

### DATA SHEET - OPERATION MANUAL

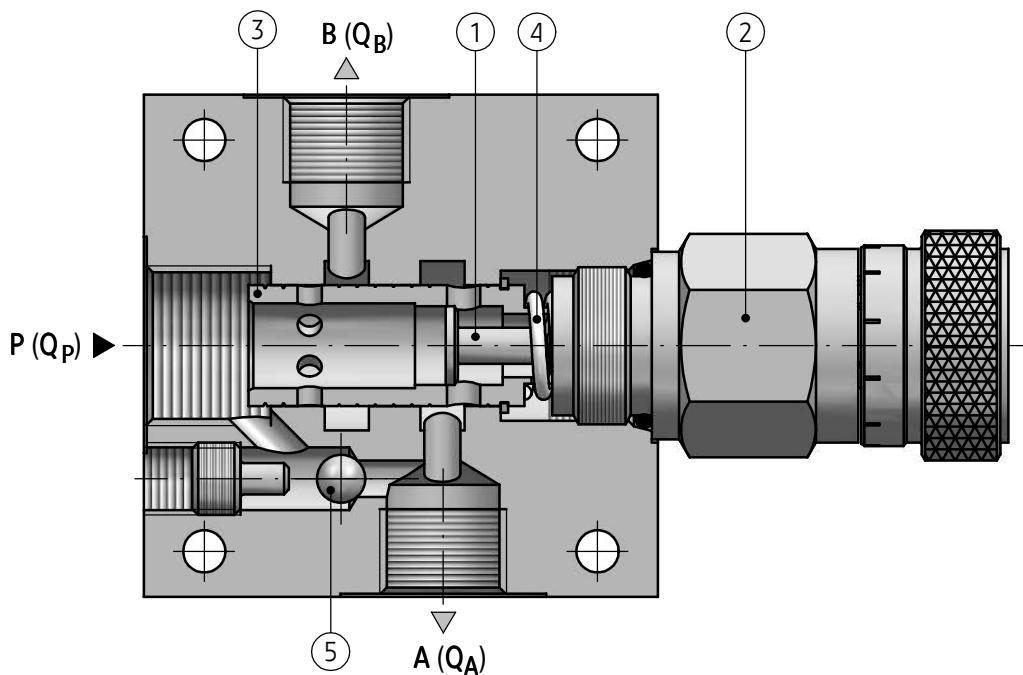
#### APPLICATION

3-way flow control valve type UDUE10... is intended for independent from pressure on supply side of (pump) setting flow rate in hydraulic system. It enables to control speed movement of receiver - mostly piston rod or hydraulic motor. Supply stream (port **P**) is divided on priority stream directed to port **A** and residual discharged by port **B** to reservoir or supply other receiver.



#### DESCRIPTION OF OPERATION

UDUE10 - 22/50 - 4



The principle of regulator operation is achieved by division of supply stream (port **P**) on priority stream directed to port **A** and residual stream (port **B**).

3-way regulator type UDUE10... consists of two principal valves: throttle and differential.

Throttle valve act as measuring and consists of choke (1) made in form of poppet valve and setting (2).

Differential valve acts as regulator and consists of spool (3) and spring (4).

Hydraulic fluid flowing through the valve from port **P** to **A** causes drop of pressure on choke (1), which depends on setting and current flow value through choke (1).

Pressure difference before and after choke (1) acts on spool (3) and after overcoming spring preload (4) causes opening the way from port **P** to **B** enabling residual stream flow. Spool (3) gets position of balance at the moment when pressure drop on measuring throttle (1) is corresponding to spring preload (4).

It means that stream value flowing through port **A** is constant, independent from pressure on supply side (port **P**), and is dependent only on position of regulator setting. Regulator is equipped with check valve (5), enabling free flow from port **A** to **P**.

