

**01 - 09.8**

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**Check valves  
ZV 116 and ZV 216 LDM**



# ZV 116 ZV 216



**Check valves  
DN 15 to 300  
PN 16, 25**

## Description

Check valves ZV x16 are self-acting shut-off valves for application at long-lasting and maintenance-free operation. Valves meet the ČSN EN 12334 (03/2002).

Valves in execution ZV x16 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 x16 T are closed by back pressure only with weight of plug assistance.

## 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.

## Process media

The valves ZV x16 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

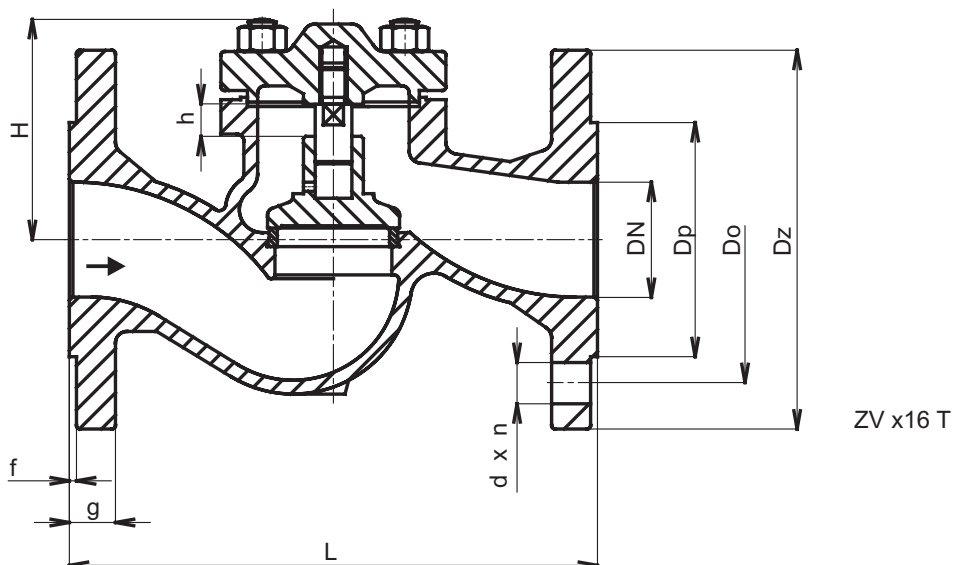
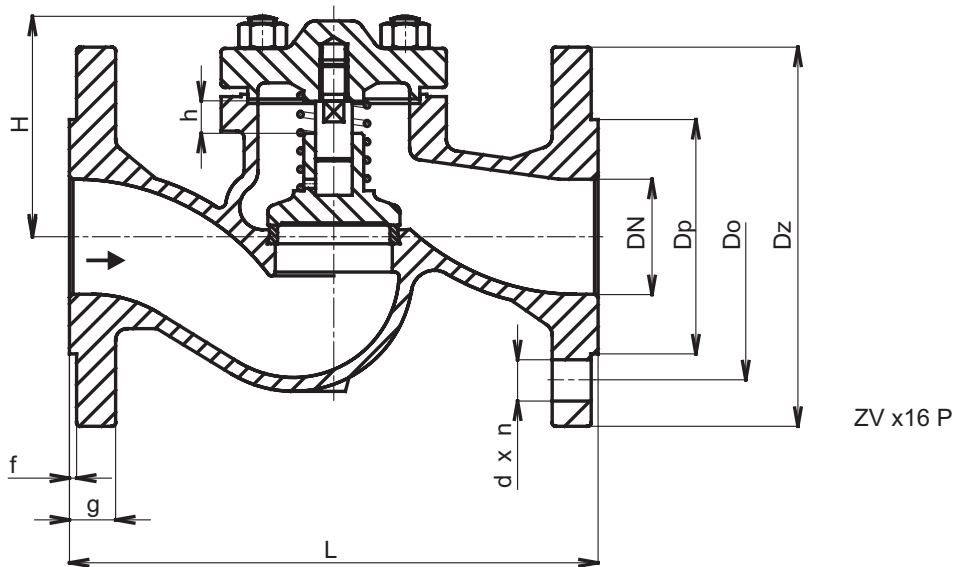
The valves are designed for mounting in a horizontal pipeline by the bonnet upwards, flow direction is always to under the plug and is determined by the arrow on the body.

## Technical data

| Series                      | ZV 116  | ZV 216                      |
|-----------------------------|---|-----------------------------|
| Type of valve               | Check valve   |                             |
| Nominal size range          | DN 15 to 300  | DN 15 to 200                |
| Nominal pressure            | PN 16   | PN 25                       |
| Body material               | Grey cast iron EN-JL1040  | Nodular cast iron EN-JS1025 |
| 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 range | +2°C to +300°C  | +2°C to +350°C              |
| Connection                  | Flanges Type B1 (raised-faised) acc. to ČSN-EN 1092-2,<br>Face to face dimensions acc. to ČSN-EN 558, serie 1 |                             |
| Type of plug                | Disc  |                             |
| Kvs values                  | 5,9 to 1460 m <sup>3</sup> /h   |                             |
| Leakage rate                | Acc. to ČSN-EN 12334 (03/2002)  |                             |

