

### DATA SHEET - SERVICE MANUAL

## APPLICATION

Directional cartridge control valves type 2URED3... are used to control the direction of fluid flow and thus it enables to change the direction of movement or to hold the receiver (mostly of a cylinder or hydraulic motor).

The directional cartridge control valve is mounted by screwing into threaded connection.



## DESCRIPTION OF OPERATION

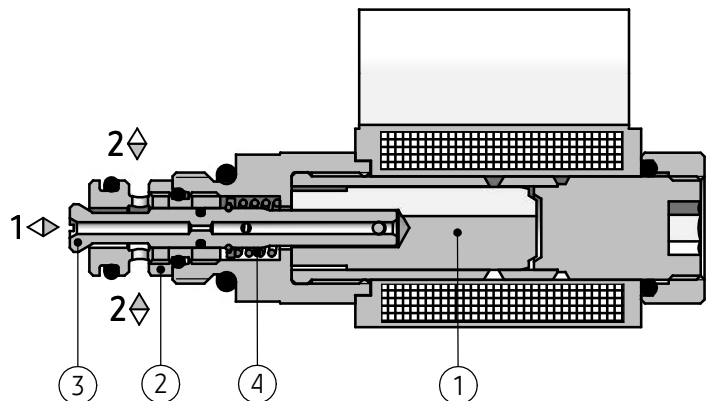
### Version 2URED3 C1

(hydraulic scheme – graphic symbol, see page 2)

The directional cartridge control valve is composed of the solenoid (1), sleeve (2), spool (3) and spring (4). The fluid flows or is blocked when the position of the spool (3) in the sleeve (2) is shifted.

The flow is blocked by means of the voltage supplied to the solenoid and the spool (3) is shifted. When the supply voltage is cut off, then the spool (3) via the spring (4) returns into neutral position and the fluid flows.

2URED3 C1 -12/2 M1 G24 A1



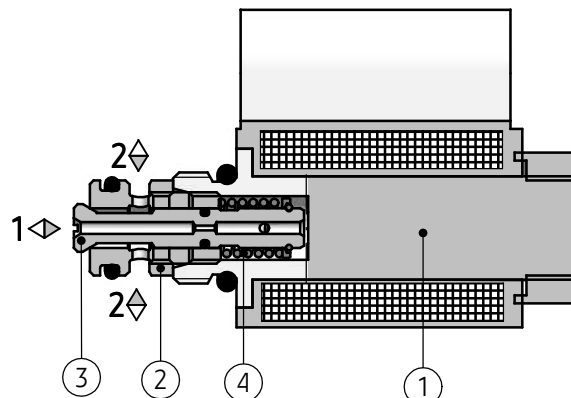
### Version 2URED3 C5

(hydraulic scheme – graphic symbol, see page 2)

The directional cartridge control valve is composed of the solenoid (1), sleeve (2), spool (3) and spring (4). The fluid flows or is blocked when the position of the spool (3) in the sleeve (2) is shifted.

The fluid flows when the voltage is supplied to the solenoid and the spool (3) is shifted. When the supply voltage is cut off, then the spool (3) via the spring (4) returns into neutral position and the fluid is blocked.

