CERTIFIED
ISO 9001 · ISO 14001
ISO 45001

LDM®

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12.20.GB

SHUT-OFF AND CHECK VALVES

UV / ZV 926

POWER THROUGH IDEAS
www.ldmvalves.com

UV / ZV 926

Shut-off and check valves

DN 10 - 65
PN 63, 100, 160, 250
320, 400, 630

Shut-off valves UV 926 are single-seated globe valves designed for shutting off flow of a media. These valves could be optionally equipped with shaped plug for rough control in case of demand. The valve can be permanently partially opened, however, the maximum pressure drop is limited to 5 MPa in this case. Shut-off valves UV 926 according to ČSN EN 13709.

Check valves ZV 926 are single-seated two-way valves ensuring the flow of the medium in the desired direction. These valves according to ČSN EN 16767.

The valve seat surface is made with hard metal overlay due to increased service life. The conical shape of the seat in combination with the spherical shape of the plug ensures a high tightness of the closure. The valves are delivered with weld ends or can be delivered in flanged execution if required.

Application

- power generation
- chemical processing industries

Maximal permissible pressure and temperature see pg. 14 and 15.

Valves **UV926** operated by handwheels and electric Auma or SIPOS actuators and valves **ZV926 fulfill requirements of seismic resistance** in terms of maintaining the mechanical integrity and functionality after the seismic event to the spectrum of the response up to 30 $m \cdot s^{-2}$ in all directions, in the range of 0-33 Hz. Therefore, they meet the conditions for use in areas with expected occurrence of earthquakes with a maximum intensity of 9 degrees EMS-98 or MSK-64 (9 bal).

Process media

- water
- steam
- other liquids and gases which are compatible with materials of the valve body and internal materials

Installation

The valves with hand wheel or remote control can be installed in any position. The valve with electric or pneumatic actuator can be installed in any position except position when the actuator is under the valve body. It is necessary to ensure enough of space for handling. The flow direction is arbitrary except execution with control plug. In case of control plug the flow direction has to be under the plug. It is suitable to insulate the pipeline around the valve but it is prohibited to insulate the valve yoke.

Check valves ZV926 AUT (without spring) can be installed in a horizontal position blinder up only.

Check valves ZV926 AUP (with spring) can be installed in any position.

The flow direction must agree with arrow on the valve body.

It is necessary to ensure enough of space for handling and maintenance.

Technical data

Series	UV 926		ZV 926
Execution	Shut-off valve (optionally with control plug)		Check valve, single-seated, two-way
Nominal size	DN 10 to 65		
Nominal pressure	PN 63, 100, 160, 250, 320, 400, 630		
Seat material	Body material + hard metal overlay Stellite 6		
Plug material	1.4923 + hard metal overlay Real 096		
Yoke material	1.0619	1.7357	---
Weld ends connection	Acc. to ČSN EN 12627, ČSN 131075		
Flange ends connection	Acc. to ČSN EN 1092-1		
Available types of flanges	Type B1 (raised-face flange); type B2 (plain flange), type C (tongue flange); type D (flange with groove); type E (male flange); typ F (female flange)		
Flow characteristic	on-off; control		on-off
Leakage rate	Class A (On-Off characteristic) acc. to ČSN EN 12266-1		
	Class D (Control characteristic) acc. to ČSN EN 12266-1 (11/2003)		---
Packing	Expanded graphite		

Body material	Operating temperature (from -10°C)
11416	up to 400°C
12020	up to 350°C
1.0460	up to 450°C
15128	up to 575°C
1.4571	up to 600°C
1.4903	up to 600°C
1.5415	up to 530°C
1.7335	up to 550°C

Body material	Operating temperature (from -10°C)
1.7380	up to 600°C
1.7383	up to 600°C
1.4541	up to 600°C
1.4901	up to 650°C
A182 F92	up to 650°C
A182 F22	up to 600°C
A182 F316	up to 650°C
A105	up to 450°C

Values of Kvs and pressure loss coefficient z (zeta)
for valves UV926 with on-off characteristic and for valves ZV926

DN	PN63		PN100		PN160		PN250		PN320		PN400	
	z (zeta)	Kvs [m³/h]	z (zeta)	Kvs [m³/h]	z (zeta)	Kvs [m³/h]	z (zeta)	Kvs [m³/h]	z (zeta)	Kvs [m³/h]	z (zeta)	Kvs [m³/h]
10	7.11	1.5	7.11	1.5	11.1	1.2	32.63	0.7	32.63	0.7	32.63	0.7
15	5.06	4.0	5.06	4.0	5.32	3.9	12.95	2.5	15.3	2.3	35.97	1.5
20	5.53	6.8	5.53	6.8	6.88	6.1	8.46	5.5	13.84	4.3	18.69	3.7
25	7.71	9.0	7.71	9.0	7.71	9.0	10.81	7.6	11.1	7.5	16.78	6.1
32	5.87	16.9	7.76	14.7	7.76	14.7	9.62	13.2	18.19	9.6	25.55	8.1
40	15.99	16.0	15.03	16.5	14.85	16.6	16.19	15.9	19.2	14.6	24.22	13.0
50	11.41	29.6	11.1	30.0	11.56	29.4	13.71	27.0	14.12	26.6	15.37	25.5
65	43.89	25.5	42.22	26.0	42.22	26.0	36.15	28.1	45.67	25.0	52.57	23.3

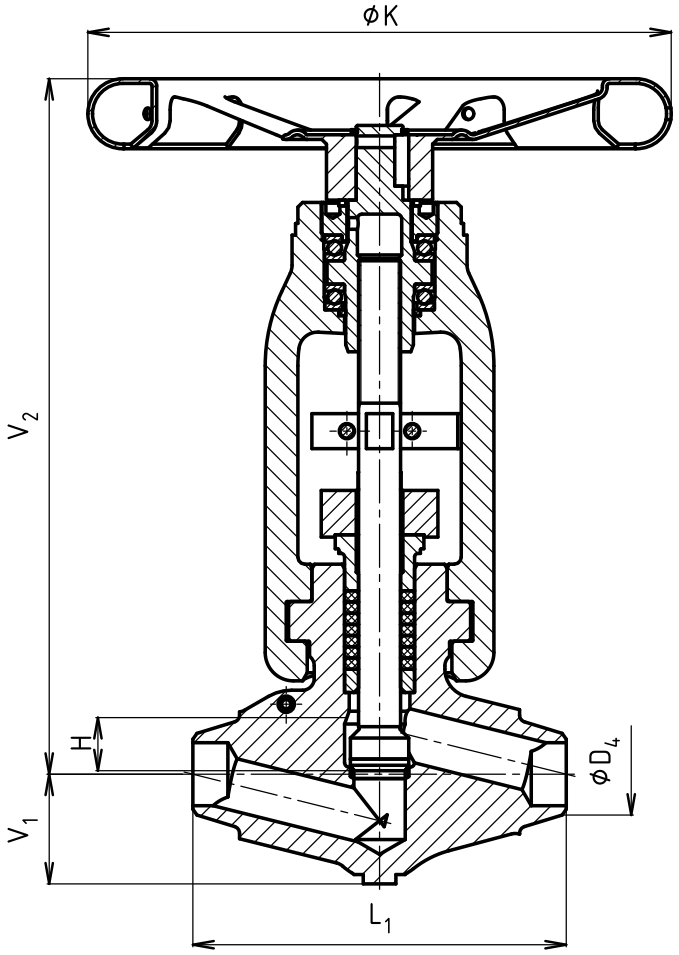
Values of Kvs and pressure loss coefficient z (zeta) for valves UV926 with control characteristic

