

DATA SHEET - OPERATION MANUAL

APPLICATION

Directional cartridge valve type 2URED6... is intended for control direction of fluid flow, causing particular movement direction or stops a receiver (cylinder or hydraulic motor).

The directional valve is mounted by screwing into a threaded cavity.

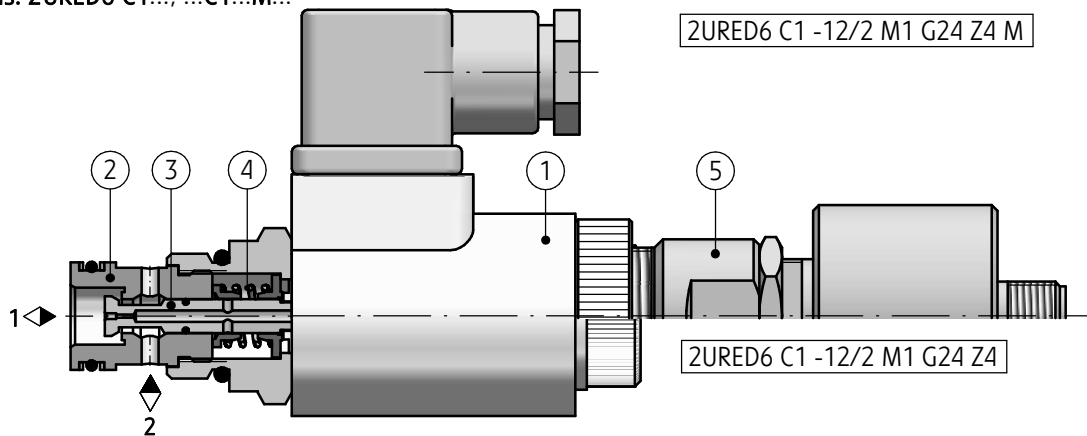
The product is complied with the regulations of directive 2006/95/WE for the following voltages:

- 50 – 250 V for AC
- 75 – 250 V for DC

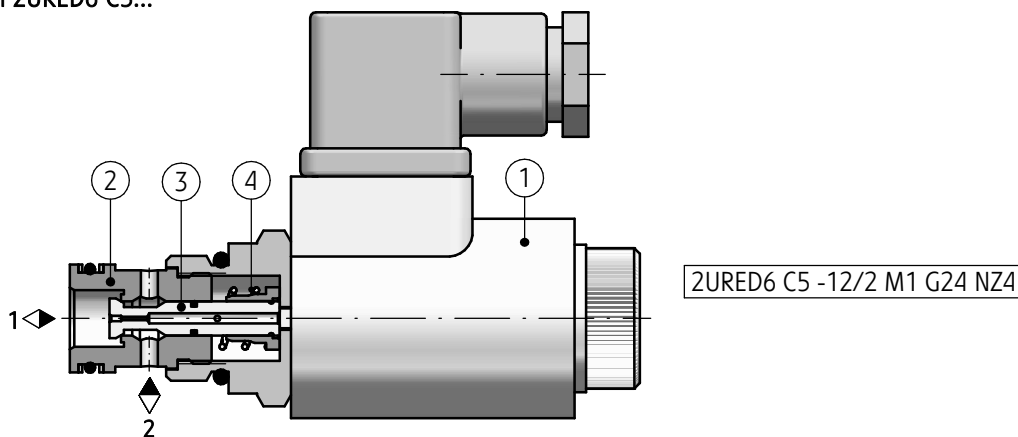


DESCRIPTION OF OPERATION

versions: 2URED6 C1...; ...C1...M...



version 2URED6 C5...



The directional valve type 2URED6... comprises of solenoid (1), sleeve (2), poppet (3) and spring (4). Flow opening or closing is obtained by changing position of the poppet (3) inside the sleeve (2). In version 2URED6C1... in neutral (current-free) position poppet (3) opens the flow. Flow closing occurs by supplying the solenoid (1) with the voltage and moving the poppet (3). Cutting off supply voltage causes return of the poppet (3) to its starting position by means of the

spring (4) and opens the flow. Additionally in version 2URED6C1...M... position of the poppet (3) can be monitored by inductive position sensor (5). In version 2URED6C5... in neutral (current-free) position poppet (3) closes the flow. Flow opening occurs by supplying the solenoid (1) with the voltage and moving the poppet (3). Cutting off supply voltage causes return of the poppet (3) to its starting position by means of the spring (4) and closes the flow.

