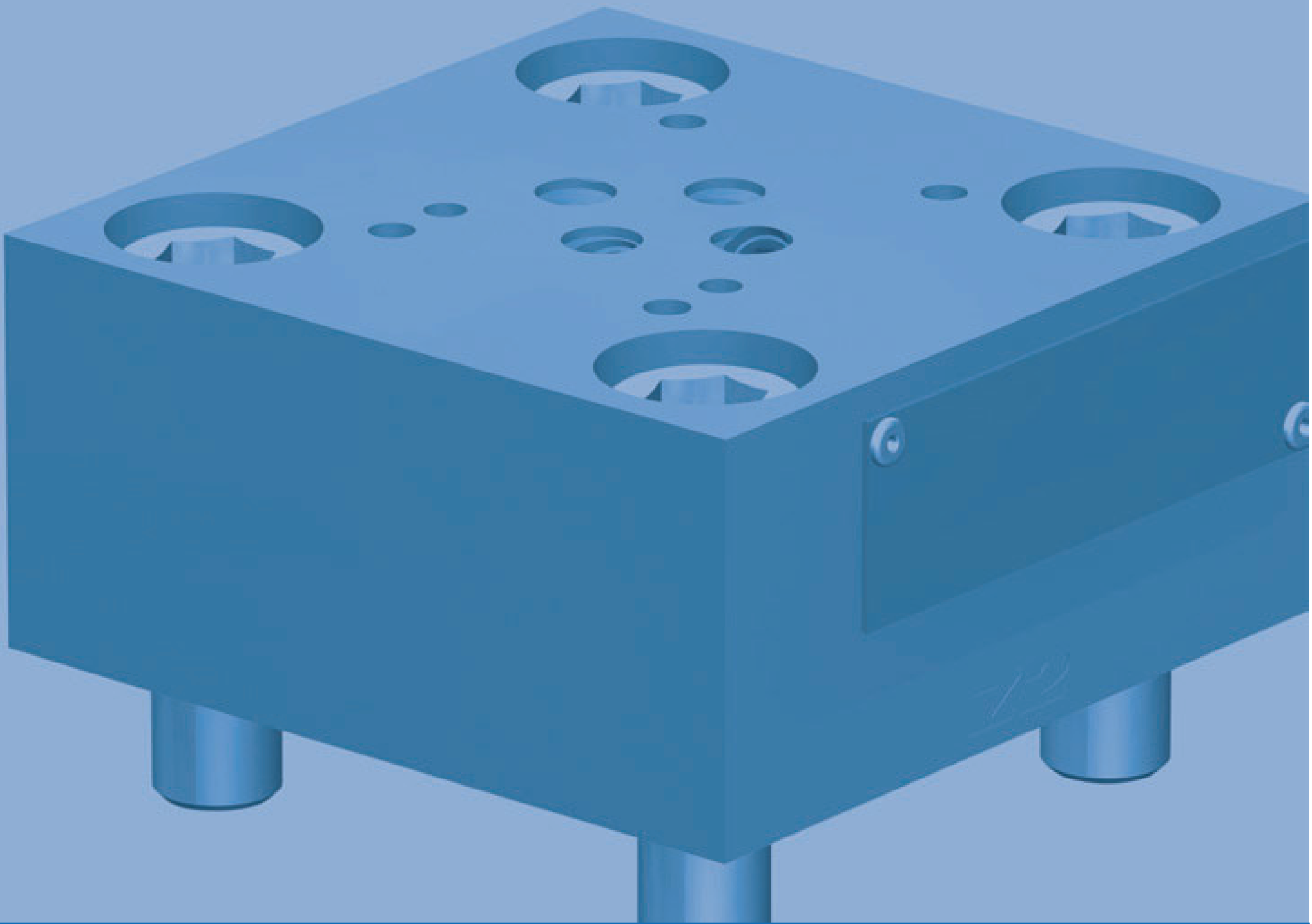
# CARTRIDGE COVERS
## ISO 7368 SIZES 16 TO 160
## CCE series



Rev. C, July 2023

DESIGNED FOR OPERATING PRESSURES UP TO 420 BAR (6,000 PSI)

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WHENEVER THE HIGHEST LEVELS OF MOTION CONTROL PERFORMANCE AND DESIGN FLEXIBILITY ARE REQUIRED, YOU'LL FIND OUR EXPERTISE AT WORK. THROUGH COLLABORATION, CREATIVITY AND WORLD-CLASS TECHNOLOGICAL SOLUTIONS, WE HELP YOU OVERCOME YOUR TOUGHEST ENGINEERING OBSTACLES. ENHANCE YOUR MACHINE'S PERFORMANCE, AND HELP TAKE YOUR THINKING FURTHER THAN YOU EVER THOUGHT POSSIBLE.

# PRODUCT OVERVIEW

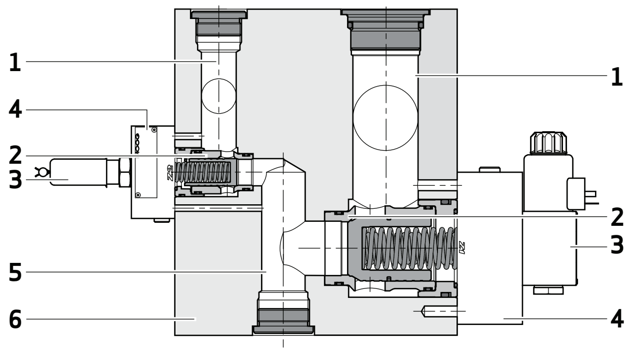
The Cartridge Valve Covers featured in this catalog are designed for our 2-way Slip-in Cartridge Valves (CEE series). These valves offer the highest nominal flows and lowest pressure drops available on the market (see cartridge catalog for more details). Additionally, the covers can also be used with most of our Slip-in Cartridge Valves (CKE, CEHFE and previous CEE series) which are designed according to ISO 7368.

The rated pressure of the covers is up to 420 bar (6,000 psi), depending on cover type and seal material. State-of-the-art development techniques were used to optimize the cover design for this rated pressure. This results in reliable performance in even the most extreme load applications.

The cover series offers a variety of directional, flow and pressure control functions. Due to the integration of check and shuttle valves as well as interfaces for subplate pilot valves, a compact system design even for complex functions can be achieved.

13 different cover types are available for the nominal diameters (sizes) 16, 25, 32, 40, 50, 63, 80, 100, 125 and 160 mm according to ISO 7368. Each cover type can be equipped with different seals for use with a wide variety of operating fluids.

**Cartridge Valves and Covers in use**




1 B port
2 Cartridge valve
3 Pilot valve
4 Cover
5 A port
6 Manifold

| **Features** | **Benefits** |
|---|---|
| ROBUST DESIGN FOR A NOMINAL PRESSURE UP TO 420 BAR (6,000 PSI) | HIGHEST LOAD CAPABILITY, EVEN FOR APPLICATIONS IN EXTREME ENVIRONMENTS |
| EXTREMELY RELIABLE AND DURABLE DESIGN | HIGH DEGREE OF SYSTEM AVAILABILITY |
| COVERS FOR DIRECTIONAL, FLOW AND PRESSURE CONTROL FUNCTIONS FOR ALL SIZES | WIDE SELECTION OF FUNCTIONS FOR MAXIMUM FLEXIBILITY IN MANIFOLD DESIGN |
| COVERS CAN BE COMBINED WITH MOST OF OUR 2-WAY SLIP-IN CARTRIDGE VALVES (CEE, CKE AND CEHFE SERIES) | MAXIMUM FLEXIBILITY DURING SYSTEM AND MANIFOLD DESIGN |
| INTEGRATED CHECK AND SHUTTLE VALVES AS WELL AS INTERFACES FOR SUBPLATE PILOT VALVES | COMPACT SYSTEM DESIGN FOR EVEN THE MOST COMPLEX FUNCTIONS |

# GENERAL TECHNICAL DATA

## General Technical Data

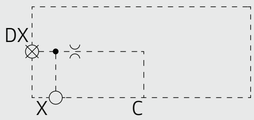
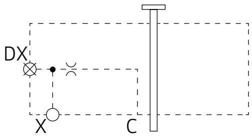
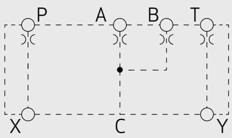
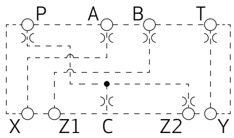
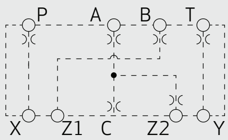
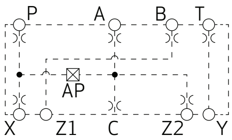
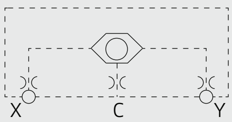
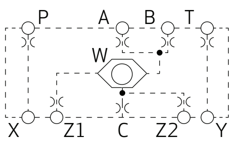
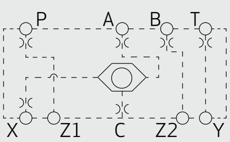
| | |
|---|---|
| **Mounting type** | Manifold mounting |
| **Installation position** | Any |
| **Mounting pattern** | ISO 7368 |
| **Storage temperature range** | |
| Cover with FKM seals | -20 to +80 °C (-4 to 176 °F) |
| Cover with NBR seals | -30 to +80 °C (-22 to 176 °F) |
| **Ambient temperature range** | |
| Cover with FKM seals | -20 to +80 °C (-4 to 176 °F) |
| Cover with NBR seals | -30 to +80 °C (-22 to 176 °F) |
| **$MTTF_d$ value according to EN ISO 13849-1** | 150 years |

## Hydraulic Data

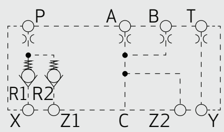
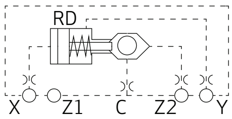
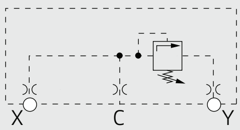
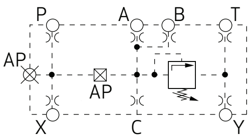
| | |
|---|---|
| **Maximum operating pressure [1)]** | 350 bar (5,000 psi), respectively 420 bar (6,000 psi) |
| **Seal material/hydraulic fluid combination** | |
| FKM | • Mineral oil based hydraulic fluids<br>• HFD hydraulic fluids |
| FKM + PU | • Mineral oil based hydraulic fluid |
| NBR | • Mineral oil based hydraulic fluid<br>• HFB, HFC hydraulic fluids |
| NBR + PU | • Mineral oil based hydraulic fluid |
| **Temperature range of hydraulic fluid** | |
| Cover with FKM seals | -20 to +80 °C (-4 to 176 °F) |
| Cover with NBR seals | -30 to +80 °C (-22 to 176 °F) |
| **Recommended viscosity range** | 15 to 46 $mm^2/s$ (cSt) |
| **Maximum permissible viscosity range** | 2.8 to 380 $mm^2/s$ (cSt) |
| **Recommended cleanliness class as per ISO 4406** | |
| For functional safety | 20/18/15 |
| For longer service life | 17/14/11 |

1) See the product overview table on page 6

# COVER TYPES

| Cover | | Preferred function | Sizes | Max. Pressure [bar (psi)]/Seal material | | | |
|---|---|---|---|---|---|---|---|
| | | | | **NBR (N)** | **NBR+PU (T)** | **FKM+PU (M)** | **FKM (V)** |
| **1D** |   | Cover with remote control port for directional and check functions. | 16 to 160 | 420 (6,000) | 420 (6,000) | 420 (6,000) | 420 (6,000) |
| **1H** |   | Cover with remote control port and stroke limiter for directional, check and manual throttle functions. | 16 to 100 | 420 (6,000) | 420 (6,000) | 420 (6,000) | 420 (6,000) |
| **RM** |   | Cover with mounting pattern for a directional control valve. Can be used for both directional and pressure functions. | 16 to 100 | 420 (6,000) | 420 (6,000) | 420 (6,000) | 420 (6,000) |
| **DRE** |   | Cover with mounting pattern for a pressure control valve. Recommended for more complex functions requiring multiple pilot valves and soft unloading. | 16 to 100 | 420 (6,000) | 420 (6,000) | 420 (6,000) | 420 (6,000) |
| **1W** |   | Cover with mounting pattern for a directional control valve. The additional control port can be used for a second cartridge valve. For directional and pressure functions. | 16 to 100 | 420 (6,000) | 420 (6,000) | 420 (6,000) | 420 (6,000) |
| **1WDB** |   | Cover with mounting pattern for directional or pressure control valves. Recommended for simple proportional pressure functions. | 16 to 100 | 420 (6,000) | 420 (6,000) | 420 (6,000) | 420 (6,000) |
| **2D** |   | Cover with integrated shuttle valve for directional control and check functions using the maximum of two pressures. | 16 to 100 | 420 (6,000) | 420 (6,000) | 350 (5,000) | – |
| **2W** |   | Cover with integrated shuttle valve for use as a pilot-operated check valve circuit. With mounting pattern for a directional control valve. | 16 to 100 | 420 (6,000) | 420 (6,000) | 350 (5,000) | – |
| **2WR** |   | Cover with integrated shuttle valve for use as a pilot-operated check valve circuit. With mounting pattern for a directional control valve. | 16 to 100 | 420 (6,000) | 420 (6,000) | 350 (5,000) | – |

# COVER TYPES

| Cover | | Preferred function | Sizes | Max. Pressure [bar (psi)]/Seal material | | | |
|---|---|---|---|---|---|---|---|
| | | | | **NBR (N)** | **NBR+PU (T)** | **FKM+PU (M)** | **FKM (V)** |
| **4W** |  | Cover with mounting pattern for a directional control valve with built in check valves. For functions where a maximum of two pilot pressures is desired. | 16 to 50 | 420 (6,000) | 420 (6,000) | 420 (6,000) | 420 (6,000) |
| | | | 63 to 100 | 420 (6,000) | 420 (6,000) | 350 (5,000) | 350 (5,000) |
| **RV** |  | Cover for pilot-operated check valve function, with remote control port. | 16 to 50 | 420 (6,000) | 420 (6,000) | 350 (5,000) | – |
| | | | 63 to 100 | – | 350 (5,000) | 350 (5,000) | – |
| **DBA** |  | Cover with integrated pressure relief valve. Recommended for simple pressure functions. | 16 to 50 | 420 (6,000) | 420 (6,000) | 420 (6,000) | 420 (6,000) |
| | | | 63 to 100 | | | 350 (5,000) | 350 (5,000) |
| **DBD** |  | Cover with integrated pressure relief valve and a mounting pattern. Can be used for more complex functions requiring multiple pilot valves. | 16 to 50 | 420 (6,000) | 420 (6,000) | 420 (6,000) | 420 (6,000) |
| | | | 63 to 100 | | | 350 (5,000) | 350 (5,000) |

# DESCRIPTION OF OPERATION

## Operating Principle for Directional Function

In order to successfully create a directional function for an application, it is important to understand the basic operating principles of a directional cartridge valve in combination with a cartridge cover.

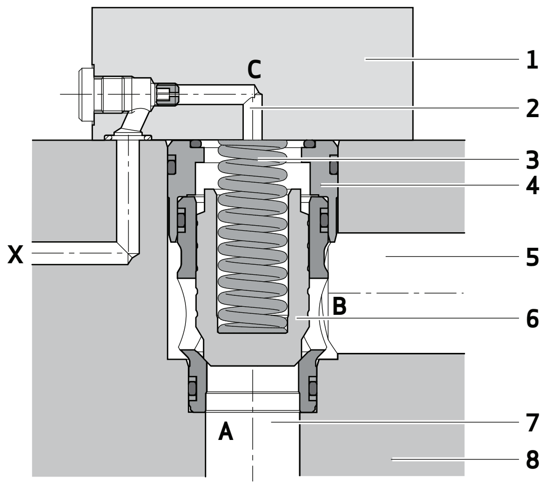
A directional function requires, first of all, a cartridge valve with a B, C, E or F poppet (6). These poppets all have a stepped shape resulting in 3 different control surfaces;  a control surface for the A (7), B (5) and C (2) ports.

Second, a cartridge cover (1) is necessary to control the sum of the forces applied to each of these control surfaces. Pressure applied to the surfaces at A and B will work to open the valve; pressure applied to the surface at C will work to close the valve. Should little or no pressure be present, the force of the spring (3) will hold the valve closed.

In the example of the 1D cover shown, the X port supplies the pressure working to close the valve. If X is connected to the tank, there is only the spring force remaining to close the valve. This results in a bi-directional function where the flow direction is A → B or B → A.

If the X port is connected to the A or B port of the cartridge valve, then the pressure in X will close the valve and the flow from A → B or B → A respectively will be blocked.

**Directional Cartridge Valve and Cover**




1 Cover
2 Control port C
3 Spring
4 Sleeve and cap
5 B port
6 Poppet
7 A port
8 Manifold

# DESCRIPTION OF OPERATION

## Operating Principle for Pressure Function

Pressure relief valves and covers are vital components of any hydraulic system. Together, these components are used to limit the maximum permissible hydraulic pressure where necessary.

Typical applications include limiting pump and cylinder pressures. The limiting of cylinder pressures not only protects the cylinder from damage, but also enables the reliable control of the force applied by the cylinder.

In combination with a cover and a pilot valve, both manual and electrical proportional pressure settings can be realized with or without relief functionality. In order to get the most out of these functions, it is important to understand the basic operating principles of a pressure cartridge and cover.

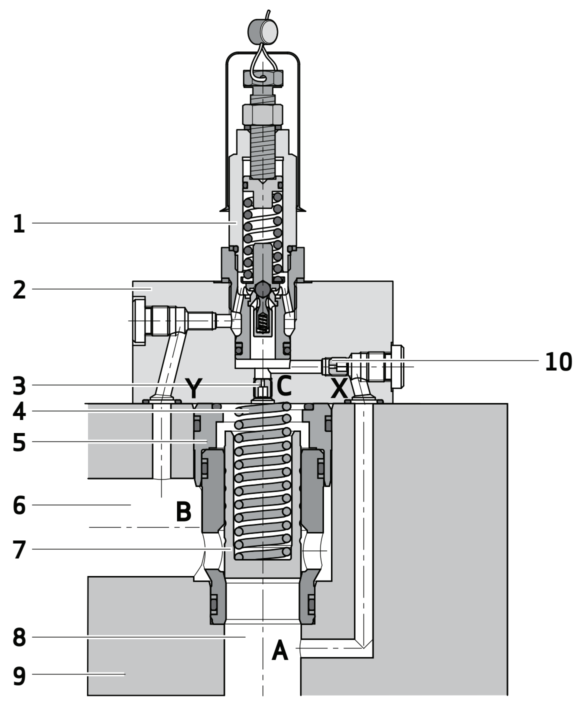
The A0 and EX poppets used in pressure functions have no or only a small control surface at port B. Leaving only 2 primary control surfaces, surface A working to open the valve, and surface X together with the spring force working to close the valve.

The pressure to be limited is applied to port A (8), and is also routed simultaneously to port C (3) of the cover (2) and the pilot valve (1) via a pilot line (10) equipped with a suitable metering orifice. If the pressure in port A exceeds the present pressure setting of the pilot valve, the pilot valve opens venting the pressure at port C. The pressure compensated poppet (7) then opens against the spring force (4) and set pressure, limiting the pressure at port A.

When ordering components for a pressure function, it is important to note that it is also possible to enhance the functionality of a cover (e.g., a depressurizing function or additional pressure stages) by using additional sandwich plate valves.

For pressure reducing and compensating functions we offer the DMO series of 2-way Slip-in Cartridge Valves with a spool design. Please refer to the catalog for more information.

**Pressure Cartridge Valve and Cover**




1 Pilot valve, pressure relief
2 Cover
3 Damping orifice
4 Spring
5 Sleeve and cap
6 B port
7 Poppet
8 A port
9 Manifold
10 X port with metering orifice

# 1D COVER

## Functional Description

The 1D cover can be used in combination with a cartridge[1)] to create both check and directional functions; depending on how the X port of the cover is connected.

## Directional Function

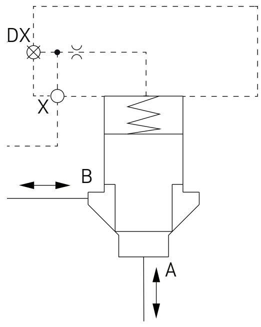
If the X port of the cover is connected to tank, then flow is enabled in both directions from A → B and B → A. Whereas, if the X port is connected to sufficient pilot pressure, flow will be blocked in both directions.

## Check Function

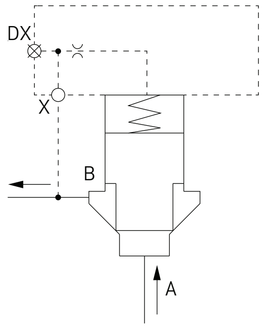
If the X port of the cover is connected to the B port of the cartridge, a check function is created with the flow direction being only A → B. The flow in the other direction, B → A is blocked.

1) Cartridge with a B, C, E or F poppet.

Directional Function

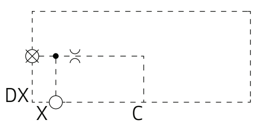



Check Function




## Hydraulic Symbol

Sizes 16 to 160



# 1D COVER

## Orifice Configuration

The 1D cover is equipped with a single orifice in X that can be accessed from the outer side of the cover.
This orifice is used to limit the flow to and from the C port of the cover and thereby limit the opening and closing rate of the cartridge.

For assistance with orifice configuration please contact us.

## Preferred Type (NBR)

| Size | Ordering code without orifice | Ordering code with standard orifice | Orifice code[1)] |
|---|---|---|---|
| **16** | XEB18534-000N01 | XEB18534-004N01 | X15 |
| **25** | XEB18516-000N01 | XEB18516-003N01 | X15 |
| **32** | XEB18498-000N01 | XEB18498-005N01 | X25 |
| **40** | XEB18440-000N01 | XEB18440-005N01 | X30 |
| **50** | XEB18422-000N01 | XEB18422-005N01 | X35 |
| **63** | XEB18330-000N01 | XEB18330-005N01 | X35 |
| **80** | XEB18307-000N01 | XEB18307-002N01 | X40 |
| **100** | XEB18292-000N01 | XEB18292-002N01 | X40 |
| **125** | XEB19362-000N01 | upon request | – |
| **160** | XEB19301-000N01 | upon request | – |

1) See ordering code (position 13) on page 79

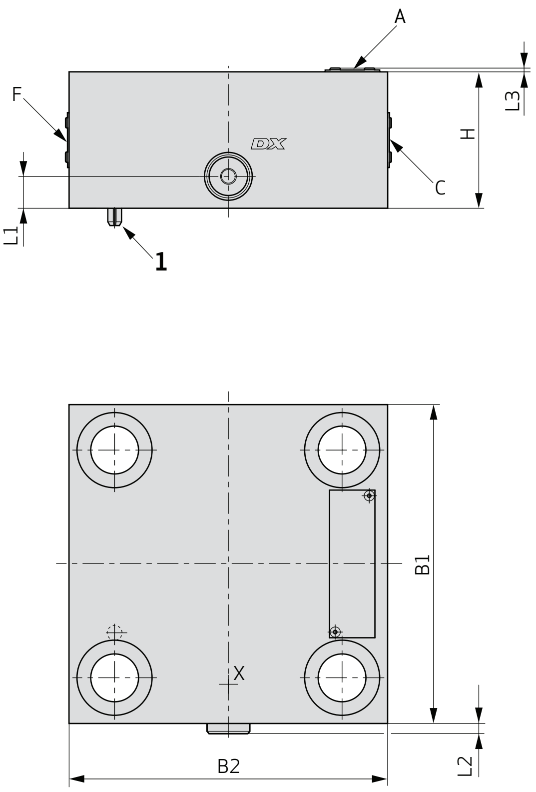
## Cover Details

| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 160 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Orifice details** | See page 69 | | | | | | | | | |
| **Spare parts** | See page 74 | | | | | | | | | |
| **Mounting screws** | See table for mounting screws on page 74 | | | | | | | | | |
| **Plug DX, MX** | G1/8“ | G1/8“ | G1/4“ | G1/4“ | G1/4“ | G3/8“ | G1/2“ | G1/2“ | G1-1/4“ | G1-1/4“ |
| Hex key size [mm] | 5 | 5 | 6 | 6 | 6 | 8 | 10 | 10 | 22 | 22 |
| Torque [Nm (lbf ft)] | 14 (10) | 14 (10) | 30 (22) | 30 (22) | 30 (22) | 60 (44) | 80 (59) | 80 (59) | 450 (332) | 450 (332) |
| **Weight [kg (lb)]** | 1.1 (2.43) | 1.7 (3.75) | 3.1 (6.84) | 6.3 (13.89) | 8.2 (18.08) | 17 (37.49) | 27 (59.54) | 43 (94.82) | 75.5 (166.45) | 171 (376.99) |

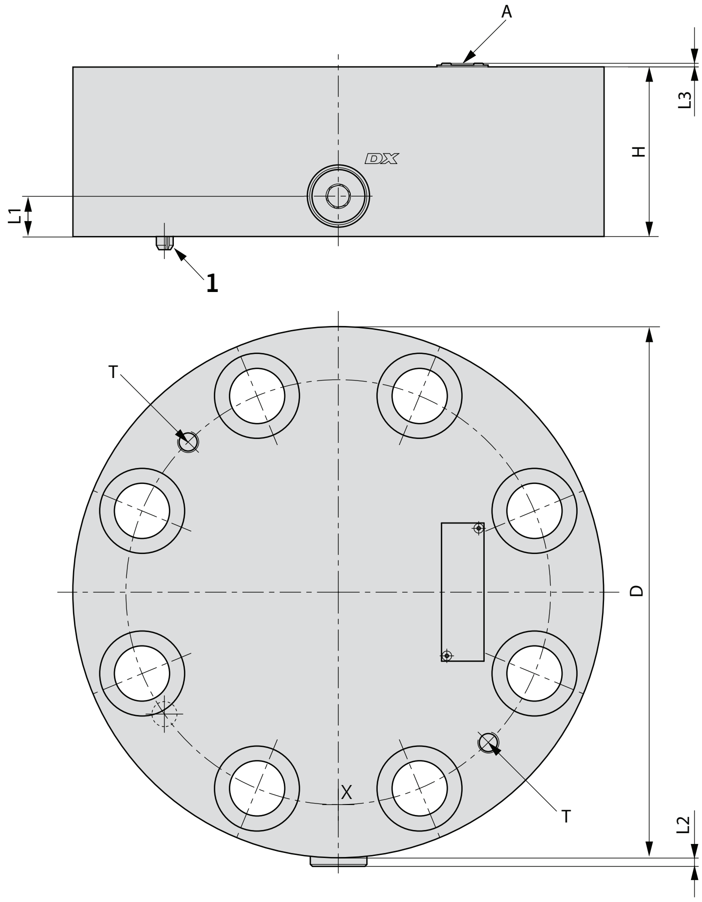
# 1D COVER
## Sizes 16 to 100

### Cover Dimensions

**Sizes 16 to 63**




**Size 80-100**



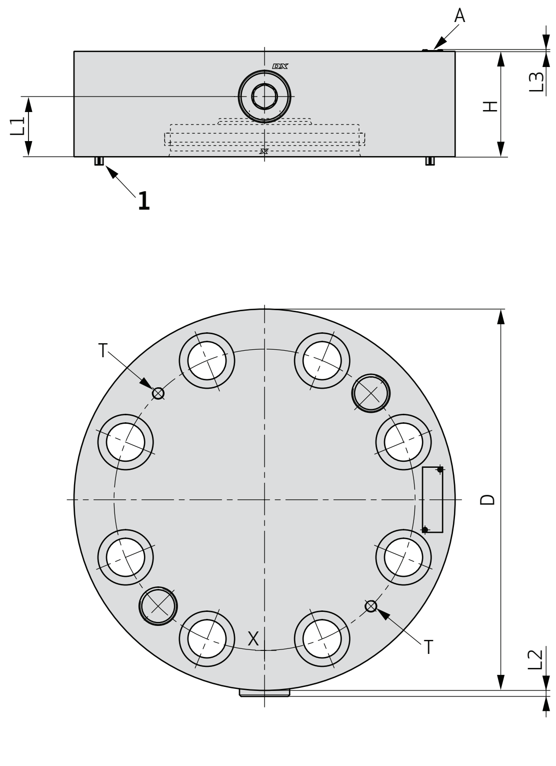

1 Locating pin

| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| **B1 [mm (in)]** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) | – | – |
| **B2 [mm (in)]** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) | – | – |
| **D [mm (in)]** | – | – | – | – | – | – | 250 (9.84) | 300 (11.81) |
| **H [mm (in)]** | 35 (1.38) | 35 (1.38) | 45 (1.77) | 60 (2.36) | 60 (2.36) | 80 (3.15) | 80 (3.15) | 90 (3.54) |
| **L1 [mm (in)]** | 17 (0.67) | 12 (0.47) | 21 (0.83) | 20 (0.79) | 14 (0.55) | 27 (1.06) | 19 (0.75) | 18 (0.71) |
| **L2 [mm (in)]** | 3.5 (0.14) | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) | 4 (0.16) | 4 (0.16) |
| **L3 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) |
| **Nameplate position** | A | C | F | C | A | A | A | A |
| **ISO 7368 mounting pattern** | 06-1-1-16 | 08-3-1-16 | 09-5-1-16 | 10-7-1-16 | 11-9-1-16 | 12-11-1-16 | 13-13-1-16 | 14-14-1-16 |
| **T - (eye-bolt thread)** | – | – | – | – | – | – | M10 | M10 |

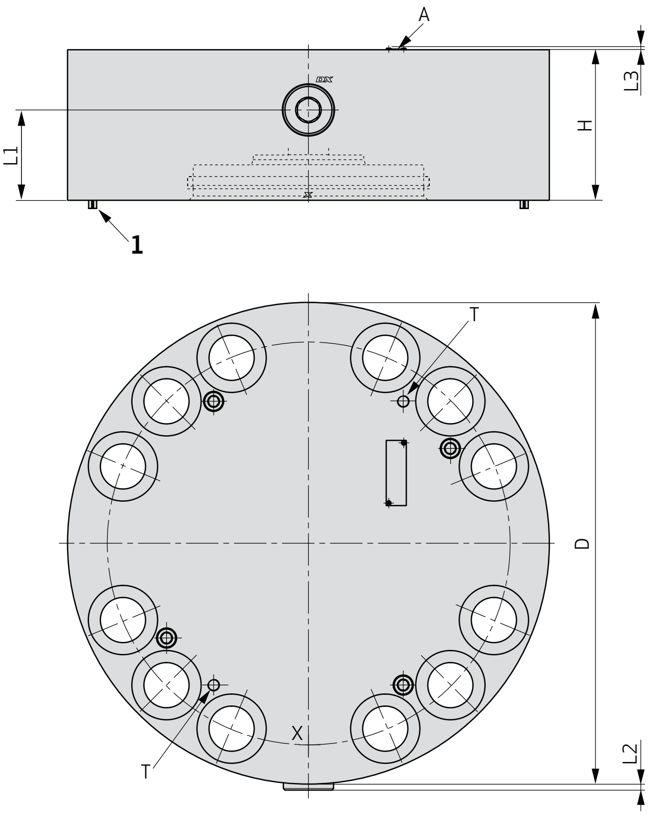
# 1D COVER
## Sizes 125 to 160

### Cover Dimensions

**Sizes 125**




**Size 160**




1 Locating pin

| **Size** | **125** | **160** |
|---|---|---|
| **D [mm (in)]** | 380 | 480 |
| **H [mm (in)]** | 105 | 150 |
| **L1 [mm (in)]** | 67 | 90 |
| **L2 [mm (in)]** | 6 | 6 |
| **L3 [mm (in)]** | 1.5 | 1.5 |
| **Nameplate position** | A | A |
| **ISO 7368 mounting pattern** | 15-15-1-16 | 16-16-1-16 |
| **T - (eye-bolt thread)** | M10 | M10 |

# 1H COVER

## Functional Description

The 1H cover can be used in combination with a cartridge[1] for both check and directional functions depending on how the X port is connected. The 1H is also equipped with a stroke limiter for use in throttling applications.

