

01 - 09.7
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**Check valves and
Check closing valves**





ZV 226
ZV 236

**Check valves and
Check closing valves
DN 15 to 200, PN 16, 25 and 40**

Description

Check valves ZV 2x6 are self-acting shut-off valves for application at long-lasting and maintenance-free operation. Check valves type ZV 2x6 P,T meet ČSN EN 14341 (02/2007) and check valves with closing function type ZV 2x6 E,F meet ČSN EN 13709 (12/2010).

Valves in execution ZV 2x6 P are closed by back pressure and by a spring with the assistance of the plug weight. Opening overpressure is 0,05 - 0,1 bar.

Valves in execution ZV 2x6 T are closed by back pressure only with the assistance of the plug weight.

Valves in execution ZV 2x6 E, F are check closing valves with bellows which ensures a hermetic tightness to environment and in addition it is added with a safety packing made of graphite. The hand wheel is non-rising which enables an application in unaccessible places.

Valves in execution ZV 2x6 E are closed by back pressure and by a spring with the assistance of the plug weight. Opening overpressure is 0,05 - 0,1 bar.

Valves in execution ZV 2x6 F are closed by back pressure only with the assistance of the plug weight.

Application

Check valves ZV 2x6 are self-acting reverse shut-off valves designed especially for applications in warm-water and steam circuits in power plants, heating plants, heat exchange stations, heat transferring stations and common heating applications.

Process media

The valves ZV 2x6 are suitable to use for water, steam and other liquids and gases which are compatible with used material of the valve body and inner parts.

Installation

The valves are designed for mounting in a horizontal pipeline by the bonnet or hand wheel upward. In case of hand wheel it is also recommended to ensure enough space for hand wheel operation. Flow direction is always to under the plug and is indicated by the arrow on the body.

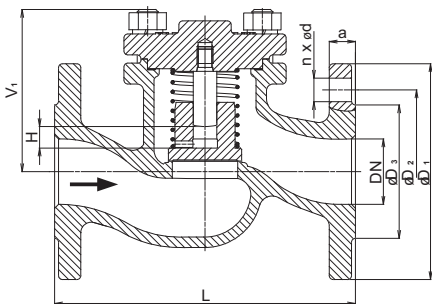
Technical data

Series	ZV 226	ZV 236
Type of valve	Check valve	
Nominal size range	DN 15 to 200	
Nominal pressure	PN 16, 25 and 40	
Body material	Cast steel 1.0619 + CrNiMoTi	Stainless steel 1.4581 + CrNiMoTi
Plug material	Stainless steel 1.4028	Stainless steel 1.4571
Stem material	1.4305	1.4305
Pin material	Stainless steel 1.4021	Stainless steel 1.4305
Spring material	Stainless steel 1.4310	
Operating temperature range	-10 to +400°C *)	
Connection	Type B1 (raised-faced), Type F (female), Type D (groove), Type E (male), Type C (tongue) acc. to ČSN-EN 1092-1 (7/2014) Face to face dimensions acc. to ČSN-EN 558-1 (3/1997)	
Type of plug	Disc	
Kvs values	4,3 to 570 m ³ /h	
Leakage rate	For closing function - rate A (only execution ZV 2x6 E,F) acc. to ČSN-EN 12266-1 (10/2012) For backward function - rate C (all executions) acc. to ČSN-EN 12266-1 (10/2012)	
Packing	Bellows with safety graphite packing (execution ZV 2x6 E,F)	

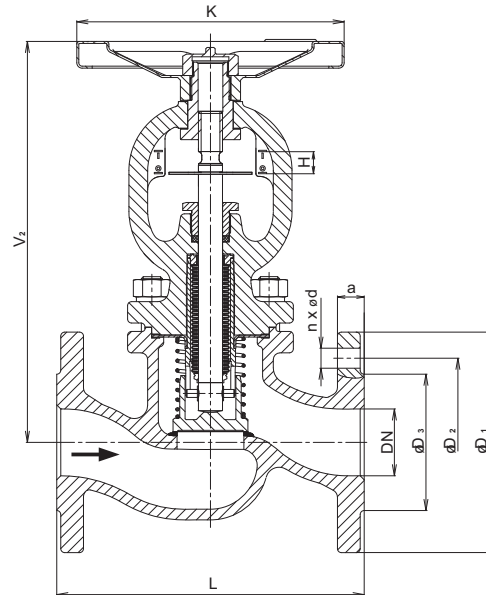
*) Other temperature execution is possible after agreement with producer

