diaphragm
Body version	Standard version or micro-flow valve version
Valve size	DN ... or NPS ... or OD ...
K _{VS} /C _V coefficient	...
Plug seal	Metal or soft seal
End connections	Welding ends, threaded connections, clamp connections or flanges
Characteristic	Equal percentage or linear
Actuator	Type 3271/3277 or Type 3379
Actuator area	... cm ²
Travel	... mm
Fail-safe position	Fail-close or fail-open
Bench range	...