## Directional Function

If the X port of the cover is connected to tank, then flow is enabled in both directions from A → B and B → A. Whereas, if the X port is connected to sufficient pilot pressure, flow will be blocked in both directions.

## Check Function

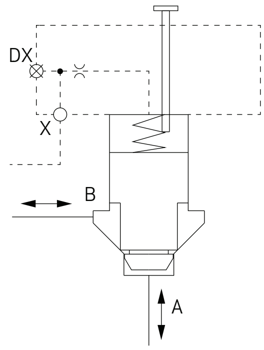
If the X port of the cover is connected to the B port of the cartridge, a check function is created with the flow direction being only A → B. The flow in the other direction, B → A is blocked.

## Throttle Function

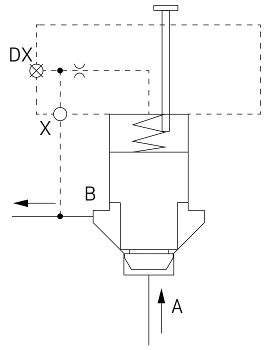
The adjustable stroke limiter on the 1H cover allows the flow to be throttled manually in both directions. Please note: the stroke limiter can only be adjusted to a limited extent while under pressure. The covers are not intended to be used for manual shut-off functions.

1) Cartridge with a B, C, E or F poppet.

Directional and Throttle Function

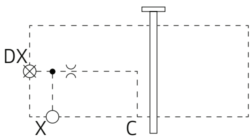



Check Function




## Hydraulic Symbol

Sizes 16 to 100



# 1H COVER

## Compatible Cartridge Valves

Due to the nature of the 1H cover design, it is important to ensure that this cover is used with the correct cartridge series and poppet type.

The 1H cover in this catalog is only to be used with the 2-way Slip-in Cartridge Valves for directional function (Series K6):

B poppet: all versions
C poppet: all versions
E poppet: versions with no internal orifice
F poppet: versions with no internal orifice

This 1H cover is incompatible with the following AXXERON HYDROLUX 2-way Slip-in Cartridge Valves:

A poppet: all versions
E poppet: versions with an internal orifice
F poppet: versions with an internal orifice

Other cartridge types, such as another AXXERON HYDROLUX cartridge series or cartridges from other suppliers, are incompatible with this 1H cover.

## Assembly Instructions

For sizes 32-100, the 1H cover is delivered with a cartridge poppet insert (1).

This insert is designed to fit between the spring and the poppet, as shown, and is essential to the 1H cover function.

## Adjustment Options

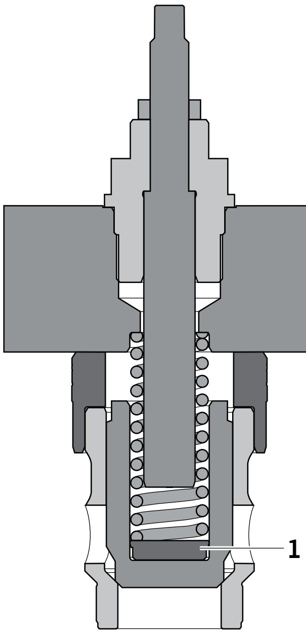
Adjustment 2:

1H covers ordered with “Adjustment 2” are delivered without a tamper proof cap set.

Adjustment 9:

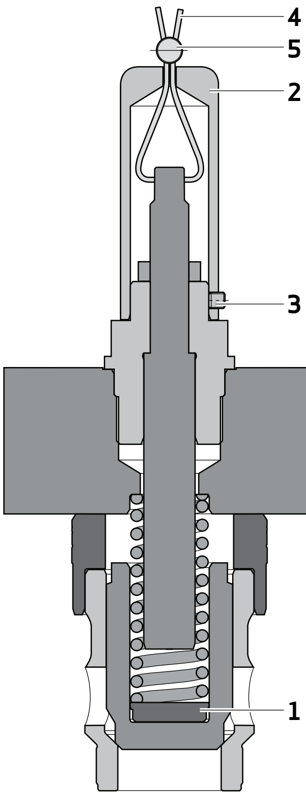
1H covers ordered with “Adjustment 9” are delivered with a tamper proof cap set. This set is provided unassembled with the cover and is to be installed by the end user. The set consists of a cap (2), cap screw (3), a wire (4) and a tamper proof seal (5).

Adjustment 2




1 Poppet insert

Adjustment 9




1 Poppet insert
2 Cap
3 Cap screw
4 Wire
5 Tamper proof seal

# 1H COVER

## Orifice Configuration

The 1H cover is equipped with a single orifice in X, that can be used to limit the flow to and from the C port of the cover, and thereby limit the opening and closing rate of the cartridge.

For assistance with orifice configuration please contact us.

## Preferred Type (NBR, Adjustment 2)

| 1H Cover | Ordering code without orifice | Ordering code with standard orifice | Orifice code[1)] |
|---|---|---|---|
| **16** | XEB19288-200N01 | XEB19288-201N01 | X15 |
| **25** | XEB19289-200N01 | XEB19289-201N01 | X15 |
| **32** | XEB19290-200N01 | XEB19290-201N01 | X25 |
| **40** | XEB19291-200N01 | XEB19291-201N01 | X30 |
| **50** | XEB19292-200N01 | XEB19292-201N01 | X35 |
| **63** | XEB19293-200N01 | XEB19293-201N01 | X35 |
| **80** | XEB19294-200N01 | XEB19294-201N01 | X40 |
| **100** | XEB19295-200N01 | XEB19295-201N01 | X40 |

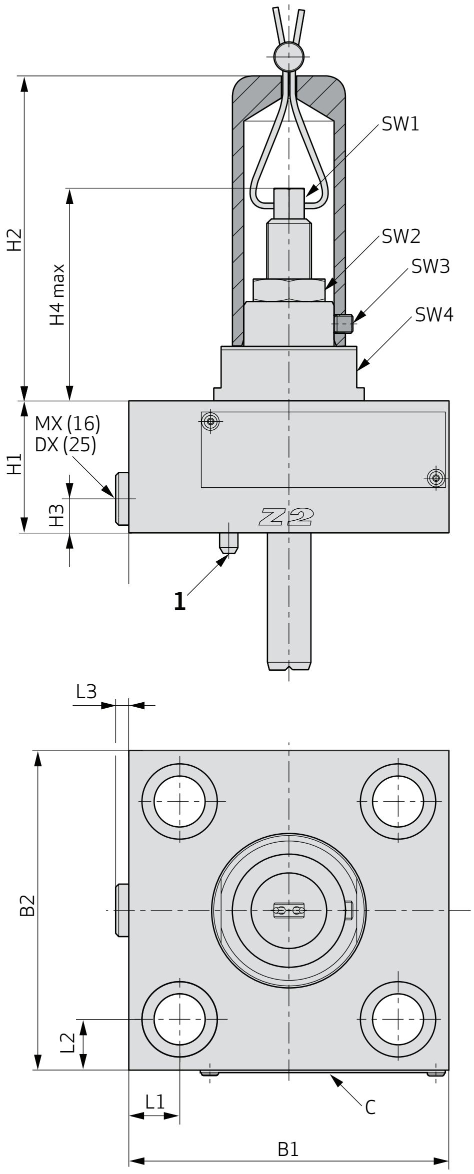
1) See ordering code (position 13) on page 79

## Cover Details

| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| **Orifice details** | See page 69 | | | | | | | |
| **Spare parts** | See page 74 | | | | | | | |
| **Mounting screws** | See table for mounting screws on page 74 | | | | | | | |
| **Plug DX, MX** | G1/8“ | G1/8“ | G1/4“ | G1/4“ | G1/4“ | G3/8“ | G1/2“ | G1/2“ |
| Hex key size [mm] | 5 | 5 | 6 | 6 | 6 | 8 | 10 | 10 |
| Torque [Nm (lbf ft)] | 14 (10) | 14 (10) | 30 (22) | 30 (22) | 30 (22) | 60 (44) | 80 (59) | 80 (59) |
| **Stroke adjustment SW1** | | | | | | | | |
| Wrench size [mm] | 8 | 8 | 8 | 13 | 13 | 17 | 21 | 27 |
| **Lock nut SW2** | | | | | | | | |
| Wrench size [mm] | 19 | 19 | 19 | 27 | 27 | 46 | 46 | 55 |
| Torque [Nm (lbf ft)] | 65 (48) | 65 (48) | 65 (48) | 85 (63) | 85 (63) | 150 (111) | 150 (111) | 175 (129) |
| **Cap screw SW3** | | | | | | | | |
| Hex key size [mm] | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | – | – |
| Torque [Nm (lbf ft)] | 5 (4) | 5 (4) | 5 (4) | 5 (4) | 5 (4) | 5 (4) | – | – |
| **Spindle guide SW4** | | | | | | | | |
| Wrench size [mm] | 36 | 36 | 36 | 36 | 36 | 65 | 65 | 80 |
| Torque [Nm (lbf ft)] | 110 (81) | 110 (81) | 110 (81) | 150 (111) | 150 (111) | 350 (258) | 350 (258) | 410 (302) |
| **Weight [kg (lb)]** | 1.7 (3.75) | 2.4 (5.29) | 3.6 (7.94) | 7.3 (16.1) | 9.13 (20.13) | 19.3 (42.56) | 29 (63.95) | 54.3 (119.73) |

# 1H COVER
# Size 16 to 25

### Cover Dimensions

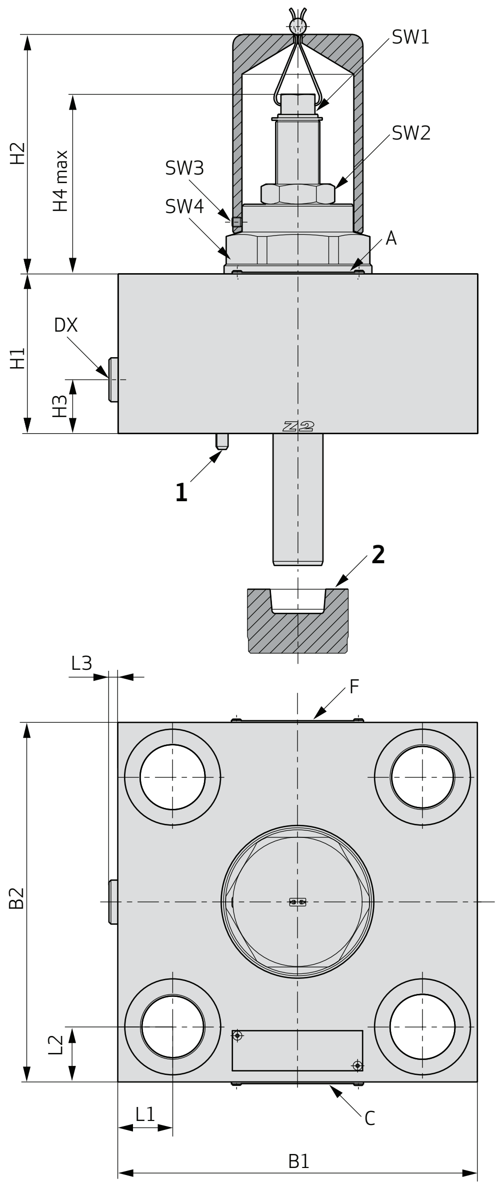



1 Locating pin

| **Size** | **16** | **25** |
|---|---|---|
| **B1 [mm (in)]** | 65 (2.56) | 85 (3.35) |
| **B2 [mm (in)]** | 65 (2.56) | 85 (3.35) |
| **H1 [mm (in)]** | 35 (1.38) | 35 (1.38) |
| **H2 [mm (in)]** | 86.5 (3.41) | 86.5 (3.41) |
| **H3 [mm (in)]** | 9 (0.35) | 9 (0.35) |
| **$H4_{max}$ [mm (in)]** | 56.5 (2.22) | 56.5 (2.22) |
| **L1 [mm (in)]** | 9.5 (0.37) | 13.5 (0.53) |
| **L2 [mm (in)]** | 9.5 (0.37) | 13.5 (0.53) |
| **L3 [mm (in)]** | 3.5 (0.14) | 3.5 (0.14) |
| **Nameplate position** | C | C |
| **ISO 7368 mounting pattern** | 06-1-1-16 | 08-3-1-16 |

# 1H COVER
## Sizes 32 to 63

### Cover Dimensions

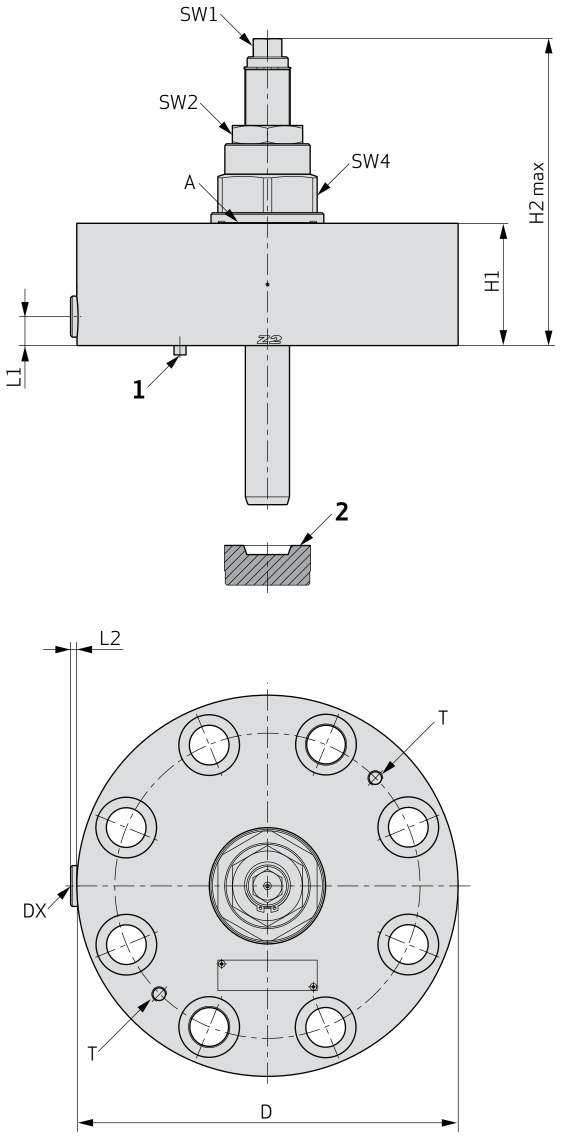



1 Locating pin
2 Poppet insert

| Size | 32 | 40 | 50 | 63 |
|---|---|---|---|---|
| **B1 [mm (in)]** | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **B2 [mm (in)]** | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **H1 [mm (in)]** | 45 (1.77) | 60 (2.36) | 60 (2.36) | 80 (3.15) |
| **H2 [mm (in)]** | 86.5 (3.41) | 83.5 (3.29) | 74 (2.91) | 120 (4.72) |
| **H3 [mm (in)]** | 21 (0.83) | 20 (0.79) | 14 (0.55) | 27 (1.06) |
| **$H4_{max}$ [mm (in)]** | 62 (2.44) | 71 (2.8) | 64 (2.52) | 90 (3.54) |
| **L1 [mm (in)]** | 16 (0.63) | 20 (0.79) | 20 (0.79) | 27.5 (1.08) |
| **L2 [mm (in)]** | 16 (0.63) | 20 (0.79) | 20 (0.79) | 27.5 (1.08) |
| **L3 [mm (in)]** | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **Nameplate position** | F | C | A | A |
| **ISO 7368 mounting pattern** | 09-5-1-16 | 10-7-1-16 | 11-9-1-16 | 12-11-1-16 |

# 1H COVER
# Sizes 80 to 100

### Cover Dimensions




1 Locating pin
2 Poppet insert

| Size | 80 | 100 |
|---|---|---|
| D [mm (in)] | 250 (9.84) | 300 (11.81) |
| H1 [mm (in)] | 80 (3.15) | 90 (3.54) |
| $H2_{max}$ [mm (in)] | 117 (4.61) | 152 (5.98) |
| L1 [mm (in)] | 19 (0.75) | 18 (0.71) |
| L2 [mm (in)] | 4 (0.16) | 4 (0.16) |
| Nameplate position | A | A |
| ISO 7368 mounting pattern | 13-13-1-16 | 14-14-1-16 |
| T - (eye-bolt thread) | M10 | M10 |

# RM COVER

## Functional Description

The RM cover is a versatile cover that can be used for both pressure and directional functions depending on the type of pilot valve used.

## Pilot-Operated Directional Function

When using an RM cover in combination with a cartridge[1] and a control valve[2], a bi-directional function or a check function can be achieved depending on the state of the solenoid.

When the solenoid is energized, and there is a plug in port B of the cover, then the spring chamber of the cartridge is connected to tank. This enables flow over the cartridge in both directions: from A → B and from B → A.

When the solenoid is de-energized, then the spring chamber is subject to the pilot pressure from control port X of the cover. For example, if this pilot pressure is drawn from the A side of the cartridge, then flow from A to B is blocked; and vice versa when the pilot pressure is drawn from B.

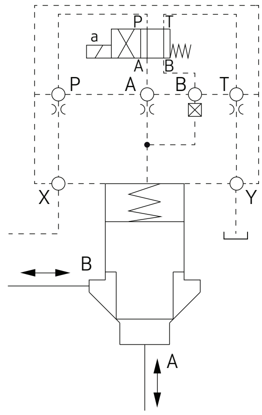
## Normally Closed vs. Normally Open

The above configuration can also be regarded as “Normally Closed”. When the solenoid is de-energized, the pilot pressure from X will hold the cartridge valve in the closed position.

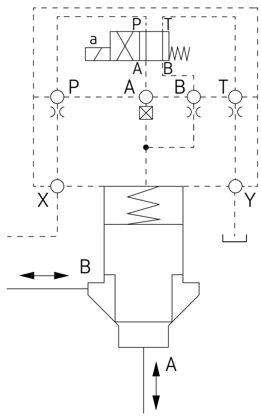
A “Normally Open” function can be achieved by moving the plug from Port B to Port A. This will allow the cartridge pilot oil to vent to tank, leaving only the cartridge spring force to maintain the cracking pressure.

1) Cartridge with a B, C, E or F poppet.
2) Control valve: An ISO 4401, size 03 directional control valve for cover sizes up to 50 or an ISO 4401, size 05 directional control valve for cover sizes 63 to 100.

**Pilot-Operated Directional Function**



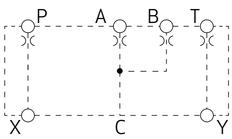

“Normally Closed”



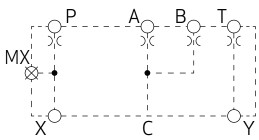

“Normally Open”

## Hydraulic Symbol

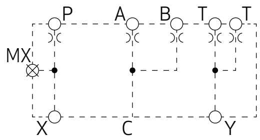
**Sizes 16 to 25**




**Sizes 32 to 50**




**Sizes 63 to 100**



# RM COVER

## Orifice Configuration

The orifice configurations possible with this cover are numerous and depend on the pilot valve used and the function desired. For more assistance with orifice configurations please contact us.

## Preferred Type (NBR)

| Size | Ordering code without orifice | Ordering code with standard orifice | Orifice code[1)] |
|---|---|---|---|
| **16** | XEB18540-000N01 | upon request | – |
| **25** | XEB18527-000N01 | upon request | – |
| **32** | XEB18504-000N01 | upon request | – |
| **40** | XEB18445-000N01 | upon request | – |
| **50** | XEB18427-000N01 | upon request | – |
| **63** | XEB18335-000N01 | upon request | – |
| **80** | XEB18312-000N01 | upon request | – |
| **100** | XEB18297-000N01 | upon request | – |

1) See ordering code (position 13) on page 79

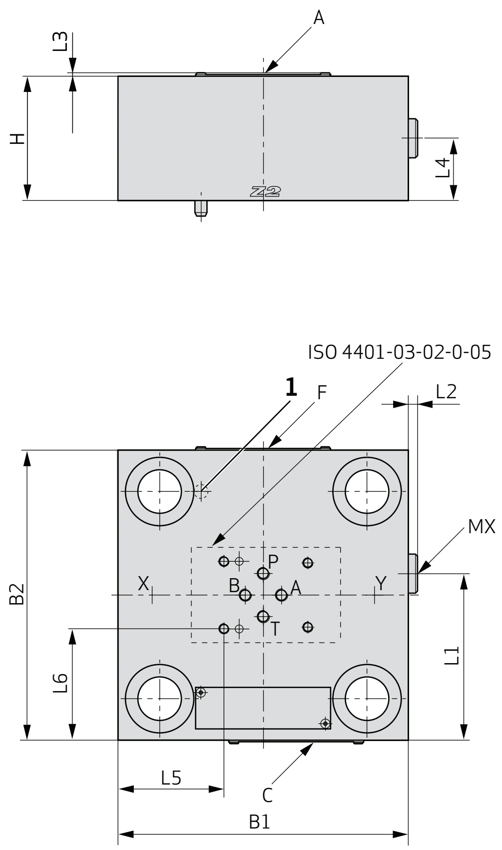
## Cover Details

| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| **Orifice details** | See page 69 | | | | | | | |
| **Spare parts** | See page 74 | | | | | | | |
| **Mounting screws** | See table for mounting screws on page 74 | | | | | | | |
| **Plug MX** | - | - | G1/8“ | G1/4“ | G1/4“ | G1/4“ | G3/8“ | G1/2“ |
| Hex key size [mm] | - | - | 5 | 6 | 6 | 6 | 8 | 10 |
| Torque [Nm (lbf ft)] | - | - | 14 (10) | 30 (22) | 30 (22) | 30 (22) | 60 (44) | 80 (59) |
| **Weight [kg (lb)]** | 1.3 (2.87) | 2 (4.41) | 3 (6.62) | 6.2 (13.67) | 8 (17.64) | 17 (37.49) | 26 (57.33) | 42 (92.61) |

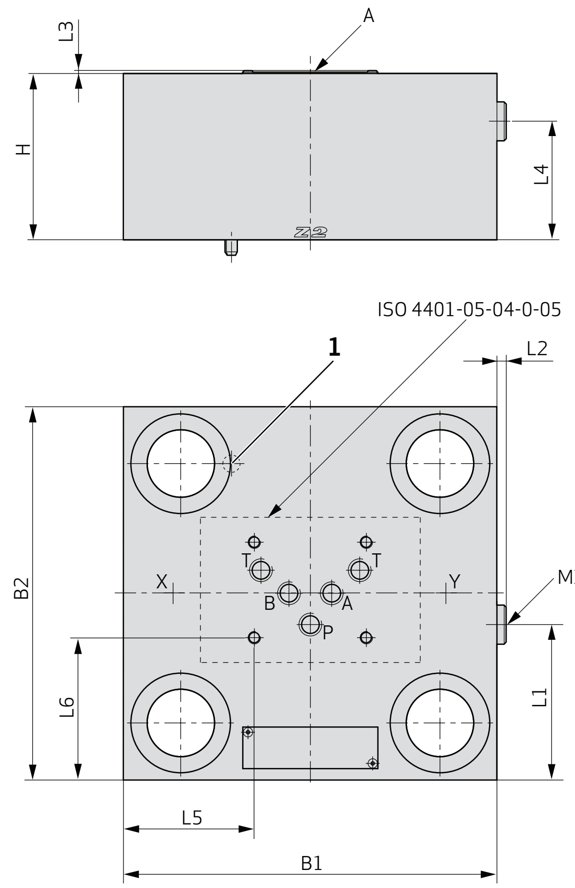
# RM COVER
# Sizes 16 to 63

## Cover Dimensions

### Sizes 16 to 50




### Size 63

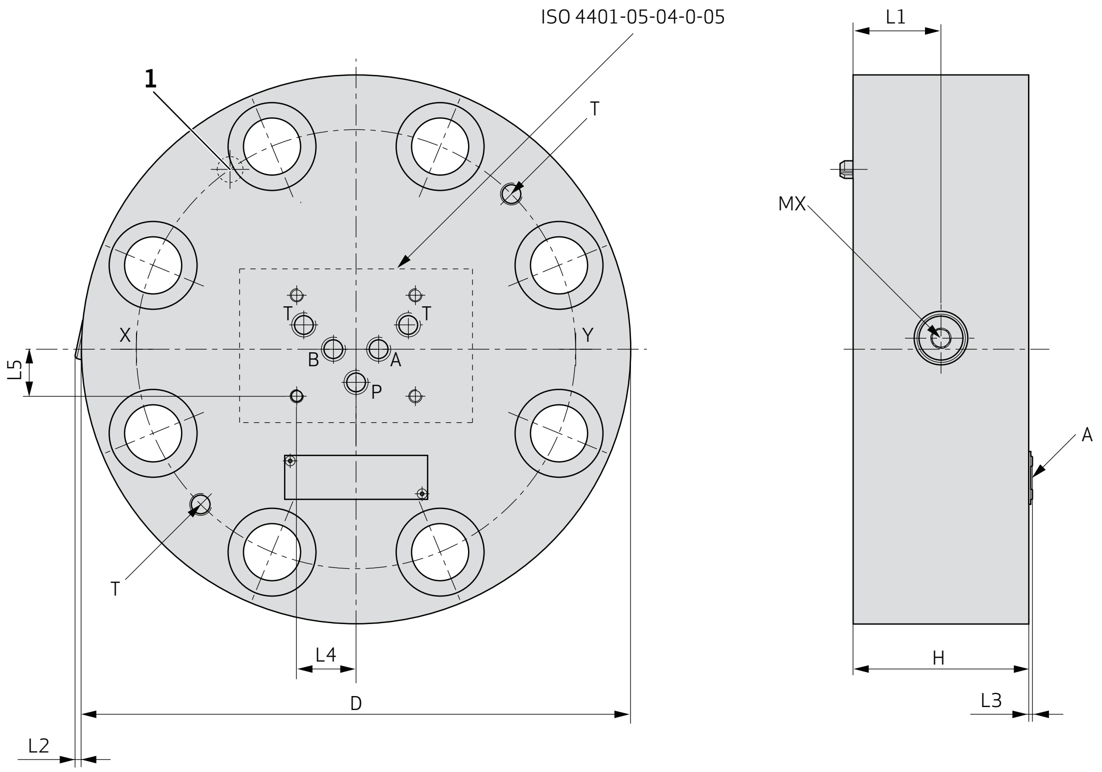



1 Locating pin

| **Size** | **16** | **25** | **32** | **40** | **50** | **63** |
|---|---|---|---|---|---|---|
| **B1 [mm (in)]** | 80 (3.15) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **B2 [mm (in)]** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **H [mm (in)]** | 35 (1.38) | 40 (1.57) | 45 (1.77) | 60 (2.36) | 60 (2.36) | 80 (3.15) |
| **L1 [mm (in)]** | - | - | 61.3 (2.41) | 73 (2.87) | 80.4 (3.17) | 74.9 (2.95) |
| **L2 [mm (in)]** | - | - | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L3 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) |
| **L4 [mm (in)]** | - | - | 27 (1.06) | 30 (1.18) | 30 (1.18) | 57 (2.24) |
| **L5 [mm (in)]** | 7 (0.28) | 23.5 (0.93) | 32 (1.26) | 43.5 (1.71) | 51 (2.01) | 63 (2.48) |
| **L6 [mm (in)]** | 16.25 (0.64) | 26.25 (1.03) | 34.65 (1.36) | 46.25 (1.82) | 53.75 (2.12) | 68.6 (2.7) |
| **Nameplate position** | C | C | F | C | A | A |
| **ISO 7368 mounting pattern** | 06-1-1-16 | 08-3-1-16 | 09-5-1-16 | 10-07-1-16 | 11-9-1-16 | 12-11-1-16 |

# RM COVER
## Sizes 80 to 100

### Cover Dimensions




1 Locating pin

| Size | 80 | 100 |
|---|---|---|
| D [mm (in)] | 250 (9.84) | 300 (11.81) |
| H [mm (in)] | 80 (3.15) | 90 (3.54) |
| L1 [mm (in)] | 40 (1.57) | 43 (1.69) |
| L2 [mm (in)] | 2.5 (0.1) | 2.5 (0.1) |
| L3 [mm (in)] | 1.5 (0.06) | 1.5 (0.06) |
| L4 [mm (in)] | 27 (1.06) | 27 (1.06) |
| L5 [mm (in)] | 21.4 (0.84) | 21.4 (0.84) |
| Nameplate position | A | A |
| ISO 7368 mounting pattern | 13-13-1-16 | 14-14-1-16 |
| T - (eye-bolt thread) | M10 | M10 |

# DRE COVER

## Functional Description

The DRE cover is a versatile cover that is used primarily for more complex pressure functions requiring multiple pilot valves.

