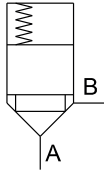
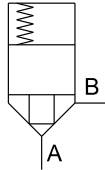
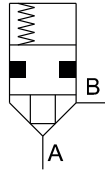
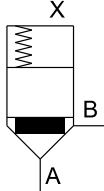
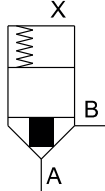


**2/2-way slip-in cartridge valves**

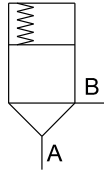
- $Q_{max} = 360 \text{ l/min}$
- $p_{max} = 630 \text{ bar}$

**NG 16**  
 DIN ISO 7368

**2/2-WAY FUNCTION**

| Area ratio<br>A:X | 1:1,06<br>X   | 1:1,5<br>X  | 1:1,5<br>X  |
|-------------------|---|---|---|
|                   |  |  |  |
| Type              | CSEN16-11   | CSEN16-15   | CLEN16-15   |
| Execution         | Standard  | Standard  | with seal<br>B → X  |
|                   |  |  |   |
| Type              | CDEN16-11   | CDEN16-15   |   |
| Execution         | with damping  | with damping  |   |

**PRESSURE RELIEF**

| Area ratio<br>A:X | 1:1,0<br>X  |
|-------------------|---|
|                   |  |
| Type              | CPEN16-10   |
| Execution         | Standard  |

**TYPE CODE**

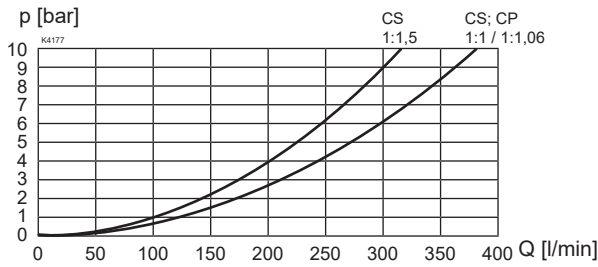
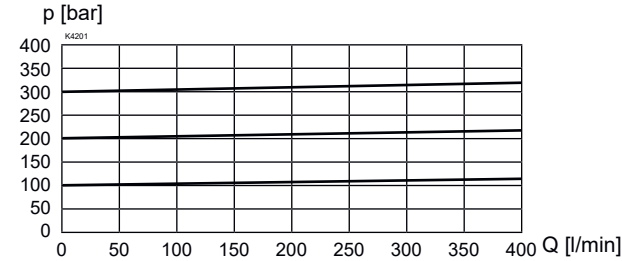
|                                  |                        | C  | <input type="checkbox"/> | EN16 | - | <input type="checkbox"/> | / | <input type="checkbox"/> | / | <input type="checkbox"/> | - | <input type="checkbox"/> | # | <input type="checkbox"/> |
|----------------------------------|------------------------|----|--------------------------|------|---|--------------------------|---|--------------------------|---|--------------------------|---|--------------------------|---|--------------------------|
| 2/2-way slip-in cartridge valve  |                        |    |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
| Seat construction                |                        | S  |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
| Seat construction with seal      |                        | L  |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
| Seat construction with damping   |                        | D  |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
| Pressure function                |                        | P  |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
| Nominal size 16, Enhanced        |                        |    |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
| Area ratio                       | 1:1                    | 10 |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
|                                  | 1:1,06                 | 11 |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
|                                  | 1:1,5                  | 15 |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
| Opening pressure A to B          | 0 bar (without spring) | 0  |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
| Nominal                          | 0.5 bar                | 05 |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
|                                  | 1.0 bar                | 10 |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
|                                  | 2.0 bar                | 20 |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
|                                  | 4.0 bar                | 40 |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
| Orifice in poppet spool          | closed                 |    |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
| Sealing material                 | NBR                    |    |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
|                                  | FKM                    | D1 |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |
| Design-Index (subject to change) |                        |    |                          |      |   |                          |   |                          |   |                          |   |                          |   |                          |

**GENERAL SPECIFICATIONS**

|                     |                                      |
|---------------------|--------------------------------------|
| Construction        | 2/2-way slip-in cartridge valves     |
| Mounting position   | any                                  |
| Mounting dimensions | according to DIN ISO 7368            |
| Ambient temperature | -30...+80 °C                         |
| Weight spool        | m = 0,035 kg (1:1,5)                 |
| Weight total        | m = 0,180 kg (1:1,5; without spring) |
| MTTFd               | 150 years                            |

