 LDM, spol. s r.o. Czech Republic	<b>INSTRUCTIONS FOR INSTALLATION AND SERVICE</b>	<b>ZV 116 ZV 216</b>
	<b>CHECK VALVES</b>	
		PM - 091/12/04/GB

The instructions for installation, operation and service of check valves ZV 116, 216 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 116, 216 are self-acting shut-off valves for application at long-lasting and maintenance-free operation. Valves meet the ČSN EN12334 (03/2002).

Valves in execution **ZV 116, 216 P** are closed by back pressure with spring with weight of plug assistance, opening overpressure is 0,05 - 0,1 bar.

Valves in execution **ZV 116, 216 T** are closed by back pressure only with weight of plug assistance.

### 1.2 Application

The valve is designed for application as self-acting reverse shut-off valve. In the valve is not warranted 100% of tightness in closed position, therefore in the case of higher tightness request is necessary to install into pipeline the shut-off valve. The valves are especially designed for applications in hot-water and steam circuits in power plants, heating plants, heat exchange stations, heat transferring stations and common heating applications.

### 1.3 Process media

The valves ZV 116, 216 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.

### 1.4 Technical data

Series	ZV 116	ZV 216
Type	Check valve	
Nominal diameter	DN 15 to 300	DN 15 to 200
Nominal pressure	PN 16	PN 25
Body material	Grey cast iron EN-JL 1040	Nodular cast iron EN-JL 1025
Plug material	Stainless steel 1.4028	
Seat material	Stainless steel 1.4006	
Stem material	Stainless steel 1.4021	
Spring material	Stainless steel 1.4057	
Sealing material	Graphite	
Operating temperature	+2°C to +300 °C	+2°C to +350 °C
Connection	Flanges Type B1 (raised face) acc. to ČSN EN 1092-2 (3/2008) Face to face dimensions acc. to ČSN EN 558 (9/2008) serie 1	
Type of plug	Disc	
Kvs values	5,6 to 1460m <sup>3</sup> /hod	
Leakage	Acc. to ČSN EN 12334 (03/2002)	

## 2. DIRECTIONS FOR INSTALLATION

### 2.1 Preparation before installation

The valves are delivered completely assembled from the company, adjusted 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 to sealing surface and thus cause a loss of tightness of the valve.

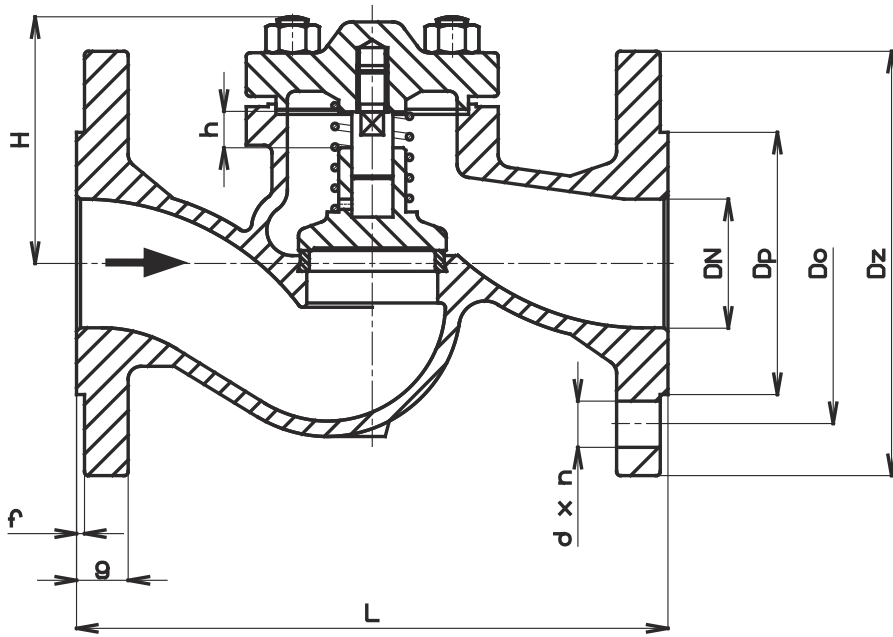
### 2.2 Installation and Service

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.