## TECHNICAL DATA

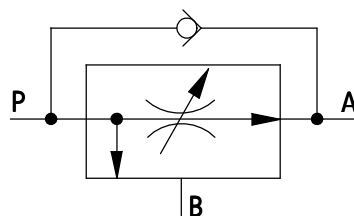
Hydraulic fluid	mineral oil	
<b>Required fluid cleanliness class</b>	<b>ISO 4406 class 20/18/15</b>	
Nominal fluid viscosity	37 mm <sup>2</sup> /s at temperature 55 °C	
Viscosity range	2,8 up to 380 mm <sup>2</sup> /s	
Fluid temperature range (in a tank)	recommended	40°C up to 55°C
	max	-20°C up to +70°C
Ambient temperature range	-20°C up to +70°C	
<b>Max operating pressure</b>	<b>35 MPa</b>	
Min operating pressure	0,5 MPa	
<b>Nominal flow (priority stream) Q<sub>A</sub></b>	<b>50 dm<sup>3</sup>/min</b>	
<b>Max flow (supply stream) Q<sub>p</sub></b>	<b>70 dm<sup>3</sup>/min</b>	
Weight	2,3 kg	

## INSTALLATION AND OPERATION REQUIREMENTS

1. During the operation one must maintain the recommended fluid viscosity and provide proper filtration specified in this Data Sheet - Operation Manual.
2. In order to ensure safe and failure-free operation of the valve, the following must be checked:
  - operation of the valve
  - cleanliness of the hydraulic fluid
3. In order to provide proper tightness of the valve connection to a hydraulic system, one should ensure tightening torque and valve operation parameters as specified in this Data Sheet - Operation Manual.
4. A person operating the valve must be familiarized with the content of this Data Sheet - Operation Manual.

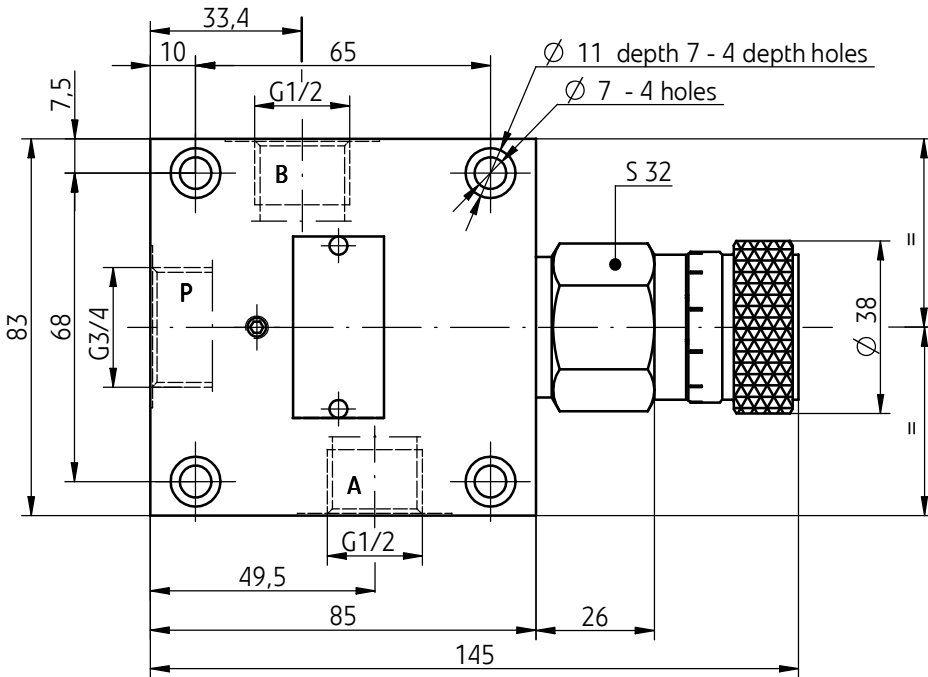
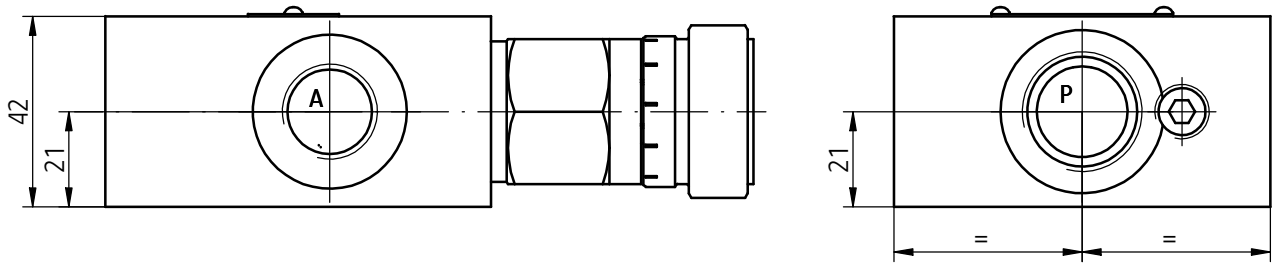
## SCHEMES

Graphic symbol of flow control valve type UDUE10...