TECHNICAL DATA

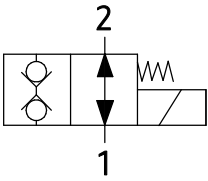
Hydraulic fluid	mineral oil	
Required fluid cleanliness class	ISO 4406 class 20/18/15	
Nominal fluid viscosity	37 mm ² /s at temperature 55 °C	
Viscosity range	2,8 up to 380 mm ² /s	
Fluid temperature range (in a tank)	recommended	40°C up to 55°C
	max	-20°C up to +70°C
Ambient temperature range	- 20°C up to +50°C	
Maximum operating pressure	line 1	25 MPa
	line 2	35 MPa
Power consumption	26 W	
Degree of protection	IP 65	
Spool position sensor*	inductive sensor type M	
Type of position sensor	sensor with two alternative outputs type PNP	
Supply voltage tolerance	24 V DC ^{+20%} _{-10%}	
Maximum supply current of the solenoid I max	400 mA	
Type of connection	external thread M12 x 1 - 4 poles (pins)	
Weight	0,32 kg	
NOTE:		
(*) - available only for version ZURED6C1...		

INSTALLATION AND OPERATION REQUIREMENTS

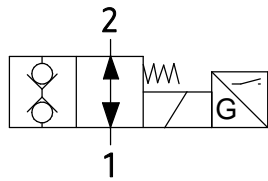
- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Only fully functional and operational valve, properly connected to electrical installation must be used.
Connecting or disconnecting the valve to an electrical installation must only be carried out by qualified personnel. 2. Ground connection (⏏) must be connected with protective earth wire (PE ⏏) in supply system according to appropriate instructions. 3. Solenoid plug shall precisely adhere to socket and shall be secured with thread bolt screwed in securely in a place. It is forbidden to operate the valve if the tightness and suitable clamp of cable in the plug gland are not ensured. 4. During the period of operation must be kept fluid viscosity acc. to requirements defined in this Data Sheet - Operation Manual 5. In order to ensure failure free and safe operation the following must be checked: <ul style="list-style-type: none"> • condition of the electrical connection | <ul style="list-style-type: none"> • proper working of the valve • cleanliness of the hydraulic fluid <ol style="list-style-type: none"> 6. Due to heating of solenoid coils to high temp., the valve shall be placed in such way to eliminate the risk of accidental contact with solenoid during operation or to apply suitable covers acc. to PN - EN ISO 13732 - 1 and PN - EN 4413 7. In order to ensure tightness of the directional valve block, one should take care of dimension of sealing rings, tightening torques and valve operation parameters given in this Data Sheet - Operation Manual 8. Valve with spool position sensor type M is adjusted at factory and it is not allowed to change its settings. In case of any damages of the sensor or valve one must change complete valve. Inductive sensors type M cannot be joined in series 9. A person that operates the valve must be thoroughly familiar with this Data Sheet - Operation Manual. |
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DIAGRAMS

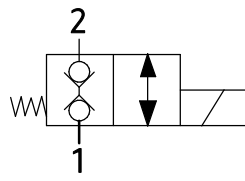
Hydraulic diagrams of valve type 2URED6...



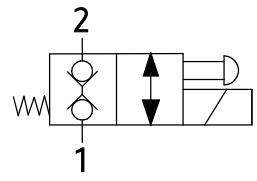
version 2URED6C1...



version 2URED6C1...M...

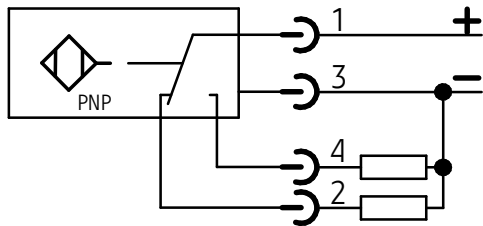


version 2URED6C5...

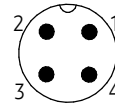


version 2URED6C5...N...

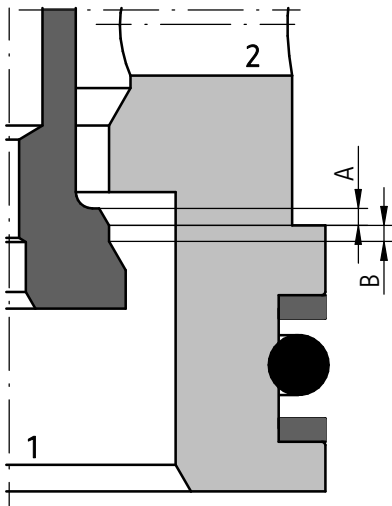
Diagram of electrical connection of inductive sensor type M



