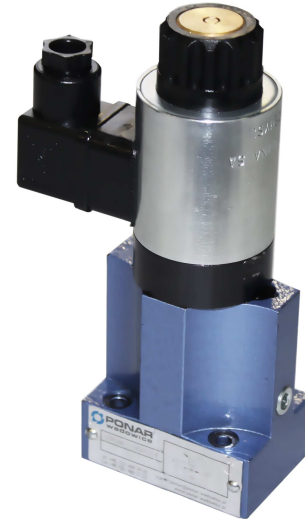


DATA SHEET - OPERATION MANUAL

APPLICATION

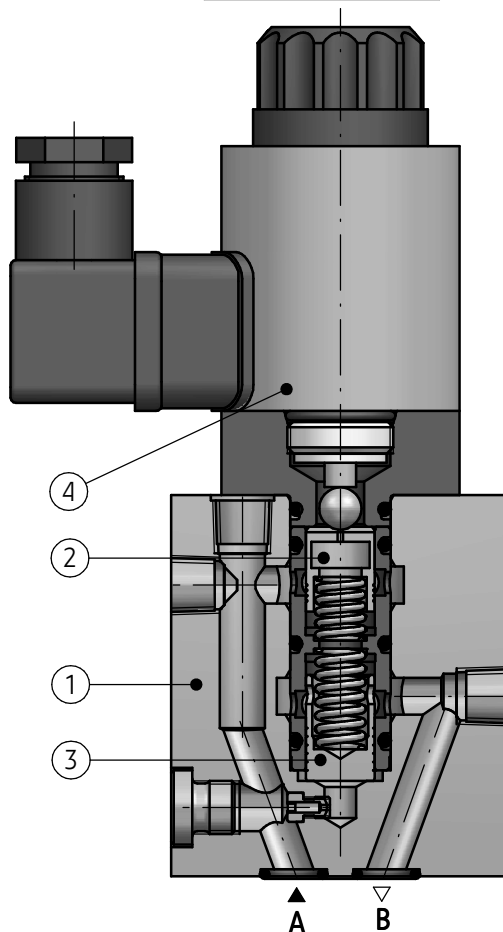
Proportional flow control valve type **UDRDA6...** is intended for independent from the pressure and temperature setting via electrical way the size of flow of the hydraulic fluid from **A** to **B** direction and free (in version with a check valve) flow in the reverse direction, from **B** to **A**. The valve can be installed in hydraulic systems into a subplate in any position.



DESCRIPTION OF OPERATION

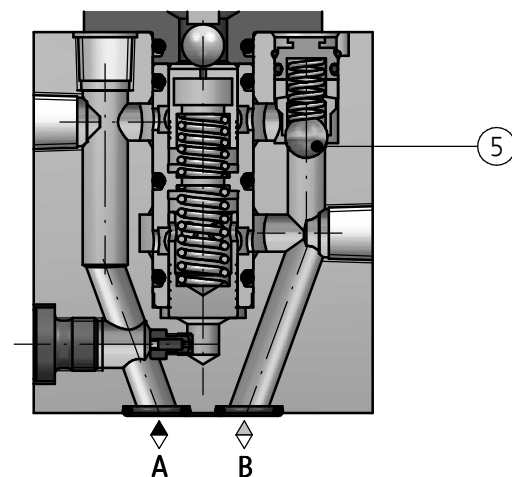
version UDRDA6...M... (without a check valve)

UDRDA6 - 22/13Q M



version UDRDA6...R... (with a check valve)

UDRDA6 - 22/13Q R



Proportional flow control valve type **UDRDA6...** is a 2-way direct operated valve via a proportional solenoid (4). The main components of the valve are: the body (1), control piston (2), pressure compensator (3), proportional solenoid (4) and optionally, a check valve (5). The flow from **A** to **B** port is performed after opening a gap at the controlling piston (3) by providing the proper value of the control current to the proportional solenoid (4).

The opening of the gap of the piston is proportional to the current flowing through the solenoid. Constant flow independent from the load is maintained by the pressure compensator (3).

Free flow from the **B** to **A** channel is provided by the check valve (5) - in a version of the flow controller with a check valve (version UDRDA6...R).