## Pressure Relief and Soft Unloading Function

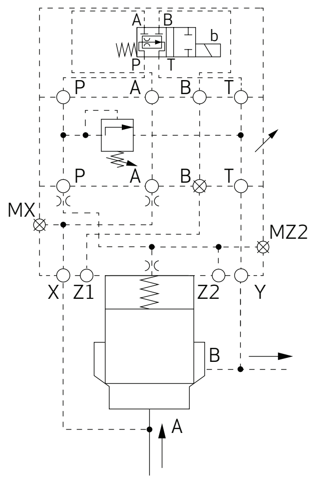
When using a DRE cover in combination with a pressure cartridge[1)], a pressure relief valve[2)] and a AXXERON HYDROLUX soft unloading control valve[3)]; a pressure relief function or a soft unloading function can be achieved depending upon the state of the solenoid.

When the solenoid is energized, a pressure relief function is created as the pressure from the X port of the DRE cover holds the cartridge closed with a pressure determined by the relief valve.

When the solenoid is de-energized, a very soft and pressure independent unloading function is achieved. When the solenoid is re-energized, the cartridge closes at full speed.

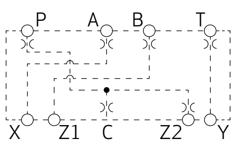
1) An AO or EX poppet.
2) For example, a direct-operated pressure relief valve.
3) WE42P06HMC1P Directional Valve.

**Pressure Relief and Soft Unloading Function**

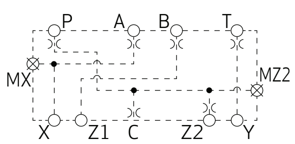



## Hydraulic Symbol

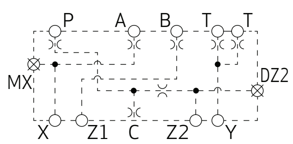
**Sizes 16 to 25**




**Sizes 32 to 50**




**Sizes 63 to 100**



# DRE COVER

## Orifice Configuration

The orifice configurations possible with this cover are numerous, and depend on the pilot valve used and the function desired. For more assistance with orifice configurations please contact us.

## Preferred Type (NBR)

| Size | Ordering code without orifice | Ordering code with standard orifice | Orifice code[1)] |
|---|---|---|---|
| **16** | XEB18544-000N01 | upon request | – |
| **25** | XEB19263-000N01 | upon request | – |
| **32** | XEB18511-000N01 | upon request | – |
| **40** | XEB18452-000N01 | upon request | – |
| **50** | XEB18434-000N01 | upon request | – |
| **63** | XEB18342-000N01 | upon request | – |
| **80** | XEB18467-000N01 | upon request | – |
| **100** | XEB19274-000N01 | upon request | – |

1) See ordering code (position 13) on page 79

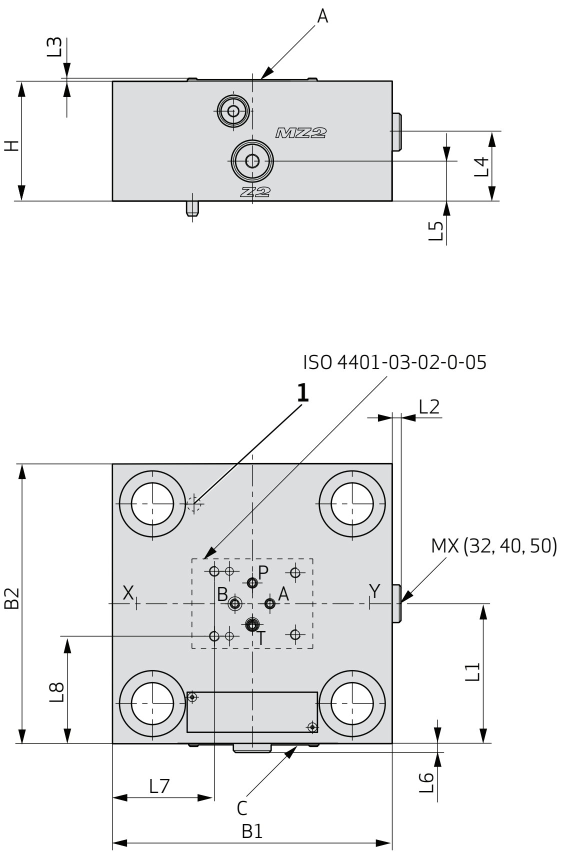
## Cover Details

| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| **Orifice details** | See page 69 | | | | | | | |
| **Spare parts** | See page 74 | | | | | | | |
| **Mounting screws** | See table for mounting screws on page 74 | | | | | | | |
| **Plug MX, MZ2 + DZ2** | - | - | G1/8“ | G1/4“ | G1/4“ | G1/4“ | G3/8“ | G1/2“ |
| Hex key size [mm] | - | - | 5 | 6 | 6 | 6 | 8 | 10 |
| Torque [Nm (lbf ft)] | - | - | 14 (10) | 30 (22) | 30 (22) | 30 (22) | 60 (44) | 80 (59) |
| **Weight [kg (lb)]** | 1.28 (2.82) | 1.67 (3.68) | 3.08 (6.79) | 6.18 (13.63) | 9.07 (20) | 16.7 (36.82) | 26.1 (57.55) | 41.8 (92.17) |

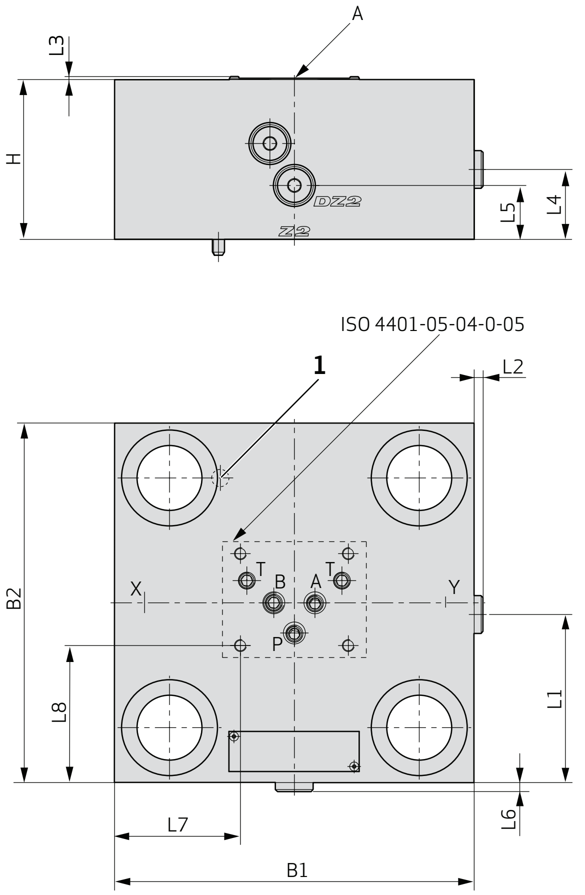
# DRE COVER
## Sizes 16 to 63

### Cover Dimensions

#### Sizes 16 to 50




#### Size 63

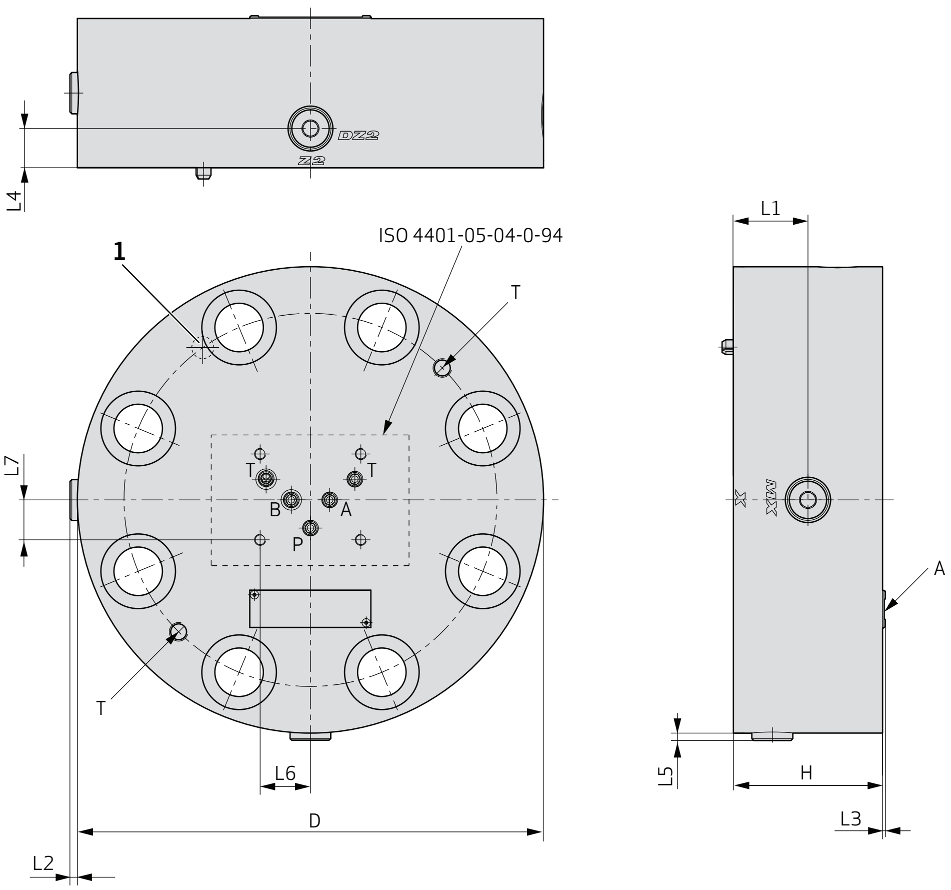



1 Locating pin

| Size | 16 | 25 | 32 | 40 | 50 | 63 |
|---|---|---|---|---|---|---|
| **B1 [mm (in)]** | 80 (3.15) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **B2 [mm (in)]** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **H [mm (in)]** | 35 (1.38) | 35 (1.38) | 45 (1.77) | 60 (2.36) | 60 (2.36) | 80 (3.15) |
| **L1 [mm (in)]** | - | - | 50.9 (2) | 62.5 (2.46) | 70 (2.76) | 84.15 (3.31) |
| **L2 [mm (in)]** | - | - | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L3 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) |
| **L4 [mm (in)]** | - | - | 26 (1.02) | 33.9 (1.33) | 34.5 (1.36) | 35 (1.38) |
| **L5 [mm (in)]** | - | - | 18 (0.71) | 22.9 (0.9) | 20 (0.79) | 27 (1.06) |
| **L6 [mm (in)]** | - | - | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L7 [mm (in)]** | 7 (0.28) | 23.5 (0.93) | 32 (1.26) | 43.5 (1.71) | 51 (2.01) | 63 (2.48) |
| **L8 [mm (in)]** | 16.25 (0.64) | 26.25 (1.03) | 34.65 (1.36) | 46.25 (1.82) | 53.75 (2.12) | 68.6 (2.7) |
| **Nameplate position** | C | C | C | C | A | A |
| **ISO 7368 mounting pattern** | 06-1-1-16 | 08-3-1-16 | 09-5-1-16 | 10-7-1-16 | 11-9-1-16 | 12-11-1-16 |

# DRE COVER
## Sizes 80 to 100

### Cover Dimensions




1 Locating pin

| Size | 80 | 100 |
|---|---|---|
| D [mm (in)] | 250 (9.84) | 300 (11.81) |
| H [mm (in)] | 80 (3.15) | 90 (3.54) |
| L1 [mm (in)] | 40 (1.57) | 43 (1.69) |
| L2 [mm (in)] | 4 (0.16) | 1 (0.04) |
| L3 [mm (in)] | 1.5 (0.06) | 1.5 (0.06) |
| L4 [mm (in)] | 21 (0.83) | 25 (0.98) |
| L5 [mm (in)] | 4 (0.16) | 4 (0.16) |
| L6 [mm (in)] | 27 (1.06) | 27 (1.06) |
| L7 [mm (in)] | 21.4 (0.84) | 21.4 (0.84) |
| Nameplate position | A | A |
| ISO 7368 mounting pattern | 13-13-1-16 | 14-14-1-16 |
| T - (eye-bolt thread) | M10 | M10 |

# 1W COVER

## Functional Description

The 1W cover is a versatile cover that can be used for both pressure and directional functions depending on the type of pilot valve used.

## Pilot-Operated Directional Function

When using a 1W cover in combination with a cartridge[1] and a control valve[2], a bi-directional function or a check function can be achieved depending on the state of the solenoid.

When the solenoid is energized, the spring chamber of the cartridge is connected to tank. This enables flow over the cartridge in both directions: From A → B and from B → A.

When the solenoid is de-energized, the spring chamber is subject to the pilot pressure from control port X of the cover. For example, if this pilot pressure is drawn from the A side of the cartridge, then flow from A to B is blocked; and vice versa when the pilot pressure is drawn from B.

The Z1 or Z2 port can be used in order to activate another cartridge[1].

## Pressure Reducing Function

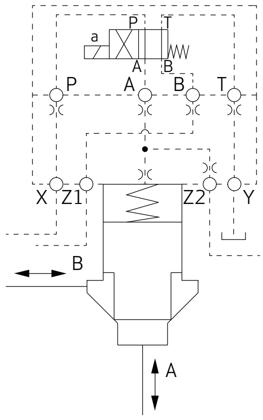
2-way pressure reducing valves are used to reduce a variable input pressure (primary pressure at B) to a lower, constant output pressure (secondary pressure at A).

The reduced pressure can be set using a pressure relief valve on the valve cover. Depending on configuration, this valve can also function as a pressure compensator.

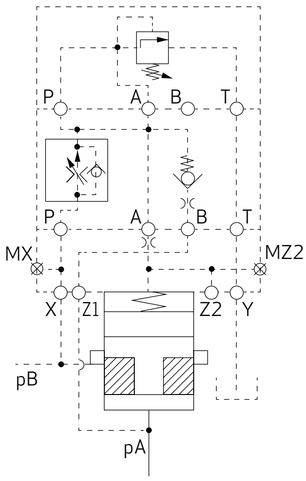
The valves are available as “normally open” or “normally closed” versions. For more detailed information please refer to the "pressure reducing valve (DMO series) catalog".

1) Cartridge with a B, C, E or F poppet.
2) Control valve: An ISO 4401 size 03 directional control valve for cover sizes up to 50 or an ISO 4401 size 05 directional control valve for cover sizes 63 to 100.

**Pilot-Operated Directional Function**

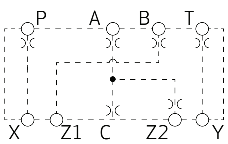



**Pressure Reducing Function**

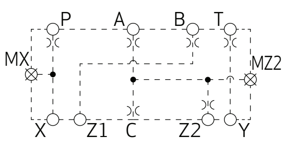



## Hydraulic Symbol

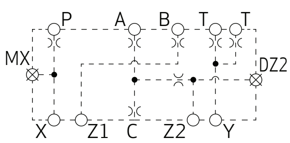
**Sizes 16 to 25**




**Sizes 32 to 50**




**Sizes 63 to 100**



# 1W COVER

### Orifice Configuration

The orifice configurations possible with this cover are numerous and depend on the pilot valve used and the function desired. For more assistance with orifice configurations please contact us.

### Preferred Type (NBR)

| Size | Ordering code without orifice | Ordering code with standard orifice | Orifice code[1)] |
|---|---|---|---|
| **16** | XEB18542-000N01 | upon request | – |
| **25** | XEB18521-000N01 | upon request | – |
| **32** | XEB18506-000N01 | upon request | – |
| **40** | XEB18447-000N01 | upon request | – |
| **50** | XEB18429-000N01 | upon request | – |
| **63** | XEB18337-000N01 | upon request | – |
| **80** | XEB18314-000N01 | upon request | – |
| **100** | XEB18299-000N01 | upon request | – |

1) See ordering code (position 13) on page 79

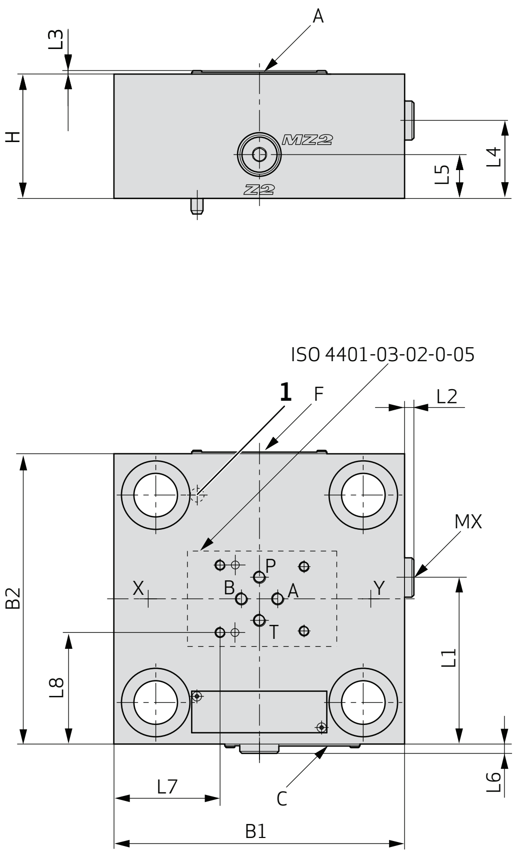
### Cover Details

| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| **Orifice details** | See page 69 | | | | | | | |
| **Spare parts** | See page 74 | | | | | | | |
| **Mounting screws** | See table for mounting screws on page 74 | | | | | | | |
| **Plug MX, MZ2 + DZ2** | - | - | G1/8“ | G1/4“ | G1/4“ | G1/4“ | G3/8“ | G1/2“ |
| Hex key size [mm] | - | - | 5 | 6 | 6 | 6 | 8 | 10 |
| Torque [Nm (lbf ft)] | - | - | 14 (10) | 30 (22) | 30 (22) | 30 (22) | 60 (44) | 80 (59) |
| **Weight [kg (lb)]** | 1.3 (2.87) | 1.7 (3.75) | 3 (6.62) | 6.2 (13.67) | 8 (17.64) | 17 (37.49) | 26 (57.33) | 42 (92.61) |

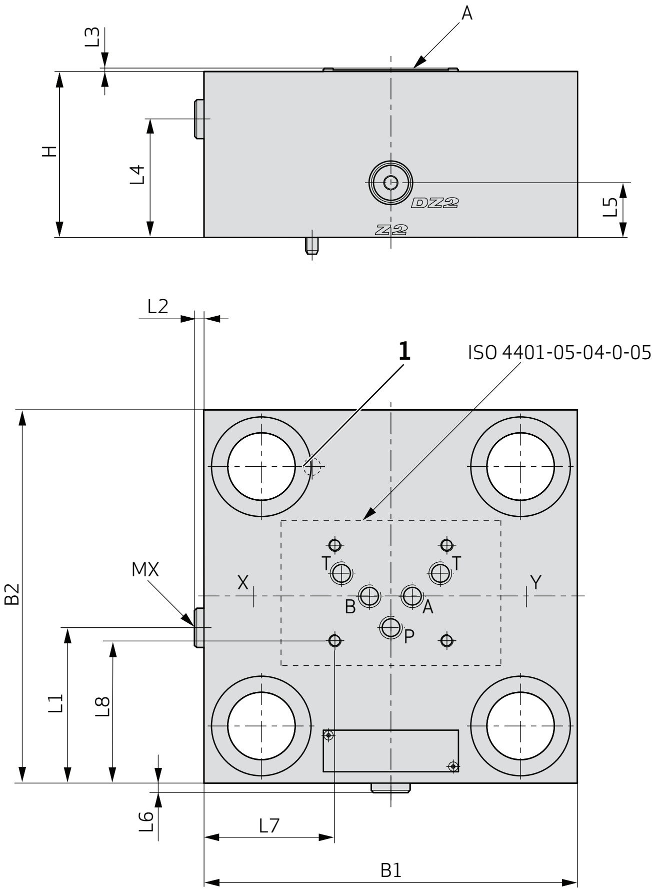
# 1W COVER
# Sizes 16 to 63

## Cover Dimensions

### Sizes 16 to 50




### Size 63

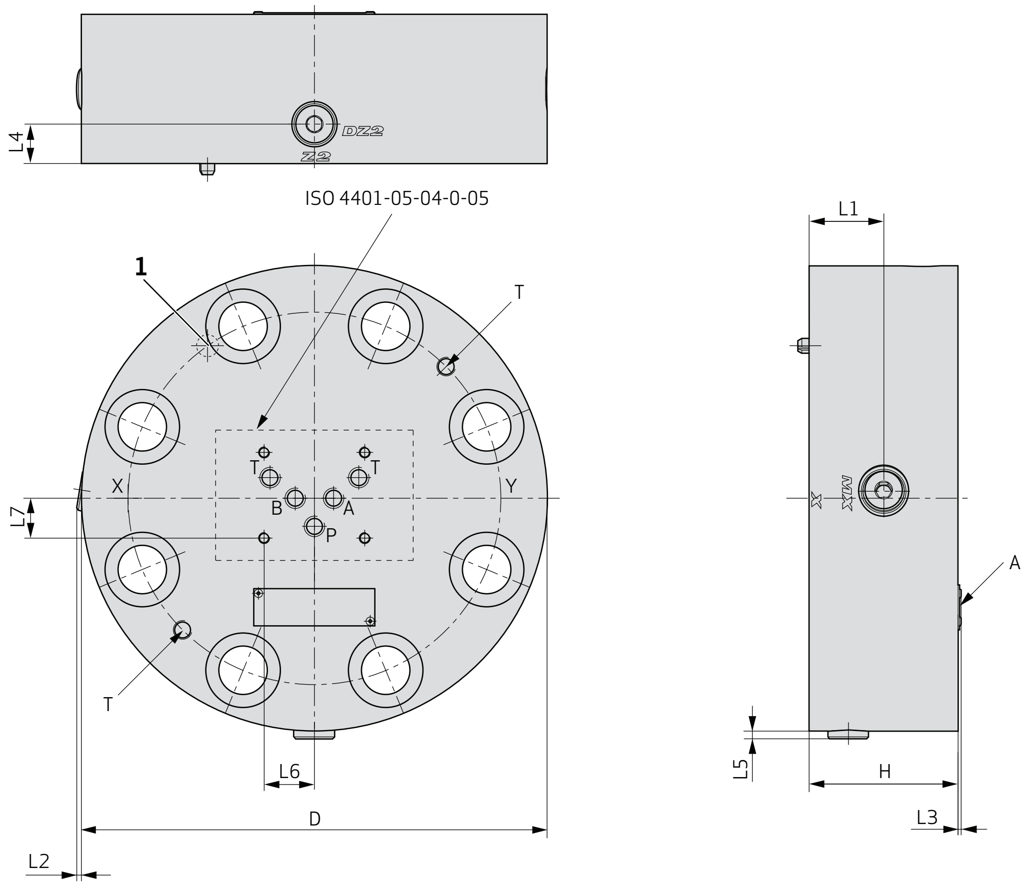



1 Locating pin

| Size | 16 | 25 | 32 | 40 | 50 | 63 |
|---|---|---|---|---|---|---|
| **B1 [mm (in)]** | 80 (3.15) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **B2 [mm (in)]** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **H [mm (in)]** | 35 (1.38) | 35 (1.38) | 45 (1.77) | 60 (2.36) | 60 (2.36) | 80 (3.15) |
| **L1 [mm (in)]** | - | - | 61.3 (2.41) | 80 (3.15) | 80.4 (3.17) | 74.9 (2.95) |
| **L2 [mm (in)]** | - | - | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L3 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) |
| **L4 [mm (in)]** | - | - | 26 (1.02) | 33.9 (1.33) | 37.5 (1.48) | 57 (2.24) |
| **L5 [mm (in)]** | - | - | 15 (0.59) | 20 (0.79) | 21 (0.83) | 26.25 (1.03) |
| **L6 [mm (in)]** | - | - | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L7 [mm (in)]** | 7 (0.28) | 23.5 (0.93) | 32 (1.26) | 43.5 (1.71) | 51 (2.01) | 63 (2.48) |
| **L8 [mm (in)]** | 16.25 (0.64) | 26.25 (1.03) | 34.75 (1.37) | 46.25 (1.82) | 53.75 (2.12) | 68.6 (2.7) |
| **Nameplate position** | C | C | F | C | A | A |
| **ISO 7368 mounting pattern** | 06-1-1-16 | 08-3-1-16 | 09-5-1-16 | 10-7-1-16 | 11-9-1-16 | 12-11-1-16 |

# 1W COVER
## Sizes 80 to 100

### Cover Dimensions




1 Locating pin

| Size | 80 | 100 |
|---|---|---|
| D [mm (in)] | 250 (9.84) | 300 (11.81) |
| H [mm (in)] | 80 (3.15) | 90 (3.54) |
| L1 [mm (in)] | 40 (1.57) | 43 (1.69) |
| L2 [mm (in)] | 2.5 (0.1) | 2.5 (0.1) |
| L3 [mm (in)] | 1.5 (0.06) | 1.5 (0.06) |
| L4 [mm (in)] | 21 (0.83) | 25 (0.98) |
| L5 [mm (in)] | 4 (0.16) | 4 (0.16) |
| L6 [mm (in)] | 27 (1.06) | 27 (1.06) |
| L7 [mm (in)] | 21.4 (0.84) | 21.4 (0.84) |
| Nameplate position | A | A |
| ISO 7368 mounting pattern | 13-13-1-16 | 14-14-1-16 |
| T - (eye-bolt thread) | M10 | M10 |

# 1WDB COVER

## Functional Description

The 1WDB cover is a versatile cover that is used primarily for more complex pressure functions requiring multiple pilot valves.

## Pilot-Operated Pressure Relief Function

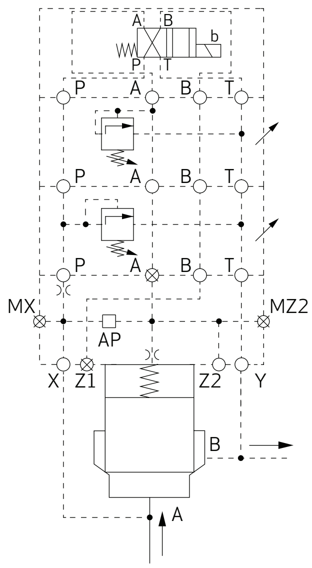
A two stage pressure relief function is capable of operating at two different preset pressures depending on the state of the solenoid valve. For this function a 1WDB cover in combination with a cartridge[1], two pressure relief sandwich valves[2] and a directional pilot valve[3] are needed.

When the solenoid is energized, the pressure in the X port of the cover is connected to the secondary pressure relief pilot valve by means of the A port on the solenoid valve. This secondary pilot valve, with a lower pressure relief setting, will override the higher pressure setting of the main pressure relief pilot valve.

When the solenoid is de-energized, the secondary pressure relief valve is no longer part of the circuit. This leaves only the main pressure relief valve with the higher pressure relief setting as active.

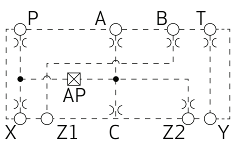
1) An AO or EX poppet.
2) For example, a direct-operated pressure relief valve.
3) Control valve: An ISO 4401 size 03 directional control valve for cover sizes up to 50 or an ISO 4401 size 05 directional control valve for cover sizes 63 to 100.

**Pilot-Operated Pressure Relief Function**

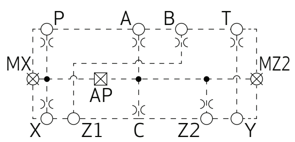



## Hydraulic Symbol

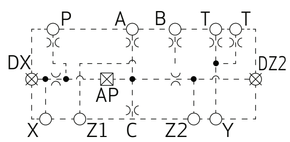
**Sizes 16 to 25**




**Sizes 32 to 50**




**Sizes 63 to 100**



# 1WDB COVER

## Orifice Configuration

The orifice configurations possible with this cover are numerous and depend on the pilot valve used and the function desired. For more assistance with orifice configurations please contact us.