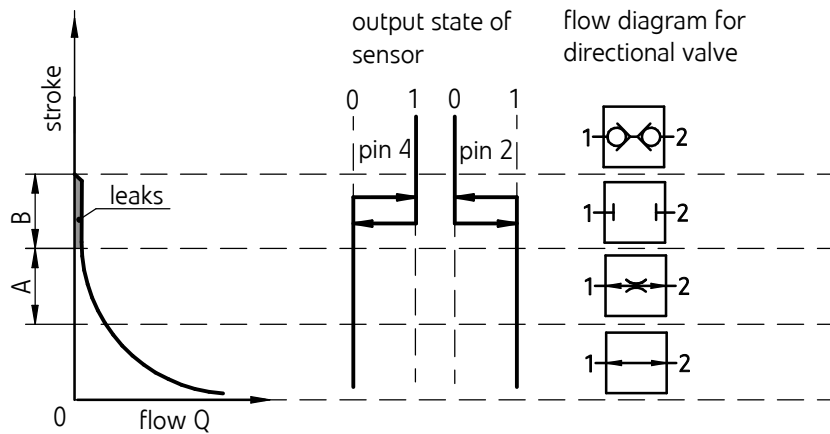
contact allocation
(pins of switch connector)



Initial position of inductive sensor type M depending on the spool position



0 - off neutral state on output contact
1 - on state on output contact

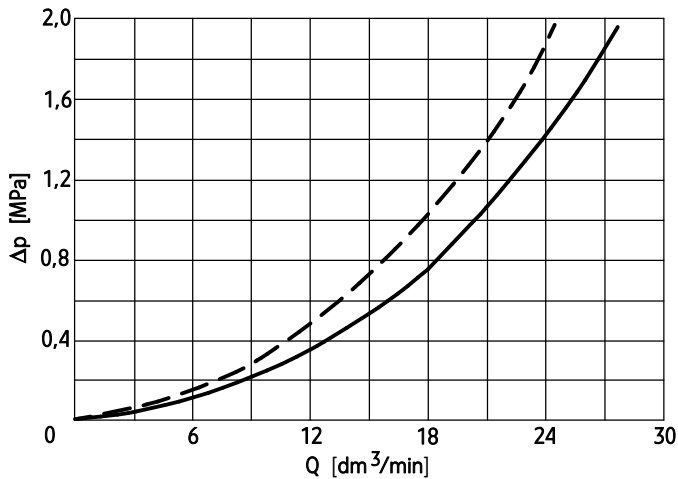


PERFORMANCE CURVES

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

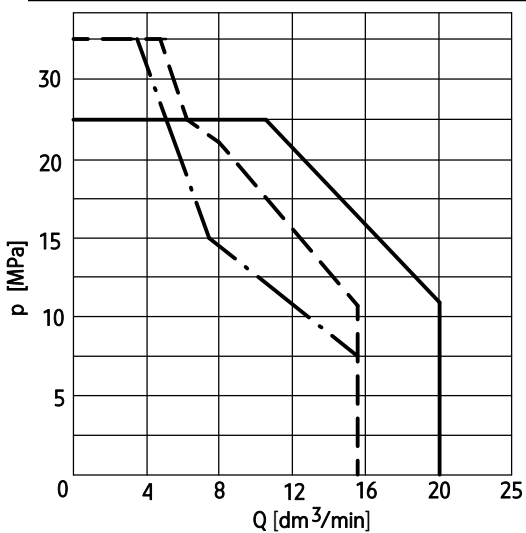
Flow resistance curves

Pressure resistance Δp in relation to Q for directional cartridge valve type 2URED6... - versions:
2URED6C1...; ...C5... — ...C 1...M... - -

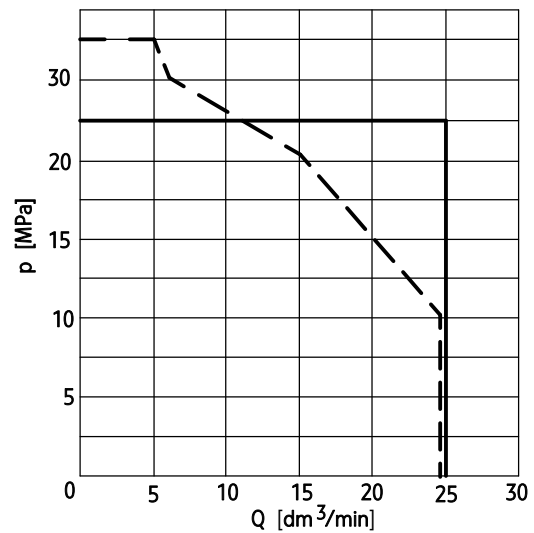


Operating limits curves

characteristic curves $p - Q$ for directional cartridge valve type 2URED6C1...; flow direction:
1 \rightarrow 2 — ...C1...; ...C1...M...
2 \rightarrow 1 - - ...C1...; 2 \rightarrow 1 - - - ...C1...M...