TECHNICAL DATA

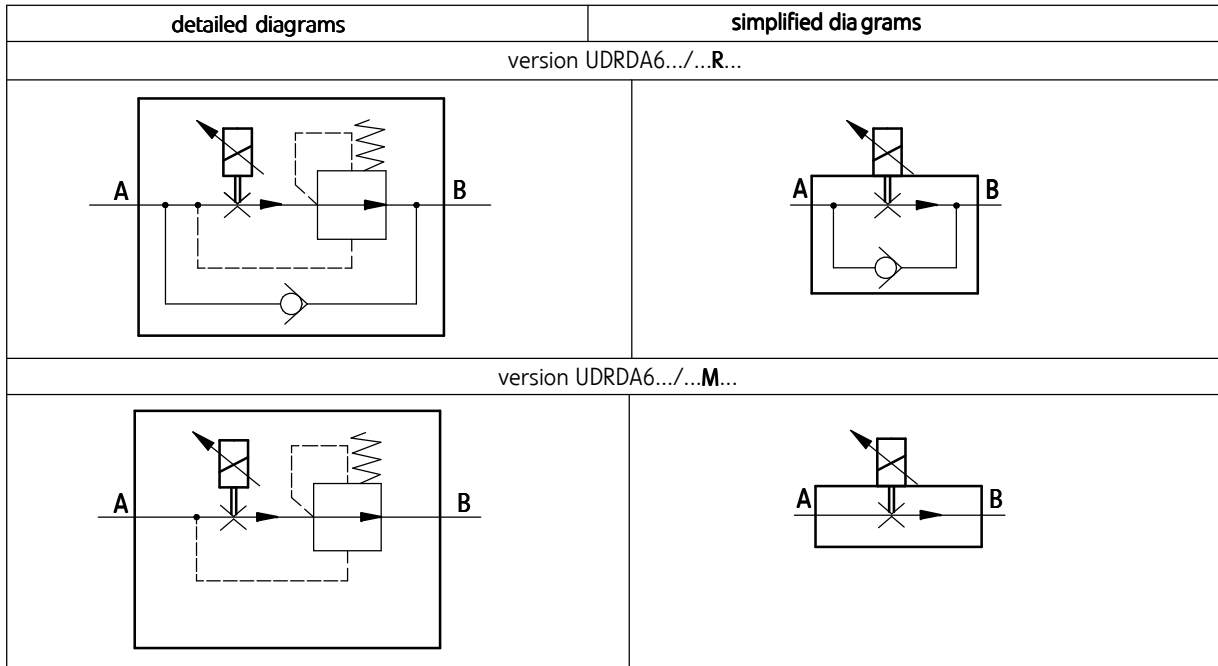
| | | |
|--|---|---------------------|
| Hydraulic fluid | mineral oil | |
| Required fluid cleanliness class | ISO 4406 class 20/18/15 | |
| Nominal fluid viscosity | 37 mm ² /s at temperature 55 °C | |
| Viscosity range | 2,8 up to 380 mm ² /s | |
| Fluid temperature range (in a tank) | recommended | 40 °C up to 55 °C |
| | max | -20 °C up to +70 °C |
| Ambient temperature range | - 20 °C up to +50 °C | |
| Max pressure at port A | 21 MPa | |
| The lowest difference of pressure in front of- and behind the valve | 1,5 MPa | |
| Flow stability | 5% | |
| Hysteresis | do 6% | |
| Repetition accuracy | 2% | |
| Flow range | up to 22 dm³/min | |
| Degree of protection | IP 65 | |
| Maximum supply current of the solenoid I_{max} | 1,5 A | |
| Resistance of cold solenoid coil (at temperature 20 °C) | 5,4 Ω | |
| Electronic regulators (must be ordered separately) | type 21RE10 D acc. to data sheet WK 421 810 | |
| | type 20RE10 E acc. to data sheet WK 420 820 | |
| | type 20RC10 E acc. to data sheet WK 427 790 | |
| | (when powered by a stabilized voltage 12 to 24 V DC , set the maximum current I_{max}) | |
| Weight of the valve | 1,8 kg | |

INSTALLATION AND OPERATION REQUIREMENTS

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Only fully functional and operational valve can be used. 2. During operation one must keep viscosity of hydraulic fluid recommended in this Data Sheet - Operation Manual. 3. In order to ensure failure free and safe operation one should systematically check: <ul style="list-style-type: none"> • condition of the electrical connection • proper operation of the valve • cleanliness of the hydraulic fluid 4. Due to heating of solenoid coil and the valve body to high temp., the valve should be placed in such a | <ol style="list-style-type: none"> 5. way as to eliminate the risk of accidental contact with solenoid and the valve body during operation or one should provide suitable covers compliant with the requirements of European standards: PN - EN ISO 13732 - 1 and PN - EN 4413. 5. In order to provide tightness of the valve connection to the hydraulic system, one should keep the dimensions of the sealing rings, tightening torques and valve operation parameters specified in this Data Sheet - Operation Manual. 6. A person operating the valve must be thoroughly familiar with this Data Sheet - Operation Manual. |
|--|---|

DIAGRAMS

Detailed and simplified hydraulic diagrams of flow control valves type UDRDA6...

