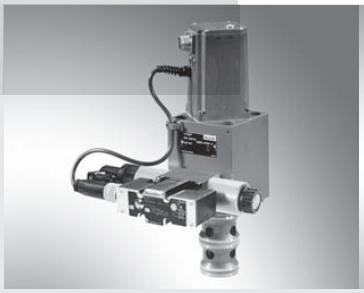
Rexroth
Bosch Group

# 2- and 3-way high-response cartridge valve

**RE 29137/08.13** 1/24
Replaces: 10.05

**Type .WRCE.../P**



Type 3WRCE...-2X/P

Type 2WRCE...-2X/P

Size 32, 40, and 50
Component series 2X
Maximum operating pressure 420 bar
Maximum flow 4500 l/min

## Table of contents



[1)] The three-port valves must not be used for new projects. See page 7.

Information on available spare parts:
www.boschrexroth.com/spc

## Features

- Pilot operated 2-way high-response valve in block installation design
- Suitable for position, pressure, force and velocity control
- Pilot control valve (pilot):
  Directly operated, electrically returned proportional valve size 6, trimmed, closes the 2WRCE main stage in case of power failure and applied pilot pressure, opens the 3WRCE main stage from A to T
- Main stage: Position-controlled
- Integrated control electronics (OBE)
- Block installation:
  Installation dimensions according to DIN ISO 7368 for 2WRCE
- Typical applications:
  - Presses
  - Die casting machines
  - Punching axes

More information:
- Pilot control valve similar
  - Type 4WREE 6, see data sheet 29061

**Notice**
Further variant type .WRCE…/S with servo pilot control, see data sheet 29136

## Ordering code: Type 2WRCE

| 2 | WRCE | | S | | –2X/ | P | G24 | K31/ | | | * |
|---|---|---|---|---|---|---|---|---|---|---|---|

2/2 directional valve **= 2**

Electrically operated high-response valve for block installation with integrated electronics (OBE) **= WRCE**

Size 32 **= 32**
Size 40 **= 40**
Size 50 **= 50**

Seat piston **= S**

**Rated flow** in l/min at 5 bar valve pressure drop

Size 32: 650 l/min linear **= 650**
480 l/min with fine control range **only** ...S480R... **= 480**

Size 40: 1000 l/min linear **only** ...S1000L... **= 1000**
700 l/min with fine control range **only** ...S700R... **= 700**

Size 50: 1600 l/min linear **only** ...S1600L... **= 1600**
1100 l/min with fine control range **only** ...S1100R... **= 1100**

**Characteristic curve form**

Linear **= L**
Linear with progressive fine control range **= R**

Component series 20 to 29 **= 2X**
(20 to 29: Unchanged installation and connection dimensions)

**Pilot control valve** (pilot)

Proportional valve **= P**

Supply voltage 24 VDC **= G24**

**Electrical connection**

**Without** mating connector with connector according to DIN EN 175201-804 **= K31**
(separate order, see page 12)

**Electronics interfaces**

Command value 0...+10 V, actual value +0.5...+10 V **= A1**
Command value 0...+10 mA, actual value +0.5...+10 mA **= C1**

**Sandwich plate shut-off valve**

**Without** shut-off valve **= no code**
**With** shut-off valve:
Shut-off valve switched to de-energized actively closes 2WRCE with applied pilot pressure **= WK15**
Shut-off valve switched to de-energized actively opens 2WRCE with applied pilot pressure **= WL15**

**Seal material**

NBR seals **= M**
FKM seals **= V**

Further details in the plain text

## Ordering code: Type 3WRCE – Not for new applications! (refer to page 7)

| 3 | WRCE | | | | –2X/ | P | G24 | K31/ | | | * |
|---|---|---|---|---|---|---|---|---|---|---|---|

3/2 directional valve = 3

Electrically operated high-response valve for block installation with integrated electronics (OBE) = WRCE

Size 32 = 32
Size 40 = 40
Size 50 = 50

Control spool, zero overlap (+0.5...+1.5%) = V
Control spool, with 10…13% positive overlap = E

**Rated flow** in l/min at 5 bar valve pressure drop

Size 32: 290 l/min linear **only** ...V290L... = 290
250 l/min with fine control range **only** ...E250P... = 250

Size 40: 460 l/min linear **only** ...V460L... = 460
410 l/min with fine control range **only** ...E410P... = 410

Size 50: 720 l/min linear **only** ...V720L... = 720
620 l/min with fine control range **only** ...E620P... = 620

**Characteristic curve form**

Linear = L
Linear with linear fine control range = P

Component series 20 to 29 = 2X
(20 to 29: Unchanged installation and connection dimensions)

**Pilot control valve** (pilot)

Proportional valve = P

Supply voltage 24 VDC = G24

**Electrical connection**

**Without** mating connector with connector according to DIN EN 175201-804 = K31
(separate order, see page 12)

**Electronics interfaces**

Command value ±10 V, actual value ±10 V = A1
Command value ±10 mA, actual value ±10 mA = C1

**Sandwich plate shut-off valve**

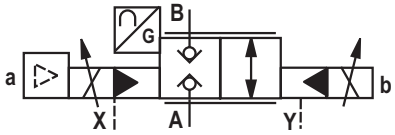
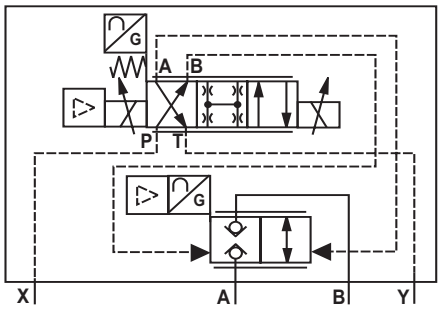
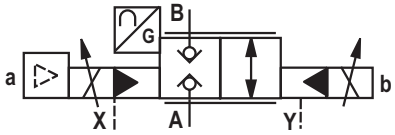
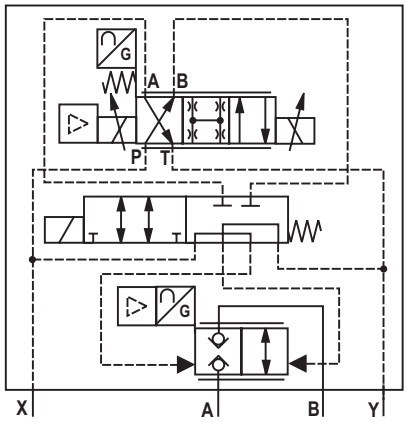
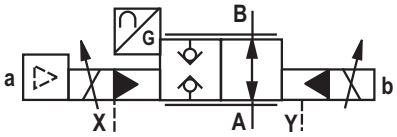
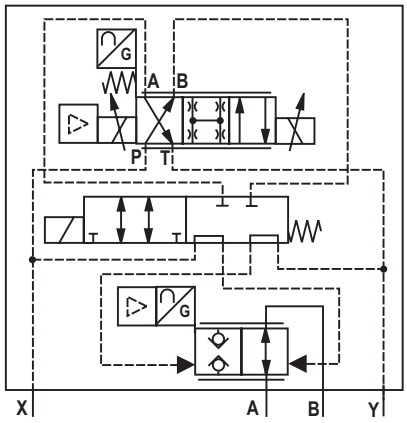
**Without** shut-off valve = no code
**With** shut-off valve:
Shut-off valve switched to de-energized actively opens 3WRCE with applied pilot pressure from A to T = WK15
Shut-off valve switched to de-energized actively opens 3WRCE with applied pilot pressure from P to A = WL15
Voltage supply 24 VDC, mating connector, separate order, refer to page 12 (without circuitry)

**Seal material**

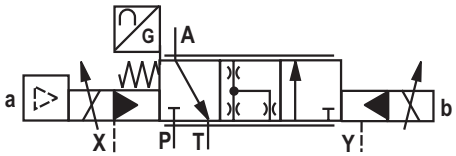
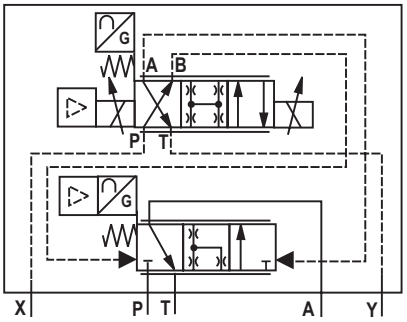
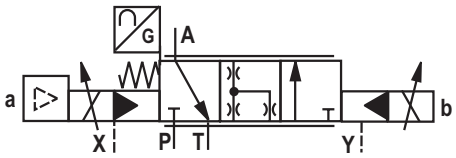
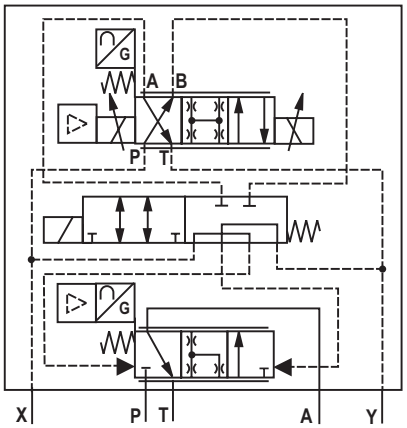
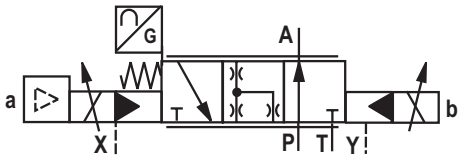
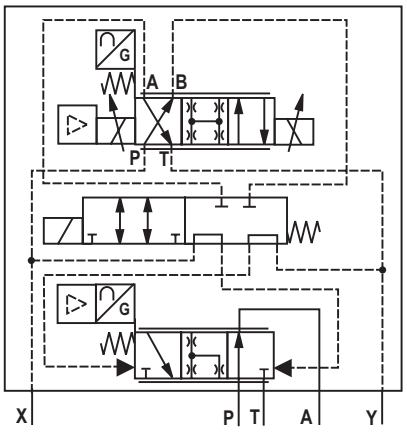
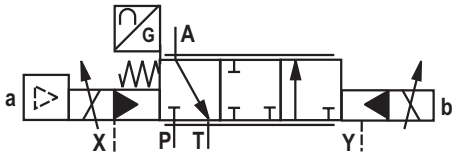
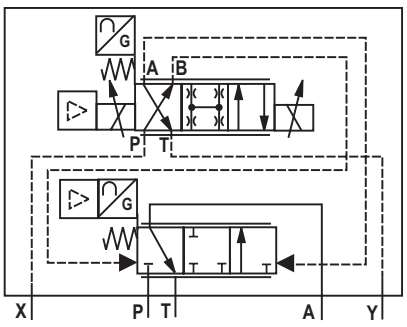
NBR seals = M
FKM seals = V

Further details in the plain text

## Symbols: Type 2WRCE

| Simplified | Detailed |
|---|---|
| **2WRCE..-2X/P...** | **2WRCE..-2X/P...** |
|  |  |
| **2WRCE..-2X/P...WK15...** | **2WRCE..-2X/P...WK15...** |
|  |  |
| **2WRCE..-2X/P...WL15...** | **2WRCE..-2X/P...WL15...** |
|  |  |

## Symbols: Type 3WRCE – Not for new applications! (refer to page 7)

| Simplified | Detailed |
|---|---|
| **3WRCE..V...-2X/P...** | **3WRCE..V...-2X/P...** |
|  |  |
| **3WRCE..V...-2X/P...WK15...** | **3WRCE..V...-2X/P...WK15...** |
|  |  |
| **3WRCE..V...-2X/P...WL15...** | **3WRCE..V...-2X/P...WL15...** |
|  |  |
| **3WRCE..E...-2X/P...** | **3WRCE..E...-2X/P...** |
|  |  |

## Set-up, function and section: Type 2WRCE

Valves of type 2WRCE...-2X/P... are 2-stage high-response valves.

They control the quantity and direction of a flow and are mainly used in control loops.

**Set-up**

They consist of the following assemblies:

- The pilot control valve (1) as 1-stage proportional valve (pilot), with two solenoids as electro-mechanical converters and a piston that is connected to the integrated pilot electronics via electrical feedback (6.2).
- The second stage (2) for flow control.
- An inductive position transducer (3) the core (4) of which is attached to the piston (5) of the second stage.
- And integrated control electronics (6.1).

**Function**

The integrated electronics (OBE) compares command and actual values and the solenoids of the pilot control valve are actuated with a proportional current according to the control deviation.

The pilot control valve takes a proportionally controlled position and controls the flow in and out of the control chambers A (7) and B (8) that actuate the main spool (5) through the closed valve control loop up to 0 control deviation.

This means that the stroke of the main spool is regulated proportionally to the command value. It must be noted that the flow also depends on the valve pressure drop.

**Valve particularities**

The flow can pass through the valve from A to B or from B to A.