DN	PN63		PN100		PN160		PN250		PN320		PN400	
	z (zeta)	Kvs [m³/h]	z (zeta)	Kvs [m³/h]	z (zeta)	Kvs [m³/h]	z (zeta)	Kvs [m³/h]	z (zeta)	Kvs [m³/h]	z (zeta)	Kvs [m³/h]
10	8.16	1.4	8.16	1.4	13.21	1.1	32.63	0.7	32.63	0.7	32.63	0.7
15	7.43	3.3	7.43	3.3	7.43	3.3	15.3	2.3	18.35	2.1	41.3	1.4
20	7.6	5.8	7.87	5.7	9.11	5.3	11.1	4.8	16.82	3.9	22.13	3.4
25	13.12	6.9	13.12	6.9	12.75	7.0	17.35	6.0	16.78	6.1	22.23	5.3
32	8.93	13.7	11.45	12.1	11.26	12.2	13.13	11.3	19.38	9.3	27.56	7.8
40	23.49	13.2	22.8	13.4	22.46	13.5	24.22	13.0	27.05	12.3	31.5	11.4
50	20.46	22.1	21.03	21.8	20.65	22.0	24.01	20.4	26.28	19.5	29.84	18.3
65	66.61	20.7	65.97	20.8	64.11	21.1	61.74	21.5	73.54	19.7	98.76	17.0

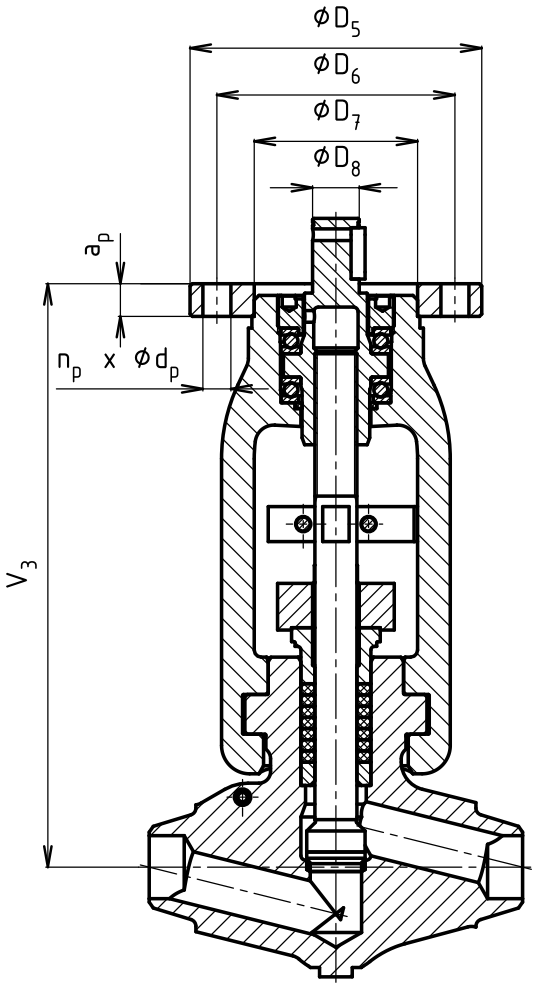
Dimensions and weights of UV 926 with weld ends

DN	H [mm]	L_1 [mm]	V_1 [mm]	V_2 [mm]	V_3 [mm]	$D_{4\,max}$ [mm]	K [mm]	D_5 [mm]	D_6 [mm]	D_7 [mm]	D_8 [mm]	a_p [mm]	n_p	d_p [mm]	m_1 [kg]
10 15	12	150	33	266	225	36	200	125	102	70	20	14	8	12	5.8
20 25	16	160	47	298	250	54	250	125	102	70	20	14	8	12	10
32 40	22	210	66	387	319	70	400	175	140	100	30	18	8	18	21
50 65	36	250	85	480	401	90	500	175	140	100	30	18	8	18	37

m_1 - approximate weight with weld ends
Dimensions of weld ends according to ČSN EN 12627 (ČSN 131075), or by customer request.



Weld ends version with hand wheel



Weld ends version
with adjustment for electric actuator

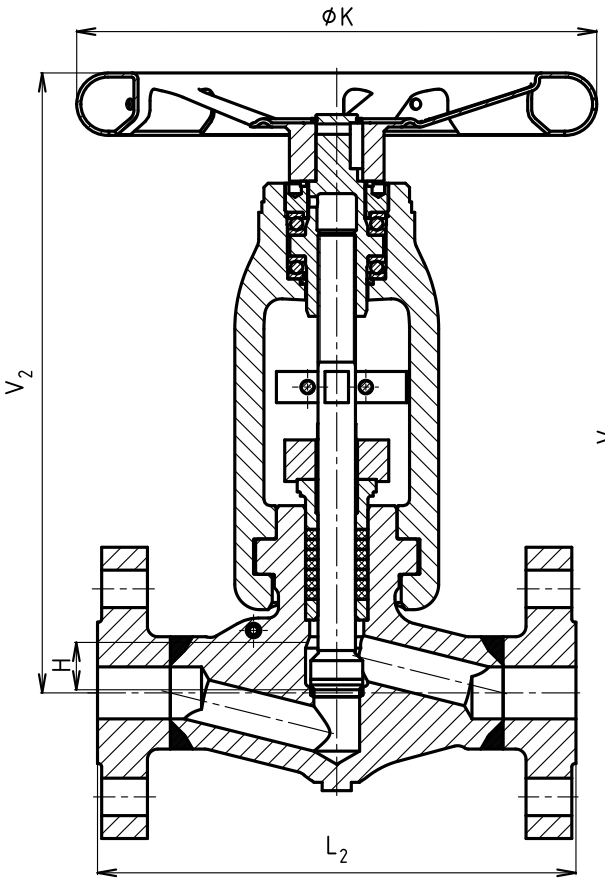
Dimensions and weights of valves UV 926 with flanges