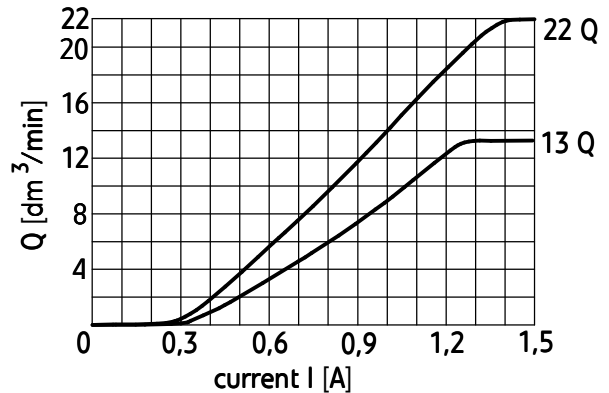
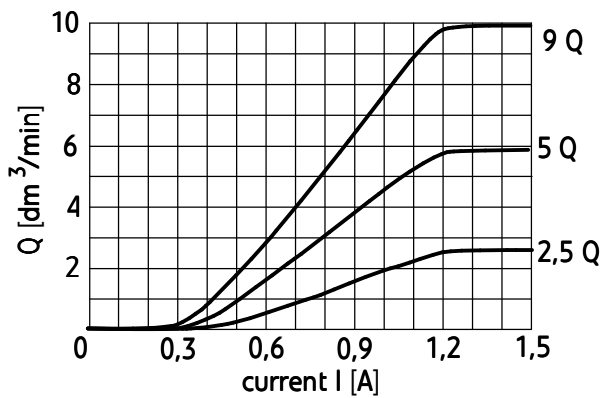


PERFORMANCE CURVES

measured at viscosity $\nu = 41 \text{ mm}^2/\text{s}$ and temperature $t = 50^\circ\text{C}$

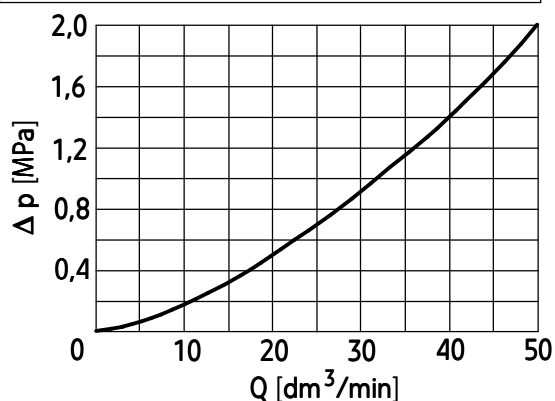
Performance curves of the flow in relation to the solenoid current

performance curves of the flow dependency from the provided current value for the flow control valve type UDRDA6... of various flow ranges; flow direction $A \rightarrow B$ ($\Delta p = 5 \text{ MPa}$)

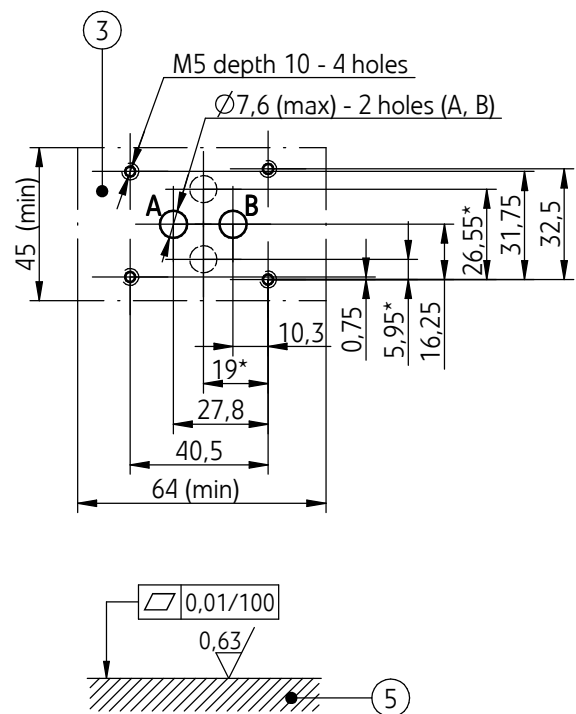
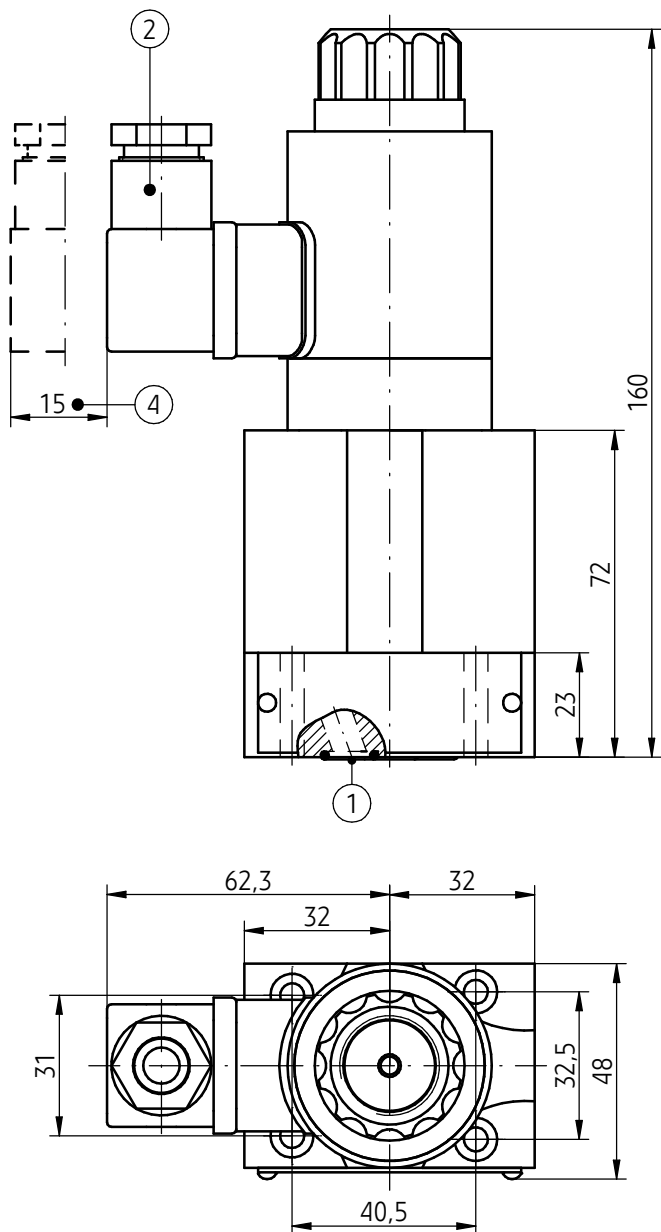