The seat piston closes or opens at 5% of the command value. At lower command values, the valve control loop attempts to guide the piston and thus presses it onto the seat at full pilot pressure and blocks the connection in a leak-free way.

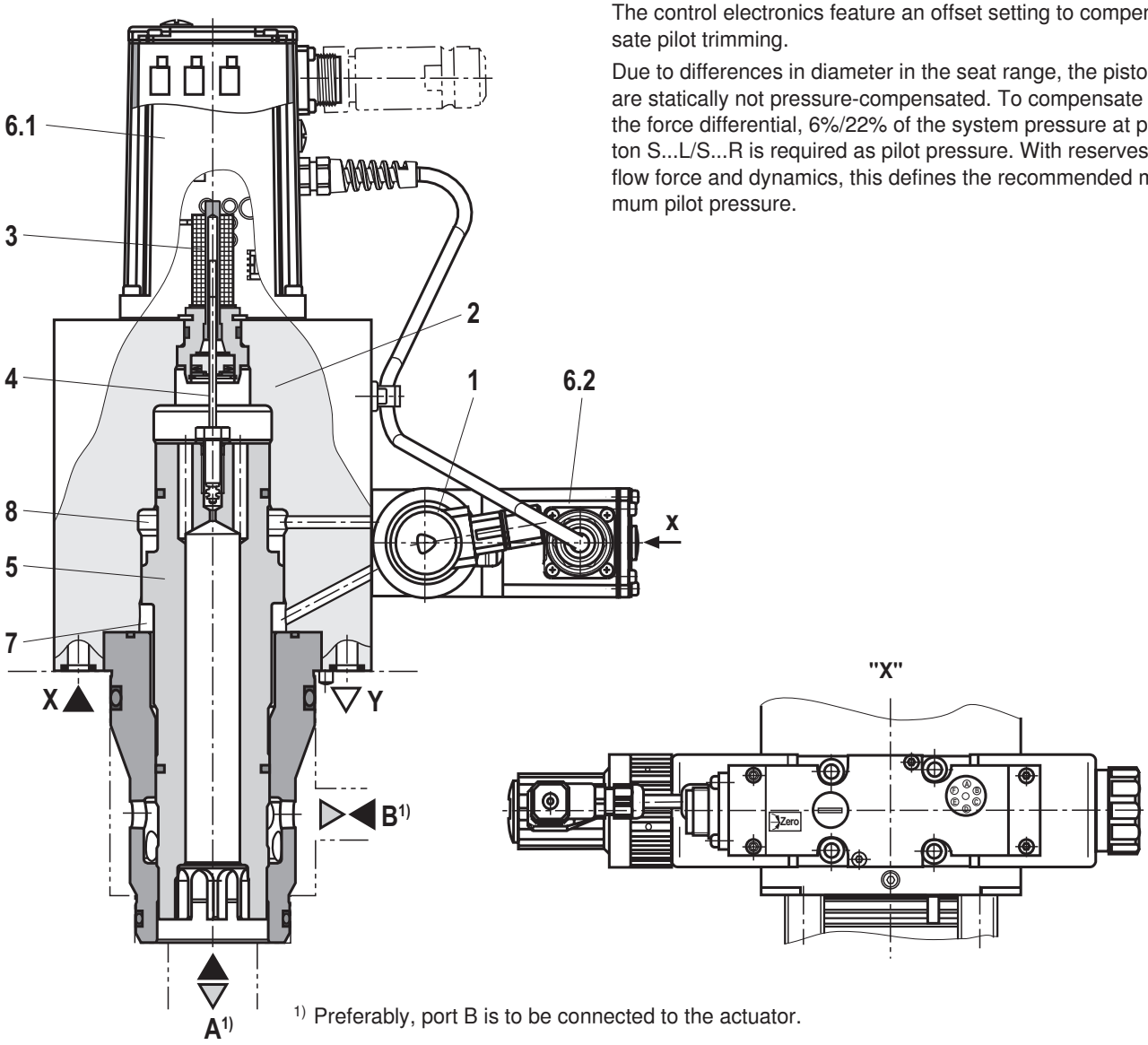
The specified valve dynamics only apply to the control area of the valve. At command value steps from the seat to lower opening values, additional delay times occur.

The opening point of 5% (= 0.5 V or 0.5 mA) is set at the factory.

Due to the internal setting of the pilot control valve, the pilot pressure is connected to control chamber B (8) in case of a power failure, i.e. the main stage is closed.

The control electronics feature an offset setting to compensate pilot trimming.

Due to differences in diameter in the seat range, the pistons are statically not pressure-compensated. To compensate the force differential, 6%/22% of the system pressure at piston S...L/S...R is required as pilot pressure. With reserves for flow force and dynamics, this defines the recommended minimum pilot pressure.




1) Preferably, port B is to be connected to the actuator.

## Set-up, function and section: Type 3WRCE [1)]

Valves of type 3WRCE...-2X/P... are 2-stage high-response valves.

They control the quantity and direction of a flow and are mainly used in control loops.

**Set-up**

They consist of the following assemblies:

- The pilot control valve (1) as 1-stage proportional valve (pilot), with two solenoids as electro-mechanical converters and a piston that is connected to the integrated pilot electronics via electrical feedback (6.2).
- The second stage (2) for flow control.
- An inductive position transducer (3) the core (4) of which is attached to the piston (5) of the second stage.
- And integrated control electronics (6.1).

**Function**

The integrated electronics (OBE) compares command and actual values and the solenoids of the pilot control valve are actuated with a proportional current according to the control deviation.

The pilot control valve takes a proportionally controlled position and controls the flow in and out of the control chambers A (7) and B (8) that actuate the main spool (5) through the closed valve control loop up to 0 control deviation.

This means that the stroke of the main spool is regulated proportionally to the command value. It must be noted that the flow also depends on the valve pressure drop.

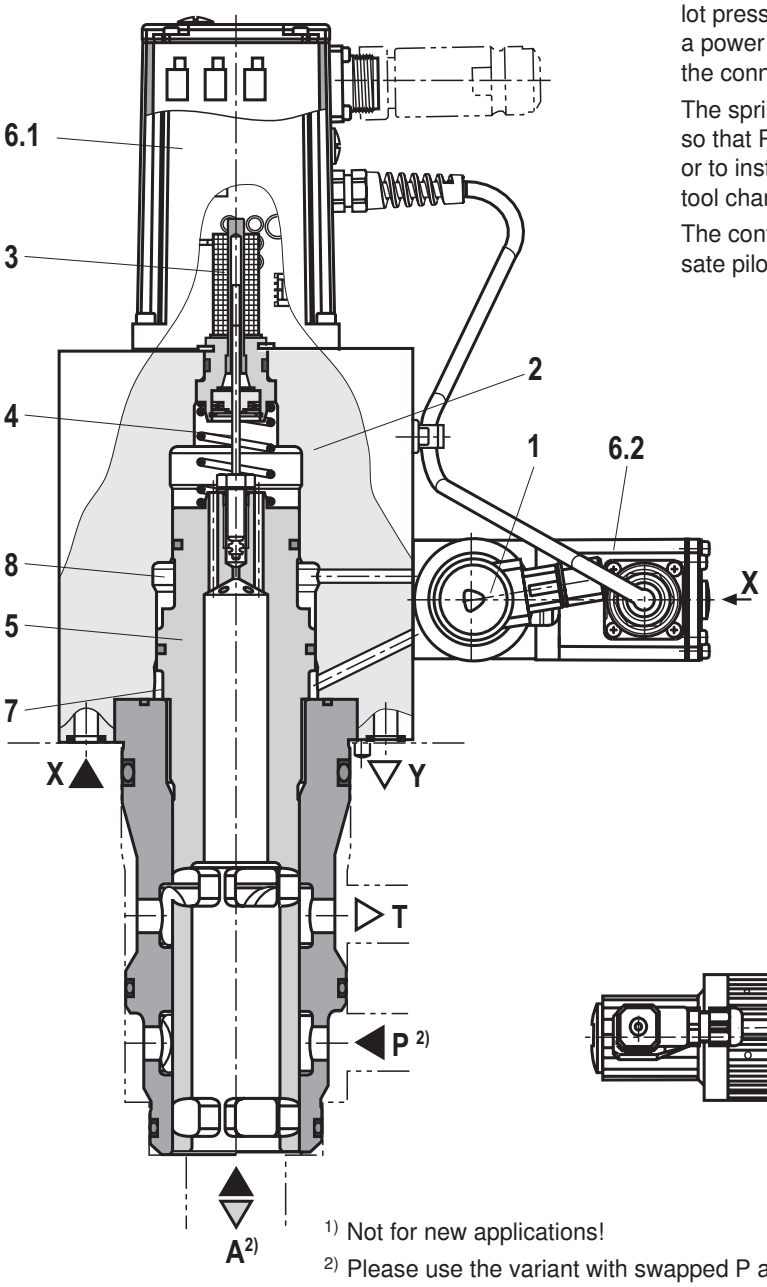
**Valve particularities**

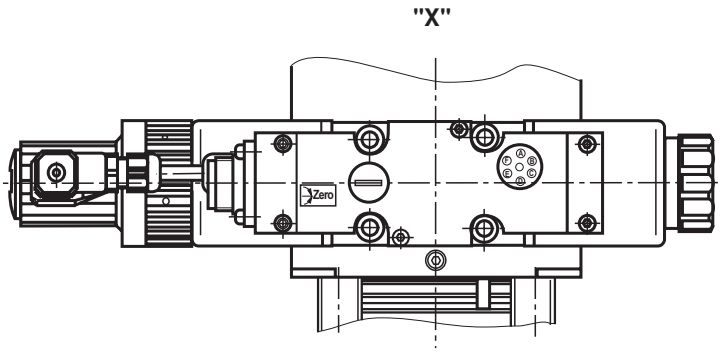
The opening point of 0% (V piston) is set at the factory.

Due to the internal setting of the pilot control valve, the pilot pressure is connected to control chamber B (8) in case of a power failure, i.e. the main stage is opened from A to T or the connection P to A is closed.

The spring behind the main spool moves it into position so that P to A is closed if no pressure is applied (e.g. prior to installation, before the pressures are reapplied after tool change).

The control electronics feature an offset setting to compensate pilot trimming.




1) Not for new applications!

2) Please use the variant with swapped P and A. Upon request!

## Technical data: Type 2WRCE (For applications outside these values, please contact us!)

### general

| | | | | |
|---|---|---|---|---|
| Sizes | Size | **32** | **40** | **50** |
| Weight | kg | 12.5 | 19.9 | 26.8 |
| Weight with shut-off valve ...../...WK or .../...WL... | kg | 13.7 | 21.1 | 28 |
| Size of the pilot control valve (pilot) | Size | 6 | 6 | 6 |
| Installation position; commissioning | | Any, preferably horizontal; according to data sheet 07700 | | |
| Storage temperature range | °C | –20 to +80 | | |
| Ambient temperature range | °C | –20 to +50 | | |
| Sine test according to prEN 60068-2-6:1995 | | 5...2000 Hz / maximum of 10 g / 10 cycles | | |
| Random test according to IEC68-2-36:1973 | | 20…2000 Hz / 10 $g_{RMS}$ / 30 min | | |
| Shock test according to EN 60068-2-27:1993 | | 15 g / 11 ms | | |

### hydraulic (measured with HLP32, $\vartheta_{oil}$ = 40 °C ±5 °C)

| | | | | |
|---|---|---|---|---|
| Maximum operating pressures | | | | |
| – Main stage ports A, B | bar | 420 | | |
| – Pilot control valve port X | bar | 315 | | |
| – Pilot control valve port Y | bar | 210 | | |
| Minimum pilot pressure in % of system pressure | | | | |
| – For piston design S...L | % | 15 | | |
| – For piston design S...R | % | 45 | | |
| Rated flow $Q_{Vrated}$ +10% at $\Delta p$ = 5 bar | | | | |
| – Design ...S...L (linear) | l/min | 650 | 1000 | 1600 |
| – Design ...S...R (linear with progressive fine control range) | l/min | 480 | 700 | 1100 |
| Maximum flow – For piston ...S...L | l/min | 1500 | 2200 | 3500 |
| Maximum flow – For piston ...S...R | l/min | 2000 | 3000 | 4500 |
| Pilot flow at X and Y with stepped input signal from 0 to 100% (315 bar) | l/min | 37 | 45 | 60 |
| Zero flow of the proportional preliminary step dependent on the pressure in line X | l/min | $q_{Lmin} = 0.0026 \frac{L}{min\ bar} \cdot p_x$ [bar]<br>$q_{Lmax} = 0.0095 \frac{L}{min\ bar} \cdot p_x$ [bar] | | |
| Pilot oil volume | $cm^3$ | 4.52 | 8.48 | 17.3 |
| Hydraulic fluid | | See table on page 9 | | |
| Hydraulic fluid temperature range | °C | –20 to +80; preferably +40 to +50 | | |
| Viscosity range | $mm^2/s$ | 20 to 380; preferably 30 to 45 | | |
| Maximum admissible degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c) | | Class 20/18/15 [1)] | | |
| Hysteresis | % | ≤ 0.2 | | |
| Range of inversion | % | ≤ 0.1 | | |
| Response sensitivity | % | ≤ 0.1 | | |
| Closing time during use – Pilot control valve | ms | ≤ 200 | | |
| (pilot pressures from 40 to 315 bar) – Sandwich plate shut-off valve | ms | ≤ 200 | | |

[1)] The cleanliness classes stated for the components need to be maintained in hydraulic systems. Effective filtration prevents faults and at the same time increases the life cycle of the components.
For the selection of the filters see www.boschrexroth.com/filter

## Technical data: Type 2WRCE (for applications outside these values, please contact us!

| Hydraulic fluid | Classification | Suitable sealing materials | Standards |
|---|---|---|---|
| Mineral oils and related hydrocarbons | HL, HLP | NBR, FKM | DIN 51524 |
| Flame-resistant – containing water | HFC (Fuchs HYDROTHERM 46 M, Petrofer Ultra Safe 620) | NBR | ISO 12922 |

☞ **Important information on hydraulic fluids!**

- For more information and data on the use of other hydraulic fluids, refer to data sheet 90220 or contact us.
- There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.)!
- The flash point of the process and operating medium used must be 40 K over the maximum solenoid surface temperature.
- **Flame-resistant – containing water:** Maximum pressure differential per control edge is 175 bar. Pressure preloading at the tank port > 20% of the pressure differential; otherwise, increased cavitation.
- Life cycle as compared to operation with mineral oil HL, HLP 50% to 100%.