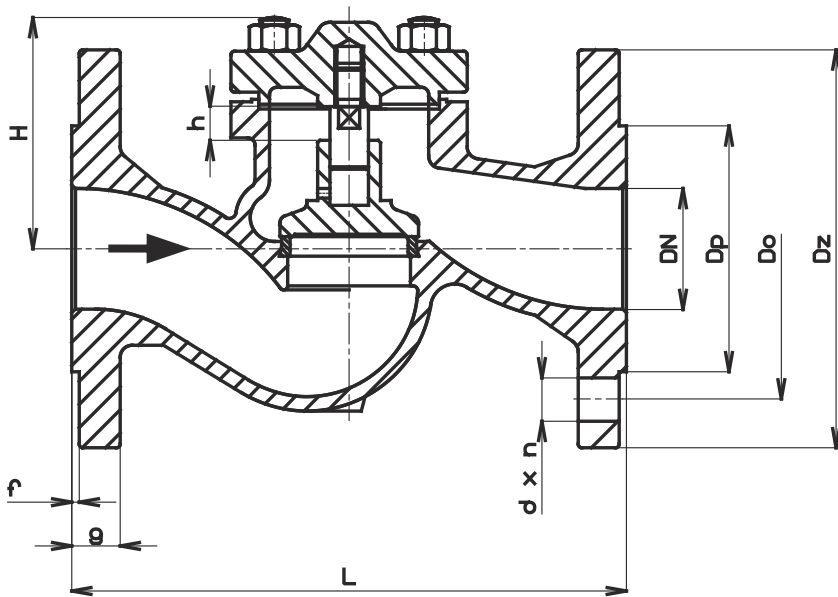
**The valves are designed for mounting in a horizontal pipeline by the bonnet upwards, flow direction is always to under the plug and is determined by the arrow on the body.**

Valves do not require any revision or preventive servicing.

**Check valve with spring ZV 116, 216 P**



**Check valve without spring ZV 116, 216 T**



**Dimensions and weights for the ZV 116, 216**

DN	PN 16						PN 25						PN 16, PN 25				
	D <sub>2</sub>	D <sub>p</sub>	D <sub>o</sub>	d	n	g	D <sub>2</sub>	D <sub>p</sub>	D <sub>o</sub>	d	n	g	H	L	h	f	m
	mm	mm	mm	mm		mm	mm	mm	mm	mm		mm	mm	mm	mm	mm	kg
15	95	46	65	14	4	14	95	46	65	14	4	14	56	130	5	2	3
20	105	56	75			16	105	56	75			16		16			150
25	115	65	85			18	115	65	85			18	18	160	4.5		
32	140	76	100			20	140	76	100			20	19	180	7.5		
40	150	84	110	19	8	22	150	84	110	19	8	19	89	200	11	3	8
50	165	99	125			24	165	99	125				24	96	230		13.5
65	185	118	145			26	185	118	145				26	104	290		17
80	200	132	160			30	200	132	160				30	124	310		28
100	220	156	180	23	12	32	235	156	190	12	12	20	161	350	25	4	40
125	250	184	210			---	270	184	220				---	174	400		71
150	285	211	240			---	300	211	250				---	197	480		95
200	340	266	295			---	360	274	310				---	22	248		221
250	405	319	355	23	12	---	---	---	---	12	12	---	333	730	65	4	95
300	460	370	410			---	---	---	---				---	---	---		---

### 2.3 Guarantee conditions

The producer does not guarantee the service and safety of the product under conditions different from this instructions and catalogue data sheet. Any using of the valve under different conditions shall be consulted with the producer. Defects of the valve caused by impurities in process medium shall be considered as out of guarantee terms. The producer does not take over the guarantee if any change was made by the user without prior written consent from the producer.

### 2.4 Waste disposal

Packaging and the valves (after their scrapping) shall be disposed off in the common way, e.g. by handing over to a specialized company for a disposal (body and metal parts - metal scrap, packaging + other non-metallic parts - communal waste).