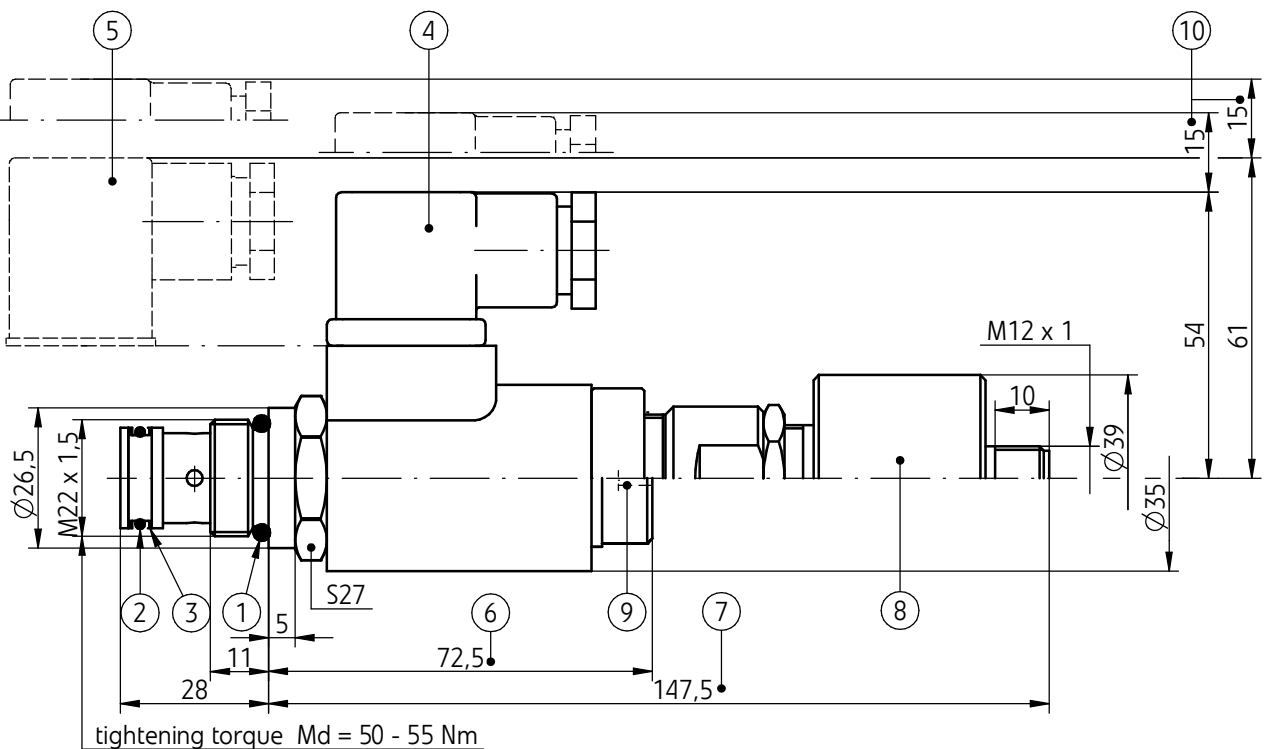


characteristic curves $p - Q$ for directional cartridge valve type 2URED6C5...; flow direction:
1 \rightarrow 2 — 2 \rightarrow 1 - -



OVERALL AND CONNECTION DIMENSIONS

versions: 2URED6C1...M1...; ...C1...M1...M...; ...C5...M1...



- 1 - Sealing o-ring 18 x 2,65 - 1 pc/set
- 2 - Sealing o-ring 15,6 x 1,78 - 1 pc/set
- 3 - Back-up ring 19 x 16,2 x 0,7 - 2 pcs/set
- 4 - Plug-in connector type ISO 4400 (DIN 43650 - A)
- 5 - Plug-in connector type ISO 4400 (DIN 43650 - A) with rectifier
- 6 - Overall dimensions * - versions: 2URED6C1...M1...; ...C5...M1...
- 7 - Overall dimensions ** - versions: 2URED6C1...M1...M...
- 8 - Inductive spool position sensor (plug-in connectors not shown on drawing, must be ordered separately acc. to data sheet WK 499 963 - coding 1476 - 00582990)
- 9 - Manual override (only version 2URED6C5...M1...)
- 10 - Space required to remove the plug-in connectors - item 4, 5