2URED3 C5 -02/2 M1 G24 A1



## TECHNICAL DATA

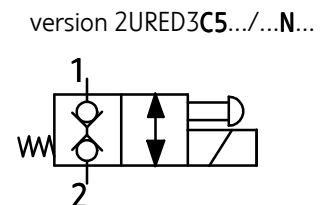
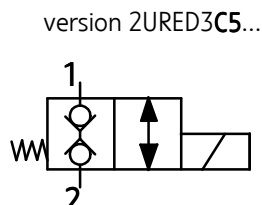
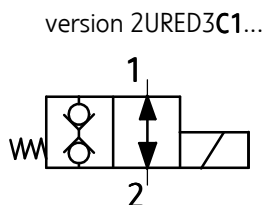
Hydraulic fluid	mineral oil	
Required filtration	up to 16 $\mu\text{m}$	
Recommended filtration	up to 10 $\mu\text{m}$	
Nominal fluid viscosity	37 $\text{mm}^2/\text{s}$ at temperature 55 °C	
Viscosity range	2,8 up to 380 $\text{mm}^2/\text{s}$	
Fluid temperature range (in a tank)	recommended	40 °C up to 55 °C
	max	-20 °C up to +70 °C
Ambient temperature range	- 20 °C up to +50 °C	
Maximum operating pressure	port 1	21 MPa
	port 2	30 MPa
Leakage rate	less than 0,1 $\text{cm}^3/\text{min}$	
Solenoid power	10 W	
Insulation	IP 65	
Weight	~ 0,32 kg	

## ASSEMBLY AND APPLICATION REQUIREMENTS

1. Only valve working properly and suitably installed may be connected to an electric system. Only skilled workers are allowed to connect and disconnect electric system.
2. It is forbidden to use directional spool valve when tightness and appropriate clamp for cable in the plug gland is not secured.
3. It is forbidden to use directional spool valve when the plug is not precisely tightened to the solenoid socket.
4. Due to heating solenoid coils, directional spool valves should be put as to eliminate the possibility of incidental touch while using, or, they should be equipped with the coil covers (in accordance with the European standards PN-EN ISO 13732-1 and PN-EN 982).

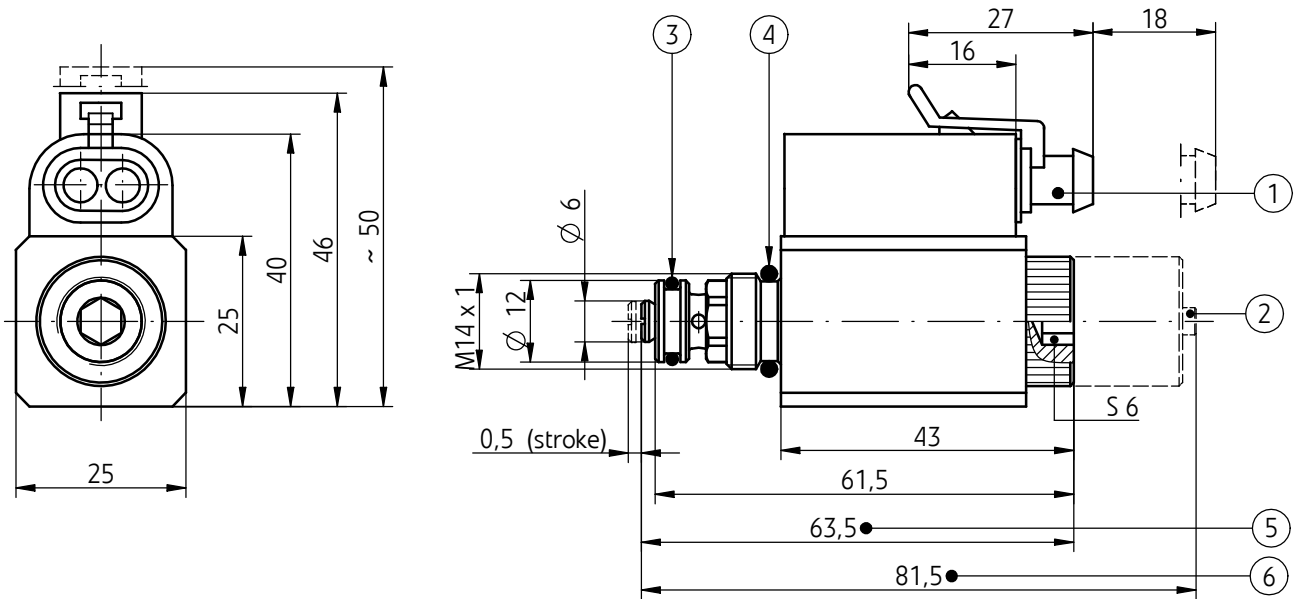
## SCHEMES

Graphic symbols of the valve type 2URED3...