Dimensions and weights for the valves ZV 226 / 236

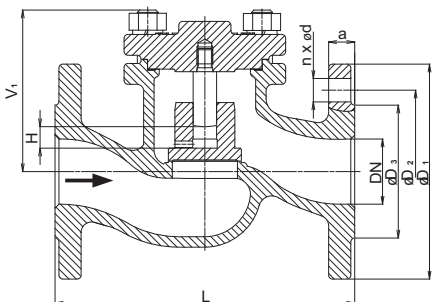
DN	PN 16					PN 25					PN 40					ZV 2x6 P,T					ZV 2x6 E,F					
	$\varnothing D_1$ mm	$\varnothing D_2$ mm	$\varnothing D_3$ mm	$\varnothing d$ mm	n	a mm	$\varnothing D_1$ mm	$\varnothing D_2$ mm	$\varnothing D_3$ mm	$\varnothing d$ mm	n	a mm	$\varnothing D_1$ mm	$\varnothing D_2$ mm	$\varnothing D_3$ mm	$\varnothing d$ mm	n	a mm	H mm	L mm	V_1 mm	V_2 mm	K mm	m_1 kg	m_2 kg	
15	95	65	45			16							95	65	45				16		130				3	4,5
20	105	75	58	14		18							105	75	58	14		18	6	150	75	195	125	4	5	
25	115	85	68			18							115	85	68			18		160				4,5	6	
32	140	100	78		4	18							140	100	78		4	18	10	180	91	225	150	7,5	9	
40	150	110	88			18							150	110	88			18		200				8	10	
50	165	125	102			20							165	125	102	18		20	16,5	230	124			13,5	17,5	
65	185	145	122	18	4	22							185	145	122			22		290	125	305	200	17	21	
80	200	160	138			24							200	160	138			24	25	310	175			28	35	
100	220	180	158			24							235	190	162	22	8	24		350	176	385	300	40	50	
125	250	210	188			26							270	220	188			26		400				71	85	
150	285	240	212	22		28							300	250	218	26		28	40	480	260	530	400	95	115	
200	340	295	268	22	12	24	360	310	278	26	12	30	375	320	285	30	12	34	50	600	270	730		221	240	



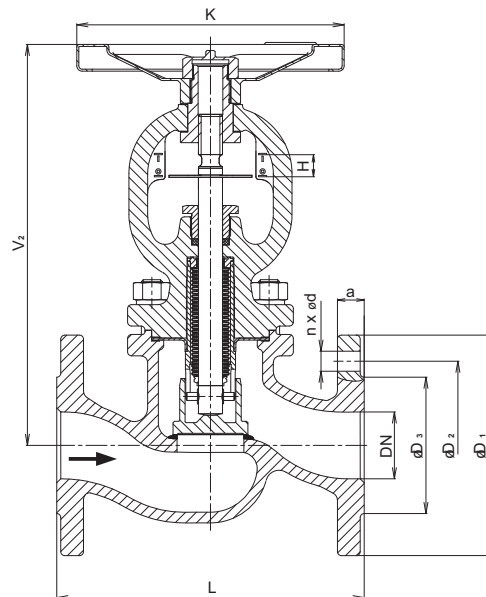
ZV 2x6 P



ZV 2x6 E



ZV 2x6 T



ZV 2x6 F

The valve complete specification No. for ordering ZV 2x6

		XX	XXX	XXX	XX	/	XXX	-	XXX
1. Valve	Check valve, direct	ZV							
2. Type	Check valve made of cast steel 1.0619		226						
	Zpětný ventil of stainless steel 1.4581		236						
3. Function	Check valve with spring			P					
	Check valve without spring			T					
	Check closing valve with spring			E					
	Check closing valve without spring			F					
4. Connection	Raised-raised flange (See note)			1					
	Female flange			2					
	Groove flange			3					
	Male flange			7					
	Tongue flange			8					
5. Body / bonnet material	Cast steel 1.0619 / Cast steel 1.0619			1					
	Stainless steel 1.4581 / Stainless steel 1.4581			8					
6. Nominal pressure PN	PN 16				16				
	PN 25				25				
	PN 40				40				
7. Max. temperature °C	400°C						400		
8. Nominal size DN	DN 15 to 200								XXX