DN	PN63							PN100							PN160						
	D [mm]	D_1 [mm]	D_2 [mm]	D_3 [mm]	a [mm]	d [mm]	n	D [mm]	D_1 [mm]	D_2 [mm]	D_3 [mm]	a [mm]	d [mm]	n	D [mm]	D_1 [mm]	D_2 [mm]	D_3 [mm]	a [mm]	d [mm]	n
10	10	100	70	40	20	14	4	10	100	70	40	20	14	4	10	100	70	40	20	14	4
15	15	105	75	45	20	14	4	15	105	75	45	20	14	4	15	105	75	45	20	14	4
20	20	130	90	58	22	18	4	20	130	90	58	22	18	4	---	---	---	---	---	---	---
25	25	140	100	68	24	18	4	25	140	100	68	24	18	4	25	140	100	68	24	18	4
32	32	155	110	78	24	22	4	32	155	110	78	24	22	4	---	---	---	---	---	---	---
40	40	170	125	88	26	22	4	40	170	125	88	26	22	4	40	170	125	88	28	22	4
50	50	180	135	102	26	22	4	50	195	145	102	28	26	4	50	195	145	102	30	26	4
65	65	205	160	122	26	22	8	65	220	170	122	30	26	8	65	220	170	122	34	26	8

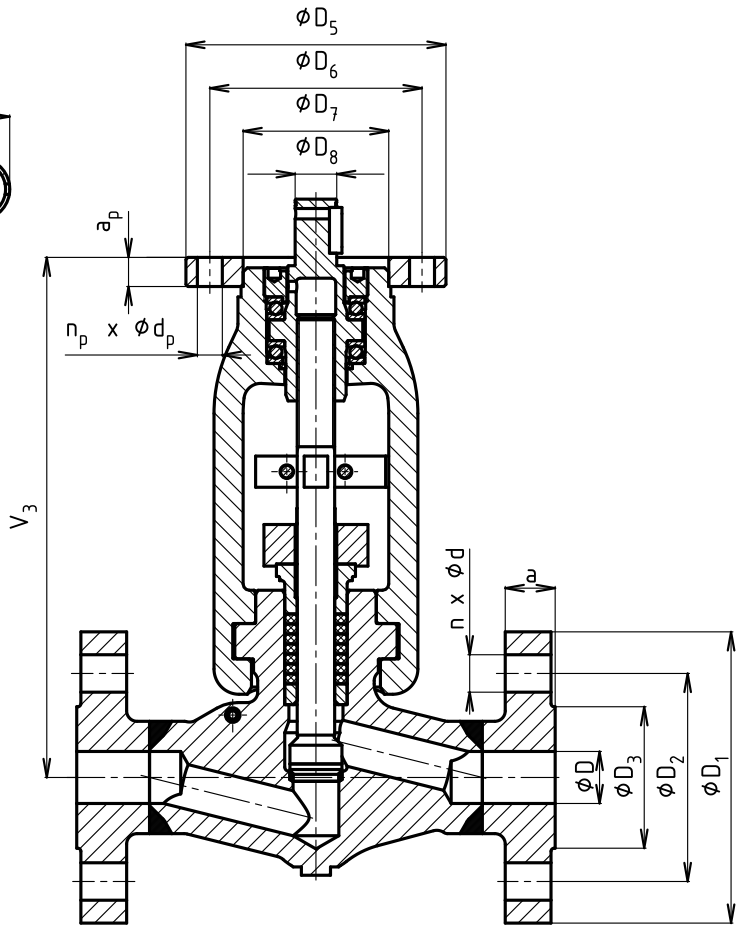
DN	PN250							PN320							PN400						
	D [mm]	D_1 [mm]	D_2 [mm]	D_3 [mm]	a [mm]	d [mm]	n	D [mm]	D_1 [mm]	D_2 [mm]	D_3 [mm]	a [mm]	d [mm]	n	D [mm]	D_1 [mm]	D_2 [mm]	D_3 [mm]	a [mm]	d [mm]	n
10	10	125	85	40	24	18	4	10	125	85	40	24	18	4	10	125	85	40	28	18	4
15	15	130	90	45	26	18	4	15	130	90	45	26	18	4	15	145	100	45	30	22	4
20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
25	25	150	105	68	28	22	4	25	160	115	68	34	22	4	25	180	130	68	38	26	4
32	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
40	40	185	135	88	34	26	4	40	195	145	88	38	26	4	40	220	165	88	48	30	4
50	50	200	150	102	38	26	8	50	210	160	102	42	26	8	50	235	180	102	52	30	8
65	65	230	180	122	42	26	8	65	255	200	122	51	30	8	65	290	225	122	64	33	8

DN	PN63-400												PN63-160	PN250-320	PN400
	H [mm]	V_2 [mm]	V_3 [mm]	K [mm]	D_5 [mm]	D_6 [mm]	D_7 [mm]	D_8 [mm]	a_p [mm]	d_p [mm]	n_p	m_2 [kg]	L_2 [mm]	L_2 [mm]	L_2 [mm]
10	12	266	225	200	125	102	70	20	14	12	8	9 - 13	210	230	260
15	12	266	225	200								9.5-16	210	230	260
20	16	298	250	250								16	230	---	---
25	16	298	250	250								17 - 28	230	260	300
32	22	387	319	400	175	140	100	30	18	18	8	29	260	---	---
40	22	387	319	400								30 - 52	260	300	350
50	36	480	401	500								48 - 77	300	350	400
65	36	480	401	500								52-102	340	400	450

m_2 - flange weight range; specific weight varies according to PN



Flanged version with hand wheel

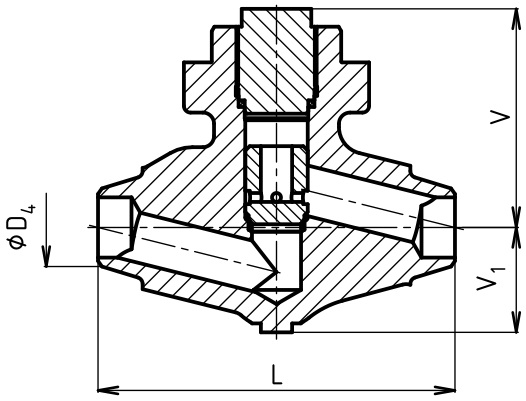


Flanged version
with adjustment for electric actuator

Dimensions and weights of ZV 926 with weld ends

DN	L [mm]	V [mm]	V_1 [mm]	$D_{4\,max}$ [mm]	m_1 [kg]
10 **15**	150	82	33	36	2
20 **25**	160	98	47	54	4
32 **40**	210	128	66	70	9
50 **65**	250	154	85	90	15

m_1 - approximate weight with weld ends
Dimensions of weld ends acc. to ČSN EN 12627 (ČSN 131075), possibly according to the customer's request