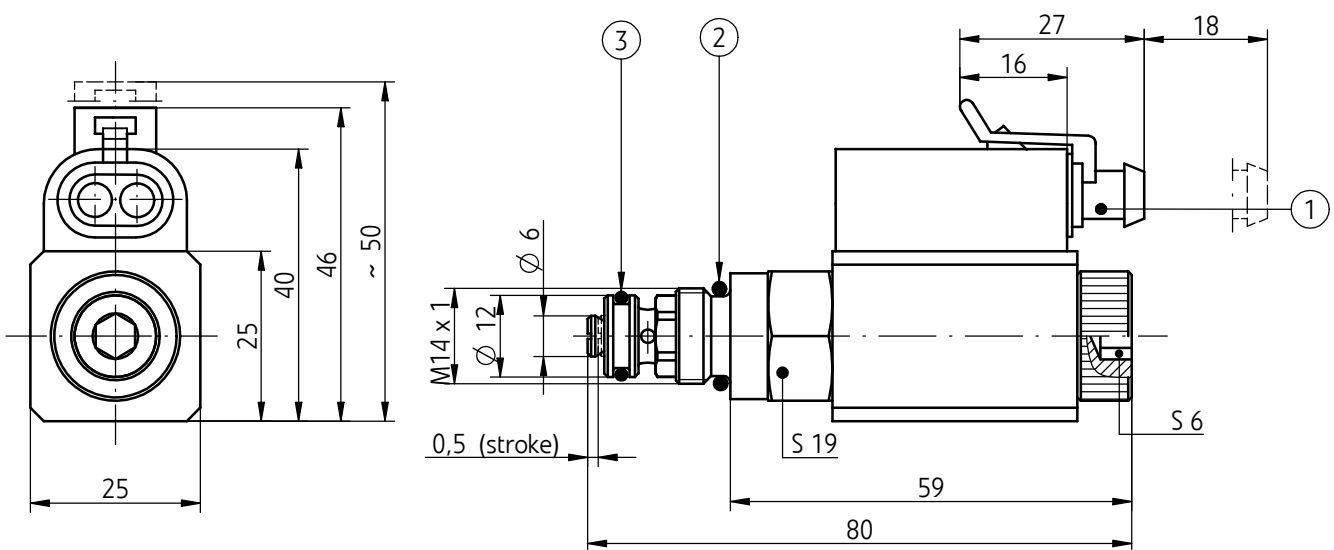
## OVERALL AND CONNECTION DIMENSIONS

versions: **2URED3 C5-02/2 M1 G24 A1**  
**2URED3 C5-02/2 M1 G24 N A1**



- 1 - Connector-in-plug **A1** (type **SUPERSEAL** - company **AMP**)
- 2 - Manual override
- 3 - **O-ring 9,25 x 1,78** - 1 pc/kit
- 4 - **O-ring 11,3 x 2,4** - 1 pc/kit
- 5 - Dimension of cartridge control valve **without** manual override (version **2URED3 C5-02/2M1G24 A1**)
- 6 - Dimension of cartridge control valve **with** manual override (version **2URED3 C5-02/2M1G24 N A1**)