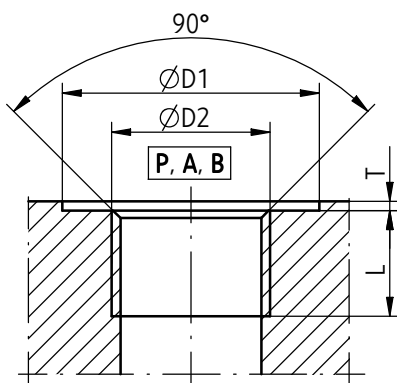


# OVERALL AND CONNECTION DIMENSIONS

valve type UDUE10...



threaded connections P, A, B



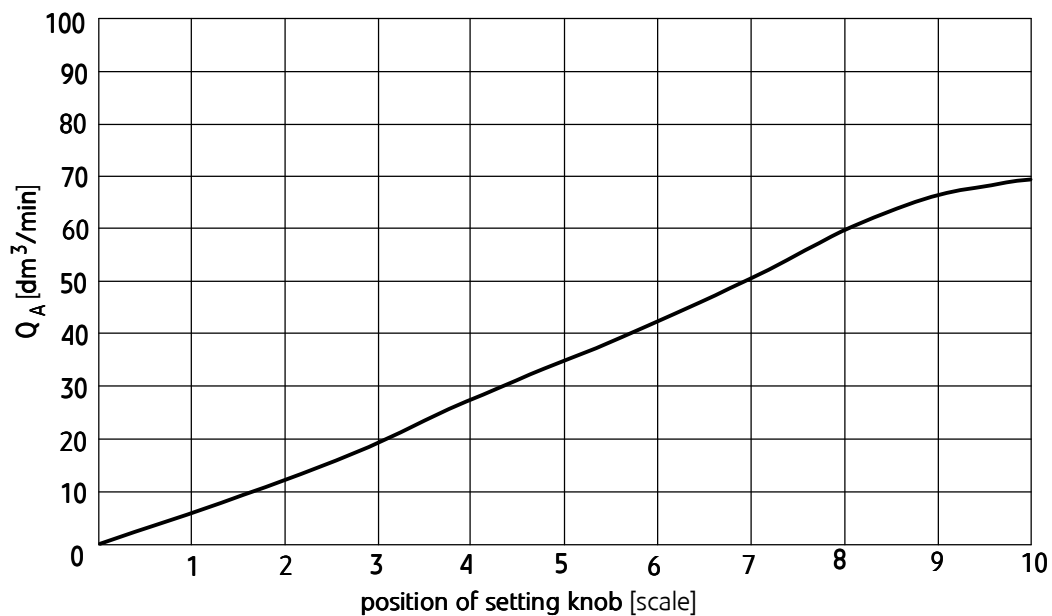
dimension	threaded connection	
	P	A, B
φ D1	G 3/4	G 1/2
L	16	14
φ D2	36	34
T	0,5	0,5