## Dimensions and weights for the ZV x16

| DN  | PN 16                |                      |                      |         |    |         | PN 25                |                      |                      |         |    |         | PN 16, PN 25 |         |         |         |         |
|-----|----------------------|----------------------|----------------------|---------|----|---------|----------------------|----------------------|----------------------|---------|----|---------|--------------|---------|---------|---------|---------|
|     | D <sub>z</sub><br>mm | D <sub>p</sub><br>mm | D <sub>o</sub><br>mm | d<br>mm | n  | g<br>mm | D <sub>z</sub><br>mm | D <sub>p</sub><br>mm | D <sub>o</sub><br>mm | d<br>mm | n  | g<br>mm | H<br>mm      | L<br>mm | h<br>mm | f<br>mm | m<br>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     | 8       |         | 4       |
| 25  | 115                  | 65                   | 85                   |         |    | 18      | 115                  | 65                   | 85                   |         |    | 18      | 18           | 160     | 11      |         | 4.5     |
| 32  | 140                  | 76                   | 100                  |         |    | 20      | 140                  | 76                   | 100                  |         |    | 20      | 20           | 180     | 14      |         | 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      | 24           | 230     | 14      |         | 13.5    |
| 65  | 185                  | 118                  | 145                  |         |    | 26      | 185                  | 118                  | 145                  |         |    | 26      | 26           | 290     | 17      |         | 17      |
| 80  | 200                  | 132                  | 160                  |         |    | 30      | 200                  | 132                  | 160                  |         |    | 30      | 30           | 310     | 21      |         | 28      |
| 100 | 220                  | 156                  | 180                  | 23      | 12 | 32      | 220                  | 156                  | 180                  | 23      | 12 | 22      | 124          | 350     | 25      | 4       | 40      |
| 125 | 250                  | 184                  | 210                  |         |    | 32      | 250                  | 184                  | 210                  |         |    | 32      | 32           | 400     | 32      |         | 71      |
| 150 | 285                  | 211                  | 240                  |         |    | 32      | 285                  | 211                  | 240                  |         |    | 32      | 32           | 480     | 38      |         | 95      |
| 200 | 340                  | 266                  | 295                  |         |    | 32      | 340                  | 266                  | 295                  |         |    | 32      | 32           | 600     | 50      |         | 221     |
| 250 | 405                  | 319                  | 355                  | 23      | 12 | 32      | ---                  | ---                  | ---                  | 23      | 12 | 22      | 197          | 480     | 38      | 4       | 95      |
| 300 | 460                  | 370                  | 410                  |         |    | 32      | ---                  | ---                  | ---                  |         |    | 32      | 32           | 730     | 65      |         | 221     |
|     |                      |                      |                      |         |    |         | ---                  | ---                  | ---                  |         |    |         | 375          | 800     | 95      |         | 221     |



## The valve complete specification No. for ordering ZV x16

|                        |                                       | 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-raised flange                  |    |     | 1   |    |   |     |   |     |
| 5. Material body       | 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 size DN     | DN 15 to 300                          |    | 116 |     |    |   |     |   | XXX |
|                        | DN 15 to 200                          |    | 216 |     |    |   |     |   | XXX |

Ordering example: **ZV 216 P14 25/350-065**

## Kvs, differential pressure values and loss coefficient $\zeta$ (zeta)

| DN  | Kvs [m <sup>3</sup> /h] | $\zeta$ | $\Delta p_{\max}$ [MPa] |       |
|-----|-------------------------|---------|-------------------------|-------|
|     |                         |         | PN 16                   | PN 25 |
| 15  | 5.9                     | 2.3     | 1.6                     | 2.5   |
| 20  | 7.4                     | 4.7     |                         |       |
| 25  | 13.0                    | 3.7     |                         |       |
| 32  | 18.0                    | 5.2     |                         |       |
| 40  | 30.0                    | 4.5     |                         |       |
| 50  | 41.0                    | 5.9     |                         |       |
| 65  | 79.0                    | 4.6     |                         |       |
| 80  | 115.0                   | 4.9     |                         |       |
| 100 | 181.0                   | 4.9     |                         |       |
| 125 | 225.0                   | 7.7     |                         |       |
| 150 | 364.0                   | 6.1     |                         |       |
| 200 | 690.0                   | 5.4     | 1.4                     | 1.4   |
| 250 | 1010                    | 6.1     | 1.6                     | ---   |
| 300 | 1460                    | 6.1     |                         |       |

## Max. permissible pressure values [MPa]

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



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.ldm.cz>

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

tel.: +420 241 087 360  
fax: +420 241 087 192

LDM, spol. s r.o.  
Office in Ústí nad Labem  
Mezní 4.  
400 11 Ústí nad Labem  
Czech Republic

tel.: +420 475 650 260  
fax: +420 475 650 263

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

tel.: +420 465 502 411-3  
fax: +420 465 531 010  
E-mail: servis@ldm.cz

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

tel.: +48 32 730 56 33  
fax: +48 32 730 52 33  
mobile: +48 601 354 999  
E-mail: ldmpolska@ldm.cz

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

tel.: +421 2 43415027-8  
fax: +421 2 43415029  
E-mail: ldm@ldm.sk  
<http://www.ldm.sk>

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

tel.: +359 2 9746311  
fax: +359 2 9746311  
GSM: +359 888 925 766  
E-mail: ldm.bg@stark-net.net

OOO "LDM Promarmatura"  
Moskovskaya street,  
h. 21, Office No. 520  
141400 Khimki  
Russian Federation

tel.: +7 495 777 22 38  
fax: +7 495 777 22 38  
E-mail: inforus@ldmvalves.com

TOO "LDM"  
Lobody 46/2  
Office No. 4  
100008 Karaganda  
Kazakhstan

tel.: +7 7212 566 936  
fax: +7 7212 566 936  
mobile: +7 701 738 36 79  
E-mail: sale@ldm.kz  
<http://www.ldm.kz>

LDM Armaturen GmbH  
Wupperweg 21  
D-51789 Lindlar  
Germany

tel.: +49 2266 440333  
fax: +49 2266 440372  
mobile: +49 177 2960469  
E-mail: ldmmaturen@ldmvalves.com  
<http://www.ldmvalves.com>

Your partner