Weld ends version without spring

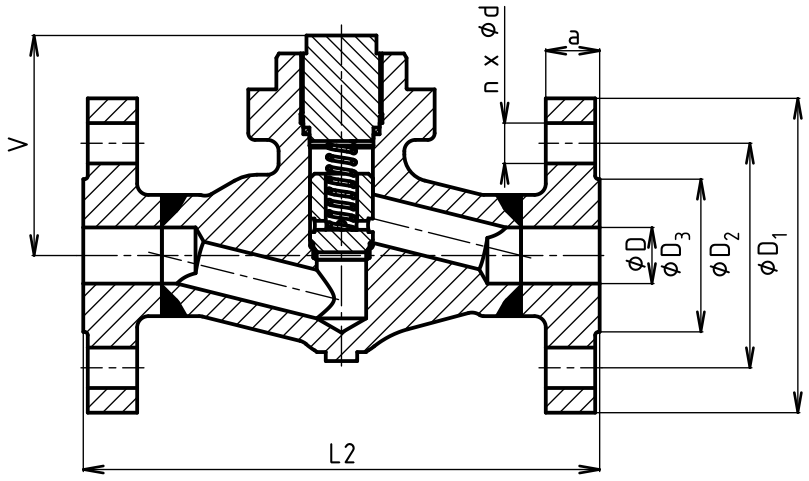
Dimensions and weights of ZV 926 with flanges

DN	PN63							PN100							PN160						
	D [mm]	D_1 [mm]	D_2 [mm]	D_3 [mm]	a [mm]	d [mm]	n	D [mm]	D_1 [mm]	D_2 [mm]	D_3 [mm]	a [mm]	d [mm]	n	D [mm]	D_1 [mm]	D_2 [mm]	D_3 [mm]	a [mm]	d [mm]	n
10	10	100	70	40	20	14	4	10	100	70	40	20	14	4	10	100	70	40	20	14	4
15	15	105	75	45	20	14	4	15	105	75	45	20	14	4	15	105	75	45	20	14	4
20	20	130	90	58	22	18	4	20	130	90	58	22	18	4	---	---	---	---	---	---	---
25	25	140	100	68	24	18	4	25	140	100	68	24	18	4	25	140	100	68	24	18	4
32	32	155	110	78	24	22	4	32	155	110	78	24	22	4	---	---	---	---	---	---	---
40	40	170	125	88	26	22	4	40	170	125	88	26	22	4	40	170	125	88	28	22	4
50	50	180	135	102	26	22	4	50	195	145	102	28	26	4	50	195	145	102	30	26	4
65	65	205	160	122	26	22	8	65	220	170	122	30	26	8	65	220	170	122	34	26	8

DN	PN250							PN320							PN400						
	D [mm]	D_1 [mm]	D_2 [mm]	D_3 [mm]	a [mm]	d [mm]	n	D [mm]	D_1 [mm]	D_2 [mm]	D_3 [mm]	a [mm]	d [mm]	n	D [mm]	D_1 [mm]	D_2 [mm]	D_3 [mm]	a [mm]	d [mm]	n
10	10	125	85	40	24	18	4	10	125	85	40	24	18	4	10	125	85	40	28	18	4
15	15	130	90	45	26	18	4	15	130	90	45	26	18	4	15	145	100	45	30	22	4
20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
25	25	150	105	68	28	22	4	25	160	115	68	34	22	4	25	180	130	68	38	26	4
32	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
40	40	185	135	88	34	26	4	40	195	145	88	38	26	4	40	220	165	88	48	30	4
50	50	200	150	102	38	26	8	50	210	160	102	42	26	8	50	235	180	102	52	30	8
65	65	230	180	122	42	26	8	65	255	200	122	51	30	8	65	290	225	122	64	33	8

DN	PN63-400		PN63-160	PN250-320	PN400
	V [mm]	m_2 [kg]	L_2 [mm]	L_2 [mm]	L_2 [mm]
10	82	5 - 9	210	230	260
15	82	5.5 - 12	210	230	260
20	98	10	230	---	---
25	98	11 - 22	230	260	300
32	128	17	260	---	---
40	128	18 - 40	260	300	350
50	154	26 - 55	300	350	400
65	154	30 - 80	340	400	450

m_2 - flange weight range, specific weight varies according to PN



Flanged version with spring

Valve complete specification No. for ordering UV / ZV 926

		XX	XXX	XXX	XXXX	XX	XXX	/	XXX	-	XXX
1. Valve	Shut-off valve	**UV**									
	Check valve	**ZV**									
2. Series			**926**								
3. Type of actuating	Electric actuator [1]			**EXX**							
	Pneumatic actuator [1]			**PXX**							
	Hand wheel [1]			**RXX**							
	Remote control [1]			**DXX**							
	Automatic without spring [2]			**AUT**							
	Automatic with spring [2]			**AUP**							
4. Connection	Flanges with raised faces, type B1				**1**						
	Female flange, type F				**2**						
	Flanges with plain faces, type B2				**3**						
	Welded				**4**						
	Male flange, type E				**5**						
	Tongue flange, type C				**6**						
	Flange with groove, type D				**7**						
	Other				**9**						
5. Body material	Material 11416 (-10 to 400°C)				**A**						
	Material 12020 (-10 to 350°C)				**B**						
	Material 15128 (-10 to 575°C)				**C**						
	Material 1.0460 (-10 to 450°C)				**D**						
	Material 1.4571 (-10 to 600°C)				**E**						
	Material 1.4903 (-10 to 600°C)				**F**						
	Material 1.5415 (-10 to 530°C)				**G**						
	Material 1.7335 (-10 to 550°C)				**H**						
	Material 1.7380 (-10 to 600°C)				**I**						
	Material 1.7383 (-10 to 600°C)				**J**						
	Material 1.4541 (-10 to 600°C)				**K**						
	Material 1.4901 (-10 to 650°C)				**L**						
	Material A182 F92 (-10 to 650°C)				**M**						
	Material A182 F22 (-10 to 600°C)				**N**						
	Material A182 F316 (-10 to 650°C)				**O**						
	Material A105 (-10 to 450°C)				**P**						
	Other material after agreement				**9**						
6. Packing	Graphite				**5**						
7. Execution	Standard					**0**					
8. Plug type	Shut-off					**0**					
	Control					**1**					
9. Accessories	Without						**0**				
10. Nominal pressuere	PN 63						**063**				
	PN 100						**100**				
	PN 160						**160**				
	PN 250						**250**				
	PN 320						**320**				
	PN 400						**400**				
	PN 630						**630**				
	Operating parameters						**PS-**				
11. Operating temp. °C	According to body material							**/**	**XXX**		
12. Nominal diameter	DN									**-**	**XXX**

[1] UV 926 only
[2] ZV 926 only

Order example:
UV926 R25 4B50 00 063/350-020, weld ends acc. to EN 12627-2-DN20, pipe size 26,9 x 2,3

Data for an actuator specification

The valves are designed to be actuated with multi-turn electric actuators of the following producers: Auma, Schiebel, ZPA Pečky or others. Actuator connection corresponds ČSN EN ISO 5210. Valves are adjusted with actuators so that in the closed position, i.e. when closing to the seat, the torque switch turns off. In the open position they are adjusted so that the position switch turns off (the torque switch for open position is adjusted as a safety switch to protect the valve against a damage only).
Connecting flange of actuator is designed to allow rotation of the drive of 45°.