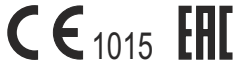
### Maximum permissible working overpressure acc. to EN 12 516-1 [MPa]

Material	PN	Temperature [°C]					
		120	150	200	250	300	350
Grey cast iron EN-JL1040 (EN-GJL-250)	16	1.60	1.44	1.28	1.12	0.96	---
Nodular cast iron EN-JS1025 (EN-GJS-400-18-LT)	25	2.50	2.43	2.30	2.18	2.00	1.75

### Valve complete specification No. for ordering ZV 226

		XX	XXX	XXX	XX	/	XXX	-	XXX
1. Valve	Check valve, direct	ZV							
2. Type	Check valve made of grey cast iron		116						
	Check valve made of nodular cast iron		216						
3. Function	Check valve with spring			P					
	Check valve without spring			T					
4. Connection	Raised flange			1					
5. Body/cover material	Grey cast iron EN-JL1040		116	3					
	Nodular cast iron EN-JS1025		216	4					
6. Nominal pressure PN	PN 16		116	16					
	PN 25		216	25					
7. Max. temperature °C	300°C		116				300		
	350°C		216				350		
8. Nominal diameter DN	DN 15 to 300		116						XXX
	DN 15 to 200		216						XXX

Ordering example: **ZV 216 P14 25/350-65**



## ADDRESS OF FACTORY

LDM, spol. s r.o.  
Litomyšlská 1378  
560 02 Česká Třebová  
Czech Republic

tel.: +420 465 502 511  
fax: +420 465 533 101  
E-mail: sale@ldm.cz  
<http://www.ldmvalves.com>

## REGIONAL OFFICES

LDM, spol. s r.o.  
Office in Prague  
Podolská 50  
147 01 Praha 4  
Czech Republic

tel.: +420 241087360  
fax: +420 241087192  
E-mail: tomas.suchanek@ldm.cz

LDM, spol. s r.o.  
Office in Ústí nad Labem  
Ladova 2548/38  
400 11 Ústí nad Labem - Severní Terasa  
Czech Republic

tel.: +420 602708257  
E-mail: tomas.kriz@ldm.cz

## SERVICE ORGANIZATION

LDM servis, spol. s r.o.  
Litomyšlská 1378  
560 02 Česká Třebová  
Czech Republic

tel: +420 465502411-13  
fax: +420 465531010  
E-mail: servis@ldm.cz

## LDM SUBSIDIARIES ABROAD

OOO "LDM Promarmatura"  
Jubilejnyi prospekt, dom.6a, of. 601  
141407 Khimki  
Moscow Region  
Russia

tel.: +7 495 7772238  
fax: +7 495 7772238  
mobile: +7 9032254333  
e-mail: inforus@ldmvalves.com

TOO "LDM"  
Shakirova 33/1, kab. 103  
100012 Karaganda  
Kazachstan

tel.: +7 7212566936  
fax: +7 7212566936  
mobile: +7 7017383679  
e-mail: sale@ldm.kz

LDM, Bratislava s.r.o.  
Mierová 151  
821 05 Bratislava  
Slovakia

tel: +421 243415027-8  
fax: +421 243415029  
E-mail: ldm@ldm.sk  
<http://www.ldm.sk>

LDM Armaturen GmbH  
Wupperweg 21  
D-51789 Lindlar  
Deutschland

tel: +49 2266 440333  
fax: +49 2266 440372  
mobile: +49 1772960469  
E-mail: ldmarmaturen@ldmvalves.com

LDM, Polska Sp. z o.o.  
ul. Modelarska 12  
40-142 Katowice  
Polska

tel: +48 327305633  
fax: +48 327305233  
mobile: +48 601354999  
E-mail: ldmpolska@ldm.cz

LDM Bulgaria Ltd.  
z.k.Mladost 1  
bl.42, floor 12, app.57  
1784 Sofia  
Bulgaria

tel: +359 2 9746311  
fax: +359 2 8771344  
mobile: +359 888925766  
E-mail: ldm.bg@ldmvalves.com

[www.ldmvalves.com](http://www.ldmvalves.com)

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