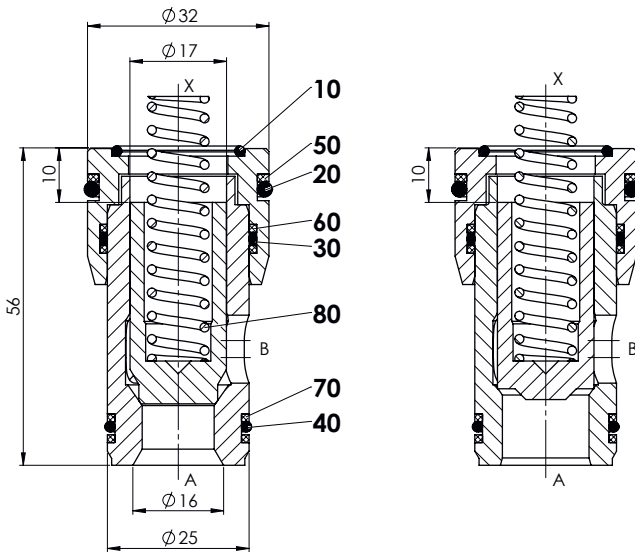
**HYDRAULIC SPECIFICATIONS**

|                          |   |
|--------------------------|---|
| Fluid                    | Mineral oil, other fluid on request   |
| Contamination efficiency | ISO 4406:1999, class 18/16/13<br>(Required filtration grade $\beta_{6...10} \geq 75$ )<br>refer to data sheet no. 1.0-50/2  |
| Viscosity range          | 12 mm <sup>2</sup> /s...320 mm <sup>2</sup> /s  |
| Fluid temperature        | -20...+80 °C (FKM)<br>-30...+80 °C (NBR)  |
| Operating pressure       | $p_{max} = 630 \text{ bar}$ (connections A, B, X)<br>CLEN $p_{max} = 420 \text{ bar}$<br>CPEN connection X, X-A = < 420 bar<br>max. cover pressure to be observed |
| Max. volume flow         | $Q_{max} = 360 \text{ l/min}$ at v = 30 m/s   |
| Pilot oil volume         | $Q_{st} = 2,2 \text{ cm}^3$   |


**CHARACTERISTICS** Oil viscosity  $\nu = 30 \text{ mm}^2/\text{s}$ 
 $\Delta p = f(Q)$  Pressure drop / volume flow characteristics

 $p = f(Q)$  Pressure volume flow characteristics

**DIMENSIONS**

CSEN16-15

CPEN16-10


**INSTALLATION NOTES**

Mounting type Slip-in cartridge  
 Mounting position Any, preferably horizontal  
 Dismounting Dismounting tool  
 DW-C.E.16  
 Article no. 983.3015

 **Note!** The length of the cover fixing screws to be used depends on the base material of the valve body and on the maximum system pressure.

**CHARACTERISTICS**

| Nominal | Opening pressure [bar] |     |     |     |
|---------|------------------------|-----|-----|-----|
|         | 0,5                    | 1,0 | 2,0 | 4,0 |
|         |                        |     |     |     |

| Area ratio | Flow direction A to B |     |     |     |
|------------|-----------------------|-----|-----|-----|
|            | 0,4                   | 0,8 | 1,6 | 3,2 |
| 1:1        | 0,4                   | 0,8 | 1,6 | 3,2 |
| 1:1,06     | 0,4                   | 0,9 | 1,7 | 3,4 |
| 1:1,5      | 0,6                   | 1,2 | 2,5 | 4,9 |

| Area ratio | Flow direction B to A |      |      |      |
|------------|-----------------------|------|------|------|
|            | -                     | -    | -    | -    |
| 1:1        | -                     | -    | -    | -    |
| 1:1,06     | 6,3                   | 12,5 | 25,1 | 50,1 |
| 1:1,5      | 1,1                   | 2,2  | 4,4  | 8,8  |

| Pressure spring | Article no.  |          |          |          |
|-----------------|--------------|----------|----------|----------|
|                 | CS, CD, CPEN | 053.2201 | 053.2702 | 053.3203 |
| CLEN            | -            | 053.2118 | 053.2621 | -        |

**PARTS LIST**

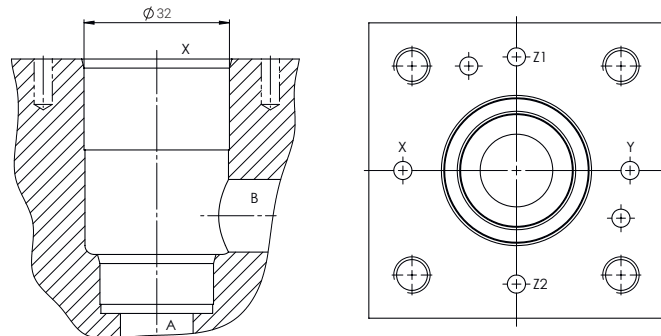
| Position | Description                      | Seal kit |
|----------|----------------------------------|----------|
| 10       | O-ring ID 20,35 x 1,78           | •        |
| 20       | O-ring ID 26,64 x 2,62           | •        |
| 30       | O-ring ID 25,12 x 1,78           | •        |
| 40       | O-ring ID 21,95 x 1,78           | •        |
| 50       | Backup ring rd 25,7 x 29,8 x 1,4 |          |
| 60       | Backup ring rd 25,0 x 27,7 x 1,4 |          |
| 70       | Backup ring rd 20,1 x 22,8 x 1,4 |          |
| 80       | Pressure spring 10,9             |          |


**SEAL KIT**

|          |                 |       |
|----------|-----------------|-------|
| 251.6810 | Seal kit C.E.16 | NBR   |
| 251.6811 | Seal kit C.E.16 | VITON |

**HYDRAULIC CONNECTION**

Cavity drawing according to ISO 7368



 **Important!** For detailed cavity drawing and cavity tools see data sheet 2.13-1021