Ordering example: **ZV 226 P11 40/400-050**

Kvs, differential pressure values and loss coefficient ζ (zeta)

DN	Kvs [m³/h]	ζ	Δp_{max} [MPa]
15	4.3	4.5	4.00
20	7.0	5.2	4.00
25	11.0	5.2	4.00
32	17.5	5.5	4.00
40	27.0	5.6	4.00
50	47.0	4.5	4.00
65	68.0	6.2	4.00
80	116.0	4.9	4.00
100	162.0	6.1	4.00
125	250.0	6.2	4.00
150	364.0	6.1	2.00
200	570.0	7.9	4.00

Max. permissible pressure values acc. to ČSN 12516-1 [MPa]

Material	PN	Temperature [°C]								
		RT ¹⁾	100	150	200	250	300	350	375	400
Cast steel 1.0619 (GP240GH)	16	1,56	1,36	1,27	1,13	1,04	0,94	0,88	0,86	0,84
	25	2,44	2,13	1,98	1,78	1,62	1,47	1,37	1,35	1,32
	40	3,9	3,31	3,17	2,84	2,6	2,35	2,19	2,16	2,11
Stainless steel 1.4581 (GX5CrNiMoNb19-11-2)	16	1,59	1,44	1,33	1,25	1,17	1,10	1,06	1,05	1,02
	25	2,49	2,25	2,08	1,95	1,84	1,72	1,66	1,63	1,60
	40	3,98	3,60	3,33	3,13	2,94	2,75	2,65	2,61	2,56

¹⁾ -10°C to 50°C



Check valves and Check closing valves DN 15 to 200, PN 16, 25 and 40

Description

Check valves ZV 2x7 are self-acting shut-off valves for application at long-lasting and maintenance-free operation. Check valves type ZV 2x7 P,T meet ČSN EN 14341 (02/2007) and check valves with closing function type ZV 2x6 E,F meet ČSN EN 13709 (12/2010).

Between a valve body and cover a spiral-wound gasket is used. A seat sealing is available in several material options. Valves in execution ZV 2x7 P are closed by back pressure and by a spring with the assistance of the plug weight. Opening overpressure is 0,05 - 0,1 bar.

Valves in execution ZV 2x7 T are closed by back pressure only with the assistance of the plug weight.

Valves in execution ZV 2x7 E, F are check closing valves with bellows which ensures a hermetic tightness to environment and in addition it is added with a safety packing made of graphite. The hand wheel is non-rising which enables an application in unaccessible places.

Valves in execution ZV 2x7 E are closed by back pressure and by a spring with the assistance of the plug weight. Opening overpressure is 0,05 - 0,1 bar.

Valves in execution ZV 2x7 F are closed by back pressure only with the assistance of the plug weight.

Application

Check valves ZV 2x6 are self-acting reverse shut-off valves designed especially for applications in warm-water and steam circuits in power plants, heating plants, heat exchange stations, heat transferring stations, common heating applications and in petrochemical industry.

Process media

The valves ZV 2x7 are suitable to use for water, steam, technical and heating cases, flammable liquids and other liquids and gases which are compatible with used material of the valve body and inner parts.

Installation

The valves are designed for mounting in a horizontal pipeline by the bonnet or hand wheel upward. In case of hand wheel it is also recommended to ensure enough space for hand wheel operation. Flow direction is always to under the plug and is indicated by the arrow on the body.