## Preferred Type (NBR)

| Size | Ordering code without orifice | Ordering code with standard orifice | Orifice code[1)] |
|---|---|---|---|
| **16** | XEB18541-000N01 | upon request | – |
| **25** | XEB18520-000N01 | upon request | – |
| **32** | XEB18505-000N01 | upon request | – |
| **40** | XEB18446-000N01 | upon request | – |
| **50** | XEB18428-000N01 | upon request | – |
| **63** | XEB18336-000N01 | upon request | – |
| **80** | XEB18313-000N01 | upon request | – |
| **100** | XEB18298-000N01 | upon request | – |

1) See ordering code (position 13) on page 79

## Cover Details

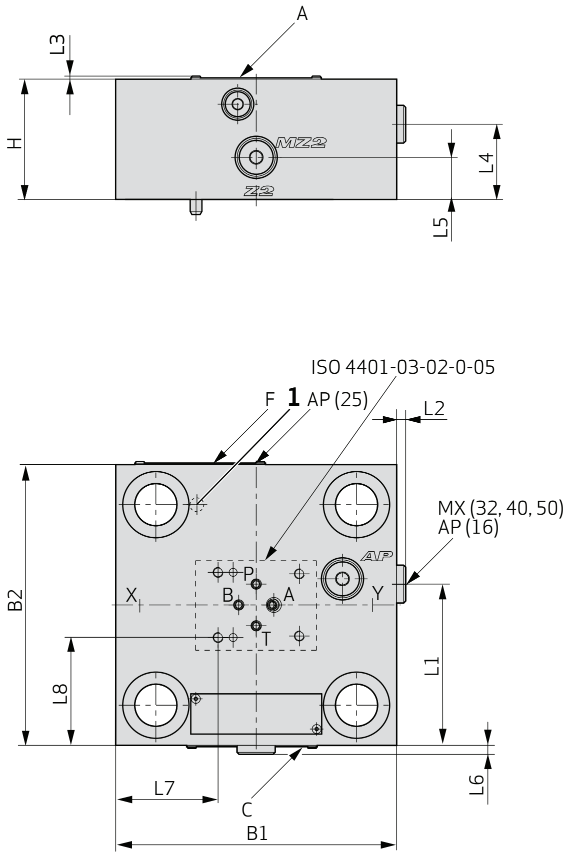
| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| **Orifice details** | See page 69 | | | | | | | |
| **Spare parts** | See page 74 | | | | | | | |
| **Mounting screws** | See table for mounting screws on page 74 | | | | | | | |
| **Plug AP, MX, MZ2 + DZ2** | G1/8“ | G1/8“ | G1/8“ | G1/4“[1)] | G1/4“ | G1/4“ | G3/8“ | G1/2“ |
| Hex key size [mm] | 5 | 5 | 5 | 6 | 6 | 6 | 8 | 10 |
| Torque [Nm (lbf ft)] | 14 (10) | 14 (10) | 14 (10) | 30 (22) | 30 (22) | 30 (22) | 60 (44) | 80 (59) |
| **Weight [kg (lb)]** | 1.27 (2.8) | 1.90 (4.19) | 3.06 (6.75) | 6.16 (13.58) | 9.04 (19.93) | 16.7 (36.82) | 26.0 (57.33) | 41.6 (91.73) |

1) Port AP G1/8“

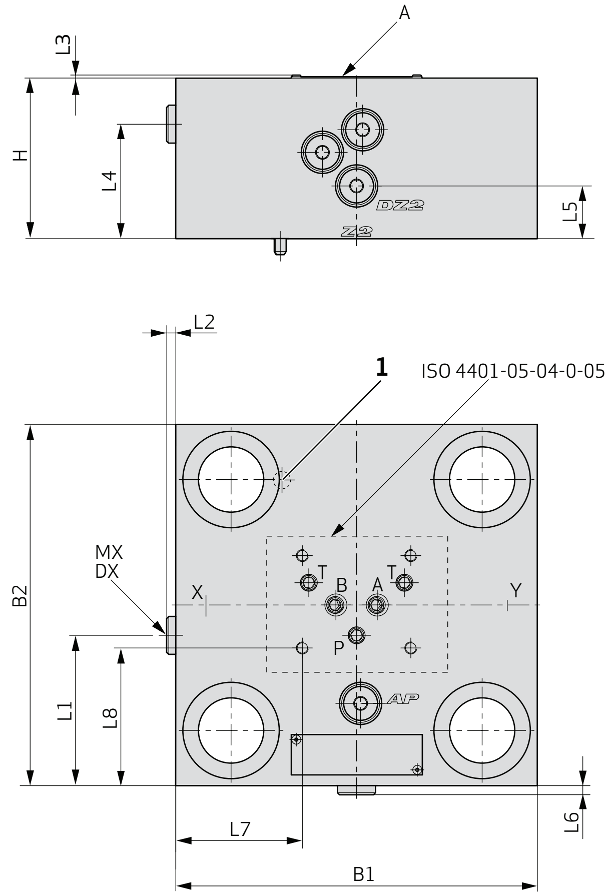
# 1WDB COVER
## Sizes 16 to 63

### Cover Dimensions

#### Sizes 16 to 50




#### Size 63

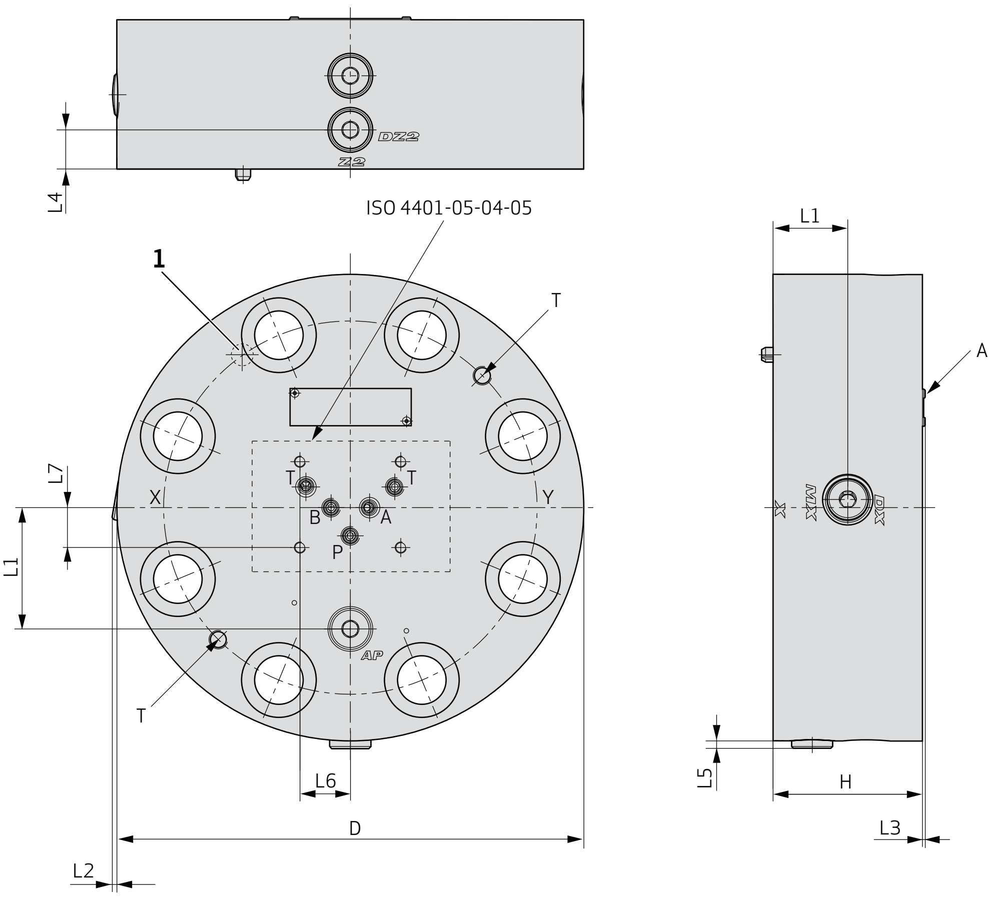



1 Locating pin

| **Size** | **16** | **25** | **32** | **40** | **50** | **63** |
|---|---|---|---|---|---|---|
| **B1 [mm (in)]** | 80 (3.15) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **B2 [mm (in)]** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **H [mm (in)]** | 35 (1.38) | 40 (1.57) | 45 (1.77) | 60 (2.36) | 60 (2.36) | 80 (3.15) |
| **L1 [mm (in)]** | - | - | 61.3 (2.41) | 80 (3.15) | 80.4 (3.17) | 74.9 (2.95) |
| **L2 [mm (in)]** | - | - | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L3 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) |
| **L4 [mm (in)]** | - | - | 26 (1.02) | 33.9 (1.33) | 37.5 (1.48) | 57 (2.24) |
| **L5 [mm (in)]** | - | - | 15 (0.59) | 20 (0.79) | 21 (0.83) | 26.25 (1.03) |
| **L6 [mm (in)]** | - | - | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L7 [mm (in)]** | 7 (0.28) | 23.5 (0.93) | 32 (1.26) | 43.5 (1.71) | 51 (2.01) | 63 (2.48) |
| **L8 [mm (in)]** | 16.25 (0.64) | 26.25 (1.03) | 34.65 (1.36) | 46.25 (1.82) | 53.75 (2.12) | 68.6 (2.7) |
| **Nameplate position** | C | C | F | C | A | A |
| **ISO 7368 mounting pattern** | 06-1-1-16 | 08-3-1-16 | 09-5-1-16 | 10-7-1-16 | 11-9-1-16 | 12-11-1-16 |

# 1WDB COVER
## Sizes 80 to 100

### Cover Dimensions




1 Locating pin

| **Size** | **80** | **100** |
|---|---|---|
| **D [mm (in)]** | 250 (9.84) | 300 (11.81) |
| **H [mm (in)]** | 80 (3.15) | 90 (3.54) |
| **L1 [mm (in)]** | 65 (2.56) | 80 (3.15) |
| **L2 [mm (in)]** | 2.5 (0.1) | 2.5 (0.1) |
| **L3 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) |
| **L4 [mm (in)]** | 21 (0.83) | 25 (0.98) |
| **L5 [mm (in)]** | 4 (0.16) | 4 (0.16) |
| **L6 [mm (in)]** | 27 (1.06) | 27 (1.06) |
| **L7 [mm (in)]** | 21.4 (0.84) | 21.4 (0.84) |
| **Nameplate position** | A | A |
| **ISO 7368 mounting pattern** | 13-13-1-16 | 14-14-1-16 |
| **T - (eye-bolt thread)** | M10 | M10 |

# 2D COVER

## Functional Description

The 2D cover contains an integrated shuttle valve designed to allow only the highest of the available pilot pressures to continue to the C port. Depending on how the pilot ports are connected, the 2D can be used in combination with a cartridge[1)] to create both check and directional functions.

## Directional Function

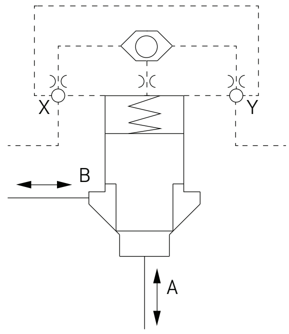
If the X and Y ports of the cover are connected to tank, then flow is enabled in both directions from A → B and B → A. If one or both of the X and Y ports are pressurised, then the highest of both pressures is acting to close the cartridge.

## Check Function

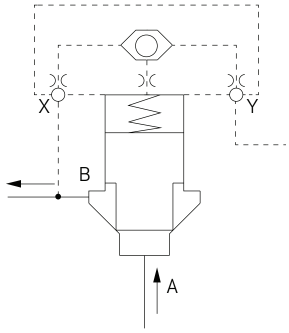
If the X or Y port is connected to the A port of the cartridge, a check function is created, blocking the flow from A → B. Likewise, if the X or Y port is connected to the B port, flow will be blocked in the opposite direction, from B → A.

1) Cartridge with a B, C, E or F poppet.

**Directional Function**

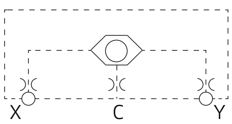



**Check Function**

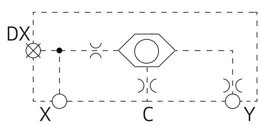



## Hydraulic Symbol

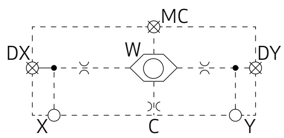
**Sizes 16 to 32 and 50**




**Size 40**




**Sizes 63 to 100**



# 2D COVER

## Orifice Configuration

The 2D cover can be equipped with orifices in the X, Y and C ports. Depending on the application, and how the X and Y ports are connected, these orifices can be used to limit the flow to and from the C port of the cover and thereby limit the opening and closing rate of the cartridge.

For assistance with orifice configuration please contact us.

## Preferred Type (NBR)

| Size | Ordering code without orifice | Ordering code with standard orifice | Orifice code[1)] |
|---|---|---|---|
| **16** | XEB18535-000N01 | XEB18535-001N01 | X08, Y08 |
| **25** | XEB18517-000N01 | XEB18517-001N01 | X10, Y10 |
| **32** | XEB18499-000N01 | XEB18499-001N01 | X12, Y12 |
| **40** | XEB18441-000N01 | XEB18441-001N01 | X12, Y12 |
| **50** | XEB18423-000N01 | XEB18423-001N01 | X15, Y15 |
| **63** | XEB18331-000N01 | XEB18331-001N01 | X20, Y20 |
| **80** | XEB18308-000N01 | XEB18308-001N01 | X25, Y25 |
| **100** | XEB18293-000N01 | XEB18293-001N01 | X25, Y25 |

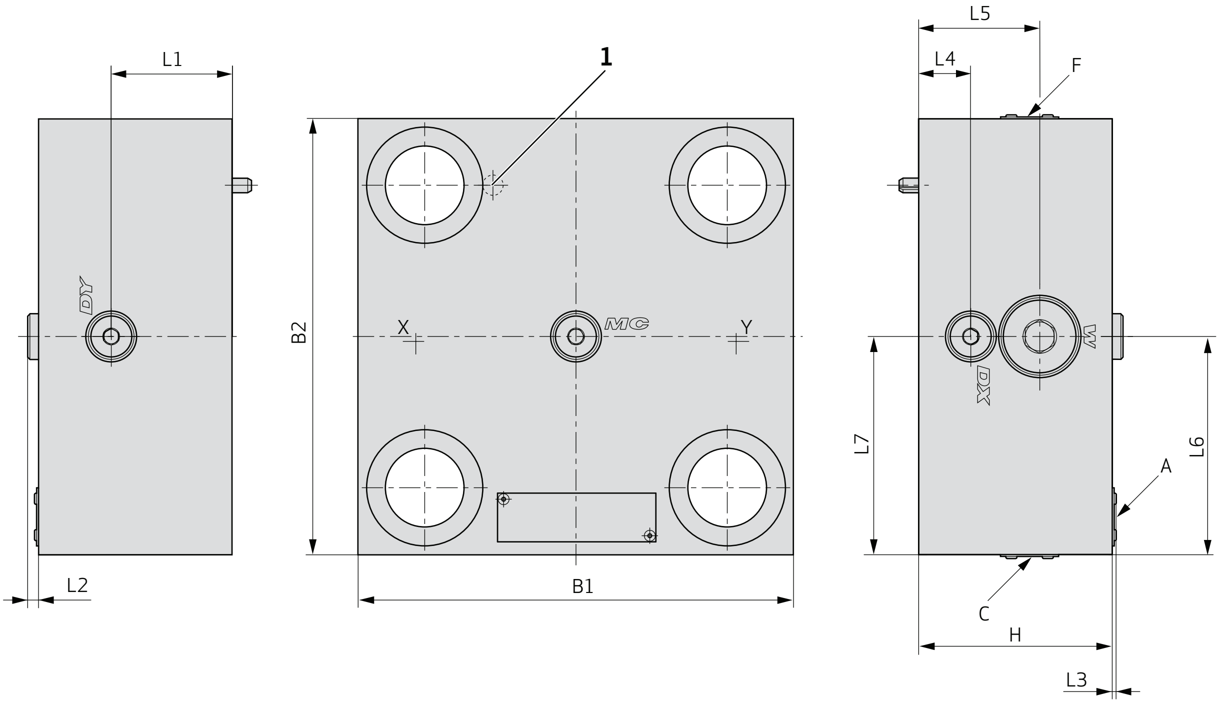
1) See ordering code (position 13) on page 79

## Cover Details

| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| **Orifice details** | See page 69 | | | | | | | |
| **Spare parts** | See page 74 | | | | | | | |
| **Mounting screws** | See table for mounting screws on page 74 | | | | | | | |
| **Plug DX, DY + MC** | - | - | - | G1/8“ | - | G1/4“ | G3/8“ | G1/2“ |
| Hex key size [mm] | - | - | - | 5 | - | 6 | 8 | 10 |
| Torque [Nm (lbf ft)] | - | - | - | 14 (10) | - | 30 (22) | 60 (44) | 80 (59) |
| **Plug W** | G3/8“ | G3/8“ | G3/8“ | G3/8“ | G3/8“ | G3/4“ | G3/4“ | G3/4“ |
| Hex key size [mm] | 8 | 8 | 8 | 8 | 8 | 12 | 12 | 12 |
| Torque [Nm (lbf ft)] | 60 (44) | 60 (44) | 60 (44) | 60 (44) | 60 (44) | 120 (89) | 120 (89) | 120 (89) |
| **Shuttle valve (under plug W)** | - | - | - | - | - | G1/2“ | G1/2“ | G1/2“ |
| Hex key size [mm] | - | - | - | - | - | 10 | 10 | 10 |
| Torque [Nm (lbf ft)] | - | - | - | - | - | 80 (59) | 80 (59) | 80 (59) |
| **Weight [kg (lb)]** | 1.1 (2.43) | 1.7 (3.75) | 3.1 (6.84) | 6.3 (13.89) | 8.2 (18.08) | 17 (37.49) | 26 (57.33) | 42 (92.61) |

# 2D COVER
## Sizes 16 to 63

### Cover Dimensions

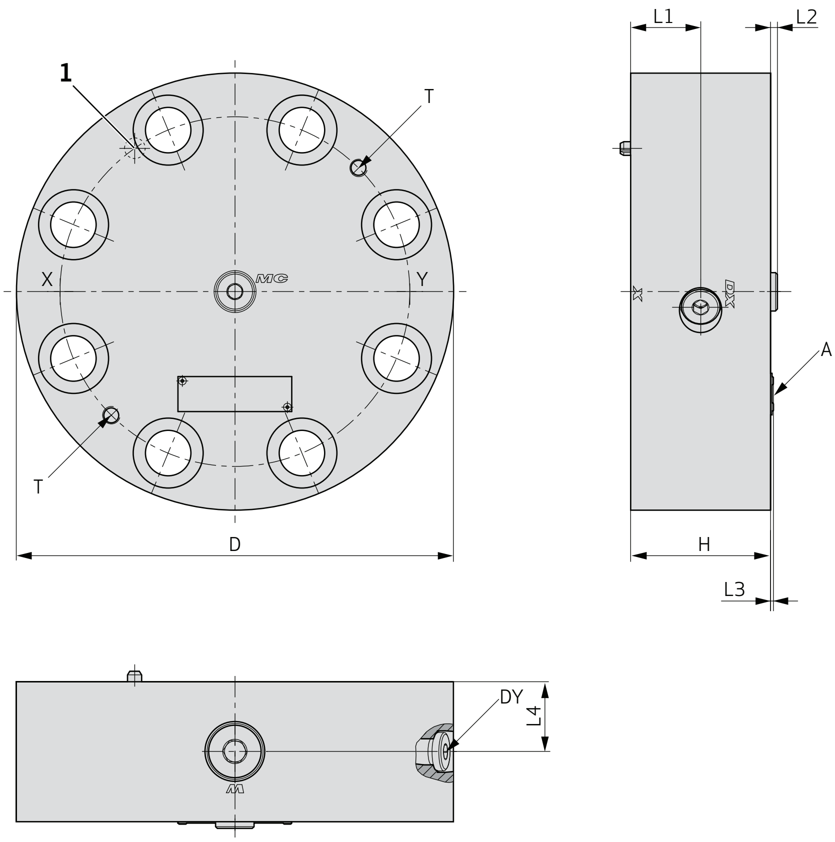



1 Locating pin

| Size | 16 | 25 | 32 | 40 | 50 | 63 |
|---|---|---|---|---|---|---|
| B1 [mm (in)] | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| B2 [mm (in)] | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| H [mm (in)] | 35 (1.38) | 35 (1.38) | 45 (1.77) | 60 (2.36) | 60 (2.36) | 80 (3.15) |
| L1 [mm (in)] | - | - | - | - | - | 50 (1.97) |
| L2 [mm (in)] | - | - | - | - | - | 4.5 (0.18) |
| L3 [mm (in)] | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) |
| L4 [mm (in)] | - | - | - | 12.5 (0.49) | - | 21.5 (0.85) |
| L5 [mm (in)] | 21.5 (0.85) | 21.5 (0.85) | 30 (1.18) | 33.5 (1.32) | 45 (1.77) | 50 (1.97) |
| L6 [mm (in)] | 32.5 (1.28) | 42.5 (1.67) | 51 (2.01) | 62.5 (2.46) | 80 (3.15) | 90 (3.54) |
| L7 [mm (in)] | - | - | - | 62.5 (2.46) | - | 90 (3.54) |
| Nameplate position | A | C | F | C | A | A |
| ISO 7368 mounting pattern | 06-1-1-16 | 08-3-1-16 | 09-5-1-16 | 10-7-1-16 | 11-9-1-16 | 12-11-1-16 |

# 2D COVER
## Sizes 80 to 100

### Cover Dimensions




1 Locating pin

| Size | 80 | 100 |
|---|---|---|
| D [mm (in)] | 250 (9.84) | 300 (11.81) |
| H [mm (in)] | 80 (3.15) | 90 (3.54) |
| L1 [mm (in)] | 40 (1.57) | 45 (1.77) |
| L2 [mm (in)] | 4 (0.16) | 4 (0.16) |
| L3 [mm (in)] | 1.5 (0.06) | 1.5 (0.06) |
| L4 [mm (in)] | 40 (1.57) | 45 (1.77) |
| Nameplate position | A | A |
| ISO 7368 mounting pattern | 13-13-1-16 | 14-14-1-16 |
| T - (eye-bolt thread) | M10 | M10 |

# 2W COVER

## Functional Description

The 2W cover contains an integrated shuttle valve designed to allow only the highest of the available pilot pressures to continue to the C port. In contrast to the 2D cover, the 2W cover is equipped with a port pattern. This additional port pattern enables more complex functions to be created by using a pilot valve.

## Pilot-Operated Check Function

The 2W cover can be used in combination with a cartridge[1] and a control valve[2] to create a check function that can be enabled depending upon the state of the solenoid.

When the solenoid is energized, the flow direction is A → B only. This is due to the plug in the B port of the 2W cover blocking the pilot pressure from the A port of the cartridge. The remaining pilot pressure connected to the B port of the cartridge blocks the flow direction B → A.

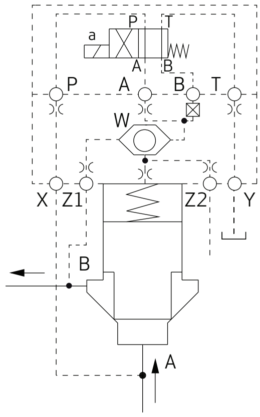
When the solenoid is de-energized the flow in both directions, from B → A and A → B, is blocked.

If the plug is installed in port A of the cover, the function is exactly the opposite with regard to an energized and de-energized solenoid. In other words, the flow in both directions will be blocked when the solenoid is energized. When the solenoid is de-energized, flow will only be permitted in the direction A → B.

Finally, the Z2 port may be used in combination with an additional control valve[2] to unlock the check function from B → A by connecting the spring chamber of the cartridge to tank. This will enable flow through the cartridge in both directions. Or, the Z2 port can also be used to activate a second cartridge valve.

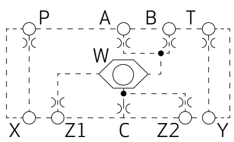
1) Cartridge with a B, C, E or F poppet.
2) Control valve: An ISO 4401 size 03 directional control valve for cover sizes up to 50 or an ISO 4401 size 05 directional control valve for cover sizes 63 to 100.

**Pilot-Operated Check Function**

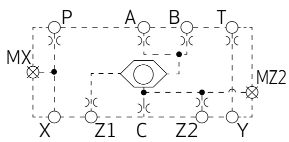



## Hydraulic Symbol

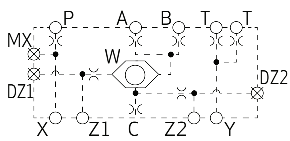
**Sizes 16 to 25**




**Sizes 32 to 50**




**Sizes 63 to 100**



# 2W COVER

## Orifice Configuration

The orifice configurations possible with this cover are numerous and depend on the pilot valve used and the function desired. For more assistance with orifice configurations please contact us.

## Preferred Type (NBR)

| Size | Ordering code without orifice | Ordering code with standard orifice | Orifice code[1)] |
|---|---|---|---|
| **16** | XEB18549-000N01 | upon request | – |
| **25** | XEB18528-000N01 | upon request | – |
| **32** | XEB18507-000N01 | upon request | – |
| **40** | XEB18448-000N01 | upon request | – |
| **50** | XEB18430-000N01 | upon request | – |
| **63** | XEB18338-000N01 | upon request | – |
| **80** | XEB18315-000N01 | upon request | – |
| **100** | XEB18300-000N01 | upon request | – |

1) See ordering code (position 13) on page 79

## Cover Details

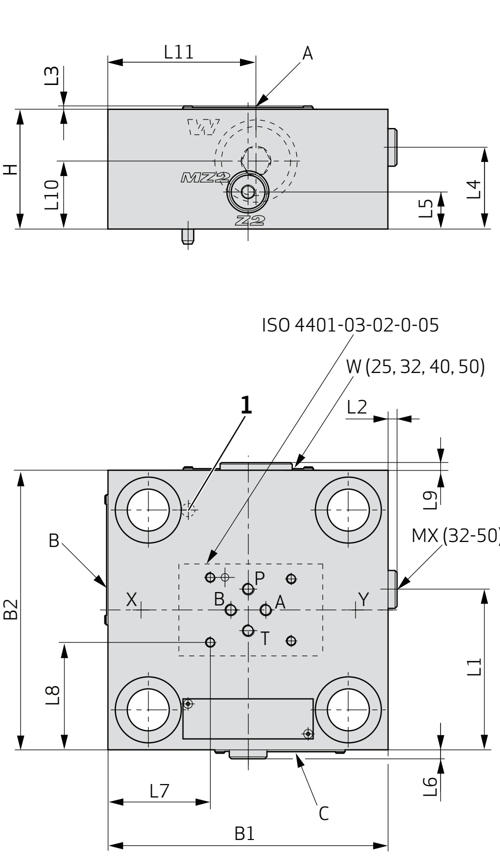
| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| **Orifice details** | See page 69 | | | | | | | |
| **Spare parts** | See page 74 | | | | | | | |
| **Mounting screws** | See table for mounting screws on page 74 | | | | | | | |
| **Plug MX, MZ2, DZ1 + DZ2** | - | - | G1/8“ | G1/4“ | G1/4“ | G1/4“ | G3/8“ | G1/2“ |
| Hex key size [mm] | - | - | 5 | 6 | 6 | 6 | 8 | 10 |
| Torque [Nm (lbf ft)] | - | - | 14 (10) | 30 (22) | 30 (22) | 30 (22) | 60 (44) | 80 (59) |
| **Plug W** | G3/8“ | G3/8“ | G3/8“ | G3/8“ | G3/8“ | G1/2“ | G3/4“ | G3/4“ |
| Hex key size [mm] | 8 | 8 | 8 | 8 | 8 | 10 | 12 | 12 |
| Torque [Nm (lbf ft)] | 60 (44) | 60 (44) | 60 (44) | 60 (44) | 60 (44) | 80 (59) | 120 (89) | 120 (89) |
| **Shuttle valve (under plug W)** | - | - | - | - | - | G1/2“ | G1/2“ | G1/2“ |
| Hex key size [mm] | - | - | - | - | - | 10 | 10 | 10 |
| Torque [Nm (lbf ft)] | - | - | - | - | - | 80 (59) | 80 (59) | 80 (59) |
| **Weight [kg (lb)]** | 1.5 (3.31) | 2 (4.41) | 3 (6.62) | 6.2 (13.67) | 8 (17.64) | 16.5 (36.38) | 26 (57.33) | 44 (97.02) |