### electric

| Sizes | Size | 32 | 40 | 50 |
|---|---|---|---|---|
| Voltage type | | Direct voltage | | |
| Type of signal | | Analog | | |
| Opening point calibration | % | ≤ 1 | | |
| Zero shift upon change of: | | | | |
| – Hydraulic fluid temperature | %/10 K | ≤ 0.3 | ≤ 0.3 | ≤ 0.3 |
| – Pilot pressure in X | %/100 bar | ≤ 0.7 | ≤ 0.7 | ≤ 0.7 |
| – Return flow pressure in Y | %/bar | ≤ 0.3 | ≤ 0.3 | ≤ 0.3 |
| Protection class of the valve according to EN 60529 | | IP65 with mating connector mounted and locked | | |
| EMC compatibility | | Tested according to EN61000-6-2:2001 / VDE 0839 part 6-2 and EN61000-6-3:2001 / VDE 0839 part 6-3 | | |

## Integrated electronics (OBE) type TV 13037

**Block diagram, see page 11**

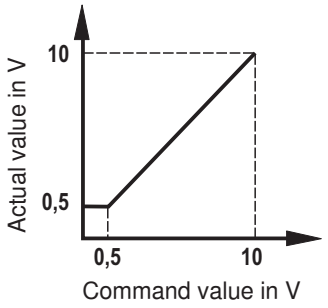
Nominal command value range for 2WRC:
0 to +10 V (mA) ≙ 0 to 100%

In the command value range of 0 to 0.5 V, the actual value remains constant at 0.5 V.

In case of a slow command value modification from 0.5 V to +10 V, the actual value follows the command value within ±0.15 V.

For command values over +10 V, the actual value follows up to approx. +12 V.

At a command value step to +10 V, the actual value can temporarily reach values of up to approx. +10.5 V.



## Technical data: Type 3WRCE [1] (For applications outside these values, please consult us!)

### general

| | | | | |
|---|---|---|---|---|
| Sizes | Size | **32** | **40** | **50** |
| Weight | kg | 12.8 | 20.2 | 28 |
| Weight with shut-off valve ...../...WK or .../...WL... | kg | 14 | 21.4 | 29,2 |
| Size of the pilot control valve (pilot) | Size | 6 | 6 | 6 |
| Installation position; commissioning | | Any, preferably horizontal; according to data sheet 07700 | | |
| Storage temperature range | °C | –20 to +80 | | |
| Ambient temperature range | °C | –20 to +50 | | |
| Sine test according to prEN 60068-2-6:1995 | | 5...2000 Hz / maximum of 10 g / 10 cycles | | |
| Random test according to IEC68-2-36:1973 | | 20…2000 Hz / 10 $g_{RMS}$ / 30 min | | |
| Shock test according to EN 60068-2-27:1993 | | 15 g / 11 ms | | |

### hydraulic (measured with HLP32, $\vartheta_{oil}$ = 40 °C ± 5 °C)

| | | | | |
|---|---|---|---|---|
| Maximum operating pressures | | | | |
| – Main stage ports A, B, T | bar | 315 | | |
| – Pilot control valve port X | bar | 315 | | |
| – Pilot control valve port Y | bar | 210 | | |
| Rated flow $\boldsymbol{Q}_{V\text{rated}}$ +10% at $\boldsymbol{\Delta p}$ = 5 bar<br>– Design ...V...L (linear) | l/min | 290 | 460 | 720 |
| Maximum flow | l/min | 900 | 1400 | 2200 |
| Pilot flow at X and Y with stepped input signal from 0 to 100% (315 bar) | l/min | 20 | 35 | 55 |
| Maximum zero flow of the main stage at $\boldsymbol{p}_p$ = 300 bar | l/min | 4 | 6 | 8 |
| Zero flow of the proportional preliminary step dependent on the pressure in line X | l/min | $\boldsymbol{Q}_{Lmin} = 0.0026 \frac{L}{min\ bar} \cdot \boldsymbol{p}_x$ [bar]<br>$\boldsymbol{Q}_{Lmin} = 0.0095 \frac{L}{min\ bar} \cdot \boldsymbol{p}_x$ [bar] | | |
| Pilot oil volume | $cm^3$ | ±2.26 | ±4.24 | ±8.65 |
| Hydraulic fluid | | See page 9 | | |
| Hydraulic fluid temperature range | °C | –20 to +80; preferably +40 to +50 | | |
| Viscosity range | $mm^2/s$ | 20 to 380; preferably 30 to 45 | | |
| Maximum admissible degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c) | | Class 20/18/15 [2] | | |
| Hysteresis | % | ≤ 0.2 | | |
| Range of inversion | % | ≤ 0.1 | | |
| Response sensitivity | % | ≤ 0.1 | | |
| Closing time when using – Pilot control valve | ms | ≤ 200 | | |
| (pilot pressures from 40 to 315 bar) – Sandwich plate shut-off valve | ms | ≤ 200 | | |

[1] Not for new applications!

[2] The cleanliness classes stated for the components need to be maintained in hydraulic systems. Effective filtration prevents faults and at the same time increases the life cycle of the components.
For the selection of the filters see www.boschrexroth.com/filter

## Technical data: Type 3WRC(E) [1] (For applications outside these values, please consult us!)

### electric

| Sizes | Size | 32 | 40 | 50 |
|---|---|---|---|---|
| Voltage type | | Direct voltage | | |
| Type of signal | | Analog | | |
| Opening point calibration | % | ≤ 1 | | |
| Zero shift upon change of: | | | | |
| – Hydraulic fluid temperature | %/10 K | ≤ 0.3 | ≤ 0.3 | ≤ 0.3 |
| – Pilot pressure in X | %/100 bar | ≤ 0.7 | ≤ 0.7 | ≤ 0.7 |
| – Return flow pressure in Y | %/bar | ≤ 0.3 | ≤ 0.3 | ≤ 0.3 |
| Protection class of the valve according to EN 60529 | | IP65 with mating connector mounted and locked | | |
| EMC compatibility | | Tested according to EN61000-6-2:2001 / VDE 0839 part 6-2 and EN61000-6-3:2001 / VDE 0839 part 6-3 | | |

[1] Not for new applications!

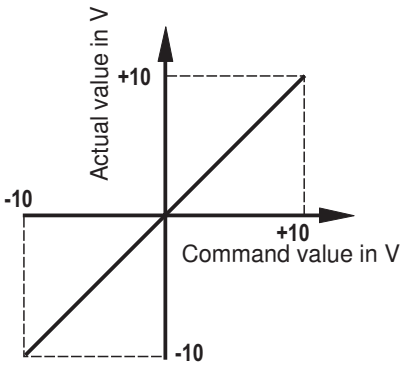
### Integrated electronics (OBE) type TV 13037

Nominal command value range for 3WRCE:
0 to ±10 V (mA) ≙ 0 to ±100%

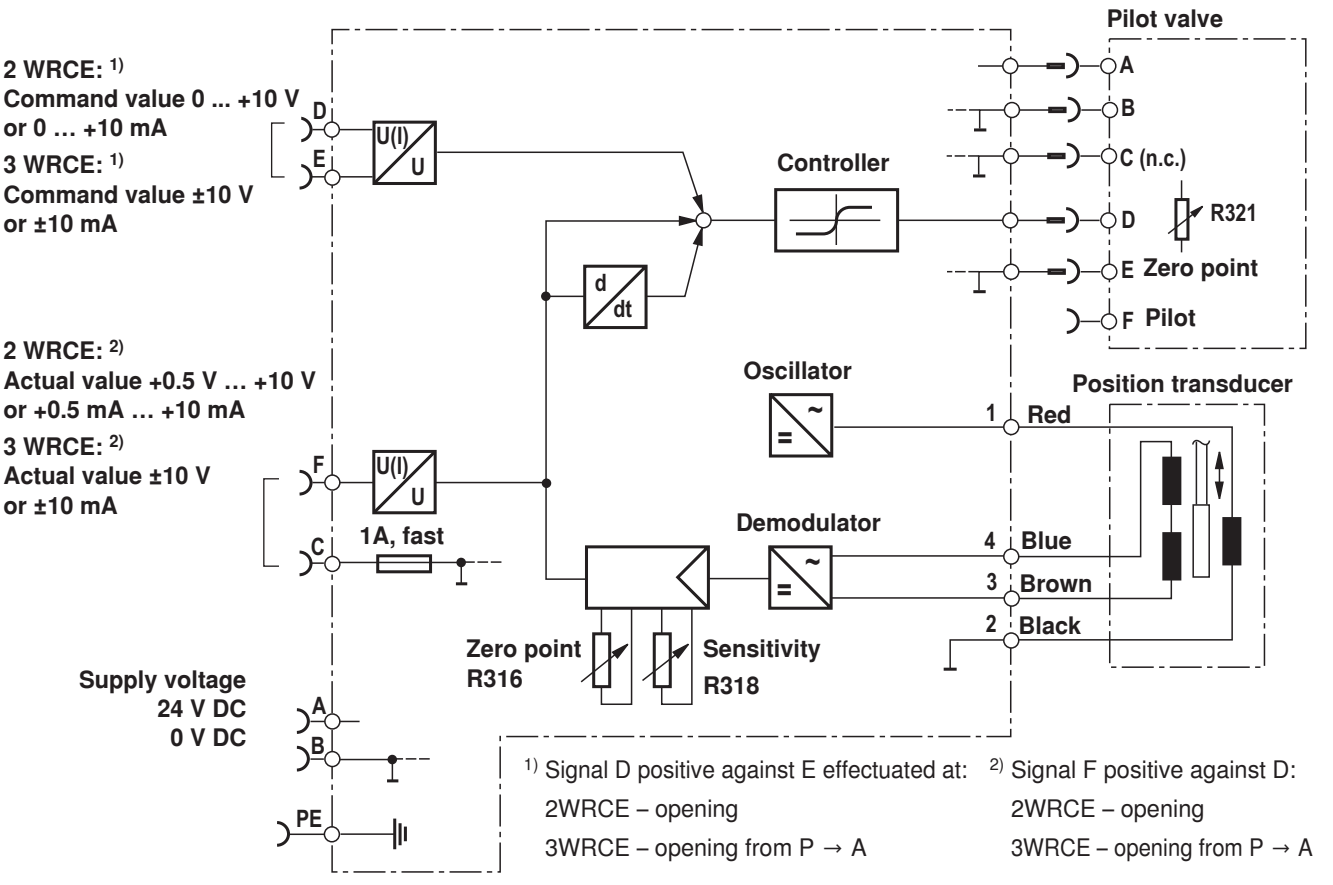
In case of a slow command value modification from 0 V to +10 V, the actual value follows the command value within ±0.15 V.

For command values over 10 V, the actual value follows up to approx. ±13 V.

At a command value step to ±10 V, the actual value can reach short-time values of up to approx. ±10.5 V.