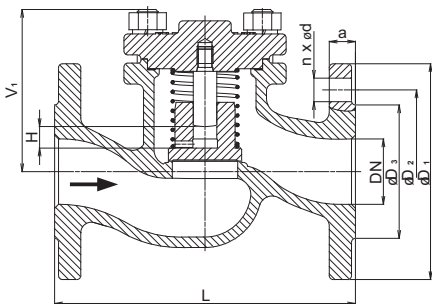
Technical data

Series	ZV 227	ZV 237
Type of valve	Check valve	
Nominal size range	DN 15 to 200	
Nominal pressure	PN 16, 25 and 40	
Body material	1.0619+CrNiMoTi / 1.0619+Stellite 6	1.4581 + CrNiMoTi / 1.4581+Stellite 6
Plug material	1.4028 / 1.4028+Stellite 6 / 1.4571	1.4571 / 1.4571 + Stellite 6
Stem material	1.4305	1.4305
Pin material	Stainless steel 1.4021	Stainless steel 1.4305
Spring material	Stainless steel 1.4310	
Operating temperature range	-10 to +400°C *)	
Connection	Type B1 (raised-faced), Type F (female), Type D (groove), Type E (male), Type C (tongue) acc. to ČSN-EN 1092-1 (7/2014) Face to face dimensions acc. to ČSN-EN 558-1 (3/1997)	
Type of plug	Disc	
Kvs values	4,3 to 570 m ³ /h	
Leakage rate	For closing function - rate A (only execution ZV 2x6 E,F) acc. to ČSN-EN 12266-1 (10/2012) For backward function - rate C (all executions) acc. to ČSN-EN 12266-1 (10/2012)	
Packing	Bellows with safety graphite packing (execution ZV 2x6 E,F)	

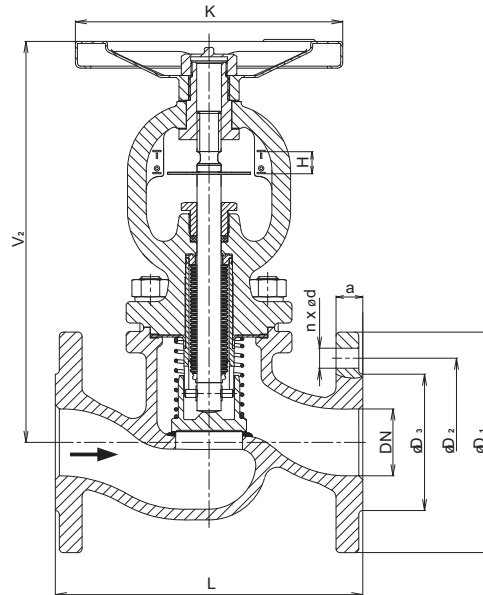
*) Other temperature execution is possible after agreement with producer

Dimensions and weights for the valves ZV 227 / 237

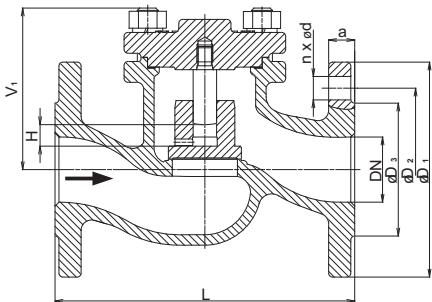
DN	PN 16					PN 25					PN 40					ZV 2x6 P,T					ZV 2x6 E,F					
	$\varnothing D_1$ mm	$\varnothing D_2$ mm	$\varnothing D_3$ mm	$\varnothing d$ mm	n	a mm	$\varnothing D_1$ mm	$\varnothing D_2$ mm	$\varnothing D_3$ mm	$\varnothing d$ mm	n	a mm	$\varnothing D_1$ mm	$\varnothing D_2$ mm	$\varnothing D_3$ mm	$\varnothing d$ mm	n	a mm	H mm	L mm	V_1 mm	V_2 mm	K mm	m_1 kg	m_2 kg	
15	95	65	45			16							95	65	45				16						3	4,5
20	105	75	58	14		18							105	75	58	14		18	6	150	75	195	125		4	5
25	115	85	68			18							115	85	68			18		160					4,5	6
32	140	100	78		4	18							140	100	78		4	18	10	180	91	225	150		7,5	9
40	150	110	88			18							150	110	88			18		200					8	10
50	165	125	102			20							165	125	102	18		20	16,5	230	124				13,5	17,5
65	185	145	122	18	4	22							185	145	122			22		290	125	305	200		17	21
80	200	160	138			24							200	160	138			24	25	310	175				28	35
100	220	180	158		8	24							235	190	162	22	8	24		350	176	385	300		40	50
125	250	210	188			26							270	220	188			26		400					71	85
150	285	240	212		22	28							300	250	218	26		28	40	480	260	530	400		95	115
200	340	295	268		12	24	360	310	278	26	12	30	375	320	285	30	12	34	50	600	270	730			221	240