# 2W COVER

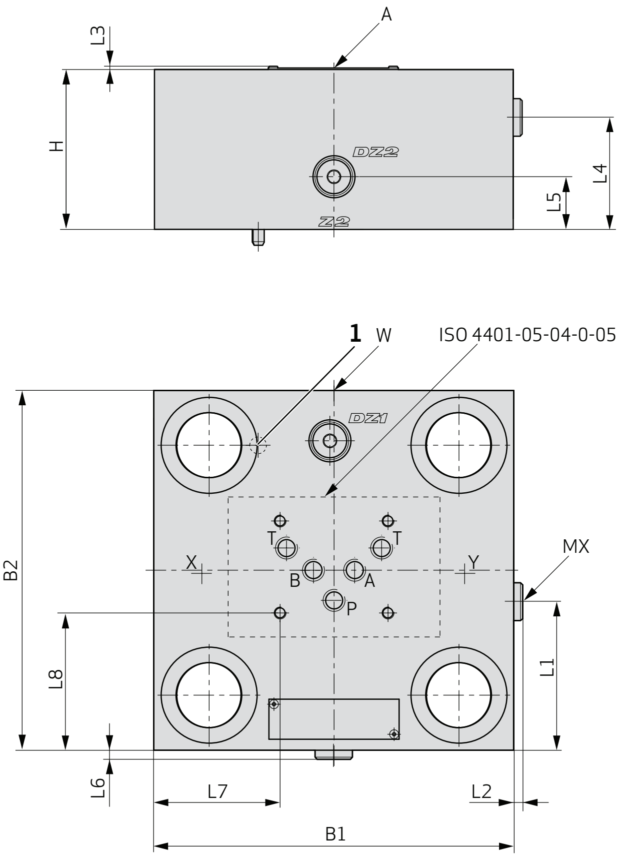
## Sizes 16 to 63

### Cover Dimensions

#### Sizes 16 to 50




#### Size 63

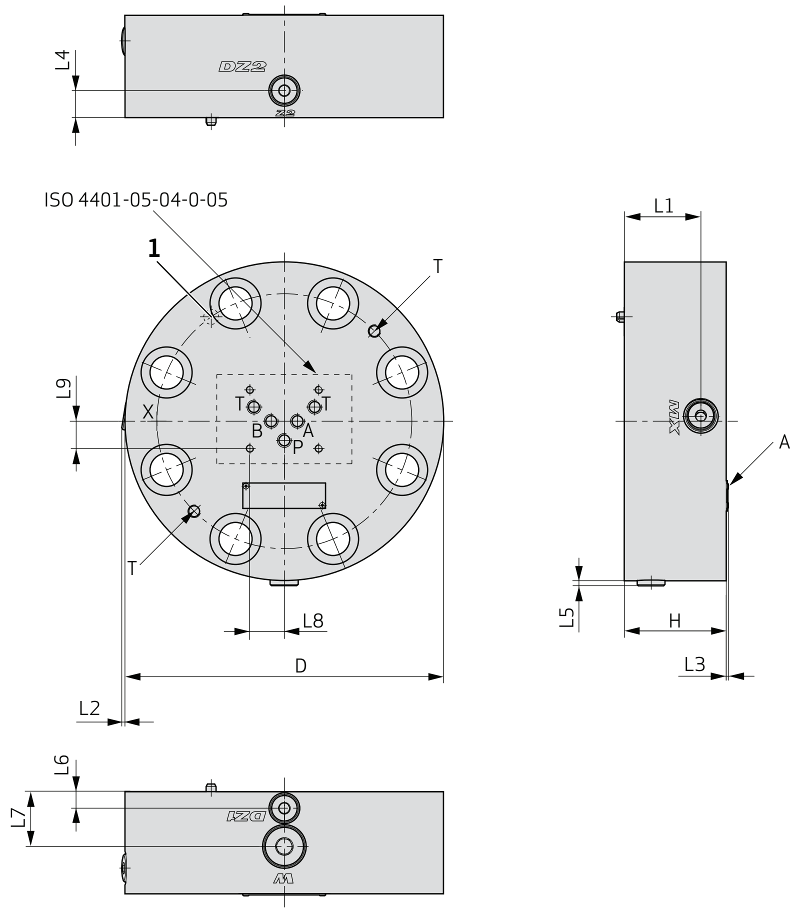



1 Locating pin

| **Size** | **16** | **25** | **32** | **40** | **50** | **63** |
|---|---|---|---|---|---|---|
| **B1 [mm (in)]** | 80 (3.15) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **B2 [mm (in)]** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **H [mm (in)]** | 40 (1.57) | 40 (1.57) | 45 (1.77) | 60 (2.36) | 60 (2.36) | 80 (3.15) |
| **L1 [mm (in)]** | 35 (1.38) | – | 58.9 (2.32) | 73 (2.87) | 80.4 (3.17) | 74.5 (2.93) |
| **L2 [mm (in)]** | – | – | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L3 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) |
| **L4 [mm (in)]** | 21 (0.83) | – | 34 (1.34) | 40.5 (1.59) | 41 (1.61) | 56 (2.2) |
| **L5 [mm (in)]** | – | – | 21 (0.83) | 17 (0.67) | 18.5 (0.73) | 26.25 (1.03) |
| **L6 [mm (in)]** | – | 1 (0.04) | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L7 [mm (in)]** | 7 (0.28) | 23.5 (0.93) | 32 (1.26) | 43.5 (1.71) | 51 (2.01) | 63 (2.48) |
| **L8 [mm (in)]** | 16.25 (0.64) | 26.25 (1.03) | 34.65 (1.36) | 46.25 (1.82) | 53.75 (2.12) | 68.6 (2.7) |
| **L9 [mm (in)]** | 1.6 (0.06) | 2.5 (0.1) | – | – | – | – |
| **L10 [mm (in)]** | 18 (0.71) | 23 (0.91) | 21 (0.83) | 31 (1.22) | 32 (1.26) | 40 (1.57) |
| **L11 [mm (in)]** | 46.2 (1.82) | 45 (1.77) | 51 (2.01) | 62.5 (2.46) | 70 (2.76) | 79.7 (3.14) |
| **Nameplate position** | C | C | B | C | A | A |
| **ISO 7368 mounting pattern** | 06-1-1-16 | 08-3-1-16 | 09-5-1-16 | 10-7-1-16 | 11-9-1-16 | 12-11-1-16 |

# 2W COVER
## Sizes 80 to 100

### Cover Dimensions




1 Locating pin

| **Size** | **80** | **100** |
|---|---|---|
| **D [mm (in)]** | 250 (9.84) | 300 (11.81) |
| **H [mm (in)]** | 80 (3.15) | 90 (3.54) |
| **L1 [mm (in)]** | 60 (2.36) | 43 (1.69) |
| **L2 [mm (in)]** | 2.5 (0.1) | 2.5 (0.1) |
| **L3 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) |
| **L4 [mm (in)]** | 21 (0.83) | 23.9 (0.94) |
| **L5 [mm (in)]** | 4 (0.16) | 4 (0.16) |
| **L6 [mm (in)]** | 15 (0.59) | 24 (0.94) |
| **L7 [mm (in)]** | 45 (1.77) | 56.9 (2.24) |
| **L8 [mm (in)]** | 27 (1.06) | 27 (1.06) |
| **L9 [mm (in)]** | 21.4 (0.84) | 21.4 (0.84) |
| **Nameplate position** | A | A |
| **ISO 7368 mounting pattern** | 13-13-1-16 | 14-14-1-16 |
| **T - (eye-bolt thread)** | M10 | M10 |

# 2WR COVER

## Functional Description

The 2WR cover contains an integrated shuttle valve designed to allow only the highest of the available pilot pressures to continue to the C port. In contrast to the 2W cover, the 2WR cover uses only the X and the A ports to control the integrated shuttle valve. Ports B and Z2 can be used for other control functions.

## Pilot-Operated Check Function

The 2WR can be used in combination with a cartridge[1)] and a control valve[2)] to create a check function that can be enabled depending upon the state of the solenoid.

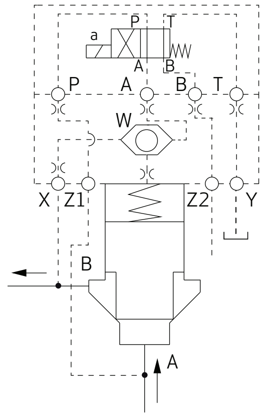
When the solenoid is energized, the flow direction is A → B only. This is due to the directional valve routing the pilot pressure from the A port of the cartridge away from the spring chamber and towards the Z2 port. If, however, the pressure in port B exceeds the one in port A, it closes the cartridge and blocks the flow direction B → A.

When the solenoid is de-energized the flow in both directions, from B → A and A → B, is blocked.

Finally, the Z2 port may be used to activate another cartridge[1)].

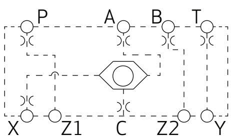
1) Cartridge with a B, C, E or F poppet.
2) Control valve: An ISO 4401 size 03 directional control valve for cover sizes up to 50 or an ISO 4401 size 05 directional control valve for cover sizes 63 to 100.

**Pilot-Operated Check Function**

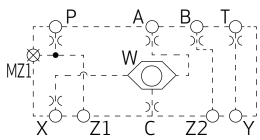



## Hydraulic Symbol

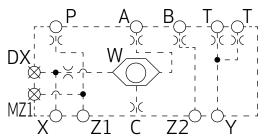
**Sizes 16 to 25**




**Sizes 32 to 50**




**Sizes 63 to 100**



# 2WR COVER

## Orifice Configuration

The orifice configurations possible with this cover are numerous and depend on the pilot valve used and the function desired. For more assistance with orifice configurations please contact us.

## Preferred Type (NBR)

| Size | Ordering code without orifice | Ordering code with standard orifice | Orifice code[1)] |
|---|---|---|---|
| **16** | XEB18548-000N01 | upon request | – |
| **25** | XEB18525-000N01 | upon request | – |
| **32** | XEB18501-000N01 | upon request | – |
| **40** | XEB18442-000N01 | upon request | – |
| **50** | XEB18424-000N01 | upon request | – |
| **63** | XEB18332-000N01 | upon request | – |
| **80** | XEB18309-000N01 | upon request | – |
| **100** | XEB18294-000N01 | upon request | – |

1) See ordering code (position 13) on page 79

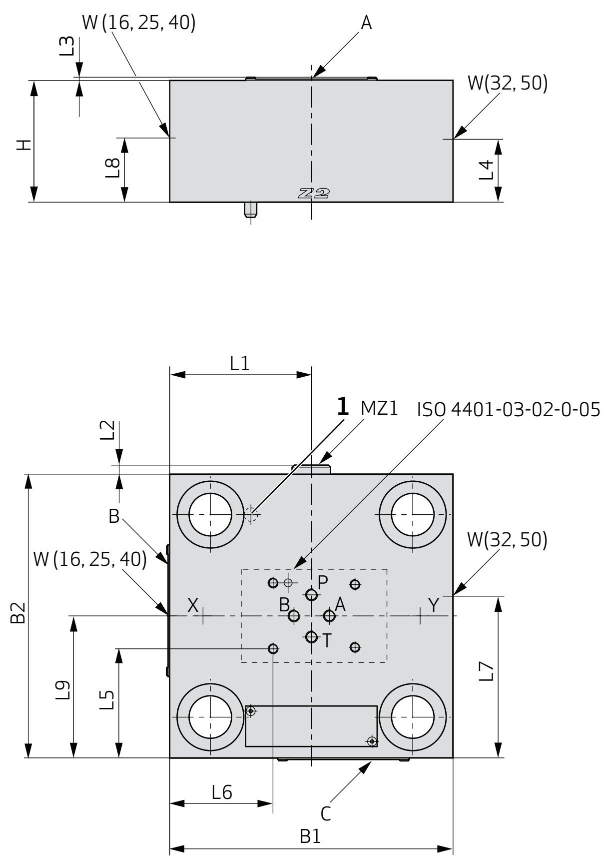
## Cover Details

| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| **Orifice details** | See page 69 | | | | | | | |
| **Spare parts** | See page 74 | | | | | | | |
| **Mounting screws** | See table for mounting screws on page 74 | | | | | | | |
| **Plug DX + MZ1** | - | - | G1/8“ | G1/4“ | G1/4“ | G1/4“ | G3/8“ | G1/2“ |
| Hex key size [mm] | - | - | 5 | 6 | 6 | 6 | 8 | 10 |
| Torque [Nm (lbf ft)] | - | - | 14 (10) | 30 (22) | 30 (22) | 30 (22) | 60 (44) | 80 (59) |
| **Plug W** | G3/8“ | G3/8“ | G3/8“ | G3/8“ | G3/8“ | G3/4“ | G3/4“ | G3/4“ |
| Hex key size [mm] | 8 | 8 | 8 | 8 | 8 | 12 | 12 | 12 |
| Torque [Nm (lbf ft)] | 60 (44) | 60 (44) | 60 (44) | 60 (44) | 60 (44) | 135 (100) | 135 (100) | 135 (100) |
| **Shuttle valve (under plug W)** | - | - | - | - | - | G1/2“ | G1/2“ | G1/2“ |
| Hex key size [mm] | - | - | - | - | - | 10 | 10 | 10 |
| Torque [Nm (lbf ft)] | - | - | - | - | - | 80 (59) | 80 (59) | 80 (59) |
| **Weight [kg (lb)]** | 1.5 (3.31) | 2 (4.41) | 3 (6.62) | 6.2 (13.67) | 9 (19.85) | 23.6 (52.04) | 26 (57.33) | 42 (92.61) |

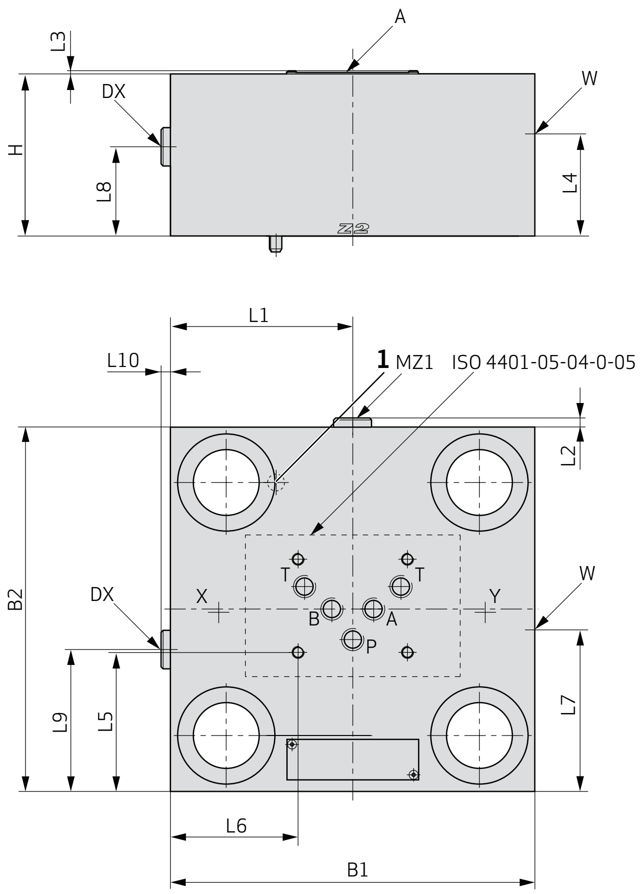
# 2WR COVER
# Sizes 16 to 63

### Cover Dimensions

#### Sizes 16 to 50




#### Size 63

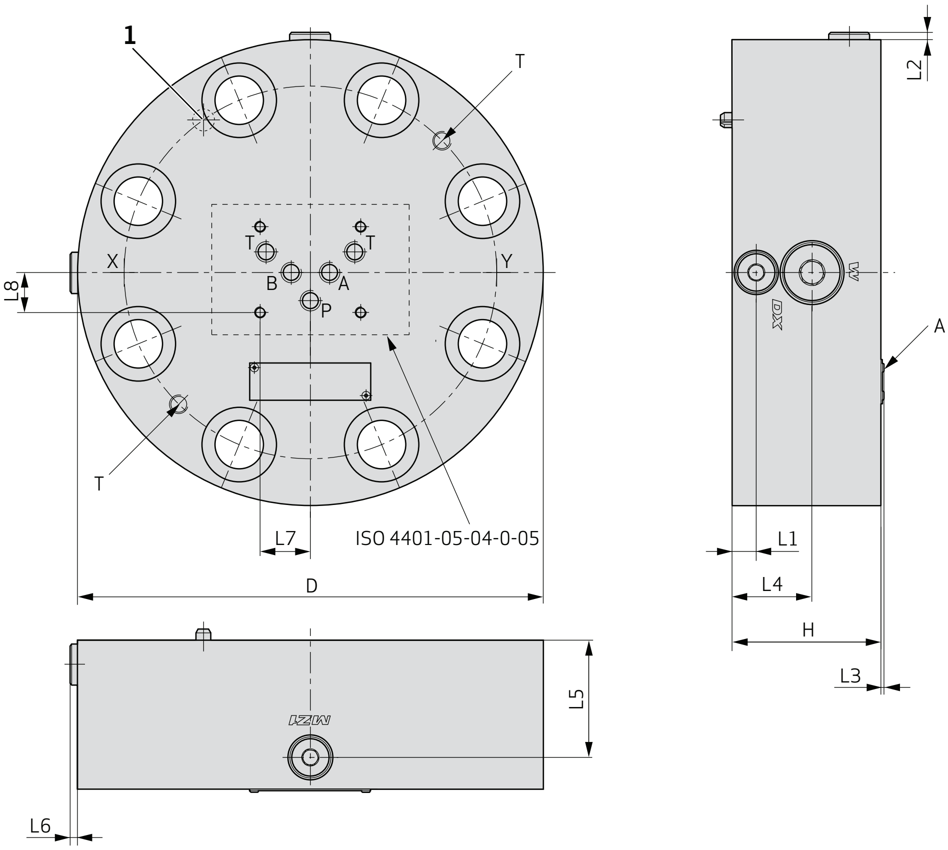



1 Locating pin

| Size | 16 | 25 | 32 | 40 | 50 | 63 |
|---|---|---|---|---|---|---|
| **B1 [mm (in)]** | 80 (3.15) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **B2 [mm (in)]** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **H [mm (in)]** | 40 (1.57) | 40 (1.57) | 45 (1.77) | 60 (2.36) | 60 (2.36) | 80 (3.15) |
| **L1 [mm (in)]** | - | - | 51 (2.01) | 62.5 (2.46) | 70 (2.76) | 90 (3.54) |
| **L2 [mm (in)]** | - | - | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L3 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) |
| **L4 [mm (in)]** | - | - | 17.5 (0.69) | - | 31 (1.22) | 44 (1.73) |
| **L5 [mm (in)]** | 16.25 (0.64) | 26.25 (1.03) | 34.65 (1.36) | 46.25 (1.82) | 73 (2.87) | 68.6 (2.7) |
| **L6 [mm (in)]** | 7 (0.28) | 23.5 (0.93) | 32 (1.26) | 43.5 (1.71) | 53.75 (2.12) | 63 (2.48) |
| **L7 [mm (in)]** | - | - | 63 (2.48) | - | 51 (2.01) | 70 (2.76) |
| **L8 [mm (in)]** | 16.5 (0.65) | 21 (0.83) | - | 34.5 (1.36) | - | 44 (1.73) |
| **L9 [mm (in)]** | 31.5 (1.24) | 43.5 (1.71) | - | 64 (2.52) | - | 70 (2.76) |
| **L10 [mm (in)]** | - | - | - | - | - | 4.5 (0.18) |
| **Nameplate position** | C | C | B | C | A | A |
| **ISO 7368 mounting pattern** | 06-1-1-16 | 08-3-1-16 | 09-5-1-16 | 10-7-1-16 | 11-9-1-16 | 12-11-1-16 |

# 2WR COVER
## Sizes 80 to 100

### Cover Dimensions




1 Locating pin

| Size | 80 | 100 |
|---|---|---|
| D [mm (in)] | 250 (9.84) | 300 (11.81) |
| H [mm (in)] | 80 (3.15) | 90 (3.54) |
| L1 [mm (in)] | 13 (0.51) | 15.5 (0.61) |
| L2 [mm (in)] | 4 (0.16) | 4 (0.16) |
| L3 [mm (in)] | 1.5 (0.06) | 1.5 (0.06) |
| L4 [mm (in)] | 43 (1.69) | 48 (1.89) |
| L5 [mm (in)] | 63 (2.48) | 72 (2.83) |
| L6 [mm (in)] | 4 (0.16) | 4 (0.16) |
| L7 [mm (in)] | 27 (1.06) | 27 (1.06) |
| L8 [mm (in)] | 21.4 (0.84) | 21.4 (0.84) |
| Nameplate position | A | A |
| ISO 7368 mounting pattern | 13-13-1-16 | 14-14-1-16 |
| T - (eye-bolt thread) | M10 | M10 |

# 4W COVER

## Functional Description

The 4W cover offers parallel check functions on the X and Z1 ports. The larger pressure of the two is then applied to the P port. This feature is helpful in applications where the risk of a short-term opening of the cartridge[1)] during pilot pressure switching must be positively prevented.

## Directional Function

When using a 4W cover in combination with a cartridge[1)] and a control valve[2)], a bi-directional function or a check function can be achieved depending on the state of the solenoid.

When the solenoid is energized, and there is a plug in port B of the cover, then the spring chamber of the cartridge is connected to tank. This enables flow over the cartridge in both directions: From A → B and from B → A.

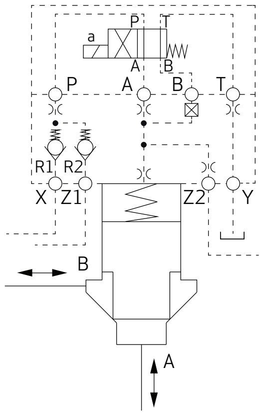
When the solenoid is de-energized the spring chamber is subject to the larger of the pilot pressures from the X and Z1 ports creating a check function. If the pilot pressure is taken from port A of the cartridge, the flow path from A to B is blocked. Conversely, if the pilot pressure is taken from port B, the flow from B to A is blocked.

If the plug in the 4W cover is installed in port A instead of port B, then the functions with respect to an energized and a de-energized solenoid are reversed.

Finally, the Z2 port may be used to activate another cartridge[1)].

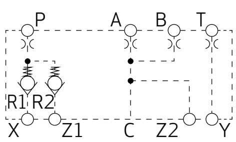
1) Cartridge with a B, C, E or F poppet.
2) Control valve: An ISO 4401 size 03 directional control valve for cover sizes up to 50 or an ISO 4401 size 05 directional control valve for cover sizes 63 to 100.

**Directional Function**

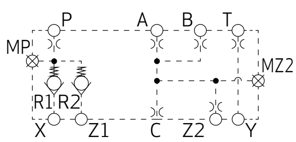



## Hydraulic Symbol

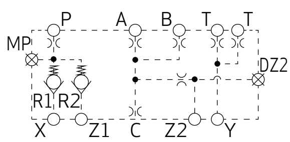
**Sizes 16 to 25**




**Sizes 32 to 50**




**Sizes 63 to 100**



# 4W COVER

## Orifice Configuration

The orifice configurations possible with this cover are numerous and depend on the pilot valve used and the function desired. For more assistance with orifice configurations please contact us.

## Preferred Type (NBR)

| Size | Ordering code without orifice | Ordering code with standard orifice | Orifice code[1)] |
|---|---|---|---|
| **16** | XEB18550-000N01 | upon request | – |
| **25** | XEB18529-000N01 | upon request | – |
| **32** | XEB18508-000N01 | upon request | – |
| **40** | XEB18449-000N01 | upon request | – |
| **50** | XEB18431-000N01 | upon request | – |
| **63** | XEB18339-000N01 | upon request | – |
| **80** | XEB18316-000N01 | upon request | – |
| **100** | XEB18301-000N01 | upon request | – |

1) See ordering code (position 13) on page 79

## Cover Details

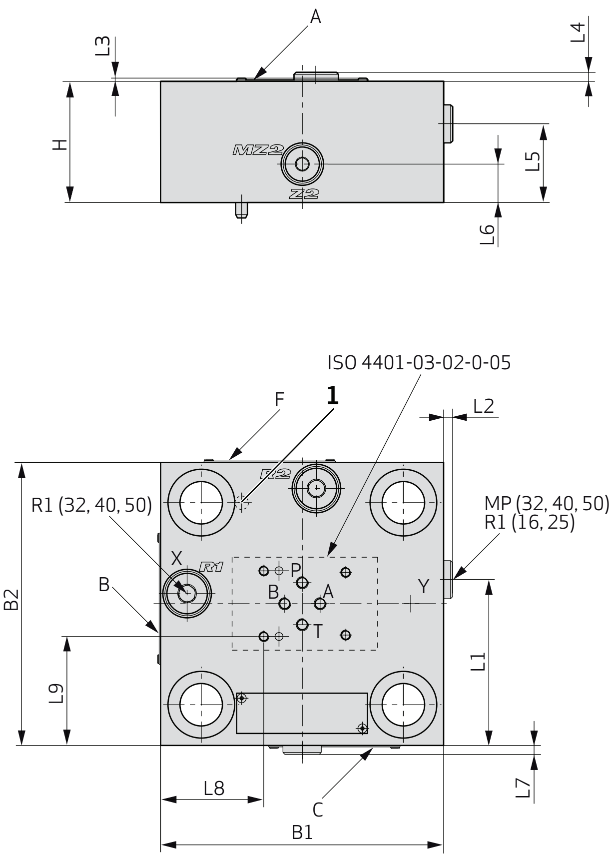
| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| **Orifice details** | See page 69 | | | | | | | |
| **Spare parts** | See page 74 | | | | | | | |
| **Mounting screws** | See table for mounting screws on page 74 | | | | | | | |
| **Plug MP, MZ2 + DZ2** | – | – | G1/8“ | G1/4“ | G1/4“ | G1/4“ | G3/8“ | G1/2“ |
| Hex key size [mm] | – | – | 5 | 6 | 6 | 6 | 8 | 10 |
| Torque [Nm (lbf ft)] | – | – | 14 (10) | 30 (22) | 30 (22) | 30 (22) | 60 (44) | 80 (59) |
| **Plug R1 + R2** | G1/8“ | G1/8“ | G1/4“ | G3/8“ | G3/8“ | G1/2“ | G1“ | G1“ |
| Hex key size [mm] | 5 | 5 | 6 | 8 | 8 | 10 | 17 | 17 |
| Torque [Nm (lbf ft)] | 14 (10) | 14 (10) | 30 (22) | 60 (44) | 60 (44) | 80 (59) | 170 (125) | 170 (125) |
| **Check valve (under plugs R1, R2)** | RKVE04 | RKVE04 | RKVE06 | RKVE08 | RKVE08 | REE10 | REE15 | REE15 |
| Torque [Nm (lbf ft)] [1)] | 3 (2) | 3 (2) | 7 (5) | 15 (11) | 15 (11) | – | – | – |
| **Weight [kg (lb)]** | 1.5 (3.31) | 2 (4.41) | 3 (6.62) | 6.2 (13.67) | 9 (19.85) | 16.5 (36.38) | 26 (57.33) | 44 (97.02) |

1) Special tooling required for RKVE check valves, see RKVE Check Valve Tools on page 75

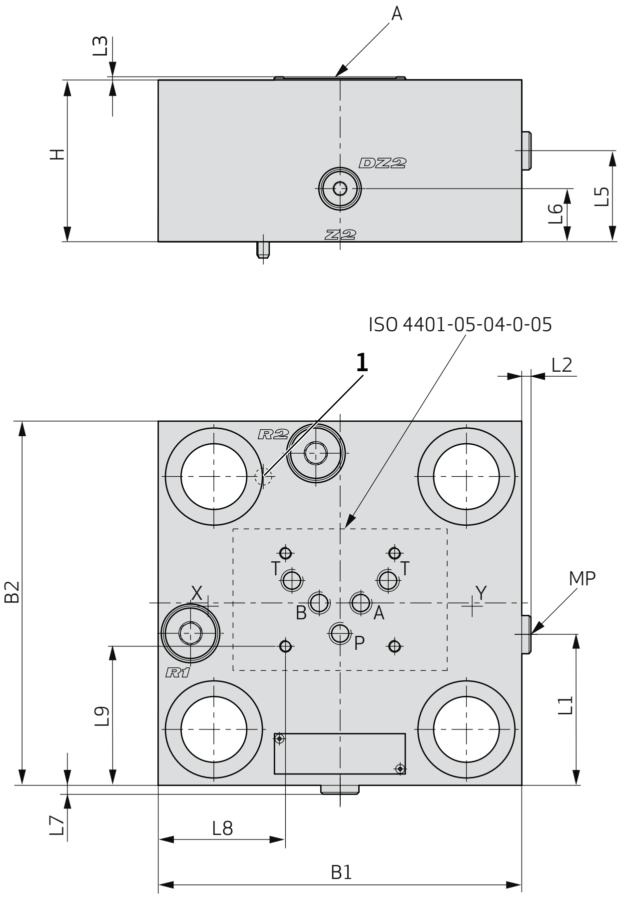
# 4W COVER
# Sizes 16 to 63

### Cover Dimensions

**Sizes 16 to 50**




**Size 63**

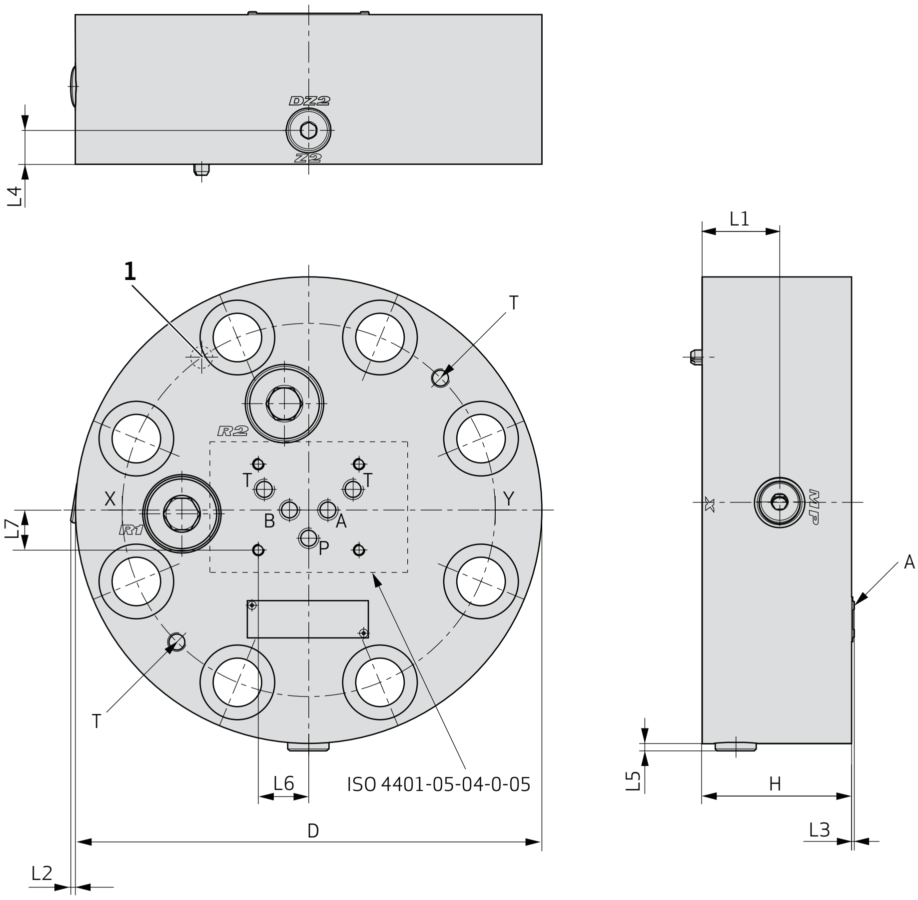



1 Locating pin

| Size | 16 | 25 | 32 | 40 | 50 | 63 |
|---|---|---|---|---|---|---|
| **B1 [mm (in)]** | 80 (3.15) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **B2 [mm (in)]** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **H [mm (in)]** | 40 (1.57) | 40 (1.57) | 45 (1.77) | 60 (2.36) | 60 (2.36) | 80 (3.15) |
| **L1 [mm (in)]** | 43 (1.69) | 53 (2.09) | 59.5 (2.34) | 73 (2.87) | 82 (3.23) | 74.5 (2.93) |
| **L2 [mm (in)]** | – | – | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L3 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) |
| **L4 [mm (in)]** | – | – | 1 (0.04) | – | – | – |
| **L5 [mm (in)]** | 17 (0.67) | 20 (0.79) | 24 (0.94) | 38.5 (1.52) | 39 (1.54) | 45 (1.77) |
| **L6 [mm (in)]** | 11.5 (0.45) | – | 15 (0.59) | 19 (0.75) | 19 (0.75) | 26.25 (1.03) |
| **L7 [mm (in)]** | 1.4 (0.06) | – | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L8 [mm (in)]** | 7 (0.28) | 23.5 (0.93) | 32 (1.26) | 43.5 (1.71) | 51 (2.01) | 63 (2.48) |
| **L9 [mm (in)]** | 16.25 (0.64) | 26.25 (1.03) | 34.65 (1.36) | 46.25 (1.82) | 53.75 (2.12) | 68.6 (2.7) |
| **Nameplate position** | C | C | F | C | A | A |
| **ISO 7368 mounting pattern** | 06-1-1-16 | 08-3-1-16 | 09-5-1-16 | 10-7-1-16 | 11-9-1-16 | 12-11-1-16 |

# 4W COVER
# Sizes 80 to 100

### Cover Dimensions




1 Locating pin

| Size | 80 | 100 |
|---|---|---|
| D [mm (in)] | 250 (9.84) | 300 (11.81) |
| H [mm (in)] | 80 (3.15) | 90 (3.54) |
| L1 [mm (in)] | 41.5 (1.63) | 50 (1.97) |
| L2 [mm (in)] | 2.5 (0.1) | 2.8 (0.11) |
| L3 [mm (in)] | 1.5 (0.06) | 1.5 (0.06) |
| L4 [mm (in)] | 18 (0.71) | 25 (0.98) |
| L5 [mm (in)] | 4 (0.16) | 4 (0.16) |
| L6 [mm (in)] | 27 (1.06) | 27 (1.06) |
| L7 [mm (in)] | 21.4 (0.84) | 21.4 (0.84) |
| Nameplate position | A | A |
| ISO 7368 mounting pattern | 13-13-1-16 | 14-14-1-16 |
| T - (eye-bolt thread) | M10 | M10 |

# RV COVER

## Functional Description

The RV cover contains an integrated shuttle valve with the possibility of an override.

