LDM, spol. s r.o. Czech Republic	INSTRUCTION FOR INSTALLATION AND SERVICE CHECK VALVES CHECK CLOSING VALVES	ZV 2x6 ZV 2x7 PM - 090/19/10/GB

The instructions for installation, operation and service of check valves ZV 2x6 and ZV 2x7 are binding for users to ensure proper function of valves. The user must keep the rules, written here, while installation, operation and servicing the valve.

1. TECHNICAL DESCRIPTION AND VALVE FUNCTION

1.1 Description

Check valves ZV 2x6 a ZV 2x7 are self-acting shut-off valves for application at long-lasting and maintenance-free operation.
Valves meet the EN 16767 (12/2016)
Valves in execution **ZV 2x6 P a 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 2x6 T a ZV 2x7 T** are closed by back pressure only with the assistance of the plug weight.
Valves in execution **ZV 2x6 E a ZV 2x7 E** 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 unacces-sible places. Valves 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 a ZV 2x7 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 unacces-sible places. Valves are closed by back pressure only with the assistance of the plug weight.

1.2 Application

The valves are designed as self-acting check shut-off valves. Leakage of the valve is guaranteed in rate „A" for closing function and in rate „C" for backward function acc. to ČSN-EN 12266-1.
Check valves are especially designed for applications in warm-water and steam circuits in power plants, heating plants, heat exchange stations, heat transfering stations and common heating applications.

1.3 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. The valves ZV 2x7 are suitable to use for petrochemical industry

1.4 Technical data

Series	**ZV 226, ZV 227**	**ZV 236, ZV 237**
Type	Check valve	
Nominal diameter	DN 15 to 200	
Nominal pressure	PN 16, 25 and 40	
Body/Bonnet material	Cast steel 1.0619 (GP240GH)	Stainless steel 1.4581 (GX5CrNiMoNb19-11-2)
Seat material ZV 2x6	1.0619+CrNiMoTi	1.4581+CrNiMoTi
Seat material ZV 2x7	1.0619+CrNiMoTi / 1.0619+Stellite 6	1.4581+CrNiMoTi / 1.4581+Stellite 6
Plug material ZV 2x6	1.4028	1.4571
Plug material ZV 2x7	1.4028 / 1.4028+Stellite 6 / 1.4571	1.4571 / 1.4571+Stellite 6
Stem material	1.4305	1.4305
Pin materal	1.4021	1.4305
Spring material	Stainless steel 1.4310	
Operating temperature	-20 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+A1 (7/2014) Face to face dimensions acc. to ČSN-EN 558+A1 (5/2012)	
Type of plug	Disc	
Kvs values	4,3 to 570 m^3/hod	
Leakage	For closing function - rate A (only execition E and F) acc. to ČSN-EN 12266-1 (10/2012) For backward function - rate C (all execition) acc. to ČSN-EN 12266-1 (10/2012)	
Packing	Bellows with safety graphite packing (execution E and F)	

* designs for other temperature is possible, after consultation with the producer

2. DIRECTIONS FOR INSTALLATION

2.1 Preparation before installation

The valves are delivered completely assembled from the company and tested. Prior to the piping of the valve, it is necessary to compare the data on the valve tag with data from accompanying documents. The protective blinds must be removed from the valve. The valves shall be inspected against mechanical damage or being stained, especially in the inner area and on sealing flanges. Also the piping system shall be cleared from all impurities that could cause damage or loss of function of the valve.

2.2 Installation and Service

Valve has to be installed and put into operation by qualified person! Qualified person is a person acquainted with installation, putting into operation and manipulation herewith product, and which is qualified in enclosure. As well he must be for-educated about health protection and safety at work.

The valves are designed for mountingin a horizontal pipeline by the bonnet or handwheel upwards.
The valve must be installed with proper space for manipulation with handwheel (type E and F).
The flow direction is always to under the plug and is determined by the arrow on the body.

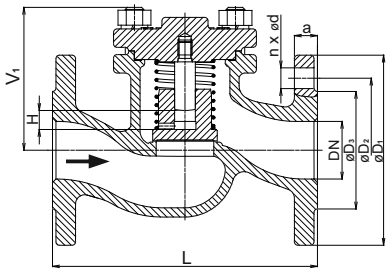
Valves do not require any revision or preventive servicing.