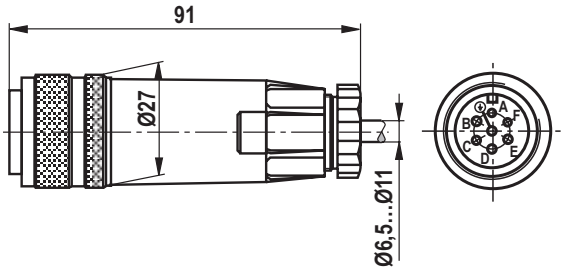

### Block diagram



## Electrical connection, mating connectors

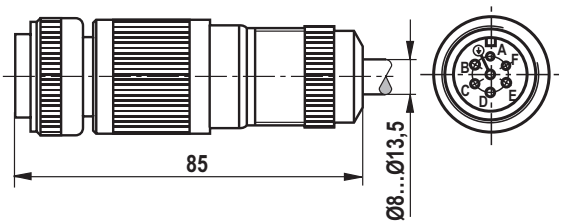
**Mating connector**

Mating connector according to DIN EN 175201-804
separate order under the material no. **R900021267**
(plastic version)




**Mating connector**

Mating connector according to DIN EN 175201-804
separate order under the material no. **R9000223890**
(metal version)



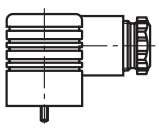

| Connector pin assignment | Pin | Assignment of electronics interface A1 | | Assignment of electronics interface C1 | |
|---|---|---|---|---|---|
| | | 2WRCE | 3WRCE | 2 WRCE | 3WRCE |
| Supply voltage | A | 24 VDC nominal (18 ... 30 V; $I_{average}$ = 1 A, $I_{peak}$ = 3 A) | | | |
| | B | 0 VDC | | | |
| Measurement zero | C | Reference to pin F | | | |
| Differential command value input | D | 0 to +10 V | 0 to ±10 V | 0 to +10 mA | 0 to ±10 mA |
| | E | Input resistance | Input resistance | Load | Load |
| | | > 100 kΩ | > 100 kΩ | 100 Ω | 100 Ω |
| Actual value reference is contact C [1)] | F | +0.5 to +10 V | 0 to ±10 V | +0.5 to +10 mA | 0 to ±10 mA |
| | | Max. 10 mA | Max. 10 mA | Max. load 1 kΩ | Max. load 1 kΩ |
| Protective earth | PE | Connected to valve housing<br>Do not connect if the valve has already been grounded via the system | | | |

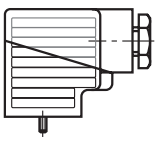
[1)] Command and actual value have the same polarity. In case of failure of the fuse "1A fast", the actual value may temporarily also be measured between F and B.

**Notice: Do not use electrical signals provided via control electronics (e.g. actual value) for switching safety-relevant machine functions (see also EN ISO 13849 "Safety of machinery – safety-related parts of control systems").**

## **Mating connectors for shut-off valve** according to DIN EN 175301-803 for connector "K4"

For more mating connectors, refer to RE 08006

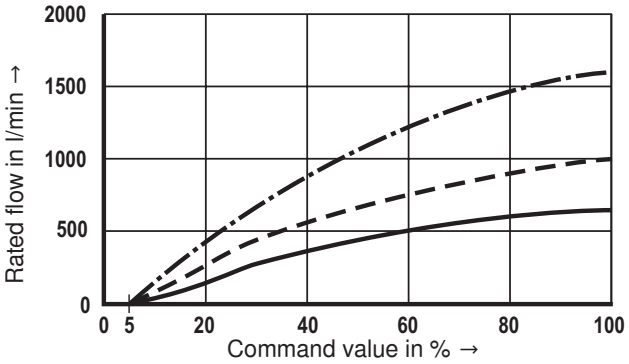




| Valve side | Color | Material no. | | | |
|---|---|---|---|---|---|
| | | without circuitry | with indicator light 12 … 240 V | with rectifier 12 … 240 V | with indicator light and Zener diode suppression circuit 24 V |
| a | Gray | **R901017010** | – | – | – |
| a/b | Black | – | **R901017022** | **R901017025** | **R901017026** |

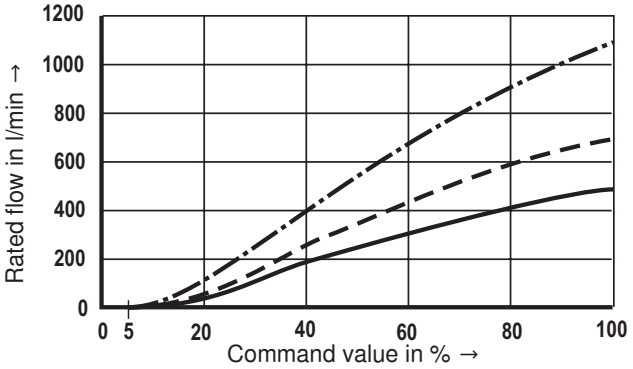
## Characteristic curves (measured with HLP32, $\vartheta_{oil}$ = 40 °C ±5 °C)

**Rated flow at 5 bar valve pressure differential A → B = B → A**



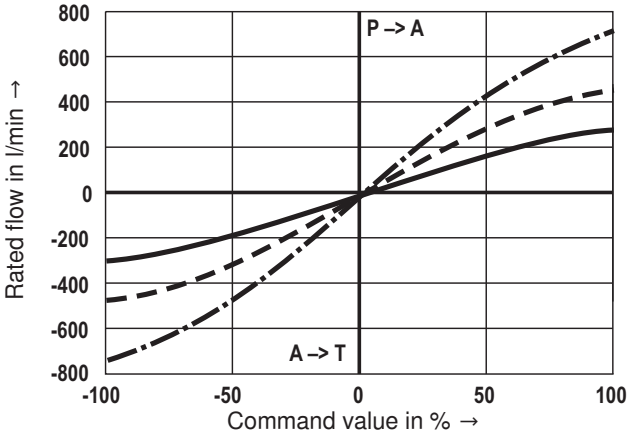

2WRCE 50 S1600L
2WRCE 40 S1000L
2WRCE 32 S650L

**Rated flow at 5 bar valve pressure differential A → B = B → A**



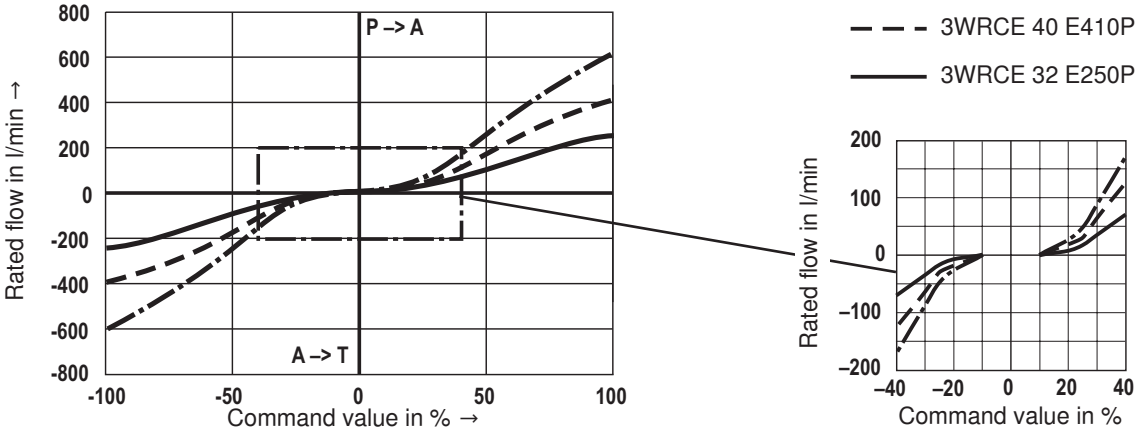

2WRCE 50 S1100R
2WRCE 40 S700R
2WRCE 32 S480R

**Rated flow at 5 bar valve pressure differential**




3WRCE 50 V720L
3WRCE 40 V460L
3WRCE 32 V290L
(overlap +0.5...+1.5%)

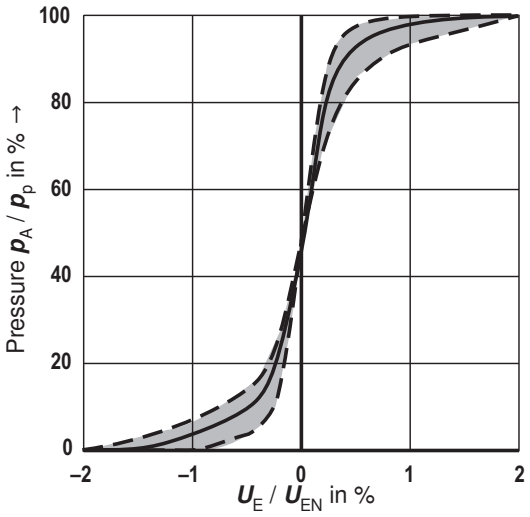
**Rated flow at 5 bar valve pressure differential with 10% overlap**