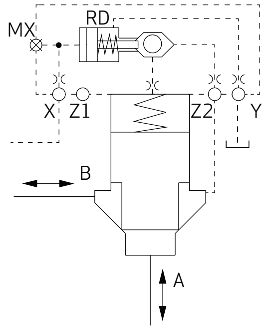
## Pilot-Operated Check Function

When using a RV cover in combination with a cartridge[1], a check function is achieved by connecting the Z2 port with port B of the cartridge valve. The flow direction is A → B (B → A blocked).

An override of the check function is possible if the X port is subject to pressure. This will cause the shuttle valve to open towards the Y port and drain the spring chamber of the cartridge to tank. For the override to function, the pilot pressure at port X must be at least 20 % (1:5) of the load pressure in port B.

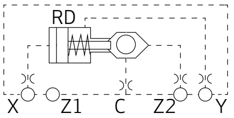
1) Cartridge with a B, C, E or F poppet

**Pilot-Operated Check Function**

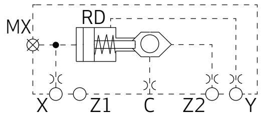



## Hydraulic Symbol

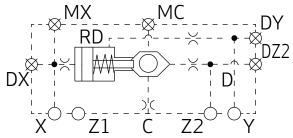
**Sizes 16 to 25**




**Sizes 32 to 50**




**Sizes 63 to 100**



# RV COVER

## Orifice Configuration

For assistance with orifice configuration please contact us.

## Preferred Type (NBR+PU)

| RV Cover | Ordering code without orifice | Ordering code with standard orifice | Orifice code[1)] |
|---|---|---|---|
| **16** | XEB18919-000T01 | XEB18919-010T01 | X10, C15, Z215 |
| **25** | XEB18918-000T01 | XEB18918-008T01 | X10, C15, Z215 |
| **32** | XEB18510-000T01 | XEB18510-014T01 | X10, C15, Z215 |
| **40** | XEB18451-000T01 | XEB18451-004T01 | X10, C15, Z215 |
| **50** | XEB18433-000T01 | XEB18433-002T01 | X10, C15, Z215 |
| **63** | XEB18341-000T01 | upon request | – |
| **80** | XEB18318-000T01 | upon request | – |
| **100** | XEB18303-000T01 | upon request | – |

1) See ordering code (position 13) on page 79

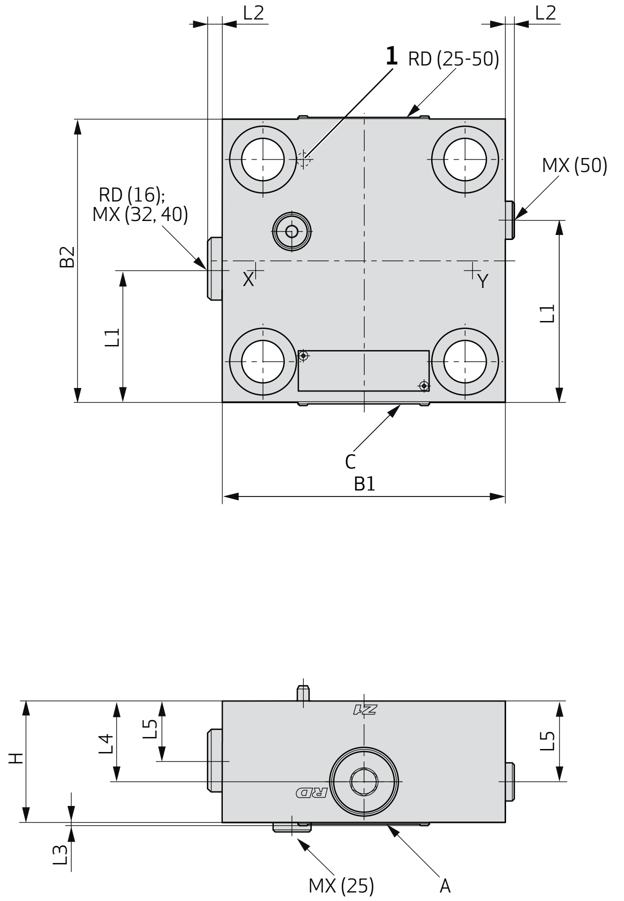
## Cover Details

| **Size** | **16** | **25** | **32** | **40** | **50** | **63** | **80** | **100** |
|---|---|---|---|---|---|---|---|---|
| **Orifice details** | See page 69 | | | | | | | |
| **Spare parts** | See page 74 | | | | | | | |
| **Mounting screws** | See table for mounting screws on page 74 | | | | | | | |
| **Plug MX, MC, DX, DY + DZ2** | - | G1/4“ | G1/8“ | G1/4“ | G1/4“ | G1/4“ | G3/8“ | G1/2“ |
| Hex key size [mm] | - | 6 | 5 | 6 | 6 | 6 | 8 | 10 |
| Torque [Nm (lbf ft)] | - | 30 (22) | 14 (10) | 30 (22) | 30 (22) | 30 (22) | 60 (44) | 80 (59) |
| **Plug RD** | G3/4“ | G3/4“ | G3/4“ | G3/4“ | G3/4“ | G1“ | G1“ | G1“ |
| Hex key size [mm] | 12 | 12 | 12 | 12 | 12 | 17 | 17 | 17 |
| Torque [Nm (lbf ft)] | 135 (100) | 135 (100) | 135 (100) | 135 (100) | 135 (100) | 170 (125) | 170 (125) | 170 (125) |
| **Area ratio RD** | 1 : 5.4 | 1 : 5.4 | 1 : 5.4 | 1 : 5.4 | 1 : 5.4 | 1 : 5.4 | 1 : 5.4 | 1 : 5.4 |
| **Weight [kg (lb)]** | 2.3 (5.07) | 2.8 (6.17) | 3 (6.62) | 6.1 (13.45) | 8.9 (19.62) | 16.4 (36.16) | 26 (57.33) | 41.4 (91.29) |

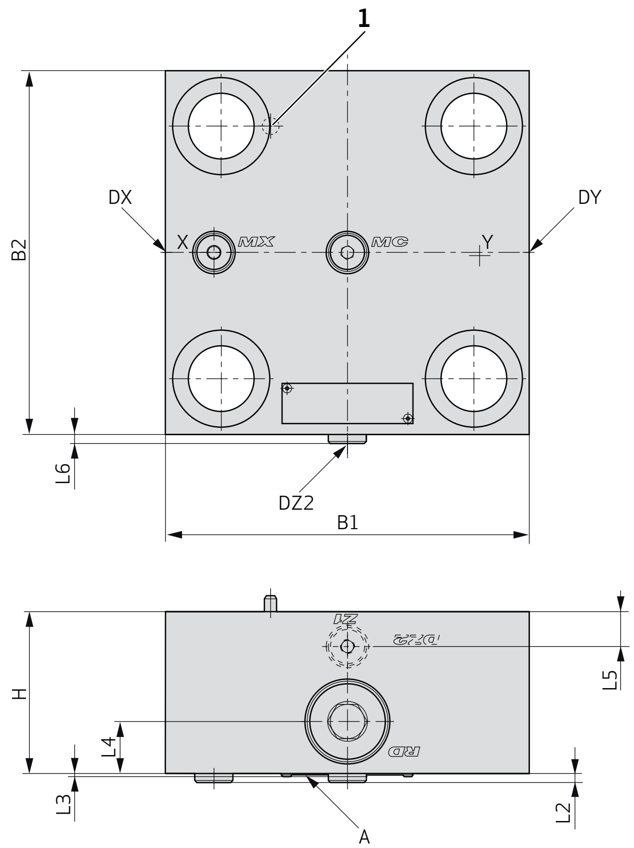
# RV COVER
## Sizes 16 to 63

### Cover Dimensions

#### Sizes 16 to 50




#### Size 63

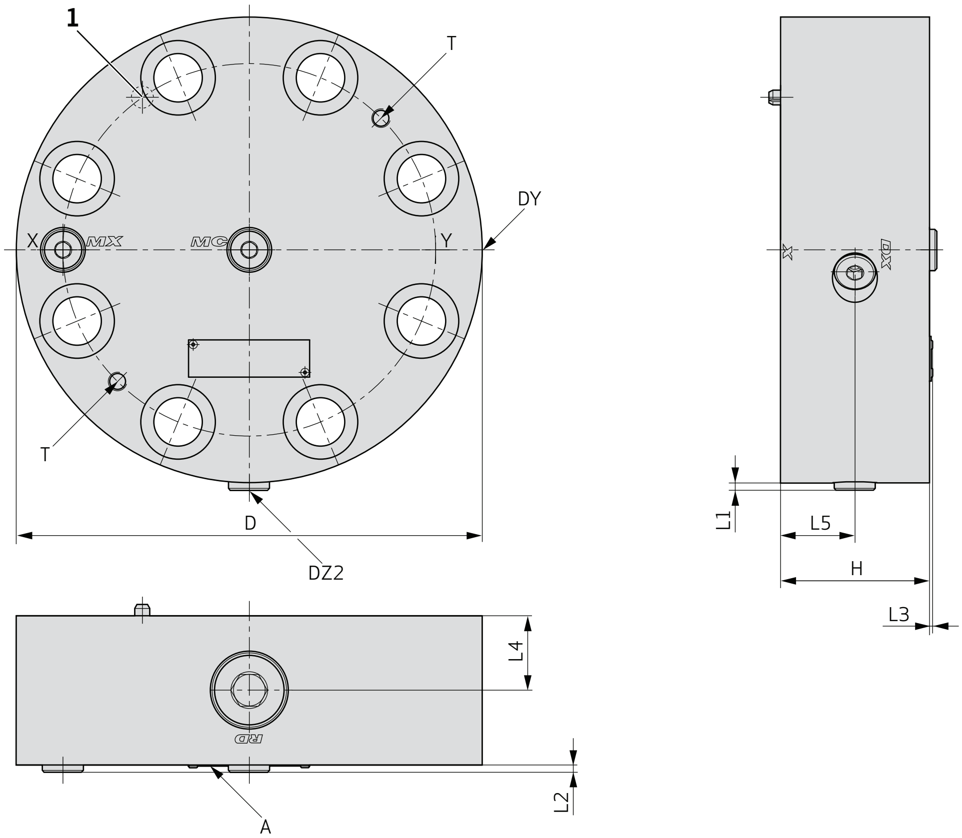



1 Locating pin

| Size | 16 | 25 | 32 | 40 | 50 | 63 |
|---|---|---|---|---|---|---|
| **B1 [mm (in)]** | 80 (3.15) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **B2 [mm (in)]** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **H [mm (in)]** | 65 (2.56) | 60 (2.36) | 45 (1.77) | 60 (2.36) | 60 (2.36) | 80 (3.15) |
| **L1 [mm (in)]** | 32.5 (1.28) | – | 48 (1.89) | 59 (2.32) | 90 (3.54) | – |
| **L2 [mm (in)]** | 4.5 (0.18) | 4.5 (0.18) | 3.5 (0.14) | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L3 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) |
| **L4 [mm (in)]** | – | 42 (1.65) | 27 (1.06) | 40 (1.57) | 40 (1.57) | 44 (1.73) |
| **L5 [mm (in)]** | 45 (1.77) | – | 19 (0.75) | 40 (1.57) | 40 (1.57) | – |
| **L6 [mm (in)]** | – | – | – | – | – | 4.5 (0.18) |
| **Nameplate position** | C | C | C | C | A | A |
| **ISO 7368 mounting pattern** | 06-1-1-16 | 08-3-1-16 | 09-5-1-16 | 10-7-1-16 | 11-9-1-16 | 12-11-1-16 |

# RV COVER
## Sizes 80 to 100

### Cover Dimensions




1 Locating pin

| Size | 80 | 100 |
|---|---|---|
| **D [mm (in)]** | 250 (9.84) | 300 (11.81) |
| **H [mm (in)]** | 80 (3.15) | 90 (3.54) |
| **L1 [mm (in)]** | 4 (0.16) | 4 (0.16) |
| **L2 [mm (in)]** | 4 (0.16) | 4 (0.16) |
| **L3 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) |
| **L4 [mm (in)]** | 40 (1.57) | 45 (1.77) |
| **L5 [mm (in)]** | 40 (1.57) | 45 (1.77) |
| **Nameplate position** | A | A |
| **ISO 7368 mounting pattern** | 13-13-1-16 | 14-14-1-16 |
| **T - (eye-bolt thread)** | M10 | M10 |

# DBA COVER

## Functional Description

A DBA cover uses an integrated pressure relief valve to create simple pilot operated pressure relief functions.

## Pilot operated pressure relief function

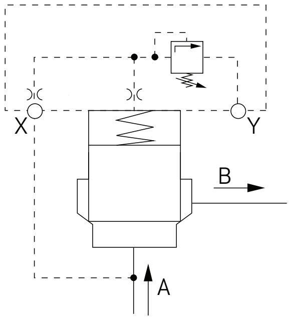
A more detailed description of how a pilot operated pressure relief valve works can be found in the description of operation on page 6. Additionally, complete pressure relief valve configurations (cartridge valve plus cover) can be found in our DBV(M)-PRESSURE RELIEF VALVES catalog.

## Orifice Configuration

In order to get the maximum performance out of a DBA cover, it is important to select the right orifice combination. Failing to do this may result in poor valve performance.

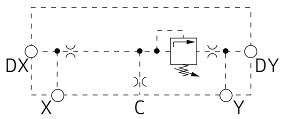
The preferred standard orifice configurations provided here assume the use of an A poppet and the pressure range desired. Not included are configurations using EX poppets or with tamper proof seals on the pressure settings. For more assistance regarding orifice configurations please contact us.

**Pilot operated pressure relief function**




## Hydraulic Symbol

**Sizes 16 to 100**



# DBA COVER

## Orifice Configuration

For assistance with orifice configuration please contact us or consult the „Pilot-operated Pressure Relief Valves“ catalog.

## Preferred Type (NBR, Adjustment 2, AO Poppet)

| DBA Cover | Pressure range | Ordering code with standard orifice | Orifice code |
|---|---|---|---|
| **16** | **B** 70 bar (1,000 psi) | XEB19426-202N01 | N-CCE016K6DBA2X99B/X15;C12 |
| | **E** 175 bar (2,500 psi) | XEB19426-203N01 | N-CCE016K6DBA2X99E/X12;C10 |
| | **G** 245 bar (3,500 psi) | XEB19426-204N01 | N-CCE016K6DBA2X99G/X12;C10 |
| | **K** 350 bar (5,000 psi) | XEB19426-205N01 | N-CCE016K6DBA2X99K/X12;C10 |
| | **L** 420 bar (6,000 psi) | XEB19426-206N01 | N-CCE016K6DBA2X99L/X10;C08 |
| **25** | **B** 70 bar (1,000 psi) | XEB19425-202N01 | N-CCE025K6DBA2X99B/X15;C15 |
| | **E** 175 bar (2,500 psi) | XEB19425-203N01 | N-CCE025K6DBA2X99E/X12;C12 |
| | **G** 245 bar (3,500 psi) | XEB19425-204N01 | N-CCE025K6DBA2X99G/X12;C12 |
| | **K** 350 bar (5,000 psi) | XEB19425-205N01 | N-CCE025K6DBA2X99K/X12;C12 |
| | **L** 420 bar (6,000 psi) | XEB19425-206N01 | N-CCE025K6DBA2X99L/X10;C10 |
| **32** | **B** 70 bar (1,000 psi) | XEB19423-202N01 | N-CCE032K6DBA2X99B/X15;C18 |
| | **E** 175 bar (2,500 psi) | XEB19423-203N01 | N-CCE032K6DBA2X99E/X12;C15 |
| | **G** 245 bar (3,500 psi) | XEB19423-204N01 | N-CCE032K6DBA2X99G/X12;C15 |
| | **K** 350 bar (5,000 psi) | XEB19423-205N01 | N-CCE032K6DBA2X99K/X12;C15 |
| | **L** 420 bar (6,000 psi) | XEB19423-206N01 | N-CCE032K6DBA2X99L/X10;C12 |
| **40** | **B** 70 bar (1,000 psi) | XEB19422-202N01 | N-CCE040K6DBA2X99B/X15;C18 |
| | **E** 175 bar (2,500 psi) | XEB19422-203N01 | N-CCE040K6DBA2X99E/X12;C15 |
| | **G** 245 bar (3,500 psi) | XEB19422-204N01 | N-CCE040K6DBA2X99G/X12;C15 |
| | **K** 350 bar (5,000 psi) | XEB19422-205N01 | N-CCE040K6DBA2X99K/X12;C15 |
| | **L** 420 bar (6,000 psi) | XEB19422-206N01 | N-CCE040K6DBA2X99L/X12;C15 |
| **50** | **B** 70 bar (1,000 psi) | XEB19421-202N01 | N-CCE050K6DBA2X99B/X15;C18 |
| | **E** 175 bar (2,500 psi) | XEB19421-203N01 | N-CCE050K6DBA2X99E/X12;C18 |
| | **G** 245 bar (3,500 psi) | XEB19421-204N01 | N-CCE050K6DBA2X99G/X12;C18 |
| | **K** 350 bar (5,000 psi) | XEB19421-205N01 | N-CCE050K6DBA2X99K/X12;C18 |
| | **L** 420 bar (6,000 psi) | XEB19421-206N01 | N-CCE050K6DBA2X99L/X12;C18 |
| **63** | **B** 70 bar (1,000 psi) | XEB19406-202N01 | N-CCE063K6DBA2X99B/X20;C25 |
| | **E** 175 bar (2,500 psi) | XEB19406-203N01 | N-CCE063K6DBA2X99E/X18;C20 |
| | **G** 245 bar (3,500 psi) | XEB19406-204N01 | N-CCE063K6DBA2X99G/X15;C20 |
| | **K** 350 bar (5,000 psi) | XEB19406-205N01 | N-CCE063K6DBA2X99K/X15;C20 |
| | **L** 420 bar (6,000 psi) | XEB19406-206N01 | N-CCE063K6DBA2X99L/X15;C20 |
| **80** | **B** 70 bar (1,000 psi) | XEB19337-202N01 | N-CCE080K6DBA2X99B/X20;C30 |
| | **E** 175 bar (2,500 psi) | XEB19337-203N01 | N-CCE080K6DBA2X99E/X18;C25 |
| | **G** 245 bar (3,500 psi) | XEB19337-204N01 | N-CCE080K6DBA2X99G/X15;C25 |
| | **K** 350 bar (5,000 psi) | XEB19337-205N01 | N-CCE080K6DBA2X99K/X15;C25 |
| | **L** 420 bar (6,000 psi) | XEB19337-206N01 | N-CCE080K6DBA2X99L/X15;C25 |
| **100** | **B** 70 bar (1,000 psi) | XEB19276-202N01 | N-CCE100K6DBA2X99B/X20;C35 |
| | **E** 175 bar (2,500 psi) | XEB19276-203N01 | N-CCE100K6DBA2X99E/X18;C30 |
| | **G** 245 bar (3,500 psi) | XEB19276-204N01 | N-CCE100K6DBA2X99G/X15;C30 |
| | **K** 350 bar (5,000 psi) | XEB19276-205N01 | N-CCE100K6DBA2X99K/X15;C30 |
| | **L** 420 bar (6,000 psi) | XEB19276-206N01 | N-CCE100K6DBA2X99L/X15;C30 |

# DBA COVER

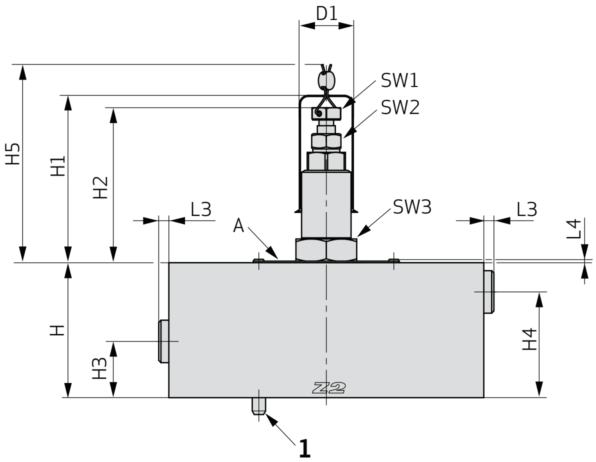
## Cover Details

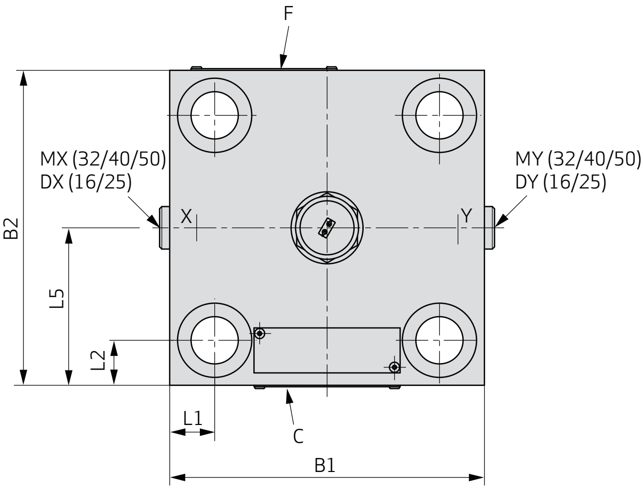
| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| **Orifice details** | See page 69 | | | | | | | |
| **Spare parts** | See page 74 | | | | | | | |
| **Mounting screws** | See table for mounting screws on page 74 | | | | | | | |
| **Plug DX, DY** | G1/8“ | G1/8“ | G1/4“ | G1/4“ | G1/4“ | G1/4“ | G3/8“ | G1/2“ |
| Hex key size [mm] | 5 | 5 | 6 | 6 | 6 | 6 | 8 | 10 |
| Torque [Nm (lbf ft)] | 14 (10) | 14 (10) | 30 (22) | 30 (22) | 30 (22) | 30 (22) | 60 (44) | 80 (59) |
| **Pressure valve SW3** | | | | | | | | |
| Hex key size [mm] | 27 | 27 | 27 | 27 | 27 | 30 | 30 | 30 |
| Torque [Nm (lbf ft)] | 80 (59) | 80 (59) | 80 (59) | 80 (59) | 80 (59) | 45 (33) | 45 (33) | 45 (33) |
| **Pressure valve SW4** | | | | | | | | |
| Hex key size [mm] | - | - | - | - | - | 2.5 | 2.5 | 2.5 |
| Torque [Nm (lbf ft)] | - | - | - | - | - | 5 (4) | 5 (4) | 5 (4) |
| **Adjustment SW1 + SW2** | | | | | | | | |
| Hex key size [mm] | 13 | 13 | 13 | 13 | 13 | 19 | 19 | 19 |
| Torque [Nm (lbf ft)] | 10 (7) | 10 (7) | 10 (7) | 10 (7) | 10 (7) | 10 (7) | 10 (7) | 10 (7) |
| **Weight [kg (lb)]** | 1.65 (3.53) | 2.13 (4.70) | 3.31 (7.30) | 6.46 (14.24) | 8.33 (18.36) | 17.2 (37.92) | 26.8 (59.08) | 42.7 (94.14) |

# DBA COVER
# Sizes 16 to 50

### Cover Dimensions

### Sizes 16 to 50



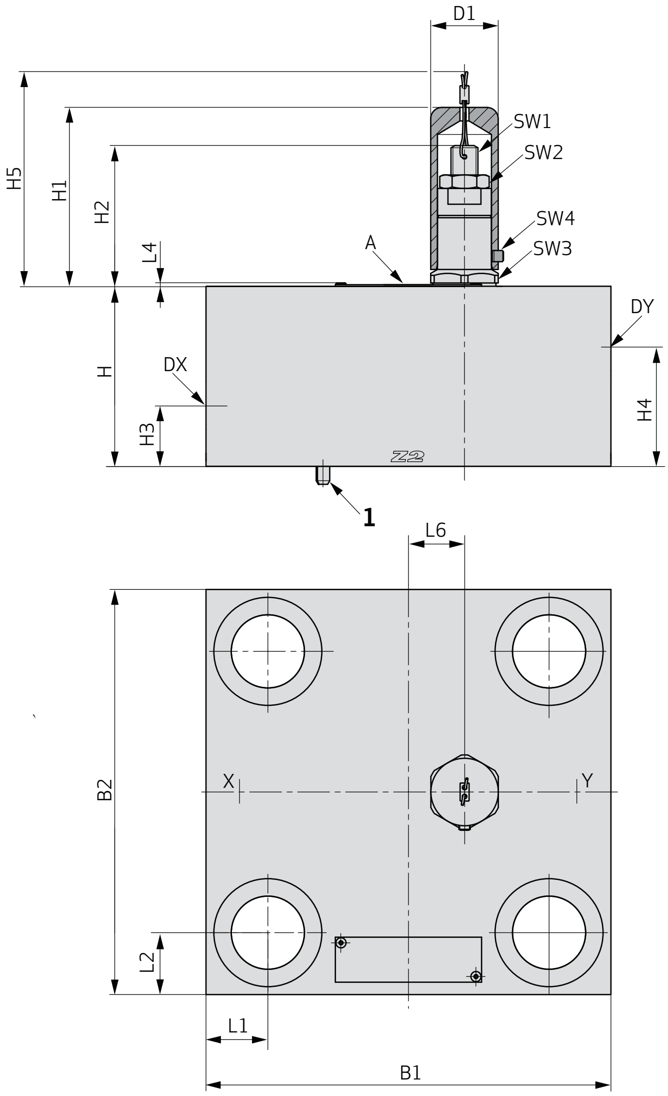

1 Locating pin

| Size | 16 | 25 | 32 | 40 | 50 |
|---|---|---|---|---|---|
| **B1 [mm (in)]** | 80 (3.15) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) |
| **B2 [mm (in)]** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) |
| **H [mm (in)]** | 40 (1.57) | 40 (1.57) | 45 (1.77) | 60 (2.36) | 60 (2.36 |
| **H1 [mm (in)]** | 75 (2.95) | 75 (2.95) | 75 (2.95) | 74 (2.91) | 74 (2.91) |
| **H2 [mm (in)]** | 69 (2.72) | 69 (2.72) | 69 (2.72) | 68 (2.68) | 68 (2.68) |
| **H3 [mm (in)]** | 12 (0.47) | 12 (0.47) | 16 (0.63) | 25 (0.98) | 25 (0.98) |
| **H4 [mm (in)]** | 27.5 (1.08) | 27 (1.06) | 32.5 (1.28) | 47 (1.85) | 47 (1.85) |
| **H5 [mm (in)]** | 88 (3.46) | 88 (3.46) | 88 (3.46) | 87 (3.43) | 87 (3.43) |
| **L1 [mm (in)]** | 17 (0.67) | 13.5 (0.53) | 16 (0.63) | 20 (0.79) | 20 (0.79) |
| **L2 [mm (in)]** | 9.5 (0.37) | 13.5 (0.53) | 16 (0.63) | 20 (0.79) | 20 (0.79) |
| **L3 [mm (in)]** | - | 3.5 (0.14) | 4.5 (0.20) | 4.5 (0.20) | 4.5 (0.20) |
| **L4 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) |
| **L5 [mm (in)]** | 32.5 (1.28) | 42.5 (1.67) | 51 (2.01) | 62.5 (2.46) | 70 (2.76) |
| **D1 [mm (in)]** | 24 (0.94) | 24 (0.94) | 24 (0.94) | 24 (0.94) | 24 (0.94) |
| **Nameplate position** | C | C | F | C | A |
| **ISO 7368 mounting pattern** | 06-1-1-16 | 08-3-1-16 | 09-5-1-16 | 10-7-1-16 | 11-9-1-16 |