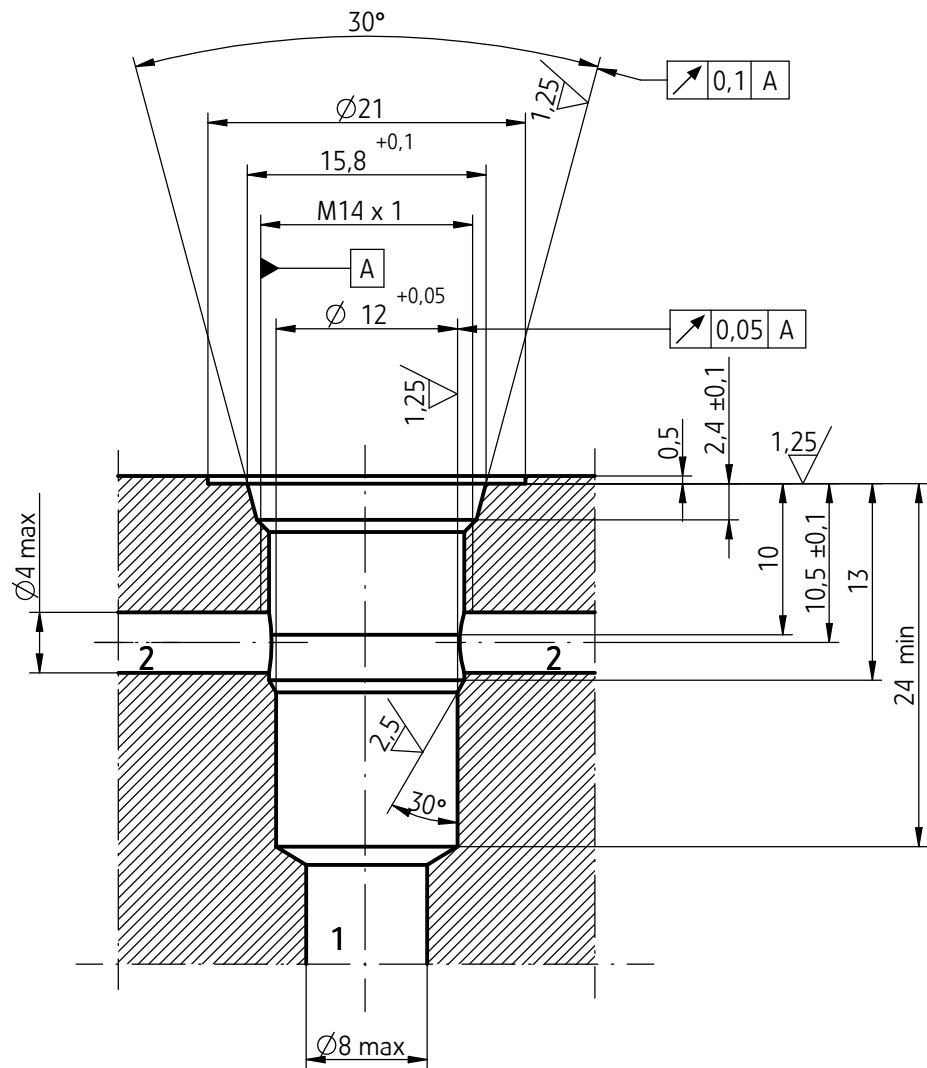
version **2URED3 C1-02/2 M1 G24 A1**



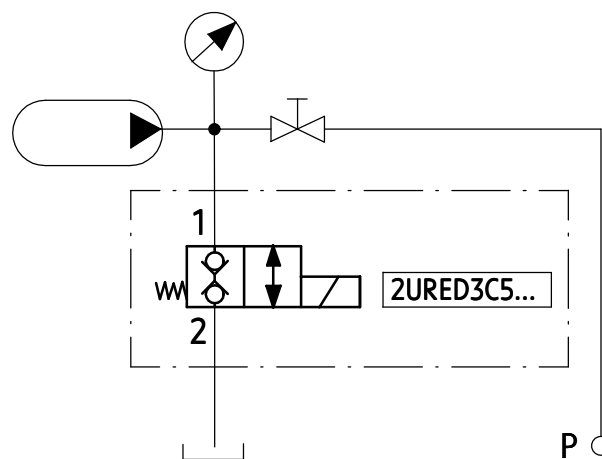
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# OVERALL AND CONNECTION DIMENSIONS