Assigning actuator to valve

DN	Stroke	RPM / stroke	Max. torgue		Connection acc. to ČSN EN ISO 5210
			max. PN250	PN320 and more	
	[mm]	[n]	[Nm]	[Nm]	
10 - 15	12	6	20	25	F10 / type B3
20 - 25	16	8	40	55	F10 / type B3
32 - 40	22	7,3	80	110	F14 / type B3
50 - 65	36	6	180	250	F14 / type B3

Recommended values of output speed (RPM)

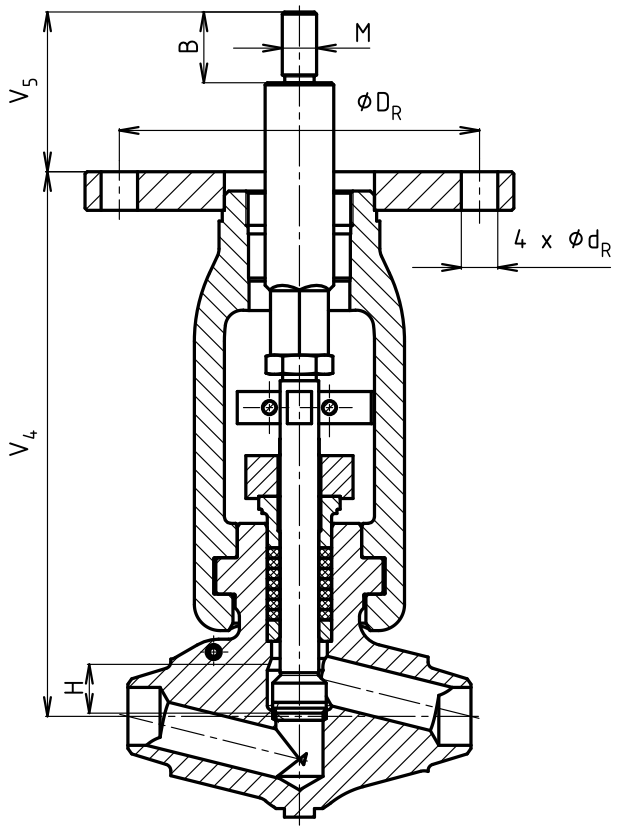
DN	Shut-off valve (running time 10 - 20 sec.)	Shut-off valve with control plug (running time 40 - 60 sec.)
	[n/min.]	[n/min.]
10 - 15	18 - 36	6 - 9
20 - 25	24 - 48	8 - 12
32 - 40	22 - 44	7,5 - 11
50 - 65	18 - 36	6 - 9

Data for pneumatic actuators specification of valves UV 926

The valves are designed to be actuated with pneumatic actuators of producer A.Hock.
Actuators are connected by means of a flange welded to the valve yoke, to which the actuator columns are attached. A threaded extension is mounted on the valve stem, to which the actuator rod is connected by a two-part coupling. Connecting flange of actuator is designed to allow rotation of the actuator of 90°.

Connection dimensions of pneumatic actuators for valves UV926

Actuator type		2112	2116	2112	2116	2112	2116	2112	2116	2112	2116	
DN	H [mm]	V_4 [mm]		V_5 [mm]		D_R [mm]		d_R [mm]		B [mm]		M [mm]
10 15	12	229	---	75	---	168	---	17	---	33	---	M14x1,5
20 25	16	254	257	75	61	168	230	17	28.5	33	40	M18x1,5
32 40	22	---	322	---	61	---	230	---	28.5	---	40	M18x1,5
50 65	36	---	404	---	65	---	230	---	28.5	---	40	M22x1,5



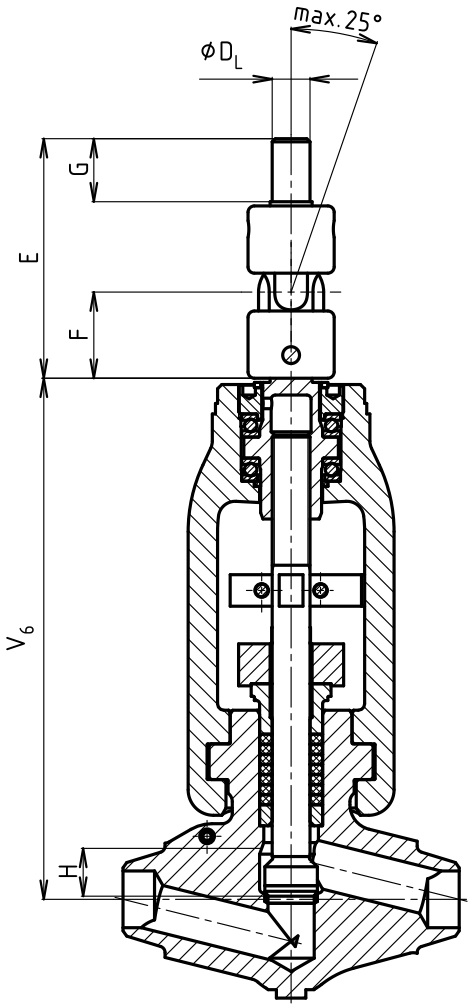
Weld ends version
with connection for pneumatic actuator

Data for connection of electric actuators by mechanical remote control joint

Multi-turn electric actuators of the producers Auma, Schiebel, ZPA Pečky or others, are connected to valve by means of universal joint and extention rod (rod is not part of delivery).
Valves are adjusted with actuators so that in the closed position, i.e. when closing to the seat, the torque switch turns off. In the open position they are adjusted so that the position switch turns off (the torque switch for open position is adjusted as a safety switch to protect the valve against a damage only).

Electric actuator connection dimensions for valves UV926 with mechanical remote control joint

DN	H [mm]	V_6 [mm]	E [mm]	F [mm]	G [mm]	D_L h11 [mm]
10 15	12	221	114	41	30	18
20 25	16	246	114	41	30	18
32 40	22	313	170	65	38	29
50 65	36	395	170	65	38	29



Weld ends version
for remote control connection

Actuating marking in UV926 valve specification No.