# DBA COVER

## Sizes 63

### Cover Dimensions

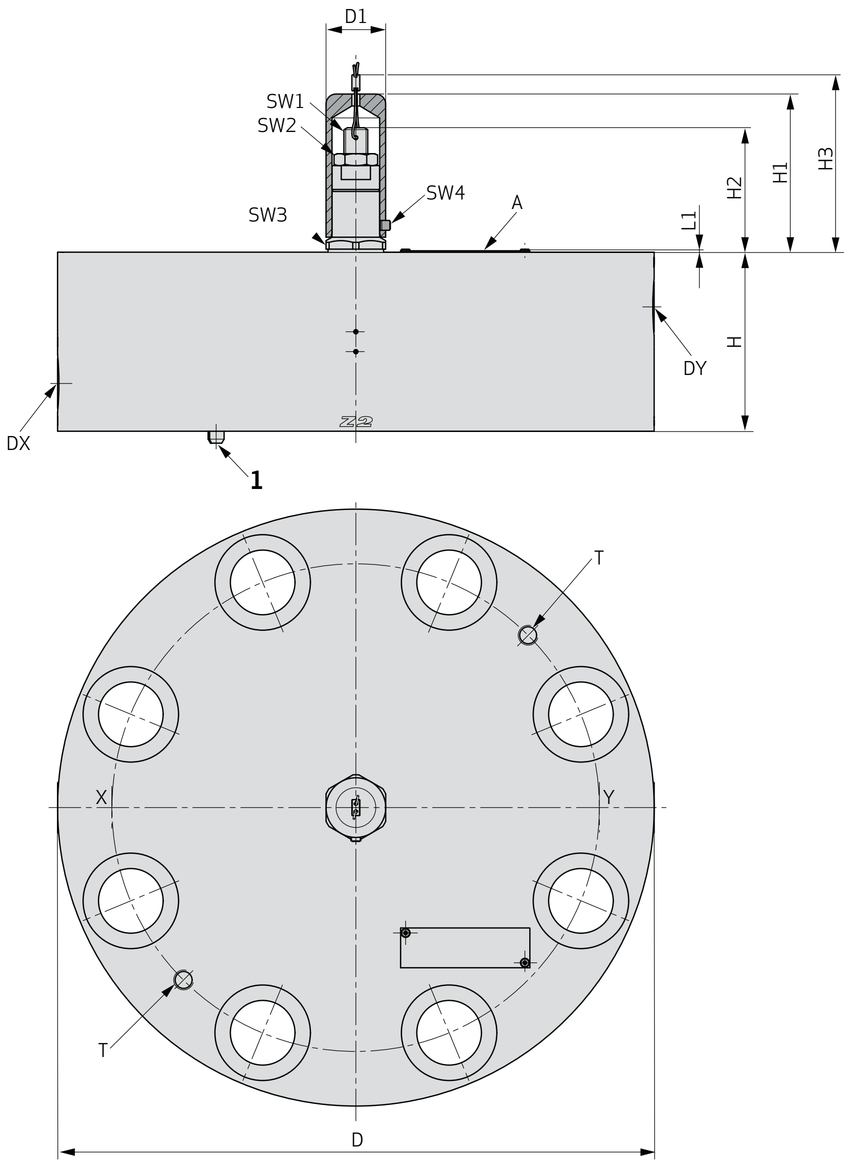



1 Locating pin

| Size | 63 |
|---|---|
| B1 [mm (in)] | 180 (7.09) |
| B2 [mm (in)] | 180 (7.09) |
| H [mm (in)] | 80 (3.15) |
| H1 [mm (in)] | 80 (3.15) |
| H2 [mm (in)] | 63 (2.48) |
| H3 [mm (in)] | 27 (1.06) |
| H4 [mm (in)] | 53 (2.09) |
| H5 [mm (in)] | 95 (3.74) |
| L1 [mm (in)] | 27.5 (1.08) |
| L2 [mm (in)] | 27.5 (1.08) |
| L3 [mm (in)] | - |
| L4 [mm (in)] | 1.5 (0.06) |
| L5 [mm (in)] | 90 (3.54) |
| D1 [mm (in)] | 30 (1.18) |
| Nameplate position | A |
| ISO 7368 mounting pattern | 12-11-1-16 |

# DBA COVER
## Sizes 80 to 100

### Cover Dimensions




1 Locating pin

| **Size** | **80** | **100** |
|---|---|---|
| **D [mm (in)]** | 250 (9.84) | 300 (11.81) |
| **H [mm (in)]** | 80 (3.15) | 90 (3.54) |
| **H1 [mm (in)]** | 79.5 (3.13) | 80 (3.15) |
| **H2 [mm (in)]** | 62.5 (2.46) | 63 (2.48) |
| **H3 [mm (in)]** | 95 (3.74) | 95 (3.74) |
| **L1 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) |
| **D1 [mm (in)]** | 30 (1.18) | 30 (1.18) |
| **Nameplate position** | A | A |
| **ISO 7368 mounting pattern** | 13-13-1-16 | 14-14-1-16 |
| **T - (eye-bolt thread)** | M10 | M10 |

# DBD COVER

## Functional Description

A DBD cover is a versatile cover with an integrated pressure relief valve that is used primarily for more complex pressure functions requiring multiple pilot valves.

## Pressure Relief with Unloading Function

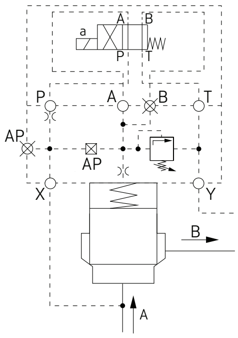
When using a DBD cover in combination with a pressure cartridge[1)], and a directional pilot valve[2)]; a pressure relief function or an unloading function can be achieved depending upon the state of the solenoid.

When the solenoid is de-energized, a pressure relief function is created as the pressure from the X port of the DBD cover holds the cartridge closed with a pressure determined by the relief valve.

When the solenoid is energized, the relief valve is bypassed and the pressure in the system is unloaded as the pilot volume of the cartridge is drained to tank and the cartridge opens.

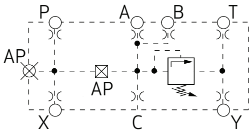
1) An AO or EX poppet.
2) Control valve: An ISO 4401 size 03 directional control valve for cover sizes up to 50 or an ISO 4401 size 05 directional control valve for cover sizes 63 to 100.

**Pressure Relief Valve with Unloading Function**

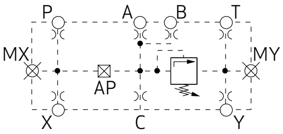



## Hydraulic Symbol

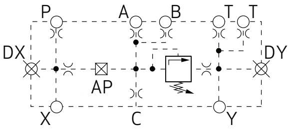
**Sizes 16 to 25**




**Sizes 32 to 50**




**Sizes 63 to 100**



# DBD COVER

## Orifice Configuration

For assistance with orifice configuration please contact us or consult the „Pilot-operated Pressure Relief Valves“ catalog.

## Preferred Type (NBR, Adjustment 2, AO poppet)

| DBD Cover | Pressure range | Ordering code with standard orifice | Orifice code |
|---|---|---|---|
| 16 | **B** 70 bar (1,000 psi) | XEB19417-202N01 | N-CCE016K6DBD2X06B/P15;B00;C12;AP00 |
| | **E** 175 bar (2,500 psi) | XEB19417-203N01 | N-CCE016K6DBD2X06E/P12;B00;C10;AP00 |
| | **G** 245 bar (3,500 psi) | XEB19417-204N01 | N-CCE016K6DBD2X06G/P12;B00;C10;AP00 |
| | **K** 350 bar (5,000 psi) | XEB19417-205N01 | N-CCE016K6DBD2X06K/P12;B00;C10;AP00 |
| | **L** 420 bar (6,000 psi) | XEB19417-206N01 | N-CCE016K6DBD2X06L/P10;B00;C08;AP00 |
| 25 | **B** 70 bar (1,000 psi) | XEB19416-202N01 | N-CCE025K6DBD2X06B/P15;B00;C15;AP00 |
| | **E** 175 bar (2,500 psi) | XEB19416-203N01 | N-CCE025K6DBD2X06E/P12;B00;C12;AP00 |
| | **G** 245 bar (3,500 psi) | XEB19416-204N01 | N-CCE025K6DBD2X06G/P12;B00;C12;AP00 |
| | **K** 350 bar (5,000 psi) | XEB19416-205N01 | N-CCE025K6DBD2X06K/P12;B00;C12;AP00 |
| | **L** 420 bar (6,000 psi) | XEB19416-206N01 | N-CCE025K6DBD2X06L/P10;B00;C10;AP00 |
| 32 | **B** 70 bar (1,000 psi) | XEB19415-202N01 | N-CCE032K6DBD2X06B/P15;B00;C18;AP00 |
| | **E** 175 bar (2,500 psi) | XEB19415-203N01 | N-CCE032K6DBD2X06E/P12;B00;C15;AP00 |
| | **G** 245 bar (3,500 psi) | XEB19415-204N01 | N-CCE032K6DBD2X06G/P12;B00;C15;AP00 |
| | **K** 350 bar (5,000 psi) | XEB19415-205N01 | N-CCE032K6DBD2X06K/P12;B00;C15;AP00 |
| | **L** 420 bar (6,000 psi) | XEB19415-206N01 | N-CCE032K6DBD2X06L/P10;B00;C12;AP00 |
| 40 | **B** 70 bar (1,000 psi) | XEB19414-202N01 | N-CCE040K6DBD2X06B/P15;B00;C18;AP00 |
| | **E** 175 bar (2,500 psi) | XEB19414-203N01 | N-CCE040K6DBD2X06E/P12;B00;C15;AP00 |
| | **G** 245 bar (3,500 psi) | XEB19414-204N01 | N-CCE040K6DBD2X06G/P12;B00;C15;AP00 |
| | **K** 350 bar (5,000 psi) | XEB19414-205N01 | N-CCE040K6DBD2X06K/P12;B00;C15;AP00 |
| | **L** 420 bar (6,000 psi) | XEB19414-206N01 | N-CCE040K6DBD2X06L/P12;B00;C15;AP00 |
| 50 | **B** 70 bar (1,000 psi) | XEB19392-202N01 | N-CCE050K6DBD2X06B/P15;B00;C18;AP00 |
| | **E** 175 bar (2,500 psi) | XEB19392-203N01 | N-CCE050K6DBD2X06E/P12;B00;C18;AP00 |
| | **G** 245 bar (3,500 psi) | XEB19392-204N01 | N-CCE050K6DBD2X06G/P12;B00;C18;AP00 |
| | **K** 350 bar (5,000 psi) | XEB19392-205N01 | N-CCE050K6DBD2X06K/P12;B00;C18;AP00 |
| | **L** 420 bar (6,000 psi) | XEB19392-206N01 | N-CCE050K6DBD2X06L/P12;B00;C18;AP00 |
| 63 | **B** 70 bar (1,000 psi) | upon request | – |
| | **E** 175 bar (2,500 psi) | upon request | – |
| | **G** 245 bar (3,500 psi) | upon request | – |
| | **K** 350 bar (5,000 psi) | upon request | – |
| | **L** 420 bar (6,000 psi) | upon request | – |
| 80 | **B** 70 bar (1,000 psi) | upon request | – |
| | **E** 175 bar (2,500 psi) | upon request | – |
| | **G** 245 bar (3,500 psi) | upon request | – |
| | **K** 350 bar (5,000 psi) | upon request | – |
| | **L** 420 bar (6,000 psi) | upon request | – |
| 100 | **B** 70 bar (1,000 psi) | upon request | – |
| | **E** 175 bar (2,500 psi) | upon request | – |
| | **G** 245 bar (3,500 psi) | upon request | – |
| | **K** 350 bar (5,000 psi) | upon request | – |
| | **L** 420 bar (6,000 psi) | upon request | – |

# DBD COVER

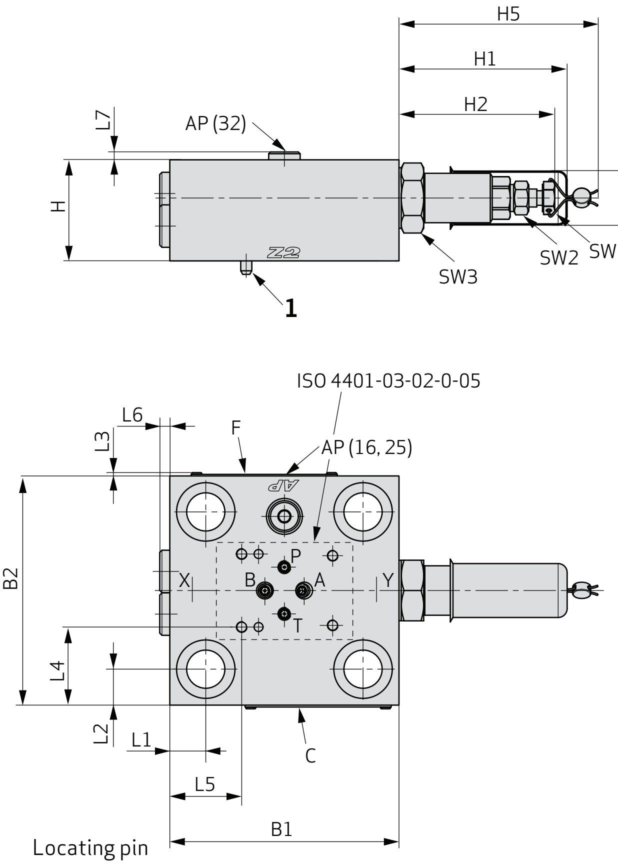
### Cover Details

| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| **Orifice details** | See page 69 | | | | | | | |
| **Spare parts** | See page 74 | | | | | | | |
| **Mounting screws** | See table for mounting screws on page 74 | | | | | | | |
| **Plug AP** | G1/8“ | G1/8“ | G1/8“ | G1/8“ | G1/4“ | G1/4“ | G3/8“ | G1/2“ |
| Hex key size [mm] | 5 | 5 | 5 | 5 | 6 | 6 | 8 | 10 |
| Torque [Nm (lbf ft)] | 14 (10) | 14 (10) | 14 (10) | 14 (10) | 30 (22) | 30 (22) | 60 (44) | 80 (59) |
| **Pressure valve SW3** | | | | | | | | |
| Hex key size [mm] | 27 | 27 | 27 | 27 | 27 | 30 | 30 | 30 |
| Torque [Nm (lbf ft)] | 80 (59) | 80 (59) | 80 (59) | 80 (59) | 80 (59) | 45 (33) | 45 (33) | 45 (33) |
| **Adjustment SW1 + SW2** | | | | | | | | |
| Hex key size [mm] | 13 | 13 | 13 | 13 | 13 | 19 | 19 | 19 |
| Torque [Nm (lbf ft)] | 10 (7) | 10 (7) | 10 (7) | 10 (7) | 10 (7) | 10 (7) | 10 (7) | 10 (7) |
| **Pressure valve SW4** | | | | | | | | |
| Hex key size [mm] | – | – | – | – | – | 2.5 | 2.5 | 2.5 |
| Torque [Nm (lbf ft)] | – | – | – | – | – | 5 (4) | 5 (4) | 5 (4) |
| **Plug MX, MY** | – | – | G1/4“ | G1/4" | G1/4“ | G1/4“ | G3/8“ | G1/2“ |
| Hex key size [mm] | – | – | 6 | 6 | 6 | 6 | 8 | 10 |
| Torque [Nm (lbf ft)] | – | – | 30 (22) | 30 (22) | 30 (22) | 30 (22) | 60 (44) | 80 (59) |
| **Weight [kg (lb)]** | 1.61 (3.55) | 2.09 (4.61) | 3.26 (7.19) | 6.11 (13.47) | 8.19 (18.06) | 17.0 (37.48) | 26.4 (58.20) | 42.0 (92.59) |

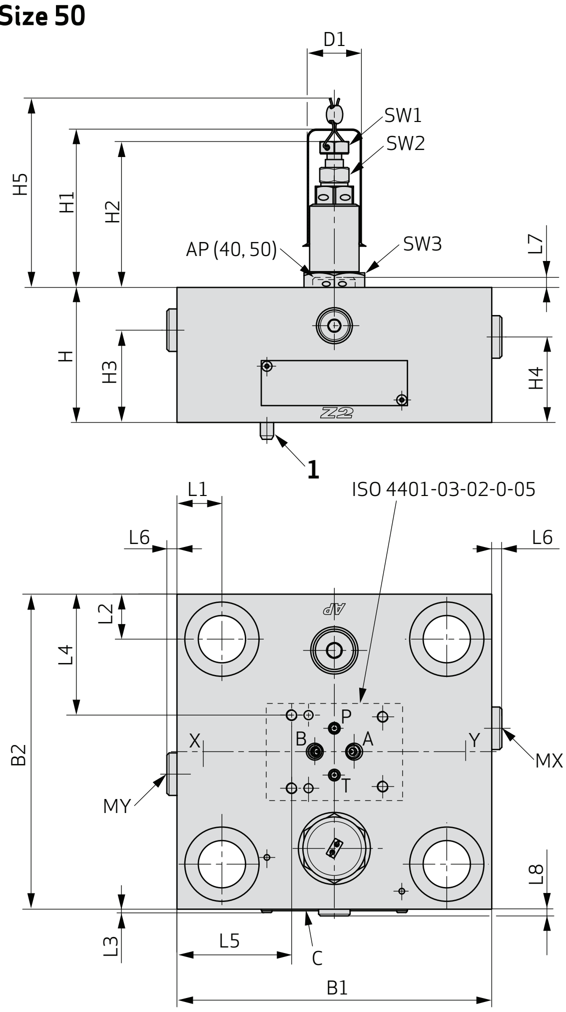
# DBD COVER
## Sizes 16 to 50

### Cover Dimensions

**Sizes 16 to 40**




**Size 50**



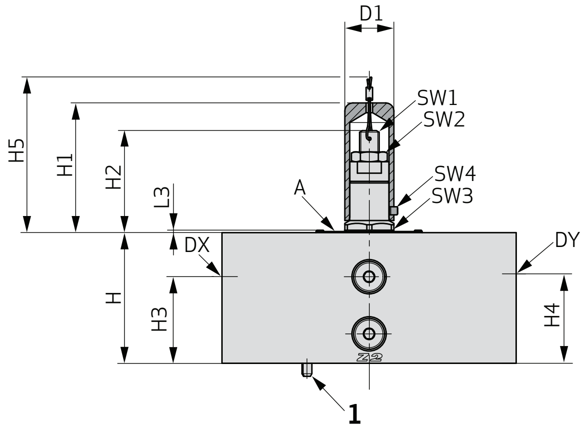

1 Locating pin

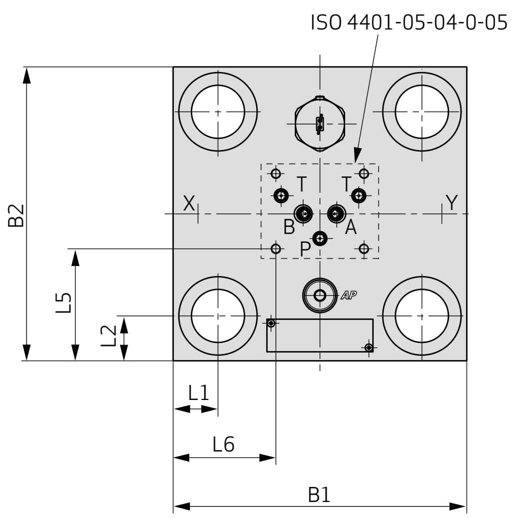
| Size | 16 | 25 | 32 | 40 | 50 |
|---|---|---|---|---|---|
| **B1 [mm (in)]** | 80 (3.15) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) |
| **B2 [mm (in)]** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) |
| **H [mm (in)]** | 40 (1.57) | 40 (1.57) | 45 (1.77) | 60 (2.36) | 60 (2.36) |
| **H1 [mm (in)]** | 72 (2.84) | 75 (2.95) | 75 (2.95) | 75 (2.95) | 70 (2.76) |
| **H2 [mm (in)]** | 66 (2.60) | 69 (2.72) | 69 (2.72) | 69 (2.72) | 64 (2.52) |
| **H3 [mm (in)]** | - | - | 15.5 (2.72) | 33 (1.30) | 41 (1.61) |
| **H4 [mm (in)]** | - | - | 30 (1.18) | 39 (1.54) | 38 (1.50) |
| **H5 [mm (in)]** | 85 (3.35) | 88 (3.64) | 88 (3.64) | 88 (3.64) | 83 (3.27) |
| **L1 [mm (in)]** | 17 (0.67) | 13.5 (0.53) | 16 (0.63) | 20 (0.79) | 20 (0.79) |
| **L2 [mm (in)]** | 9.5 (0.37) | 13.5 (0.53) | 16 (0.63) | 20 (0.79) | 20 (0.79) |
| **L3 [mm (in)]** | 1.5 (0.06) | 1.5 (0.06) | 1.5 (0.06) | 3 (0.12) | 3 (0.12) |
| **L4 [mm (in)]** | 16.2 (0.64) | 26.25 (1.03) | 34.8 (1.37) | 46.25 (1.82) | 53.75 (2.12) |
| **L5 [mm (in)]** | 7 (0.28) | 23.5 (0.93) | 32 (0.00) | 43.5 (1.71) | 51 (2.01) |
| **L6 [mm (in)]** | - | - | 4.5 (0.18) | 4.5 (0.18) | 4.5 (0.18) |
| **L7 [mm (in)]** | - | - | 3.5 (0.14) | - | 4.5 (0.18) |
| **D1 [mm (in)]** | 24 (0.94) | 24 (0.94) | 24 (0.94) | 24 (0.94) | 24 (0.94) |
| **Nameplate** | C | C | F | C | C |
| **ISO 7368 mounting pattern** | 06-1-1-16 | 08-3-1-16 | 09-5-1-16 | 10-7-1-16 | 11-9-1-16 |

# DBD COVER
# Sizes 63

## Cover Dimensions

### Sizes 63



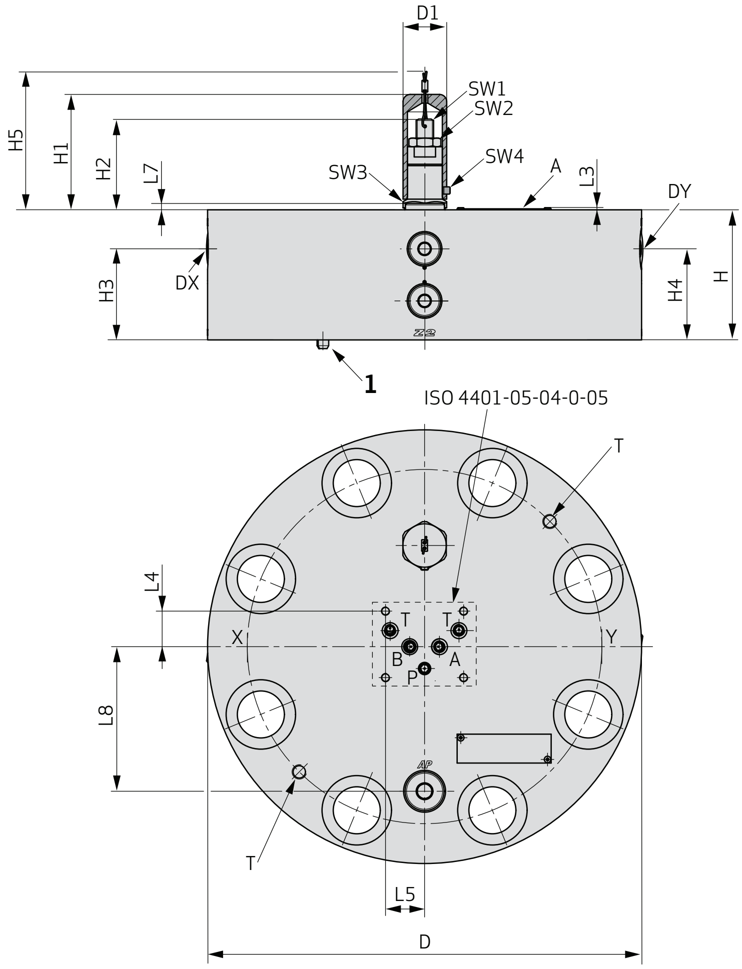

1 Locating pin

| **Size** | **63** |
|---|---|
| **B1 [mm (in)]** | 180 (7.09) |
| **B2 [mm (in)]** | 180 (7.09) |
| **H [mm (in)]** | 80 (3.15) |
| **H1 [mm (in)]** | 79.5 (3.13) |
| **H2 [mm (in)]** | 63 (2.48) |
| **H3 [mm (in)]** | 55 (2.17) |
| **H4 [mm (in)]** | 53 (2.09) |
| **H5 [mm (in)]** | 95 (3.74) |
| **L1 [mm (in)]** | 27.5 (1.08) |
| **L2 [mm (in)]** | 27.5 (1.08) |
| **L3 [mm (in)]** | 1.5 (0.06) |
| **L4 [mm (in)]** | 68.6 (2.70) |
| **L5 [mm (in)]** | 63 (2.48) |
| **L6 [mm (in)]** | - |
| **L7 [mm (in)]** | 4.5 (0.18) |
| **D1 [mm (in)]** | 30 (1.18) |
| **Nameplate** | A |
| **ISO 7368 mounting pattern** | 12-11-1-16 |

# DBD COVER
# Sizes 80 to 100

### Cover Dimensions

### Sizes 80 to 100




1 Locating pin

| Size | 80 | 100 |
|---|---|---|
| D1 [mm (in)] | 250 (9.84) | 300 (11.81) |
| H [mm (in)] | 80 (3.15) | 90 (3.54) |
| H1 [mm (in)] | 80 (3.15) | 80 (3.15) |
| H2 [mm (in)] | 63 (2.48) | 63 (2.48) |
| H3 [mm (in)] | 54 (2.13) | 63 (2.48) |
| H4 [mm (in)] | 54 (2.13) | 63 (2.48) |
| H5 [mm (in)] | 95 (3.74) | 95 (3.74) |
| L3 [mm (in)] | 1.5 (0.06) | 1.5 (0.06) |
| L4 [mm (in)] | 24.6 (0.97) | 24.6 (0.97) |
| L5 [mm (in)] | 27 (1.07) | 27 (1.07) |
| L7 [mm (in)] | 4.5 (0.18) | 4.5 (0.18) |
| L8 [mm (in)] | 85 (3.34) | 100 (3.94) |
| D1 [mm (in)] | 30 (1.18) | 30 (1.18) |
| ISO 7368 mounting pattern | 13-13-1-16 | 14-14-1-16 |
| T - (eye-bolt thread) | M10 | M10 |

# SELECTION OF ORIFICE SIZE

This calculation is used to select the orifice size which influences the opening and closing times. It may be necessary to optimize the settings on the machine. Using the diagram below, the cartridge opening and closing times may be calculated for various orifice sizes.

## Equation:

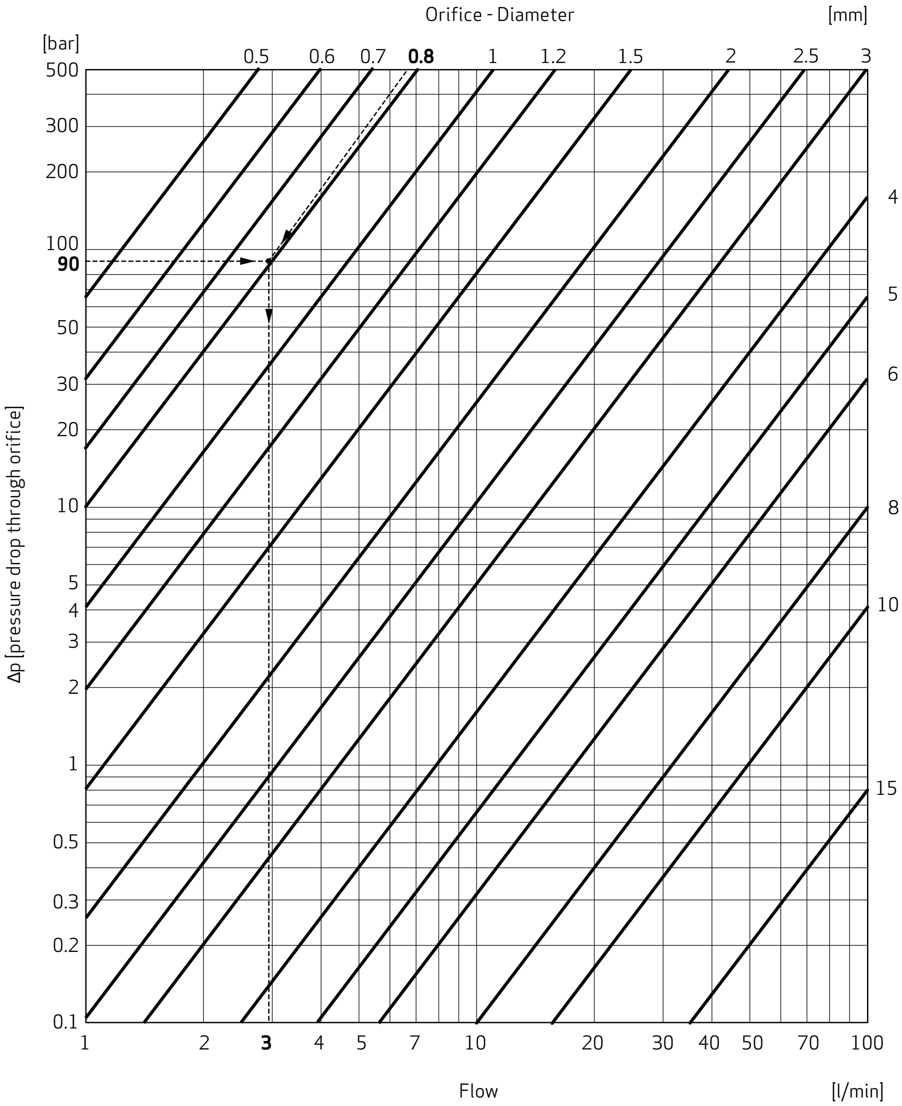
$$\text{Opening and closing time [ms]} = \frac{\text{Pilot oil volume cartridge [cm}^3\text{] x 60}}{\text{Orifice flow (diagram) [l/min]}}$$

The pilot oil volume can be read from the applicable cartridge catalog.