2.3 Dimensions and weights valves ZV 2x6, ZV 2x7

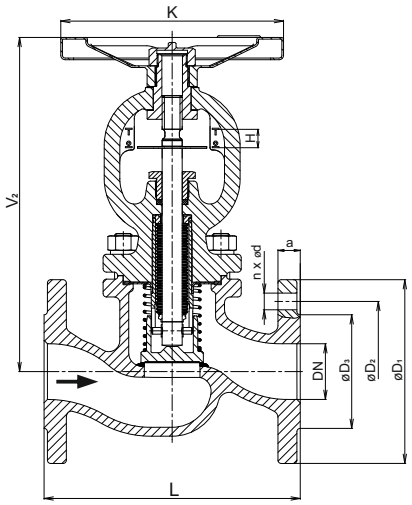
	PN 16						PN 25						PN 40											ZV 2x6 P,T	ZV 2x6 E,F
DN	$øD_1$	$øD_2$	$øD_3$	ød	n	a	$øD_1$	$øD_2$	$øD_3$	ød	n	a	$øD_1$	$øD_2$	$øD_3$	ød	n	a	H	L	V_1	V_2	K	m_1	m_2
	mm	mm	mm	mm		mm	mm	mm	mm	mm		mm	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	kg	kg
15	95	65	45			16							95	65	45			16		130				3	4,5
20	105	75	58	14		18							105	75	58	14		18	6	150	75	195	125	4	5
25	115	85	68		4	18							115	85	68		4	18		160				4.5	6
32	140	100	78			18							140	100	78			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	305	200	13.5	17,5
65	185	145	122	18	4	22							185	145	122		8	22		290	125			17	21
80	200	160	138			24							200	160	138			24	25	310	175	385	300	28	35
100	220	180	158		8	24							235	190	162	22		24		350	176			40	50
125	250	210	188			26							270	220	188	26		26	40	400	260	530	400	71	85
150	285	240	212	22		28							300	250	218			28		480				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

As PN 40

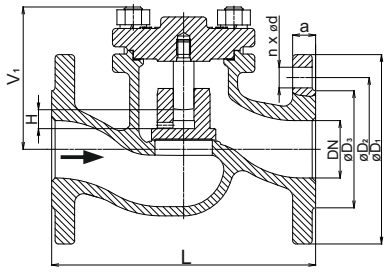
ZV 2x6/7 P



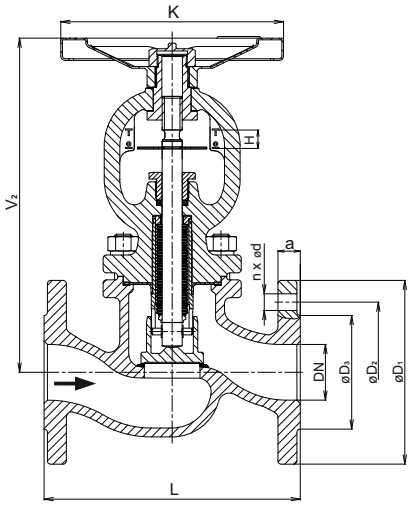
ZV 2x6/7 E



ZV 2x6/7 T



ZV 2x6/7 F



2.4 Guarantee conditions

The producer provides a 24-month warranty for this product starting with the date of dispatch from the factory. When the failure is detected, the activities according point a), b) or c) should be done.

a)Send the strainer to the address of LDM servis, spol. s r. o., where the valve will be inspected and changed or repaired.

b)Report the malfunction to a local service company which can lend you a spare strainer. Send the the strainer over to our service company where it will be repaired or replaced with new one.

c)Require service work directly at site.

In case the claim is found relevant, the producer shall pay the cost of repair and transportation cost for sending the strainer back to the customer. If the customer requires the service work directly at site, he shall be bound to pay the travel cost of the service personnel. If the claim is not found relevant, he is bound to pay all the cost arised.

The producer does not guarantee the proper function of the product under other conditions than those stipulated in this instructions for installation and maintenance of the product. Any other service conditions shall be consulted with the producer.

2.5 Waste disposal

Packaging material and the valves shall be disposed of in the common way such as by handing over to a specialized enterprise for disposal of (body and metal parts - metal waste, other non-metal parts - communal waste).

Maximum permissible working overpressure acc. to EN 12 516-1 [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

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						
	Check valve 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-faised flange			1					
	Female flange			2					
	Groove flange			3					
	Male flange			7					
	Tongue flange			8					
5. Body / bonnet materia	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**

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						
	Check valve 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-faised flange			1					
	Female flange			2					
	Groove flange			3					
	Male flange			7					
	Tongue flange			8					
5. Body / bonnet materia	Cast steel 1.0619 / Cast steel 1.0619			1					
	Stainless steel 1.4581 / Stainless steel 1.4581			8					
6. Seat material Plug / Body	CrNiMoTi / CrNiMoTi			0					
	CrNiMoTi / Stellite 6			2					
	Stellite 6 / Stellite 6			5					
	13Cr / Stellite 6			8					
7. Nominal pressure PN	PN 16				16				
	PN 25				25				
	PN 40				40				
8. Max. temperature °C	400 °C						400		
9. Nominal size DN	DN 15 to 200								XXX

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

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