3WRCE 50 E620P
3WRCE 40 E410P
3WRCE 32 E250P

## **Characteristic curves** (measured with HLP32, $\vartheta_{oil}$ = 40 °C ±5 °C)

**Pressure signal function at 3WRCE...V... limit and average value characteristic curves**

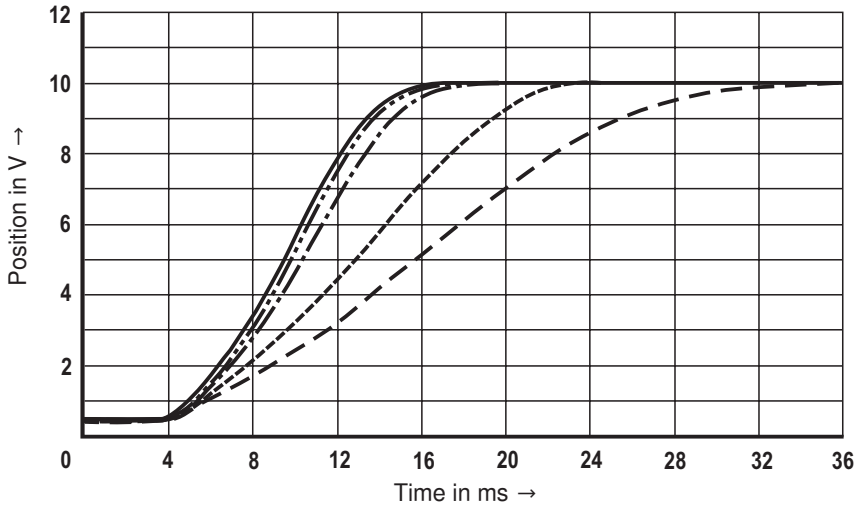


## **Characteristic curves** (measured with HLP32, $\vartheta_{oil}$ = 40 °C ±5 °C)

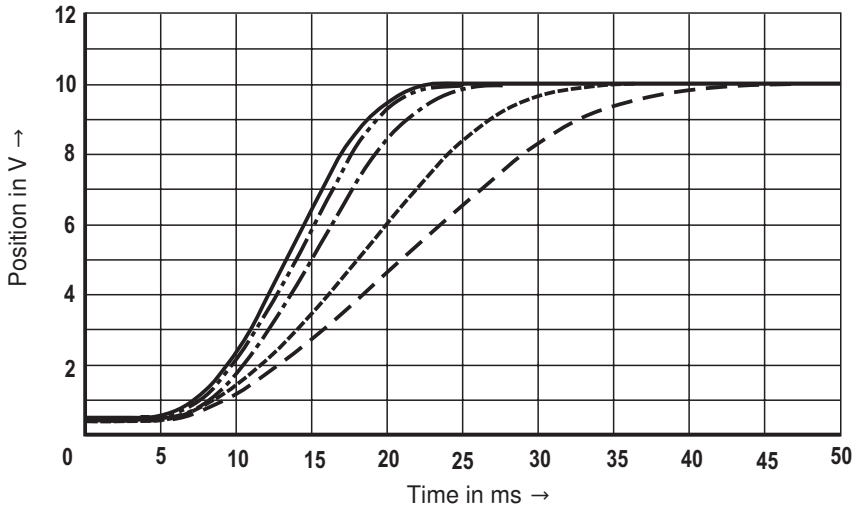
**Transition function**

40 bar, 70 bar, 140 bar, 210 bar, 315 bar

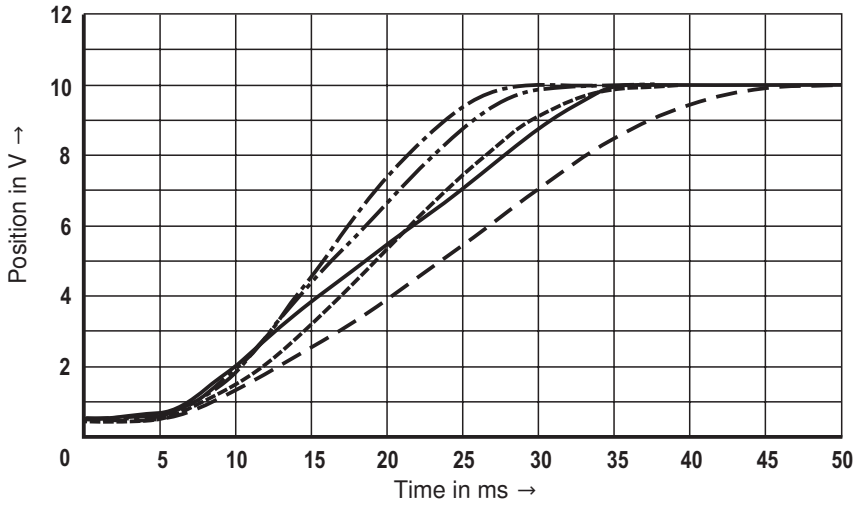
**2WRCE 32…**




**2WRCE 40…**




**2WRCE 50…**

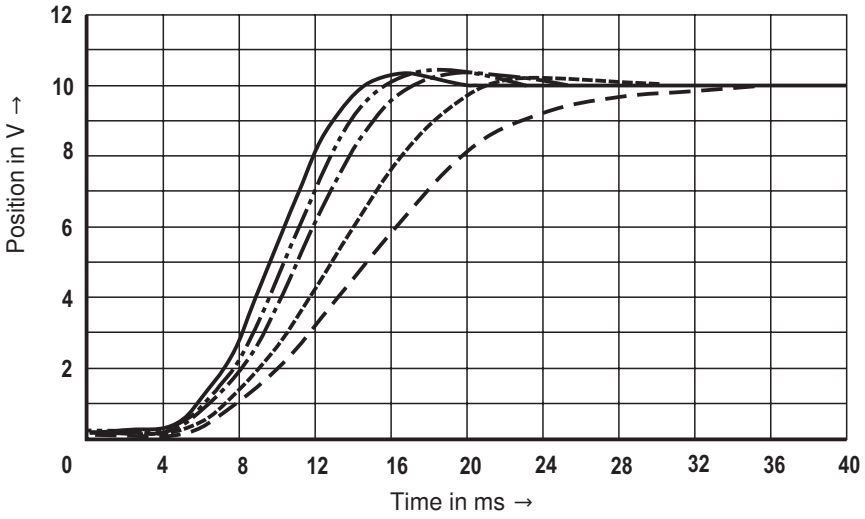


## **Characteristic curves** (measured with HLP32, $\vartheta_{oil}$ = 40 °C ±5 °C)

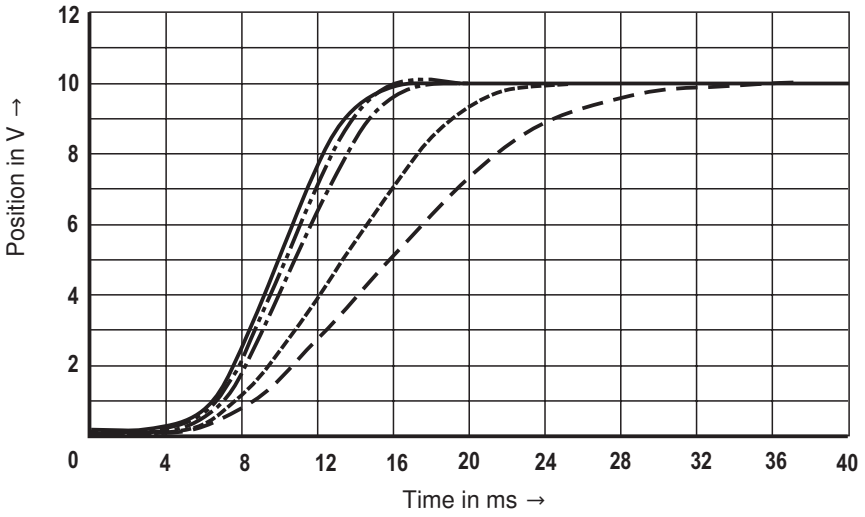
**Transition function**

– – – 40 bar, ------ 70 bar, —·— 140 bar, —··— 210 bar, ——— 315 bar

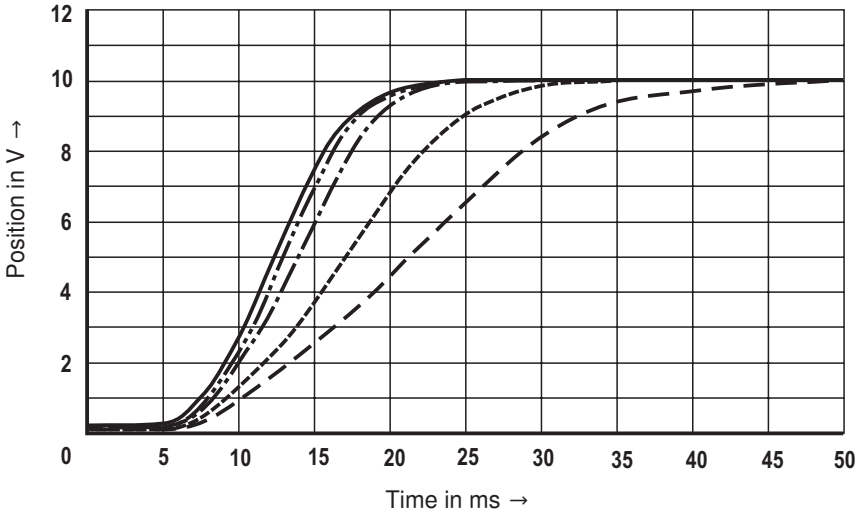
**3WRCE 32…**




**3WRCE 40…**



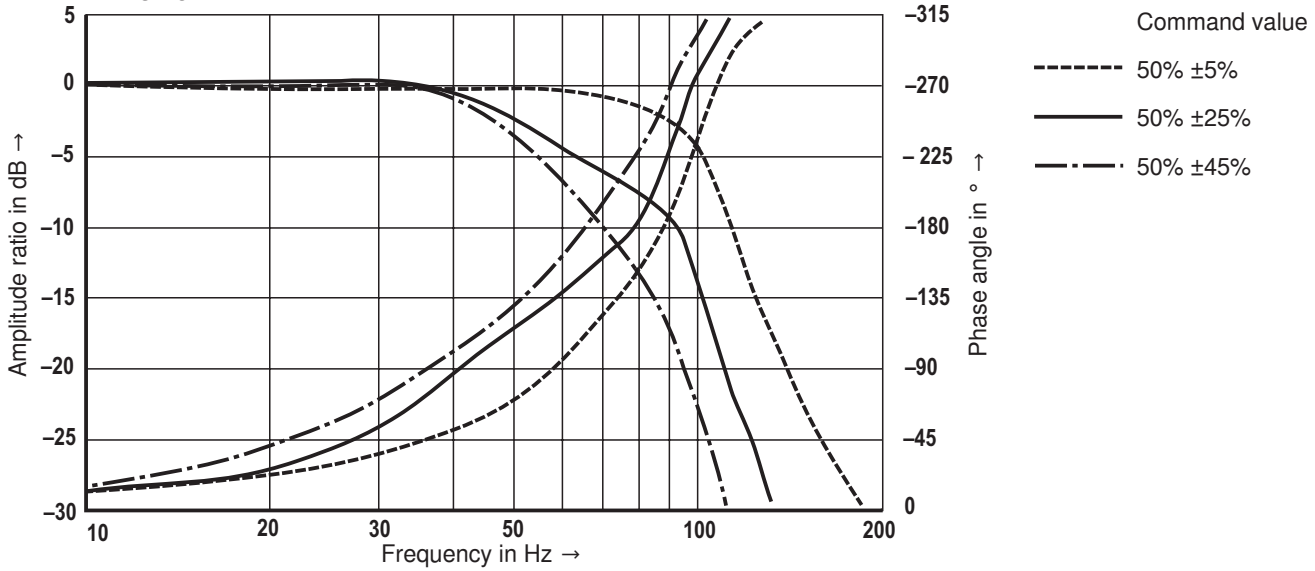

**3WRCE 50…**



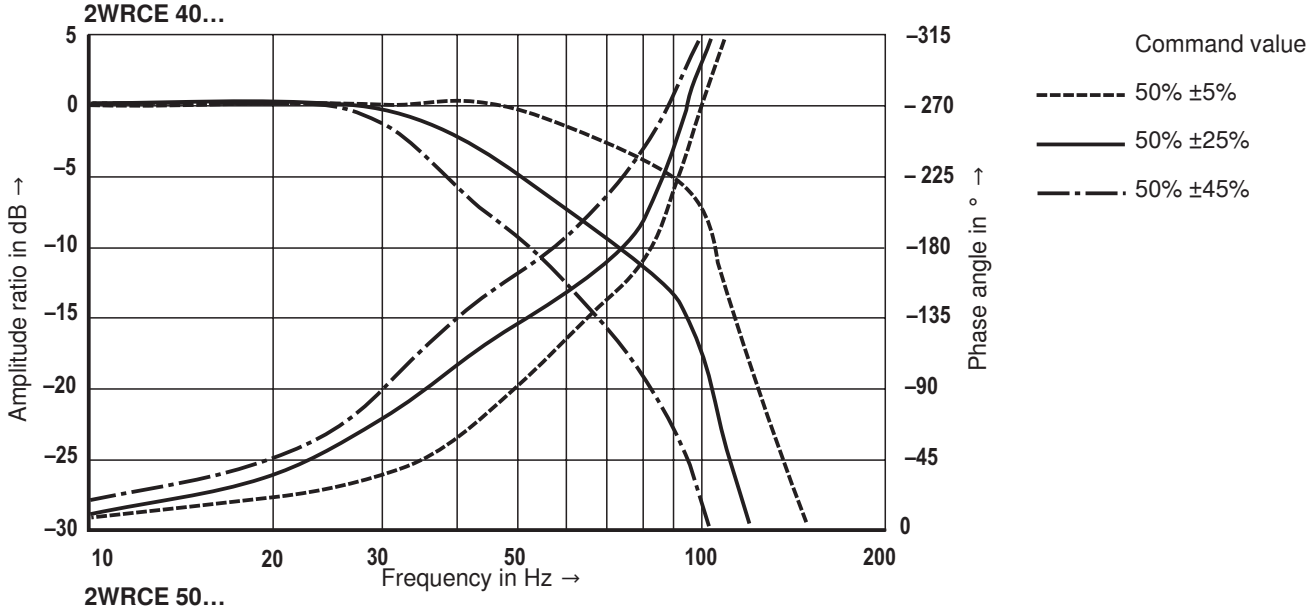
## Characteristic curves (measured with HLP32, $\vartheta_{oil}$ = 40 °C ±5 °C)