## Example:

To determine the closing time of a size 25 cartridge with a B poppet, it is necessary to know the orifice size and the Δp across the orifice. Using the equation shown an orifice of 0.8mm in diameter and a Δp of 90 bar across the orifice will result in a closing time of 184 ms.

$$\text{Opening and closing time [ms]} = \frac{\text{9.2 [cm}^3\text{] x 60}}{\text{3 [l/min]}} = \text{184 ms}$$



# ORIFICE OPTIONS

## Orifice Installation Options in the Cover

| Type | Orifices in ports | | | | | | | | | | Orifices can be replaced from the outside |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **P** | **A** | **B** | **T** | **X** | **Y** | **Z1** | **Z2** | **C** | **AP** | |
| **1D** | | | | | X | | | | | | All nominal sizes |
| **1H** | | | | | X | | | | | | From Sizes 25 to 100 |
| **RM** | X | X | X | X | | | | | | | - |
| **DRE** | X | X | X | X | | | | X | X | | From Sizes 63 to 100 → Z2 |
| **1W** | X | X | X | X | | | | X | X | | From Sizes 63 to 100 → Z2 |
| **1WDB** | X | X | X | X | X | | | X | X | X | From Sizes 16 to 50 → AP<br>From Sizes 63 to 100 → X, Z2, AP |
| **2D** | | | | | X | X | | | X | | From Sizes 63 to 100 → X, Y |
| **2W** | X | X | X | X | | | X | X | X | | From Sizes 63 to 100 → Z1, Z2 |
| **2WR** | X | X | X | X | X | | | | X | | From Sizes 63 to 100 → X |
| **4W** | X | X | X | X | | | | X | X | | From Sizes 63 to 100 → Z2 |
| **RV** | | | | | X | X | | X | X | | From Sizes 63 to 100 → X, Y, Z2 |
| **DBA** | | | | | X | X | | | X | | From Sizes 16 to 25 → X, Y<br>From Sizes 63 to 100 → X, Y |
| **DBD** | X | X | X | X | X | X | | | X | X | From Sizes 16 to 50 → AP<br>From Sizes 63 to 100 → X, Y, AP |

Note: Orifice installation options in the cover are identified on the cover, e.g., “DX, DY, DZ1, DZ2”
DX means that an orifice can be installed in port X.
Identifiers starting with “M...” mark the test port for the port concerned.

## Orifice Thread Sizes

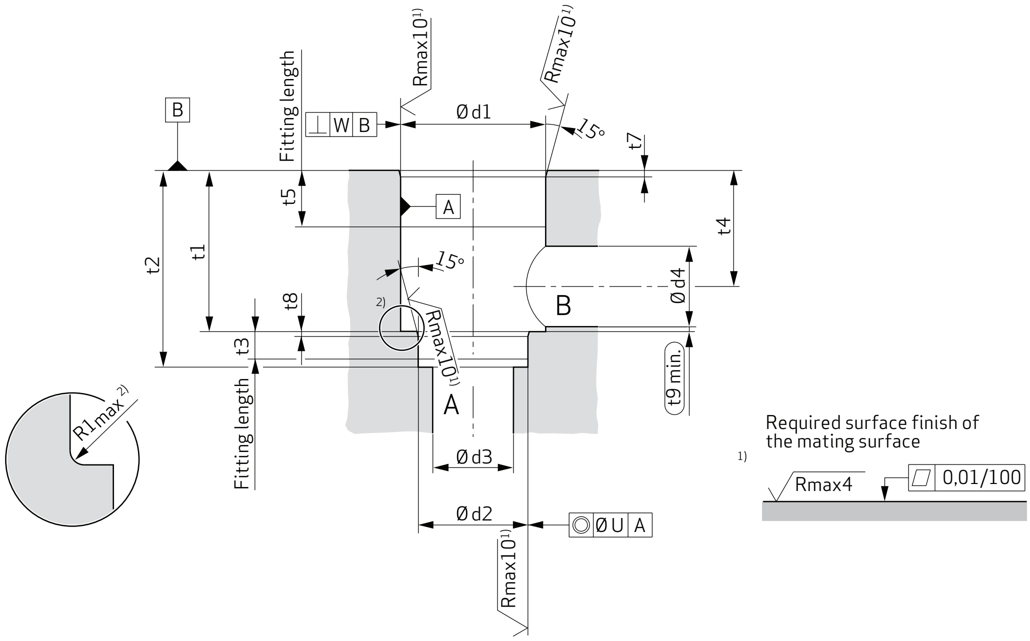
| Port | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 160 |
|---|---|---|---|---|---|---|---|---|---|---|
| **P, A, B, T** | M6 | M6 | M6 | M6 | M6 | M10 | M10 | M10 | – | – |
| **X, C, Z1, Z2, Y** | M5 | M6 | M6 | M8 | M8 | M10 | M14 | M16 | M30 | G1" |
| **AP** | M5 | M6 | M6 | M8 | M8 | M10 | M14 | M16 | – | – |

# INSTALLATION DIMENSIONS

## In Accordance with ISO 7368

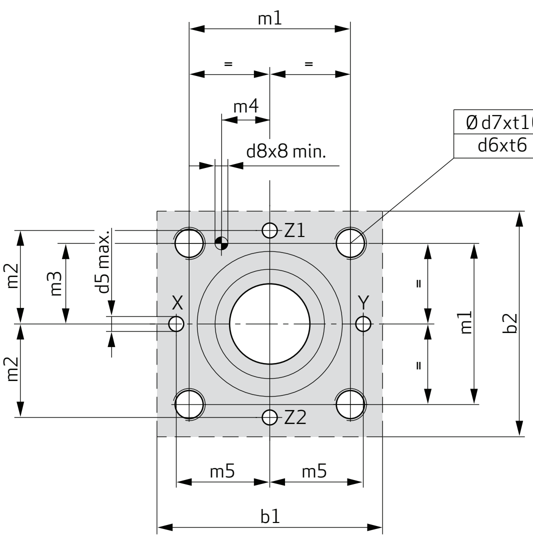
### Cartridge Cavity

Sizes 16 to 100

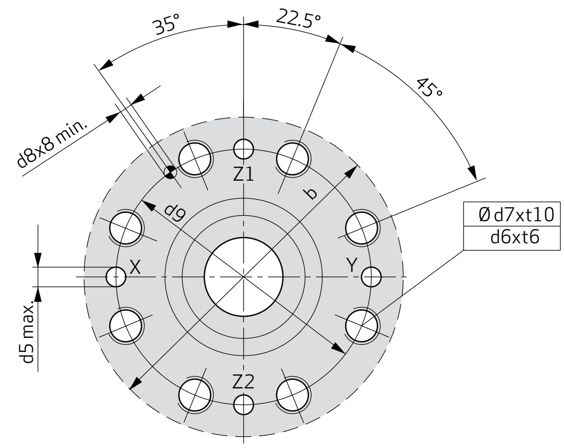



### Bolt and Port Pattern

Sizes 16 to 63




Sizes 80 to 100

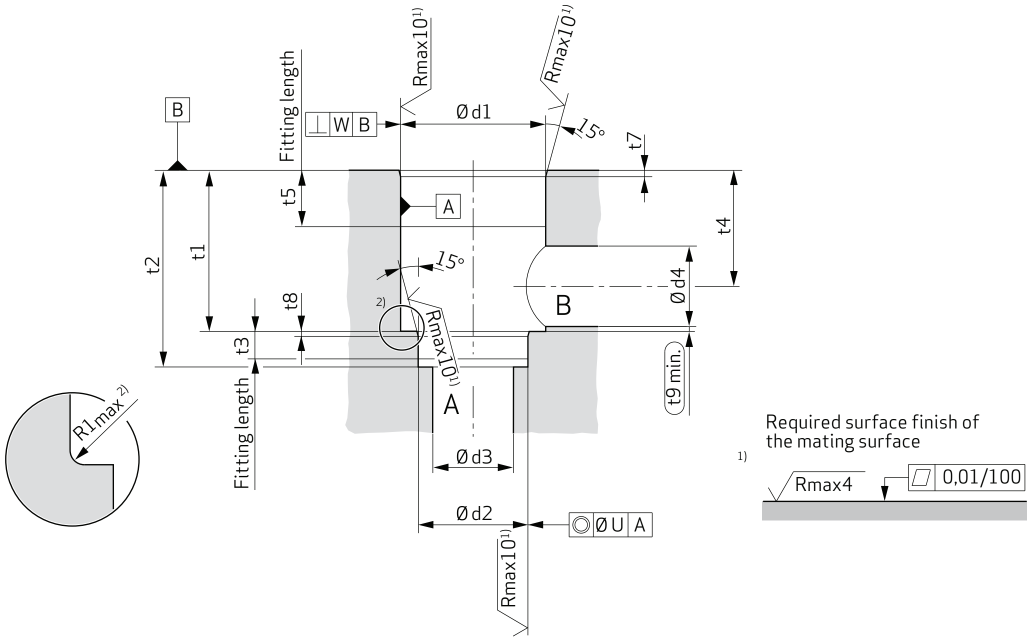



1) Recommendation deviates from the standard
2) For operating pressure greater than 350 bar (5,000 psi) we recommend a flanging radius of R 2 mm for Sizes 16 to 32 and R 4 mm for Sizes 40 to 100 deviating from ISO 7368

# INSTALLATION DIMENSIONS
## In Accordance with ISO 7368

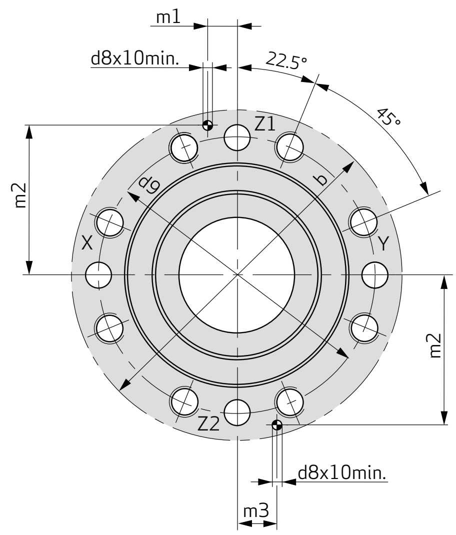
### Cartridge Cavity

Sizes 125 to 160

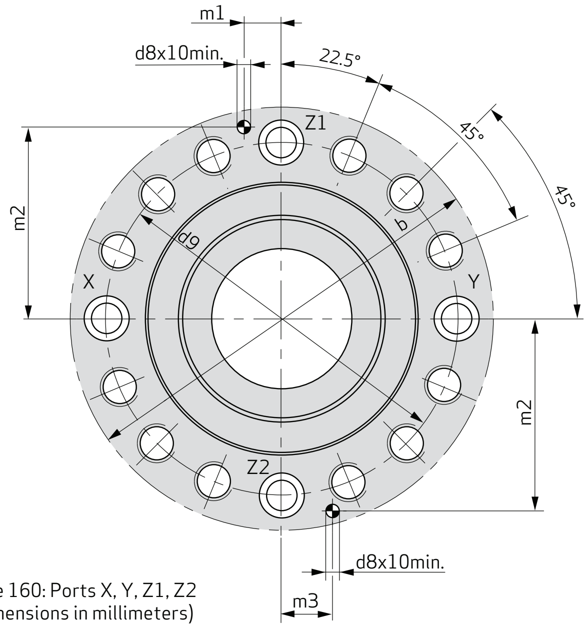



### Bolt and Port Pattern

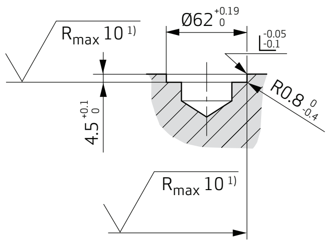
Size 125




Size 160




Size 160: Ports X, Y, Z1, Z2
(dimensions in millimeters)




1) Recommendation deviates from the standard
2) For operating pressure greater than 350 bar (5,000 psi) we recommend a flanging radius of R 4 mm for size 125 and R 6.3 mm for size 160 deviating from ISO 7368

# INSTALLATION DIMENSIONS

## In Accordance with ISO 7368

| Size | 16 | 25 | 32 | 40 | 50 | 63 |
|---|---|---|---|---|---|---|
| **b1** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 200 (7.87) |
| **b2** | 65 (2.56) | 85 (3.35) | 102 (4.02) | 125 (4.92) | 140 (5.51) | 180 (7.09) |
| **$d1^{H7}$** | 32 (1.26) | 45 (1.77) | 60 (2.36) | 75 (2.95) | 90 (3.54) | 120 (4.72) |
| **$d2^{H7}$** | 25 (0.98) | 34 (1.34) | 45 (1.77) | 55 (2.17) | 68 (2.68) | 90 (3.54) |
| **d3** | 16 (0.63) | 25 (0.98) | 32 (1.26) | 40 (1.57) | 50 (1.97) | 63 (2.48) |
| **d4** | 16 (0.63) | 25 (0.98) | 32 (1.26) | 40 (1.57) | 50 (1.97) | 63 (2.48) |
| **$d4_{max.}$** 1) | 25 (0.98) | 32 (1.26) | 40 (1.57) | 50 (1.97) | 63 (2.48) | 80 (3.15) |
| **$d5_{max.}$** | 4 (0.16) | 6 (0.24) | 8 (0.31) | 10 (0.39) | 10 (0.39) | 12 (0.47) |
| **d6** | M8 | M12 | M16 | M20 | M20 | M30 |
| **d7** | 6.8 (0.27) | 10.2 (0.4) | 14 (0.55) | 17.5 (0.69) | 17.5 (0.69) | 26.5 (1.04) |
| **$d8^{H13}$** | 4 (0.16) | 6 (0.24) | 6 (0.24) | 6 (0.24) | 8 (0.31) | 8 (0.31) |
| **$m1^{\pm0.2\ (\pm0.01)}$** | 46 (1.81) | 58 (2.28) | 70 (2.76) | 85 (3.35) | 100 (3.94) | 125 (4.92) |
| **$m2^{\pm0.2\ (\pm0.01)}$** | 25 (0.98) | 33 (1.3) | 41 (1.61) | 50 (1.97) | 58 (2.28) | 75 (2.95) |
| **$m3^{\pm0.2\ (\pm0.01)}$** | 23 (0.91) | 29 (1.14) | 35 (1.38) | 42.5 (1.67) | 50 (1.97) | 62.5 (2.46) |
| **$m4^{\pm0.2\ (\pm0.01)}$** | 10.5 (0.41) | 16 (0.63) | 17 (0.67) | 23 (0.91) | 30 (1.18) | 38 (1.5) |
| **$m5^{\pm0.2\ (\pm0.01)}$** | 25 (0.98) | 33 (1.3) | 41 (1.61) | 50 (1.97) | 58 (2.28) | 75 (2.95) |
| **t1** | 43±0.2 (1.69±0.01) | 58±0.2 (2.28±0.01) | 70±0.2 (2.76±0.01) | 87±0.3 (3.43±0.012) | 100±0.3 (3.94±0.012) | 130±0.3 (5.12±0.012) |
| **$t2^{\pm0.2\ (\pm0.01)}$** | 56 (2.2) | 72 (2.83) | 85 (3.35) | 105 (4.13) | 122 (4.8) | 155 (6.1) |
| **t3** | 11 (0.43) | 12 (0.47) | 13 (0.51) | 15 (0.59) | 17 (0.67) | 20 (0.79) |
| **t4** | 34 (1.34) | 44 (1.73) | 52 (2.05) | 64 (2.52) | 72 (2.83) | 95 (3.74) |
| **t4 for $d4_{max.}$** 1) | 29.5 (1.16) | 40.5 (1.59) | 48 (1.89) | 59 (2.32) | 65.5 (2.58) | 86.5 (3.41) |
| **t5** | 20 (0.79) | 30 (1.18) | 30 (1.18) | 30 (1.18) | 35 (1.38) | 40 (1.57) |
| **t6** | 14 (0.55) | 20 (0.79) | 26 (1.02) | 33 (1.3) | 33 (1.3) | 50 (1.97) |
| **t7** | 2 (0.08) | 2.5 (0.1) | 2.5 (0.1) | 3 (0.12) | 4 (0.16) | 4 (0.16) |
| **t8** | 2 (0.08) | 2.5 (0.1) | 2.5 (0.1) | 3 (0.12) | 3 (0.12) | 4 (0.16) |
| **t9** | 0.5 (0.02) | 1.0 (0.04) | 1.5 (0.06) | 2.5 (0.1) | 2.5 (0.1) | 3 (0.12) |
| **t10** | 17 (0.67) | 24 (0.94) | 31 (1.22) | 38 (1.5) | 38 (1.5) | 56 (2.2) |
| **U** | 0.03 (0.0012) | 0.03 (0.0012) | 0.03 (0.0012) | 0.05 (0.0020) | 0.05 (0.0020) | 0.05 (0.0020) |
| **W** | 0.05 (0.0020) | 0.05 (0.0020) | 0.1 (0.0039) | 0.1 (0.0039) | 0.1 (0.0039) | 0.2 (0.0039) |
| **$R1_{max}$** | 2 (0.08) | 2 (0.08) | 2 (0.08) | 4 (0.16) | 4 (0.16) | 4 (0.16) |

1) Recommendation deviates from the standard

Note: Dimensions in mm (in)

# INSTALLATION DIMENSIONS

## In Accordance with ISO 7368

| Size | 80 | 100 | 125 | 160 |
|---|---|---|---|---|
| $b_{max.}$ | 250 (9.84) | 300 (11.81) | 380 (14.96) | 480 (18.89) |
| $d1^{H7}$ | 145 (5.71) | 180 (7.09) | 225 (8.86) | 300 (11.81) |
| $d2^{H7}$ | 110 (4.33) | 135 (5.31) | 200 (7.87) | 270 (10.63) |
| d3 | 80 (3.15) | 100 (3.94) | 150 (5.91) | 200 (7.87) |
| d4 | 80 (3.15) | 100 (3.94) | 125 (4.92) | 160 (6.30) |
| $d4_{max.}$ 1) | 100 (3.94) | 125 (4.92) | 150 (5.91) | 250 (9.84) |
| $d5_{max.}$ | 16 (0.63) | 20 (0.79) | 32 (1.26) | 40 (1.57) |
| d6 | M24 | M30 | M36 | M42 |
| d7 | 21 (0.83) | 26.5 (1.04) | 32 (1.26) | 37.5 (1.48) |
| $d8^{H13}$ | 10 (0.39) | 10 (0.39) | 10 (0.39) | 10 (0.39) |
| $d9^{\pm0.3\ (\pm0.01)}$ | 200 (7.87) | 245 (9.65) | 300 (11.81) | 400 (15.75) |
| m1 | – | – | 30±0.2 (1.18±0.01) | 30±0.2 (1.18±0.01) |
| m2 | – | – | 165±0.2 (6.50±0.01) | 215±0.2 (8.46±0.01) |
| m3 | – | – | 45±0.2 (1.77±0.01) | 60±0.2 (2.36±0.01) |
| t1 | 175±0.4 6.89±0.016) | 210±0.4 (8.27±0.016) | 257±0.5 (10.12±0.02) | 370±0.5 (14.57±0.02) |
| t2 | 205+0.1 (8.07+0.004) | 245+0.1 (9.65+0.004) | 300+0.15 (11.81+0.006) | 425+0.15 (16.73+0.006) |
| t3 | 25 (0.98) | 29 (1.14) | 31 (1.22) | 45 (1.77) |
| t4 | 130 (5.12) | 155 (6.1) | 192 (7.56) | 268 (10.55) |
| t4 for $d4_{max.}$ 1) | 120 (4.72) | 142.5 (5.61) | 180 (7.09) | 243 (9.57) |
| t5 | 40 (1.57) | 50 (1.97) | 50 (1.97) | 50 (1.97) |
| t6 | 39 (1.54) | 50 (1.97) | 83 (3.27) | 85 (3.35) |
| t7 | 5 (0.2) | 5 (0.2) | 5.5 (0.22) | 5.5 (0.22) |
| t8 | 5 (0.2) | 5 (0.2) | 7 (0.28) | 8 (0.31) |
| t9 | 3 (0.12) | 5 (0.2) | 2 (0.08) | 2 (0.08) |
| t10 | 45 (1.77) | 56 (2.2) | 75 (2.95) | 94 (3.70) |
| U | 0.05 (0.0020) | 0.05 (0.0020) | 0.05 (0.0020) | 0.05 (0.0020) |
| W | 0.2 (0.01) | 0.2 (0.01) | 0.1 (0.004) | 0.1 (0.004) |
| $R1_{max}$ | 4 (0.16) | 4 (0.16) | 4 (0.16) | 6.3 (0.25) |

1) Recommendation deviates from the standard

Note: Dimensions in mm (in)

# ACCESSORIES AND SPARE PARTS

## Seal Kits

| 1 | | 2 | | 3 | | 4 | | |
|---|---|---|---|---|---|---|---|---|
| XEB ... | - | D | - | 0 0 0 | - | N | - | 0 0 |

| 1 Base part number: | XEB ... |
|---|---|
| The base part number of the seal kit is identical to the base part number of the cover. | |

**Example: Part number seal kit cover type "1D" Size 25**

| Naming | Part number |
|---|---|
| N-SEAL KIT CCE25K61D | XEB18516D000N00 |
| N-CCE25K61D0X99/X25 | XEB 18516-013N01 |

$\underbrace{\text{XEB 18516}}_{\text{Base part number}}$

| 4 | Seal material |
|---|---|
| N | NBR (standard) |
| T | NBR + PU |
| V | FKM |
| M | FKM + PU |

| 3 | Pressure relief valve seals |
|---|---|
| 000 | All covers<br>(pressure relief valve seals not included) |
| 001 | DBA and DBD covers only<br>(pressure relief valve seals included) |

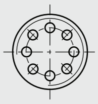
| 2 | Indicator |
|---|---|
| D | Seal kit |

## Mounting Screws

| Size | Screw | Hex key [mm] | Quantity | Torque [Nm (lbf ft)] | Order number |
|---|---|---|---|---|---|
| **16** | M8x35 | 6 | 4 | 30 (22) | X784-10818 |
| **25** | M12x40 | 10 | | 100 (74) | X784-11202 |
| **32** | M16x50 | 14 | | 300 (221) | X784-11601 |
| **40, 50** | M20x70 | 17 | | 550 (406) | X784-12002 |
| **63** | M30x90 | 22 | | 1,800 (1,328) | X784-13008 |
| **80** | M24x90 | 19 | 8 | 900 (664) | X784-12401 |
| **100** | M30x100 | 22 | | 1,800 (1,328) | X784-13009 |
| **125** | M36x150 | 27 | | 3,700 (2,729) | X784-13611 |
| **160** | M42x200 | 32 | 12 | 5,900 (4,352) | X784-14203 |

# ACCESSORIES AND SPARE PARTS

### RKVE Check Valve Tools

| Size | Check valve | Type | Thread | Torque [Nm (lbf ft)] | Order number |
|---|---|---|---|---|---|
| **16, 25** | RKVE04 |  | G1/8“ | 3 (2) | X998-00310 |
| **32** | RKVE06 | | G1/4“ | 7 (5) | X998-00313 |
| **40, 50** | RKVE08 | | G3/8“ | 15 (11) | X998-00311 |

### Spare Parts 1H Cover

| Size | 16 | 25 | 32 | 40 |
|---|---|---|---|---|
| **Spindle (with poppet insert, NBR)** | XEB19316-016N00 | XEB19316-025N00 | XEB19316-032N00 | XEB19316-040N00 |
| **Poppet insert only** | - | - | CB89121-032 | CB89121-040 |
| **Tamper proof cap set** | XEB19317-016-00 | XEB19317-025-00 | XEB19317-032-00 | XEB19317-040-00 |

| Size | 50 | 63 | 80 | 100 |
|---|---|---|---|---|
| **Spindle (with poppet insert, NBR)** | XEB19316-050N00 | XEB19316-063-00 | XEB19316-080-00 | XEB19316-100-00 |
| **Poppet insert only** | CB89121-050 | CB89121-063 | CB89121-080 | CB89121-100 |
| **Tamper proof cap set** | XEB19317-050-00 | XEB19317-063-00 | - | - |

### Spare Parts DBA and DBD Covers

| Sizes 16-50 | Pressure range | Order number |
|---|---|---|
| **Replacement Pressure relief valve (NBR, Adjustment 2)** | B 70 bar (1,000 psi) | X998-03083-000N00 |
| | E 175 bar (2,500 psi) | X998-03084-000N00 |
| | G 245 bar (3,500 psi) | X998-03085-000N00 |
| | K 350 bar (5,000 psi) | X998-03085-000N00 |
| | L 420 bar (6,000 psi) | X998-03087-000N00 |
| **Tamper proof cap set** | all | XEB19419-000-00 |

| Sizes 63-100 | Pressure range | Order number |
|---|---|---|
| **Replacement Pressure relief valve (NBR, Adjustment 2)** | B 70 bar (1,000 psi) | XDB10156-000N00 |
| | E 175 bar (2,500 psi) | XDB10157-000N00 |
| | G 245 bar (3,500 psi) | XDB10158-000N00 |
| | K 350 bar (5,000 psi) | XDB10159-000N00 |
| | L 420 bar (6,000 psi) | XDB10849-000N00 |
| **Tamper proof cap set** | all | XEB18992-000-00 |

# ORDERING CODE

**Type designation**

| 1 | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | - | C | C | E | | | 6 | | | X | | | / | ... |

| 1 | Seal materials |
|---|---|
| N | NBR (Standard) |
| V | FKM |

1) Not available.

| 2 | Valve type |
|---|---|
| C | Cartridge valve |

| 3 | Function |
|---|---|
| C | Cartridge cover |

| 4 | Cover unit connection type |
|---|---|
| E | Manifold installation |

| 5 | Size |
|---|---|
| 016 | ISO 7368-06-1-1-16 |
| 025 | ISO 7368-08-3-1-16 |
| 032 | ISO 7368-09-5-1-16 |
| 040 | ISO 7368-10-7-1-16 |
| 050 | ISO 7368-11-9-1-16 |
| 063 | ISO 7368-12-11-1-16 |
| 080 | ISO 7368-13-13-1-16 |
| 100 | ISO 7368-14-14-1-16 |
| 125 | ISO 7368-15-15-1-16 |
| 160 | ISO 7368-16-16-1-16 |

| 6 | Series |
|---|---|
| D | 350 bar (5,000 psi) - 2D, 2W, 2WR, 4W and RV covers only2) |
| K | 420 bar (6,000 psi) |

2) Please refer to the product overview table on pages 6-7

| 7 | Manifold interface |
|---|---|
| 6 | ISO 7368 |

| 13 | Options |
|---|---|
| ... | Orifice configuration: Orifice diameter is given in 10th of mm. Example: X08;Y00 = orifice 0,8 mm in X and plug in Y See page 69 for more details. EP210 = Preset pressure 210 bar for use with cartridge with A-poppet EPE210 = Preset pressure 210 bar for use with cartridge with E-poppet |

| 12 | Pressure range of relief pilot valve |
|---|---|
| Z | without pressure relief pilot valve |
| B | 70 bar (1,000 psi) |
| E | 175 bar (2,500 psi) |
| G | 245 bar (3,500 psi) |
| K | 350 bar (5,000 psi) |
| L | 420 bar (6,000 psi) |

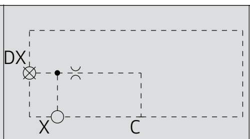
| 11 | Pilot valve interface |
|---|---|
| 06 | ISO 4401-03-02-0-05 |
| 10 | ISO 4401-05-04-0-05 |
| 99 | Without interface |

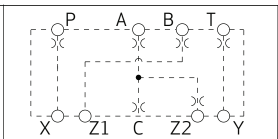
| 10 | Pilot oil connection |
|---|---|
| X | All ports through cover interface |

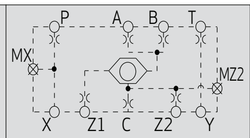
| 9 | Adjustment |
|---|---|
| 0 | Without adjustment |
| 2 | Adjustment without protective cap3) |
| 8 | Relief pressure factory set with cap and tamper proof seal.4) |
| 9 | Cap and tamper proof seal delivered separately3) |

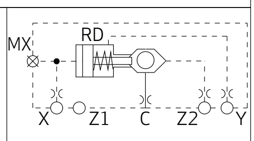
3) 1H, DBA and DBD covers only
4) DBA and DBD covers only

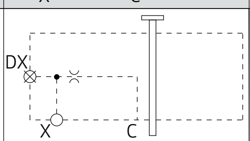
**8 Cover code**

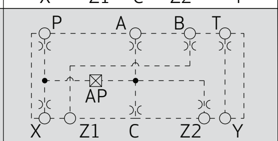
**1D**


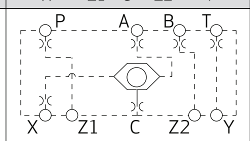

**1W**


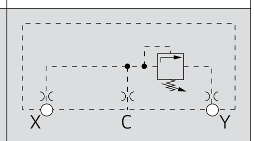

**2W**


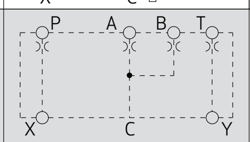

**RV**


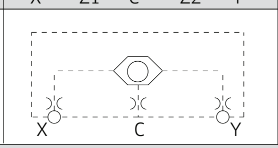

**1H**


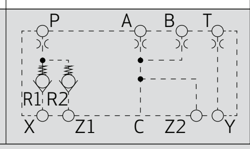

**1WDB**


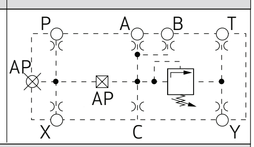

**2WR**


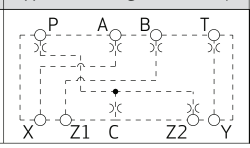

**DBA**



**RM**



**2D**



**4W**



**DBD**



**DRE**



More cover types available on request

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