Electric actuator Auma SA 07.2	EAA	Electric actuator Schiebel rAB8	EZK
Electric actuator Auma SAEx 07.2	EAB	Electric actuator Schiebel exrAB8	EZL
Electric actuator Auma SAR 07.2	EAC	Electric actuator SIPOS 2SA50	ETB
Electric actuator Auma SAREx 07.2	EAD	Electric actuator SIPOS 2SA55	ETC
Electric actuator Auma SA 07.6	EAE	Electric actuator SIPOS 2SA58 HiMod	ETC
Electric actuator Auma SAEx 07.6	EAF	Electric actuator Modact MON/MOP	EYE
Electric actuator Auma SAR 07.6	EAG	Electric actuator Modact MON/MOP Control	EYF
Electric actuator Auma SAREx 07.6	EAH	Electric actuator Modact MONED/MOPED	EYF
Electric actuator Auma SA 10.2	EAI	Electric actuator Modact MONJ	EYE
Electric actuator Auma SAEx 10.2	EAL	Electric actuator Modact MONJ Control	EYF
Electric actuator Auma SAR 10.2	EAJ	Electric actuator Modact MONEDJ	EYF
Electric actuator Auma SAREx 10.2	EAK	Hand wheel for DN 10 - 15	R20
Electric actuator Auma SA(R,Ex) 14.2	EAM	Hand wheel for DN 20 - 25	R25
Electric actuator Schiebel Ab3	EZA	Hand wheel for DN 32 - 40	R40
Electric actuator Schiebel exAB3	EZB	Hand wheel for DN 50 - 65	R50
Electric actuator Schiebel rAB3	EZC	Remote control for DN 10 - 25	D18
Electric actuator Schiebel exrAB3	EZD	Remote control for DN 32 - 65	D29
Electric actuator Schiebel Ab5	EZE	Automatic without spring	AUT
Electric actuator Schiebel exAB5	EZF	Automatic with spring	AUP
Electric actuator Schiebel rAB5	EZG		
Electric actuator Schiebel exrAB5	EZH		
Electric actuator Schiebel Ab8	EZI		
Electric actuator Schiebel exAB8	EZJ		

Assignment of A.Hock pneumatic actuators to UV926 valves and actuating marking in valve specification No.

DN	Marking in valve type number	Actuator type	Actuator travel	Function	Springs range [bar]	Actuator type number	Version with upper hand wheel	Version with side hand wheel	Bill of material No.	A. Hock connection sign
10-15	PHA	2112-30	30	NO (ATC)	0.8 - 2.2	P2-0K-BM1	P2-0K-FM1	P2-0K-KM1	S900 0353	A339
	PHB	2112T-30	30	NC (ATO)	1.4 - 2.8	P2-0K-WP2	---	---	S900 0353	A339
	PHA	2112-30	30	NC (ATO)	1.6 - 3.2	P2-0K-MM2	---	---	S900 0353	A339
	PHA	2112-30	30	NC (ATO)	1.4 - 2.8	P2-0K-WM2	P2-0K-NM2	---	S900 0353	A339
20-25	PHC	2116	100	NO (ATC)	0.2 - 1	P2-0K-AN1	P2-0K-EN1	---	S900 0355	A302
	PHB	2112T-30	30	NO (ATC)	0.2 - 1	P2-0K-AP1	P2-0K-EP1	---	S900 0354	A339
	PHA	2112-30	30	NO (ATC)	0.8 - 2.2	P2-0K-BM1	P2-0K-FM1	P2-0K-KM1	S900 0354	A339
	PHC	2116S	100	NC (ATO)	1.3 - 3	P2-0K-YN2	---	---	S900 0355	A302
	PHC	2116	100	NC (ATO)	0.8 - 2.2	P2-0K-BN2	P2-0K-FN2	---	S900 0355	A302
	PHB	2112T-30	30	NC (ATO)	1.4 - 2.8	P2-0K-WP2		---	S900 0354	A339
	PHA	2112-30	30	NC (ATO)	1.6 - 3.2	P2-0K-MM2	---	---	S900 0354	A339
	PHA	2112-30	30	NC (ATO)	1.4 - 2.8	P2-0K-WM2	P2-0K-NM2	---	S900 0354	A339
32-40	PHC	2116	100	NO (ATC)	0.2 - 1	P2-0K-AN1	P2-0K-EN1	---	S900 0356	A302
	PHD	2116T	100	NC (ATO)	0.8 - 2.2	P2-0K-BQ2	P2-0K-FQ2	---	S900 0356	A302
	PHC	2116S	100	NC (ATO)	1.5 - 3.5	P2-0K-ZN2	---	---	S900 0356	A302
	PHC	2116	100	NC (ATO)	0.8 - 2.2	P2-0K-BN2	P2-0K-FN2	---	S900 0356	A302
50-65	PHD	2116T	100	NO (ATC)	0.2 - 1	P2-0K-AQ1	P2-0K-EQ1	---	S900 0357	A302
	PHC	2116	100	NO (ATC)	0.8 - 2.2	P2-0K-BN1	P2-0K-FN1	---	S900 0357	A302
	PHD	2116T	100	NC (ATO)	0.8 - 2.2	P2-0K-BQ2	P2-0K-FQ2	---	S900 0357	A302
	PHC	2116S	100	NC (ATO)	1.5 - 3.5	P2-0K-ZN2	---	---	S900 0357	A302
	PHC	2116	100	NC (ATO)	0.8 - 2.2	P2-0K-BN2	P2-0K-FN2	---	S900 0357	A302

Function:

ATO | revers | spring closes | NC
ATC | direct | spring opens | NO

The suitability of using a specific type of pneumatic actuator must always be consulted with the technical department of the valve manufacturer

Maximal permissible pressure values [MPa]