**Frequency response at $p_{st}$ = 315 bar**

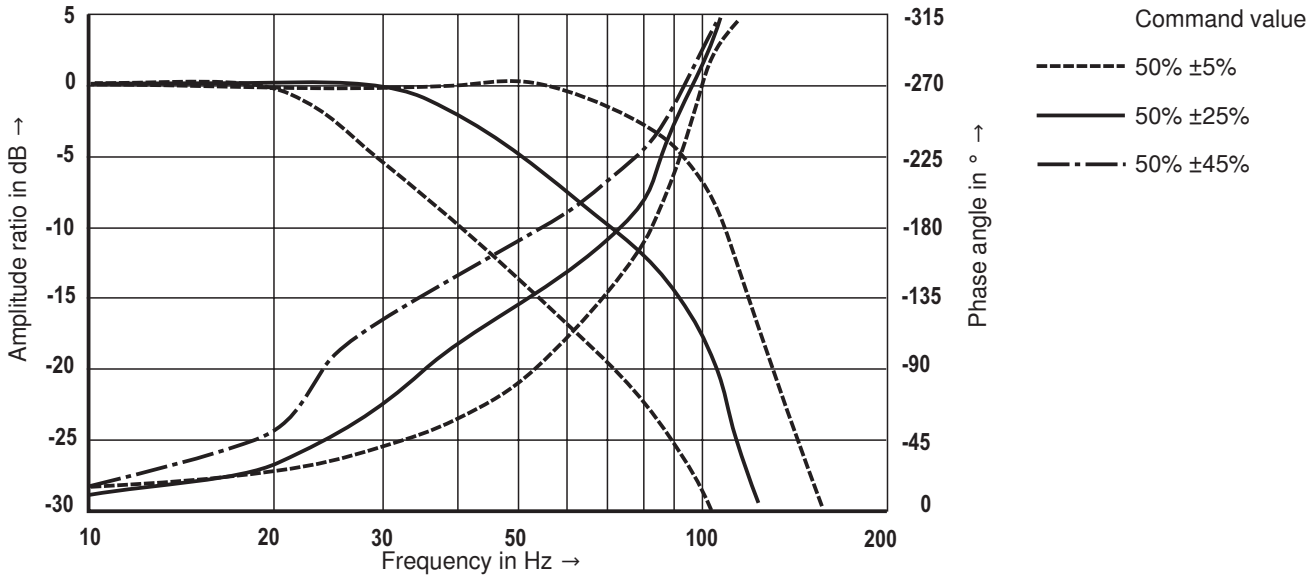
**2WRCE 32…**




**2WRCE 40…**



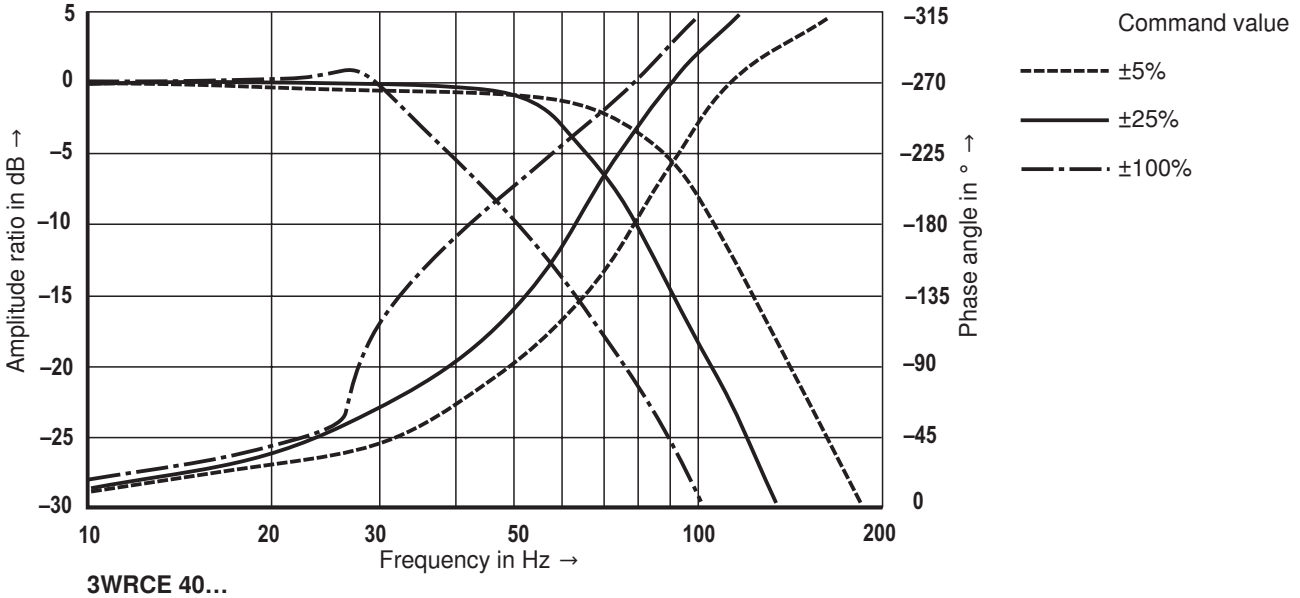

**2WRCE 50…**



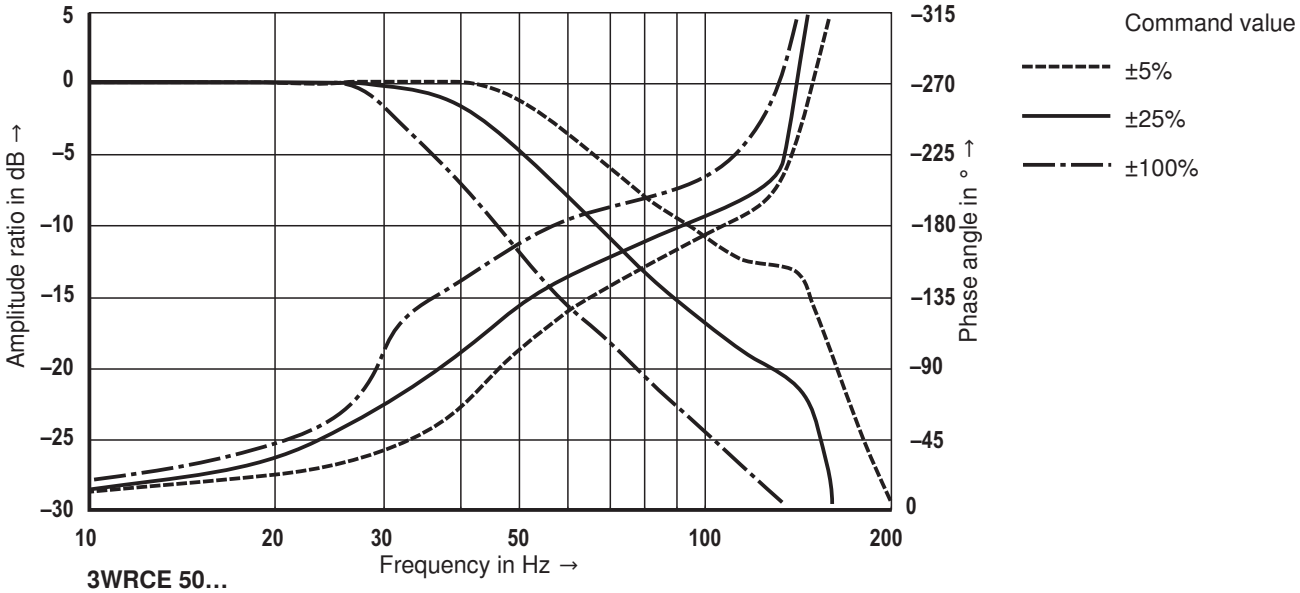
## **Characteristic curves** (measured with HLP32, $\vartheta_{oil}$ = 40 °C ±5 °C)

**Frequency response at $p_{st}$ = 315 bar**

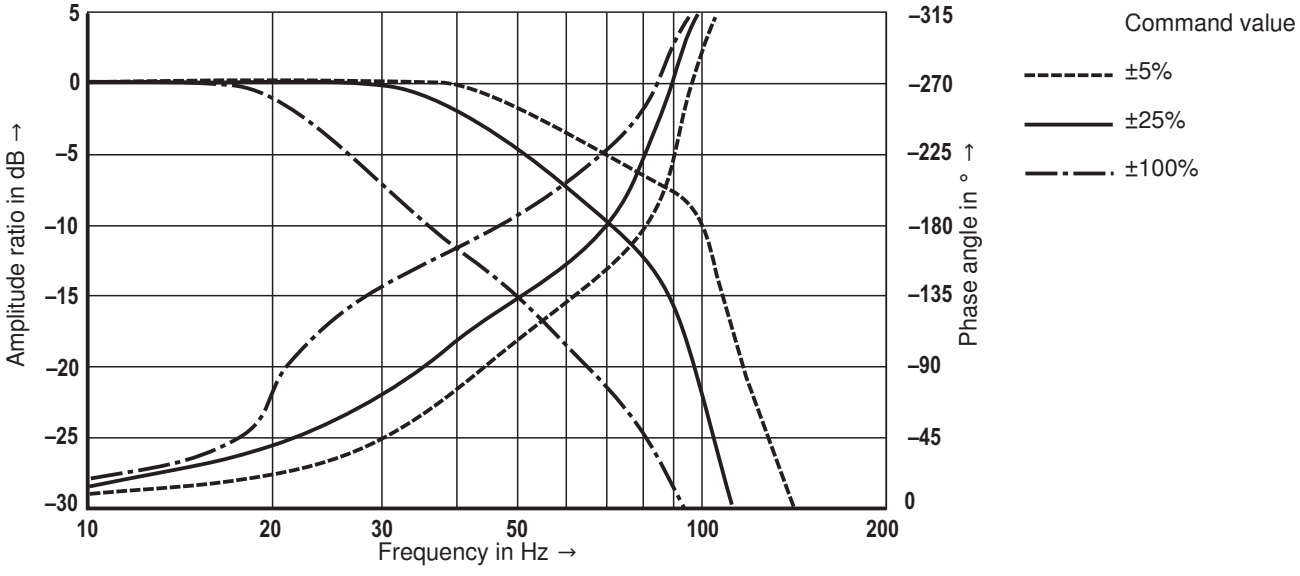
**3WRCE 32…**




**3WRCE 40…**



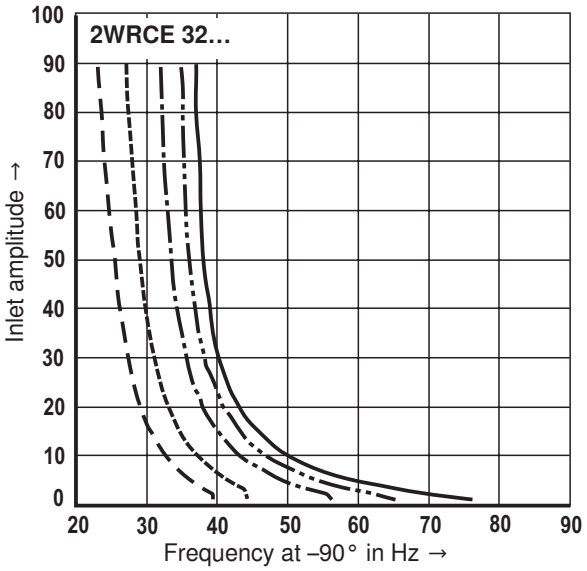

**3WRCE 50…**

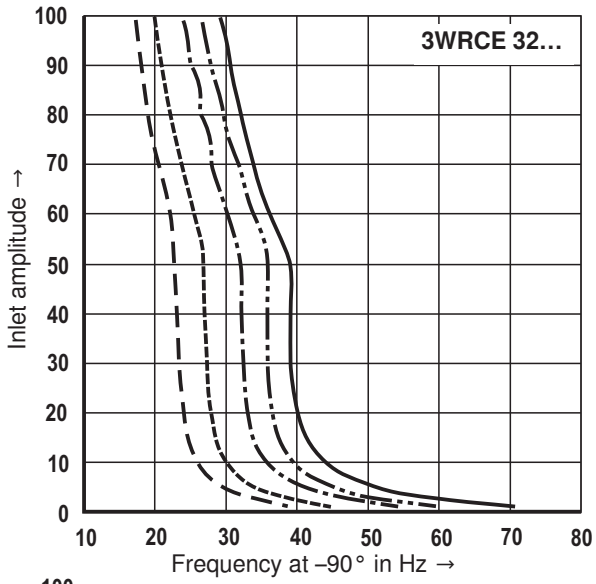


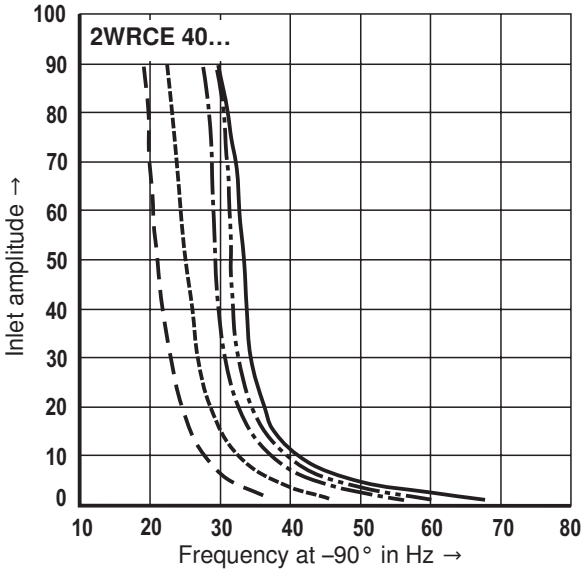
## Characteristic curves (measured with HLP32, $\vartheta_{oil}$ = 40 °C ±5 °C)

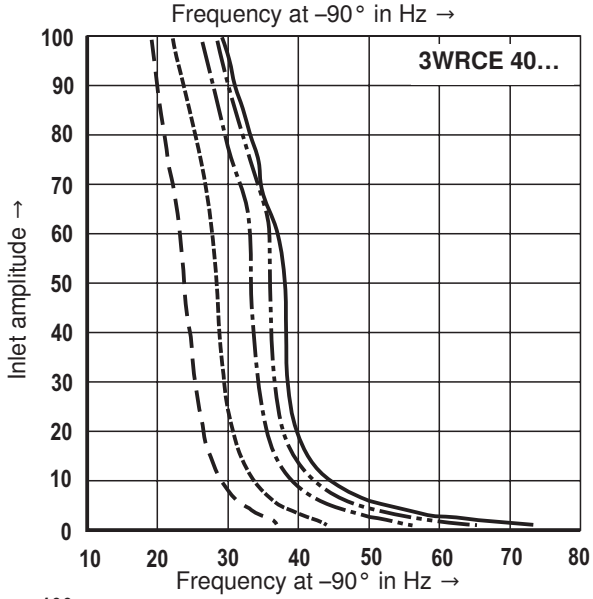
**Dependency of the frequency f at –90° on the operating pressure p and the inlet amplitude**