Flow resistance curves

performance curve of flow through check valve version UDRDA6 - 22/...R...; flow direction $B \rightarrow A$



OVERALL AND CONNECTION DIMENSIONS



- 1 - Sealing o-ring 9,2 x 1,8 - pcs 4/set
- 2 - Plug-in connector type ISO 4400 (DIN 43650 - A)
- 3 - Porting pattern of the subplate surface compliant with ISO 4401 standard
 designation ISO 4401-03-02-0-94 (CETOP 03)
 fixing screws M5 x 30 - 10.9 in accordance with PN - EN ISO 4762 - pcs 4/set; must be ordered separately; tightening torque $Md = 9 \text{ Nm}$
- 4 - Distance for disassembling the plug-in connector - item 2
- 5 - Subplate surface required

NOTE:

(*) - dimensions of the centers of the counterbores (with sealing rings - item 1 - pcs 2) made in the body of the valve in order to maintain compliance with ISO 4401 - 03 connection (elements of the connection not used by the valve type UDRDA6...)

HOW TO ORDER

| | | | | | | | | |
|--------------|----------|---|---|---|-----------|-----------|--|----------|
| UDRDA | 6 | + | / | + | 12 | Z4 | | ★ |
|--------------|----------|---|---|---|-----------|-----------|--|----------|

Nominal size (NS)

NS6 = 6

Series number

(20 - 29) - installation and connection dimensions
unchanged = 2X
series 22 = **22**

Flow range (A → B)

up to **2,5 dm³/min** = **2,5 Q**
up to **5 dm³/min** = **5 Q**
up to **9 dm³/min** = **9 Q**
up to **13 dm³/min** = **13 Q**
up to **22 dm³/min** = **22 Q**

Valve version

with a check valve = R
without a check valve = **M**

Solenoid coil type

coil for max current I_{max} = 1,5 A = **12**

Electrical connection

plug-in connector type ISO 4400 (DIN 43650 - A) = **Z4**

Sealing

NBR (for fluids on mineral oil base) = **no designation**
FKM (for fluids on phosphate ester base) = V

Further requirements in dear text

(to be agreed with the manufacturer)

NOTES:

The flow control valve should be ordered according to the above coding.

The symbols in bold are the preferred versions available in short delivery time.

Coding example: UDRDA6 - 22/13Q - M 12 Z4

SUBPLATES AND FIXING SCREWS

Subplates should be ordered according to data sheet

WK 496 480. Subplate symbols:

G 341/01 - threaded connections G 1/4

G 342/01 - threaded connections **G 3/8**

G 502/01 - threaded connections G 1/2

G 341/02 - threaded connections M14 x 1,5

G 342/02 - threaded connections M16 x 1,5

The subplate symbol in bold is the preferred version available in short delivery time.

Subplates and screws fixing the valve **M5 x 30 - 10,9**

in accordance with **PN - EN ISO 4762** - pcs 4/set

must be ordered separately.

Tightening torque **Md = 9 Nm**

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