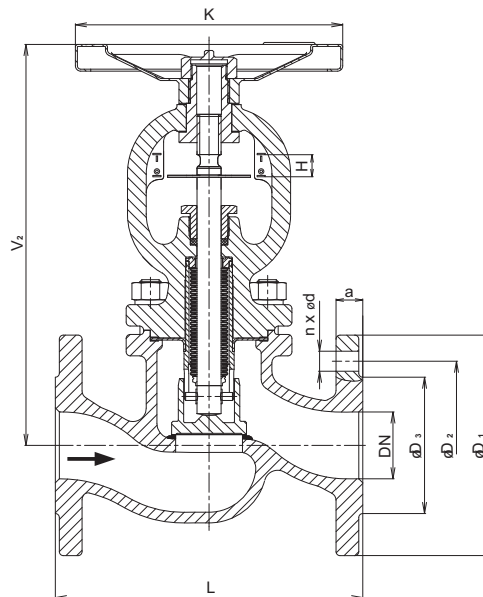
ZV 2x7 P



ZV 2x7 E



ZV 2x7 T



ZV 2x7 F

The valve complete specification No. for ordering ZV 2x7

		XX	XXX	XXXX	XX	/	XXX	-	XXX
1. Valve	Check valve, direct	ZV							
2. Type	Check valve made of cast steel 1.0619		227						
	Zpětný ventil of stainless steel 1.4581		237						
3. Function	Check valve with spring			P					
	Check valve without spring			T					
	Check closing valve with spring			E					
	Check closing valve without spring			F					
4. Connection	Raised-raised flange (See note)			1					
	Female flange			2					
	Groove flange			3					
	Male flange			7					
	Tongue flange			8					
5. Body / bonnet material	Cast steel 1.0619 / Cast steel 1.0619			1					
	Stainless steel 1.4581 / Stainless steel 1.4581			8					
6. Nominal pressure PN	CrNiMoTi / CrNiMoTi			0					
	CrNiMoTi / Stellite 6			2					
	Stellite 6 / Stellite 6			5					
	13Cr / Stellite 6			8					
6. Nominal pressure PN	PN 16				16				
	PN 25				25				
	PN 40				40				
7. Max. temperature °C	400°C						400		
8. Nominal size DN	DN 15 to 200								XXX

Ordering example: **ZV 227 P112 40/400-050**

Kvs, differential pressure values and loss coefficient ζ (zeta)

DN	Kvs [m³/h]	ζ	Δp _{max} [MPa]
15	4.3	4.5	4.00
20	7.0	5.2	4.00
25	11.0	5.2	4.00
32	17.5	5.5	4.00
40	27.0	5.6	4.00
50	47.0	4.5	4.00
65	68.0	6.2	4.00
80	116.0	4.9	4.00
100	162.0	6.1	4.00
125	250.0	6.2	4.00
150	364.0	6.1	2.00
200	570.0	7.9	4.00

Max. permissible pressure values acc. to ČSN 12516-1 [MPa]

Material	PN	Temperature [°C]								
		RT ¹⁾	100	150	200	250	300	350	375	400
Cast steel 1.0619 (GP240GH)	16	1,56	1,36	1,27	1,13	1,04	0,94	0,88	0,86	0,84
	25	2,44	2,13	1,98	1,78	1,62	1,47	1,37	1,35	1,32
	40	3,9	3,31	3,17	2,84	2,6	2,35	2,19	2,16	2,11
Stainless steel 1.4581 (GX5CrNiMoNb19-11-2)	16	1,59	1,44	1,33	1,25	1,17	1,10	1,06	1,05	1,02
	25	2,49	2,25	2,08	1,95	1,84	1,72	1,66	1,63	1,60
	40	3,98	3,60	3,33	3,13	2,94	2,75	2,65	2,61	2,56

¹⁾ -10°C to 50°C



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