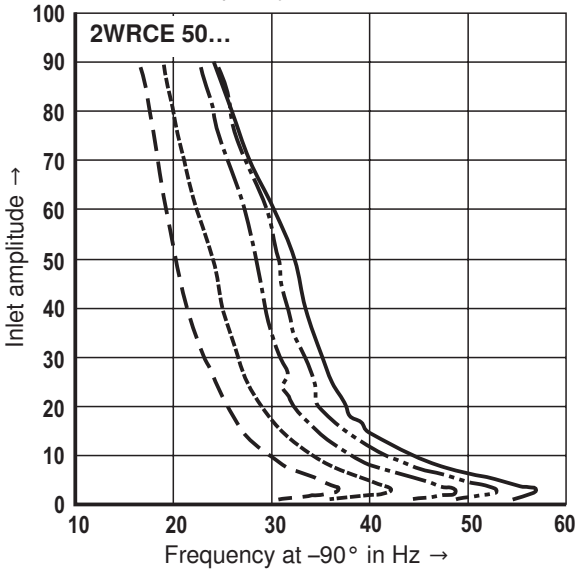
— — — $p_{st}$ = 40 bar
- - - - $p_{st}$ = 70 bar
—·—· $p_{st}$ = 140 bar
—··— $p_{st}$ = 210 bar
——— $p_{st}$ = 315 bar

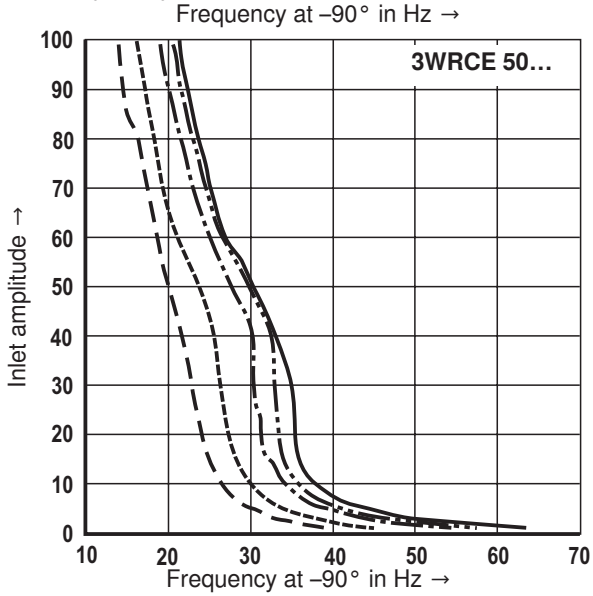


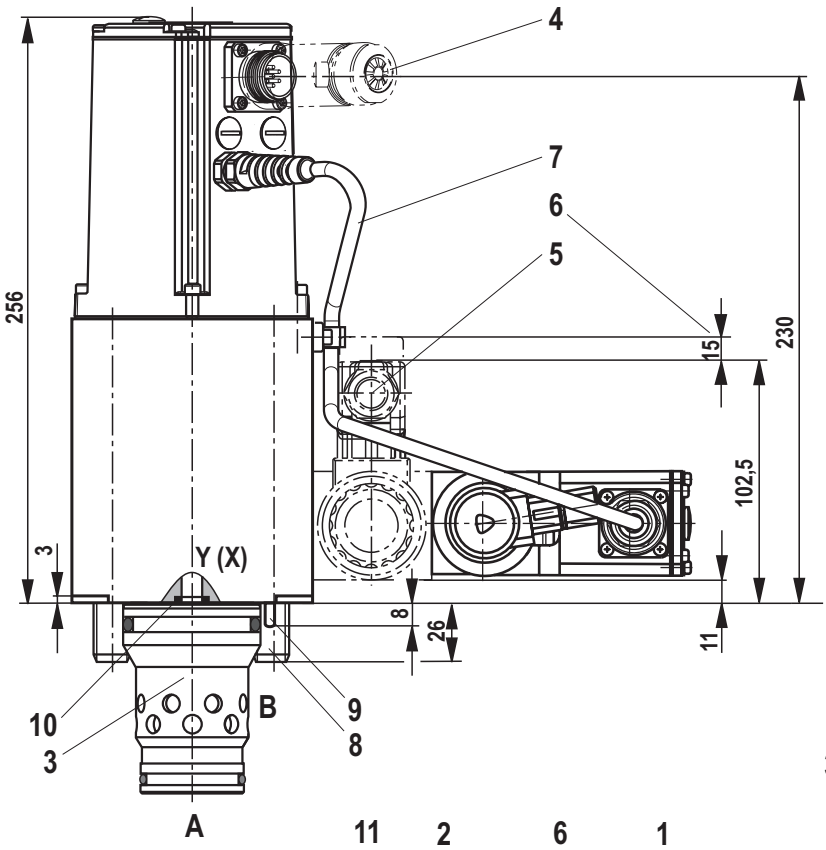



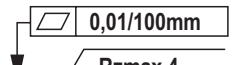



## Dimensions: Types 2WRCE and 3WRCE [1], size 32 (dimensions in mm)

**2WRCE 32**

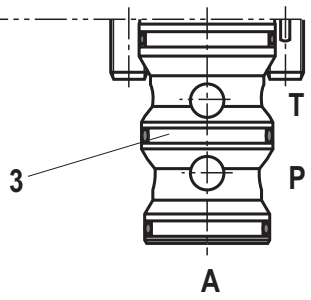


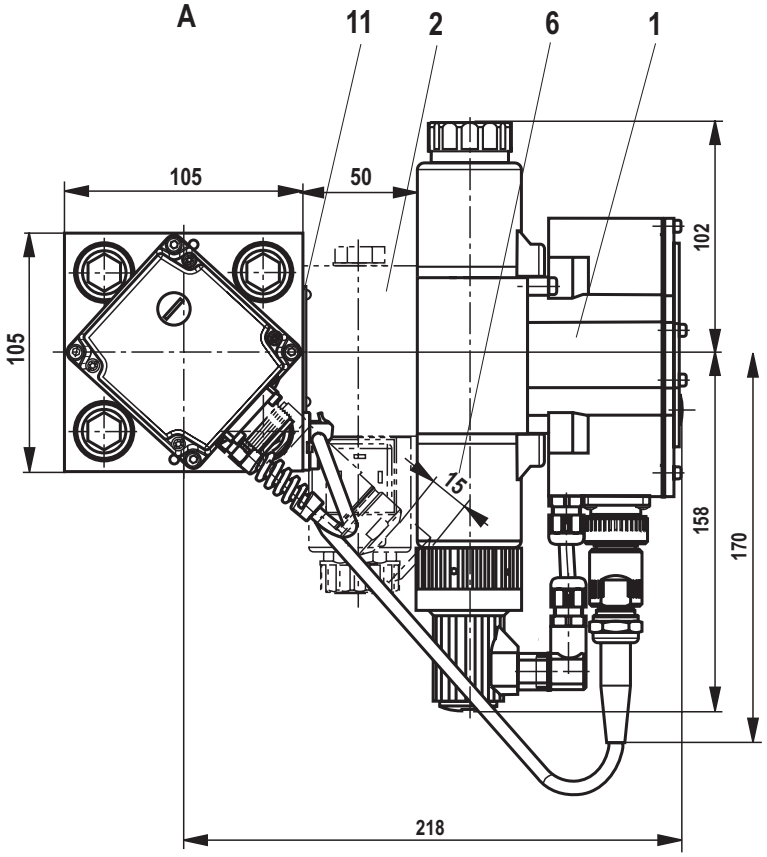




Required surface quality of the valve contact surface

**3WRCE 32...** [1]

(missing dimensions as 2WRCE 32...)



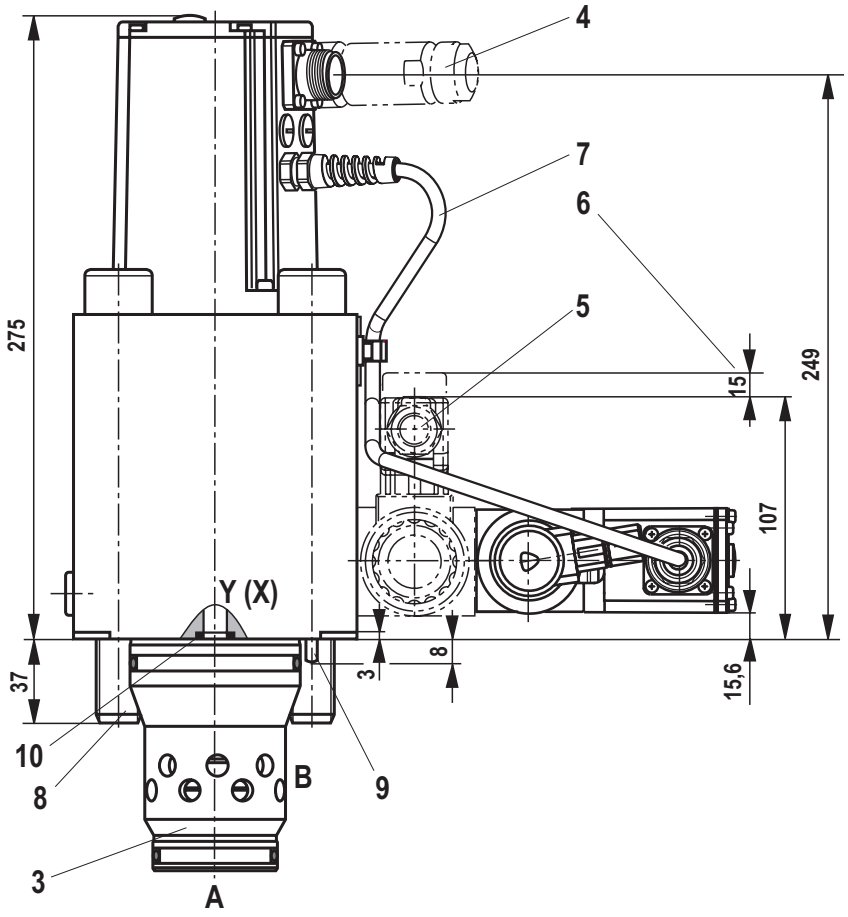



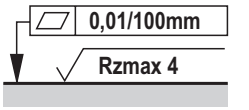

**1** Pilot control valve (proportional valve size 6)
**2** Sandwich plate shut-off valve (only with versions "WK15" and "WL15")
**3** Bushing
**4** Mating connector according to DIN EN 175201-804 (separate order, see page 12)
**5** Mating connector according to DIN EN 175301-803 (separate order, see page 12)
**6** Space required for removing the mating connector
**7** Cabling
**8** Valve mounting screws, see page 24
**9** Locking pin for fixing
**10** Identical seal rings for ports X and Y
**11** Name plate

[1] Not for new applications!

## Dimensions: Types 2WRCE and 3WRCE [1], size 40 (dimensions in mm)

**2WRCE 40**

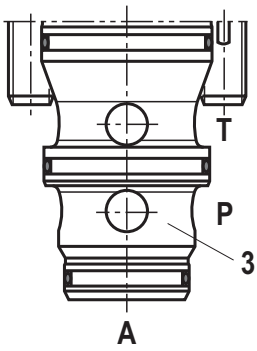


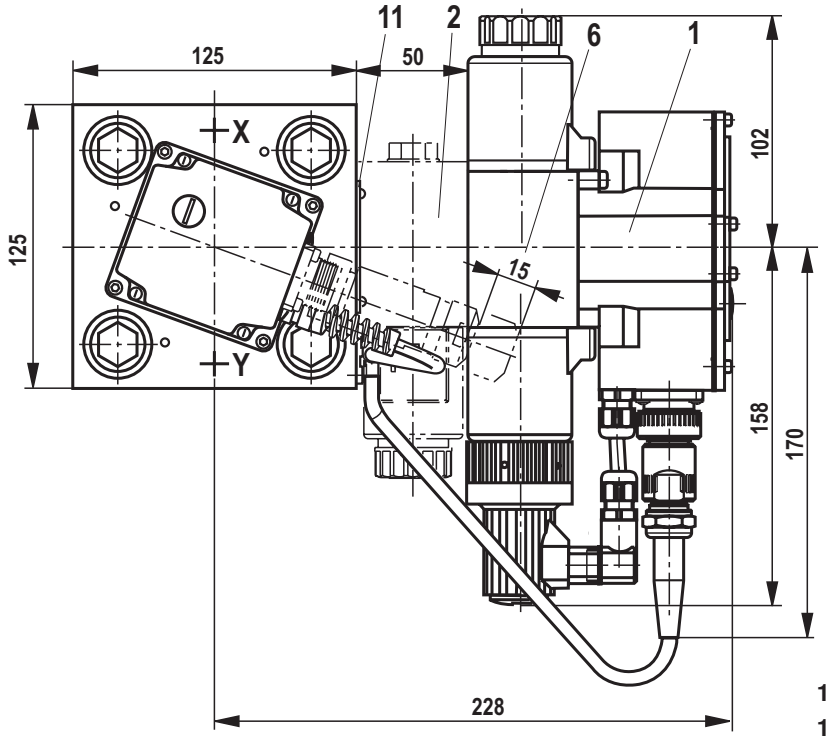




Required surface quality of the valve contact surface

**3WRCE 40...** [1]

(missing dimensions as 2WRCE 40...)