Material	PN	Temperature [°C]													
		100	150	200	250	300	350	400	450	500	550	575	600	625	650
Carbon steel 11416	**63**	6.3	6.3	6.3	5.55	4.82	4.13	3.58	---	---	---	---	---	---	---
	100	10.0	10.0	10.0	8.81	7.65	6.55	5.68	---	---	---	---	---	---	---
	160	16.0	16.0	16.0	14.1	12.2	10.5	9.09	---	---	---	---	---	---	---
	250	25.0	25.0	25.0	22.0	19.1	16.4	14.2	---	---	---	---	---	---	---
	320	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	400	40.0	40.0	40.0	35.2	30.6	26.2	22.7	---	---	---	---	---	---	---
	630	63.0	63.0	63.0	55.5	48.2	41.3	35.8	---	---	---	---	---	---	---
Carbon steel 12020	**63**	6.3	5.82	5.51	5.04	4.56	4.09	---	---	---	---	---	---	---	---
	100	10.0	9.25	8.75	8.0	7.25	6.5	---	---	---	---	---	---	---	---
	160	16.0	14.8	14.0	12.8	11.6	10.4	---	---	---	---	---	---	---	---
	250	25.0	20.5	19.4	17.7	16.1	14.4	---	---	---	---	---	---	---	---
	320	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	400	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	630	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Alloy steel 15128	**63**	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	3.91	2.47	---	---	---
	100	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	6.2	3.91	---	---	---
	160	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	9.92	6.26	---	---	---
	250	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	15.5	9.78	---	---	---
	320	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	400	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	24.8	15.7	---	---	---
	630	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	39.1	24.7	---	---	---
Carbon steel 1.0460 C22.8, P250GH	**63**	5.85	5.55	5.25	4.8	4.35	4.05	3.75	2.07	---	---	---	---	---	---
	100	9.28	8.8	8.33	7.61	6.9	6.42	5.95	3.28	---	---	---	---	---	---
	160	14.85	14.09	13.33	12.19	11.04	10.28	9.52	5.25	---	---	---	---	---	---
	250	23.21	22.02	20.83	19.04	17.26	16.07	14.88	8.21	---	---	---	---	---	---
	320	29.71	28.19	26.66	24.38	22.09	20.57	19.04	10.51	---	---	---	---	---	---
	400	37.14	35.23	33.33	30.47	27.61	25.71	23.8	13.14	---	---	---	---	---	---
	630	58.5	55.5	52.5	48.0	43.5	40.5	37.5	20.7	---	---	---	---	---	---
Stainless steel 1.4571 X6CrNiMoTi17-12-2	**63**	6.3	6.09	5.64	5.38	5.12	4.85	4.59	4.41	4.15	3.67	3.39	2.45	---	---
	100	10.0	9.66	8.96	8.54	8.12	7.7	7.28	7.0	6.58	5.82	5.39	3.89	---	---
	160	16.0	15.46	14.34	13.67	13.0	12.33	11.65	11.21	10.53	9.32	8.62	6.23	---	---
	250	25.0	24.16	22.41	21.36	20.31	19.26	18.21	17.51	16.45	14.56	13.47	9.74	---	---
	320	32.0	30.93	28.68	27.34	26.0	24.65	23.31	22.41	21.07	18.64	17.25	12.46	---	---
	400	40.0	38.65	35.85	34.17	32.49	30.81	29.13	28.01	26.33	23.29	21.55	15.58	---	---
	630	63.0	60.9	56.4	53.8	51.2	48.5	45.9	44.1	41.5	36.7	33.9	24.5	---	---
Stainelss steel 1.4903 X10CrMoVNb9-1	**63**	6.3	6.3	6.3	6.3	6.3	5.91	5.38	4.97	4.15	3.67	3.52	3.15	---	---
	100	10.0	10.0	10.0	10.0	10.0	9.38	8.53	7.89	6.58	5.82	5.59	5.0	---	---
	160	16.0	16.0	16.0	16.0	16.0	15.02	13.66	12.62	10.53	9.32	8.94	8.0	---	---
	250	25.0	25.0	25.0	25.0	25.0	23.47	21.34	19.72	16.45	14.56	13.97	12.5	---	---
	320	32.0	32.0	32.0	32.0	32.0	30.04	27.32	25.25	21.07	18.64	17.88	16.01	---	---
	400	40.0	40.0	40.0	40.0	40.0	37.55	34.14	31.56	26.33	23.29	22.35	20.01	---	---
	630	63.0	63.0	63.0	63.0	63.0	59.1	53.8	49.7	41.5	36.7	35.2	31.5	---	---
Alloy steel 1.5415 15Mo3, 16Mo3	**63**	6.3	6.16	5.75	5.37	4.99	4.69	4.54	4.2	2.86	---	---	---	---	---
	100	10.0	9.78	9.12	8.52	7.92	7.44	7.2	6.67	4.53	---	---	---	---	---
	160	16.0	15.66	14.6	13.64	12.68	11.91	11.53	10.68	7.26	---	---	---	---	---
	250	25.0	24.46	22.81	21.31	19.81	18.61	18.01	16.68	11.34	---	---	---	---	---
	320	32.0	31.31	29.2	27.28	25.36	23.82	23.05	21.36	14.51	---	---	---	---	---
	400	40.0	39.13	36.49	34.09	31.69	29.77	28.81	26.7	18.14	---	---	---	---	---
	630	63.0	61.6	57.5	53.7	49.9	46.9	45.4	42.0	28.6	---	---	---	---	---
Alloy steel 1.7335 13CrMo4-5	**63**	6.3	6.3	6.3	6.3	6.3	5.87	5.38	4.97	3.93	1.65	---	---	---	---
	100	10.0	10.0	10.0	10.0	10.0	9.31	8.53	7.89	6.24	2.61	---	---	---	---
	160	16.0	16.0	16.0	16.0	16.0	14.91	13.66	12.62	9.99	4.18	---	---	---	---
	250	25.0	25.0	25.0	25.0	25.0	23.29	21.34	19.72	15.6	6.54	---	---	---	---
	320	32.0	32.0	32.0	32.0	32.0	29.81	27.32	25.25	19.98	8.37	---	---	---	---
	400	40.0	40.0	40.0	40.0	40.0	37.26	34.14	31.56	24.97	10.46	---	---	---	---
	630	63.0	63.0	63.0	63.0	63.0	58.7	53.8	49.7	39.3	16.5	---	---	---	---

Maximal permissible pressure values [MPa]