Cavity M 14 x 1



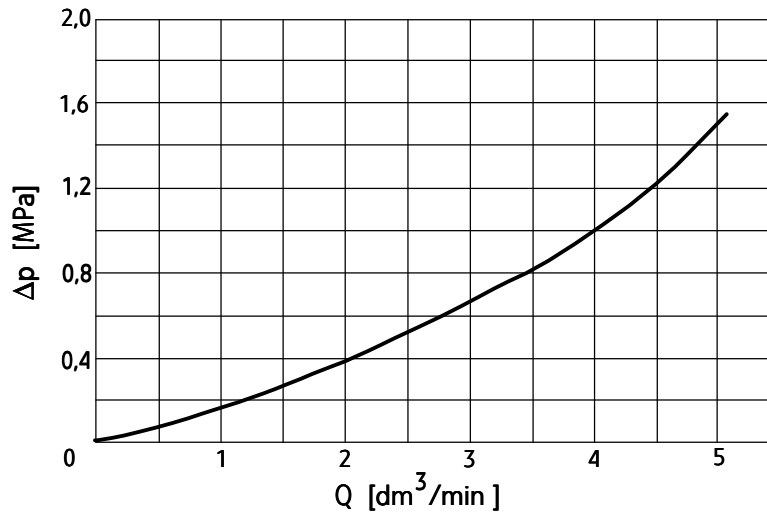
## EXAMPLE OF APPLICATION IN HYDRAULIC SYSTEM



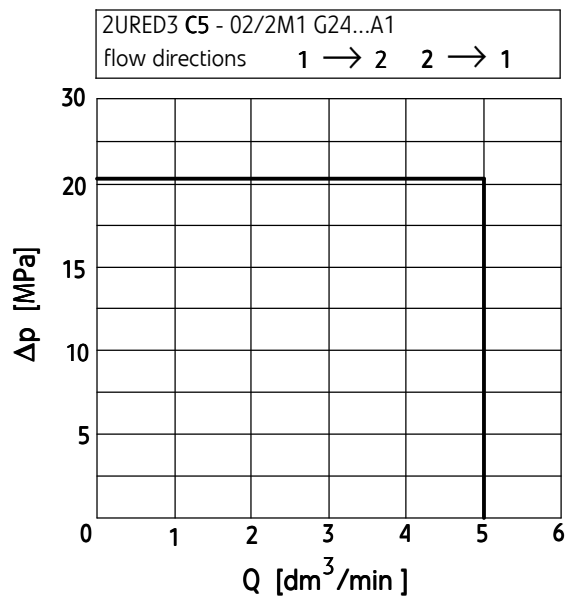
## PERFORMANCE CURVES

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

### Flow resistance curves



### Flow limit curves



## HOW TO ORDER

**2** **URED** **3** **+** **/** **2** **M1** **A1** **\***

### Number of service ports

**2-way** = **2**

### Nominal size (NS)

**NS3** = **3**

### Spool type

(see schemes on page 3)

spool C1 = C1

**spool C5** = **C5**

### Series number

(01-09) - connection and installation dimensions unchanged = 0X

**series 02** = **02**

### Number of position

**2-position** = **2**

### Connection

**cavity M14 x 1** = **M1**

### Supply voltage for solenoids

**12V DC** voltage = **G12**

**24V DC** voltage = **G24**

### Manual override

**solenoids without manual override** = **no designation**

**solenoids with manual override** (applied to ZURED6C5 only) = **N**

### Electrical connection

**Connection with plug-in-connector A1** (type SUPERSEAL company AMP) = **A1**

### Sealing

**NBR** (for fluids on mineral oil base) = **no designation**

**FPM** (for fluids on phosphate ester base) = **V**

Further requirements in clear text (to be agreed with the manufacturer)

### NOTES:

Directional spool valve should be ordered according to the above coding.

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

Coding example: **2URED3 C5 - 02/2 M1 G24 A1**

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