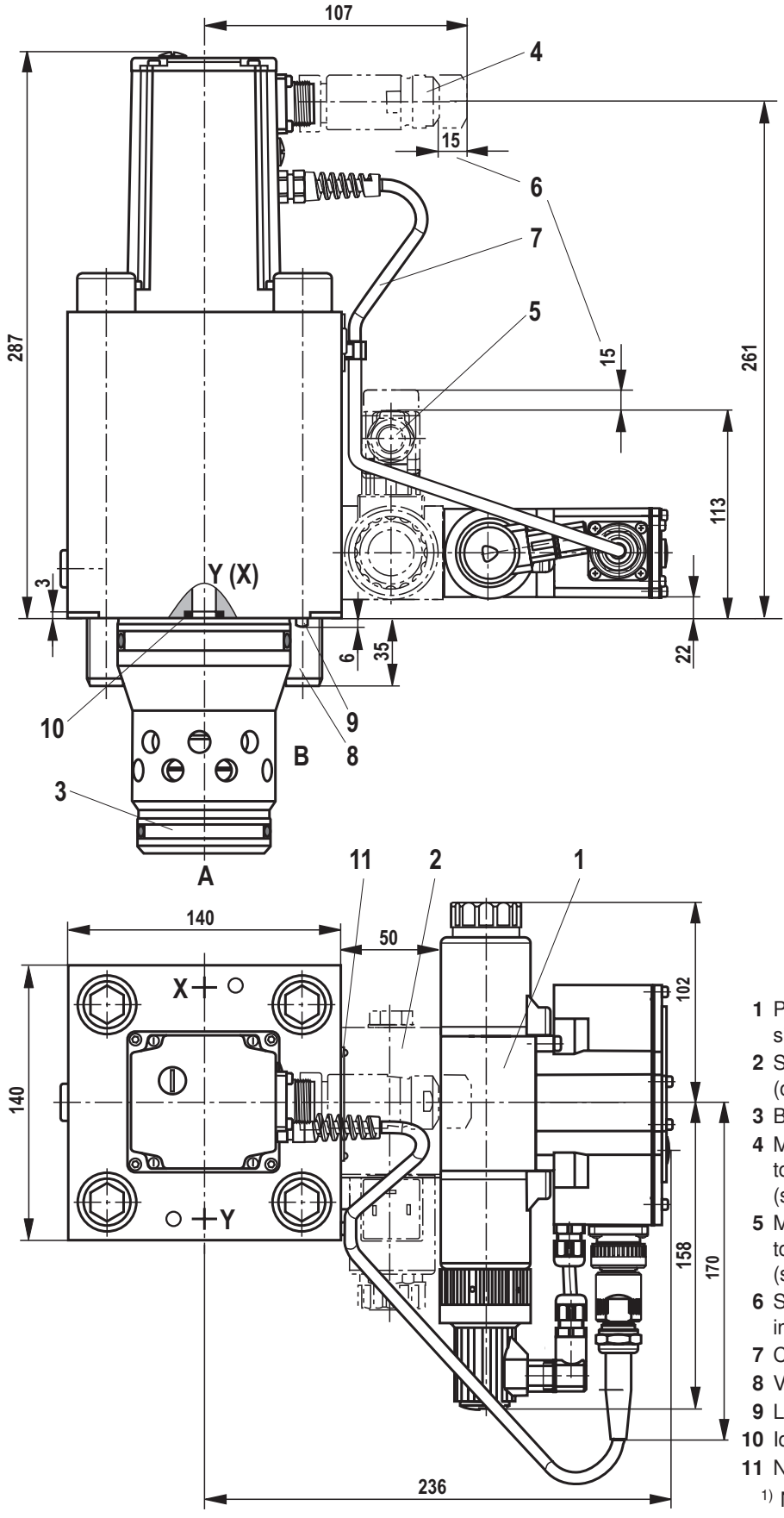



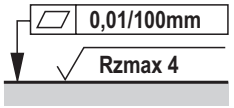

**1** Pilot control valve (proportional valve size 6)
**2** Sandwich plate shut-off valve (only with versions "WK15" and "WL15")
**3** Bushing
**4** Mating connector according to DIN EN 175201-804 (separate order, see page 12)
**5** Mating connector according to DIN EN 175301-803 (separate order, see page 12)
**6** Space required for removing the mating connector
**7** Cabling
**8** Valve mounting screws, see page 24
**9** Locking pin for fixing
**10** Identical seal rings for ports X and Y
**11** Name plate

[1] Not for new applications!

## Dimensions: Types 2WRCE and 3WRCE [1], size 50 (dimensions in mm)

**2WRCE 50**

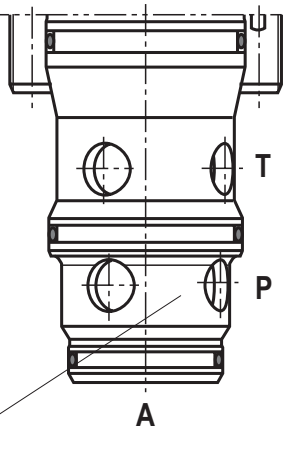



Required surface quality of the valve contact surface

**3WRCE 50...** [1]

(missing dimensions as 2WRCE 50...)

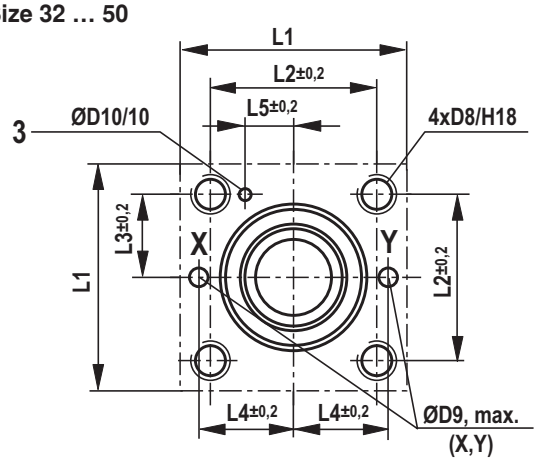



**1** Pilot control valve (proportional valve size 6)
**2** Sandwich plate shut-off valve (only with versions WK15 and WL15)
**3** Bushing
**4** Mating connector according to DIN EN 175201-804 (separate order, see page 12)
**5** Mating connector according to DIN EN 175301-803 (separate order, see page 12)
**6** Space required for removing the mating connector
**7** Cabling
**8** Valve mounting screws, see page 24
**9** Locking pin for fixing
**10** Identical seal rings for ports X and Y
**11** Name plate

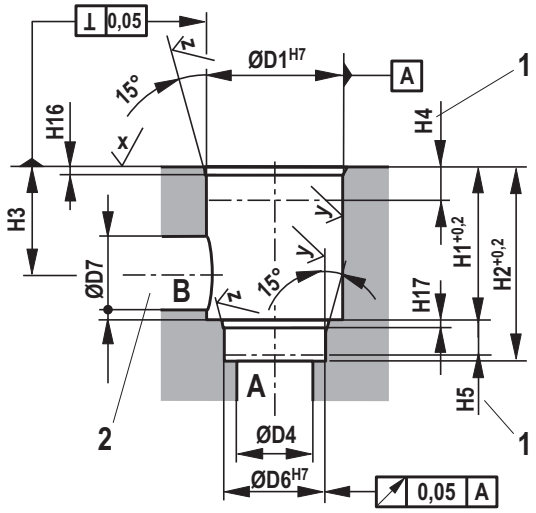
[1] Not for new applications!

## Installation dimensions according to DIN ISO 7368 (dimensions in mm)

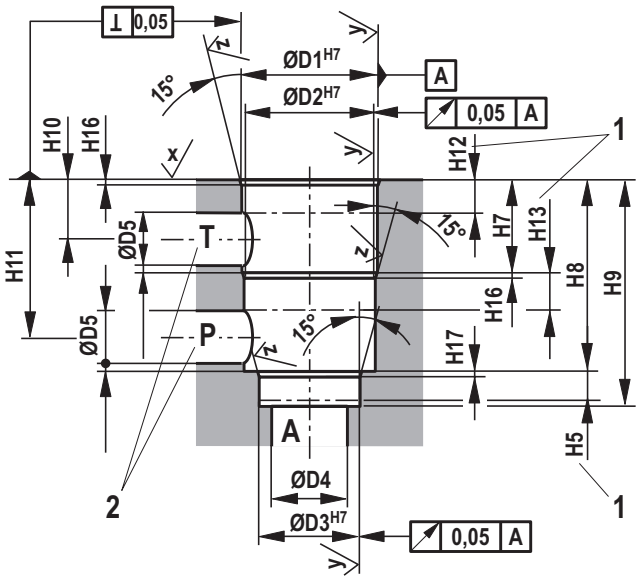
**Size 32 … 50**



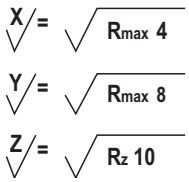

**Installation bore type 2WRCE according to DIN ISO 7368**




**Installation bore type 3WRCE**




| Size | 32 | 40 | 50 |
|---|---|---|---|
| ØD1H7 | 60 | 75 | 90 |
| ØD2H7 | 58 | 73 | 87 |
| ØD3H7 | 55 | 55 | 68 |
| ØD4 | 32 | 40 | 50 |
| ØD5 | 24 | 30 | 35 |
| ØD6H7 | 45 | 55 | 68 |
| ØD7 | 32 | 40 | 50 |
| D8 | M16 | M20 | M20 |
| max. ØD9 | 8 | 10 | 10 |
| ØD10 | 6 | 6 | 8 |
| H1 | 70 | 87 | 100 |
| H2 | 85 | 105 | 122 |
| H3 | 52 | 64 | 72 |
| H4 | 30 | 30 | 35 |
| H5 | 13 | 15 | 17 |
| H7 | 43.5 | 54 | 87 |
| H8 | 85 | 105 | 143 |
| H9 | 100 | 125 | 165 |
| H10 | 30 | 36 | 66 |
| H11 | 70.5 | 87 | 122 |
| H12 | 18 | 21 | 48 |
| H13 | 15 | 18 | 18 |
| H16 | 2.5 | 3 | 4 |
| H17 | 2.5 | 3 | 3 |
| H18 | 35 | 45 | 45 |
| L1 | 105 | 125 | 140 |
| L2 | 70 | 85 | 100 |
| L3 | 35 | 42.5 | 50 |
| L4 | 41 | 50 | 58 |
| L5 | 17 | 23 | 30 |




**Tolerances according to:** – General tolerances ISO 2768-mK

**1** Depth of fit, minimum dimension

**2** The ports P, T and B can be positioned around the central axis of port A. Sufficient distance from the mounting bores and control bores is to be observed.

**3** Locating hole for locking pin

## **Accessories** (not included in the scope of delivery)

| **Hexagon socket head cap screws** | |
|---|---|
| Size 32 | 4x ISO 4762 - M16 x 100 - 10.9<br>Tightening torque $M_A$ = 280 Nm ±10% |
| Size 40 | 4x ISO 4762 - M20 x 180 - 10.9<br>Tightening torque $M_A$ = 560 Nm ±10% |
| Size 50 | 4x ISO 4762 - M20 x 190 - 10.9<br>Tightening torque $M_A$ = 560 Nm ±10% |

**Notice:** The tightening torque of the hexagon socket head cap screws refers to maximum operating pressure!

## **Project planning / maintenance instructions / additional information**

- General operating instructions: Hydraulic valves for industrial applications, see data sheet 07600-B
- Assembly, commissioning and maintenance of hydraulic systems, see data sheet 07900
- Installation, commissioning and maintenance of servo valves and high-response valves, see data sheet 07700
- Assembly, commissioning and maintenance of proportional valves, see data sheet 07800

Bosch Rexroth AG
Hydraulics
Zum Eisengießer 1
97816 Lohr am Main, Germany
Phone +49 (0) 93 52 / 18-0
documentation@boschrexroth.de
www.boschrexroth.de