## PERFORMANCE CURVES

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

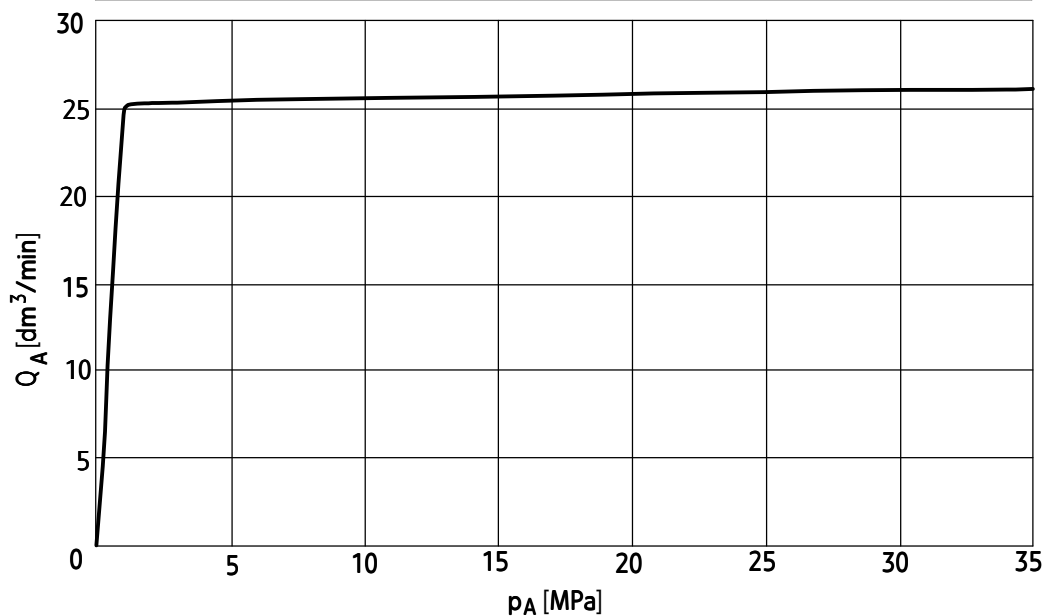
### Characteristics of regulation range

Characteristic of priority discharge effect  $Q_A$  (port A) from position of setting knob (scale) for valve type UDUE10... for flow rate on supply side (port P)  $Q_P = 70 \text{ dm}^3/\text{min}$



### Flow characteristics

Characteristic of dependence priority discharge effect  $Q_A$  from pressure changes on receiver  $p_A$  (port A)



## HOW TO ORDER

<b>UDUE</b>	<b>10</b>	+	/	+	★
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<b>Nominal size (NS)</b> <b>NS10</b>	= <b>10</b>				
<b>Series number</b> (20 - 29) - connection and installation dimensions unchanged <b>series 22</b>	= 2X = <b>22</b>				
<b>Flow range</b> <b>acc. to characteristics</b> - page 4	= <b>50</b>				
<b>Type of setting element</b> <b>knob with scale</b> (1 turn)	= <b>4</b>				
Further requirements in dear text (to be agreed with the manufacturer)					

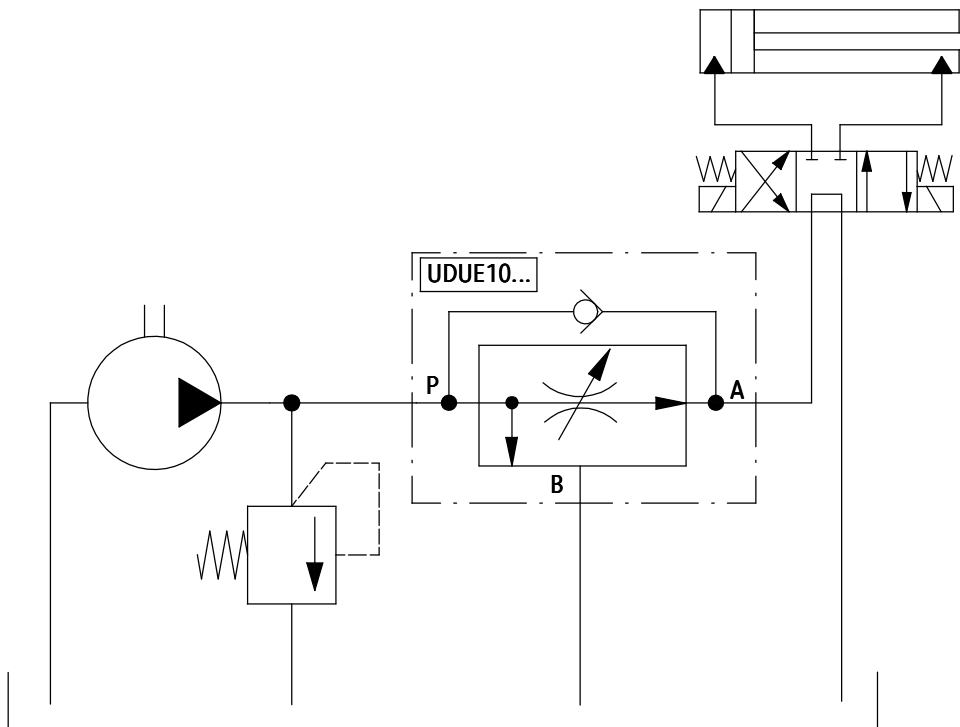
### NOTES:

Flow control valve should be ordered according to the above coding.

**The symbols in bold are preferred versions in short delivery time.**

Coding example: UDUE10 - 22/50 - 4

## EXAMPLE OF APPLICATION IN HYDRAULIC SYSTEM



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