Material	PN	Temperature [°C]													
		100	150	200	250	300	350	400	450	500	550	575	600	625	650
Alloy steel	**63**	6.3	6.3	6.3	6.3	6.3	5.91	5.38	4.97	4.15	2.22	1.71	0.94	---	---
1.7380	**100**	10.0	10.0	10.0	10.0	10.0	9.38	8.53	7.89	6.58	3.52	2.72	1.49	---	---
10CrMo9-10	**160**	16.0	16.0	16.0	16.0	16.0	15.02	13.66	12.62	10.53	5.63	4.35	2.39	---	---
	250	25.0	25.0	25.0	25.0	25.0	23.47	21.34	19.72	16.45	8.8	6.8	3.73	---	---
1.7383	**320**	32.0	32.0	32.0	32.0	32.0	30.04	27.32	25.25	21.07	11.27	8.71	4.78	---	---
11CrMo9-10	**400**	40.0	40.0	40.0	40.0	40.0	37.55	34.14	31.56	26.33	14.09	10.86	5.98	---	---
	630	63.0	63.0	63.0	63.0	63.0	59.1	53.8	49.7	41.5	22.2	17.1	9.4	---	---
Stainless steel	**63**	5.82	5.47	5.12	4.85	4.59	4.41	4.23	4.06	3.88	3.36	3.28	2.89	---	---
1.4541	**100**	9.24	8.68	8.12	7.7	7.28	7.0	6.72	6.44	6.16	5.33	5.2	4.59	---	---
X6CrNiTi18-10	**160**	14.79	13.89	13.0	12.33	11.65	11.21	10.76	10.31	9.86	8.54	8.32	7.34	---	---
	250	23.11	21.71	20.31	19.26	18.21	17.51	16.8	16.1	15.4	13.34	13.0	11.47	---	---
	320	29.58	27.79	26.0	24.65	23.31	22.41	21.51	20.62	19.72	17.07	16.65	14.68	---	---
	400	36.97	34.73	32.49	30.81	29.13	28.01	26.89	25.77	24.65	21.34	20.81	18.35	---	---
	630	58.2	54.7	51.2	48.5	45.9	44.1	42.3	40.6	38.8	33.6	32.8	28.9	---	---
Stainless steel	**63**	6.3	6.3	6.3	6.3	6.3	6.16	5.72	5.29	4.59	4.25	4.14	3.79	3.43	2.73
1.4901	**100**	10.0	10.0	10.0	10.0	10.0	9.78	9.08	8.4	7.29	6.75	6.58	6.01	5.45	4.34
X10CrWMoVNb9-2	**160**	16.0	16.0	16.0	16.0	16.0	15.65	14.53	13.45	11.66	10.79	10.52	9.62	8.72	6.94
	250	25.0	25.0	25.0	25.0	25.0	24.45	22.71	21.01	18.23	16.87	16.44	15.03	13.62	10.84
A182 F92	**320**	32.0	32.0	32.0	32.0	32.0	31.29	29.07	26.89	23.33	21.59	21.05	19.24	17.43	13.88
	400	40.0	40.0	40.0	40.0	40.0	39.12	36.34	33.61	29.16	26.98	26.31	24.04	21.79	17.35
	630	63.0	63.0	63.0	63.0	63.0	61.6	57.2	52.9	45.9	42.5	41.4	37.9	34.3	27.3
Alloy steel	**63**	6.3	6.3	6.3	6.3	6.3	5.91	5.38	4.97	4.15	2.3	1.55	1.01	---	---
A182 F22	**100**	10.0	10.0	10.0	10.0	10.0	9.38	8.53	7.89	6.58	3.65	2.46	1.61	---	---
	160	16.0	16.0	16.0	16.0	16.0	15.02	13.66	12.62	10.53	5.84	3.93	2.57	---	---
	250	25.0	25.0	25.0	25.0	25.0	23.47	21.34	19.72	16.45	9.12	6.14	4.02	---	---
	320	32.0	32.0	32.0	32.0	32.0	30.04	27.32	25.25	21.07	11.68	7.86	5.14	---	---
	400	40.0	40.0	40.0	40.0	40.0	37.55	34.14	31.56	26.33	14.6	9.83	6.43	---	---
	630	63.0	63.0	63.0	63.0	63.0	59.1	53.8	49.7	41.5	23.0	15.5	10.1	---	---
Stainless steel	**63**	6.2	5.66	5.24	4.91	4.65	4.46	4.33	4.24	4.15	3.67	3.52	2.93	2.32	1.86
	100	9.84	8.98	8.32	7.79	7.38	7.08	6.87	6.73	6.58	5.82	5.59	4.64	3.69	2.95
A182 F316	**160**	15.76	14.38	13.32	12.46	11.81	11.33	11.0	10.77	10.53	9.32	8.94	7.44	5.91	4.73
	250	24.62	22.46	20.81	19.47	18.45	17.7	17.18	16.83	16.45	14.56	13.97	11.62	9.23	7.39
	320	31.52	28.75	26.64	24.93	23.62	22.65	21.99	21.55	21.07	18.64	17.88	14.87	11.81	9.46
	400	39.39	35.94	33.29	31.16	29.52	28.31	27.49	26.93	26.33	23.29	22.35	18.59	14.76	11.82
	630	62.0	56.6	52.4	49.1	46.5	44.6	43.3	42.4	41.5	36.7	35.2	29.3	23.2	18.6
Carbon steel	**63**	6.3	6.3	6.3	6.17	5.85	5.52	5.1	3.38	---	---	---	---	---	---
A105	**100**	10.0	10.0	10.0	9.79	9.29	8.77	8.1	5.37	---	---	---	---	---	---
	160	16.0	16.0	16.0	15.66	14.87	14.03	12.97	8.59	---	---	---	---	---	---
	250	25.0	25.0	25.0	24.47	23.24	21.92	20.26	13.42	---	---	---	---	---	---
	320	32.0	32.0	32.0	31.33	29.75	28.06	25.94	17.19	---	---	---	---	---	---
	400	40.0	40.0	40.0	39.16	37.18	35.07	32.42	21.48	---	---	---	---	---	---
	630	63.0	63.0	63.0	61.7	58.5	55.2	51.0	33.8	---	---	---	---	---	---

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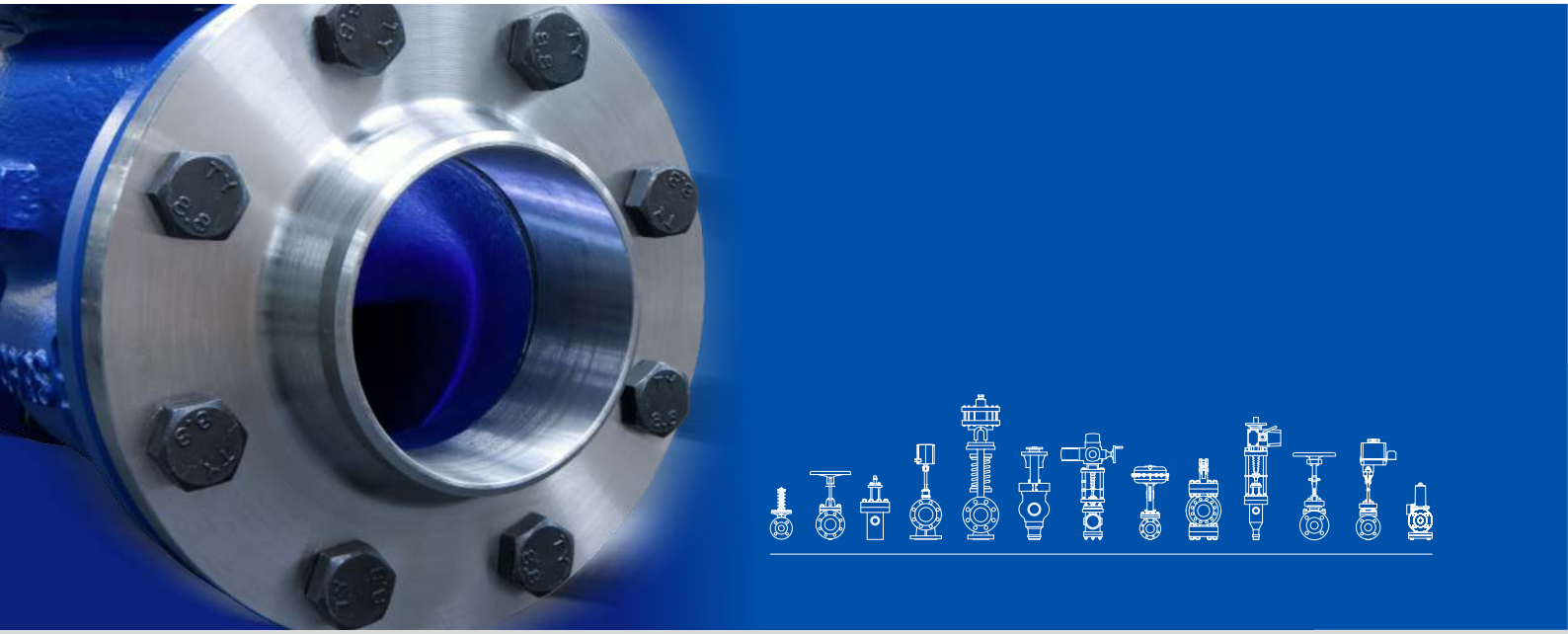

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