NOTE:

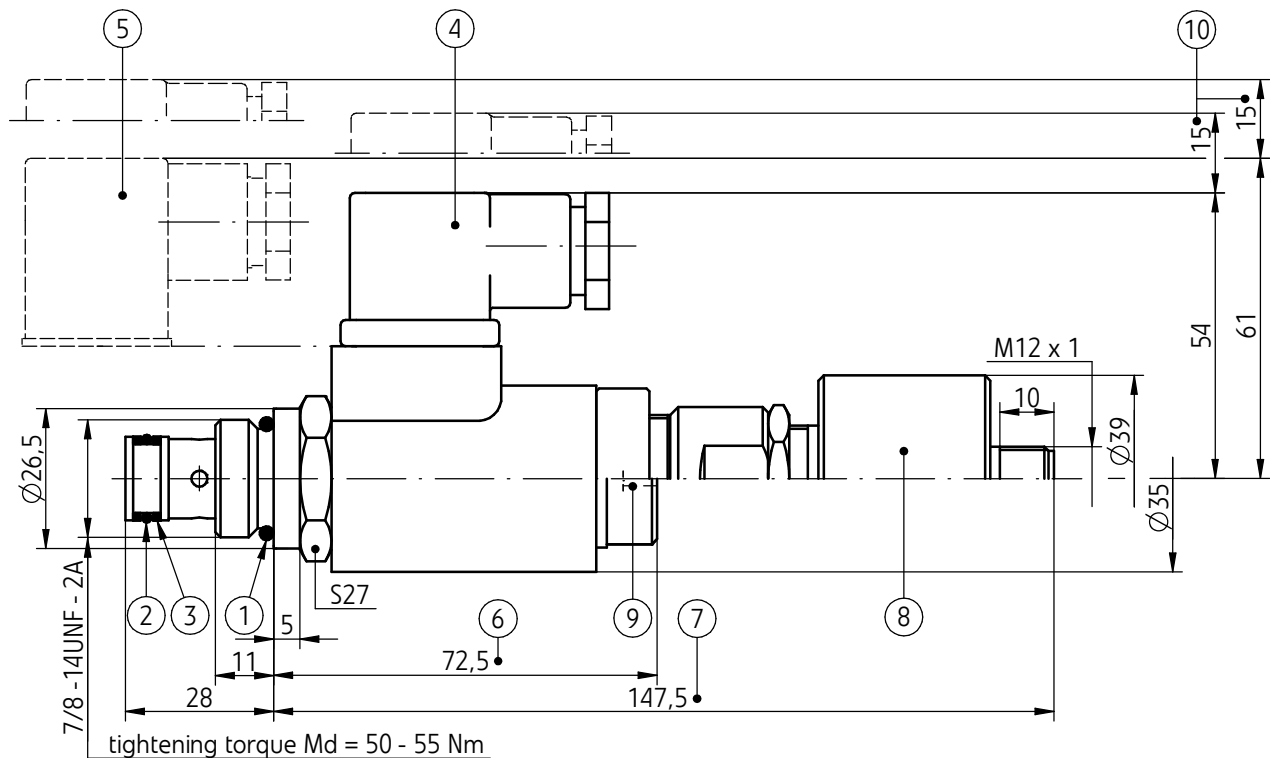
Valve version 2URED6C1...M1...M... with spool position sensor type M is adjusted at factory and it is not allowed to change its settings. In case of any damages of the sensor or valve one must change complete valve.

NOTES:

- (*) - Additional space to remove the coil ~ 50 mm
- (**) - Additional space for sensor plug - item 8 and electrical wire ~ 70 mm

OVERALL AND CONNECTION DIMENSIONS

versions: 2URED6C1...U1...; ...C1...U1...M...; ...C5...U1...



- 1 - Sealing o-ring 18 x 2,65 - 1 pc/set
- 2 - Sealing o-ring 15,6 x 1,78 - 1 pc/set
- 3 - Back-up ring 15,9 x 13 x 1,4 - 2 pcs/set
- 4 - Plug-in connector type ISO 4400 (DIN 43650 - A)
- 5 - Plug-in connector type ISO 4400 (DIN 43650 - A) with rectifier
- 6 - Overall dimensions * - versions: 2URED6C1...U1...; ...C5...U1...
- 7 - Overall dimensions ** - versions: 2URED6C1...U1...M...
- 8 - Inductive spool position sensor (plug-in connectors not shown on drawing, must be ordered separately acc. to data sheet WK 499 963 - coding 1476 - 00582990)
- 9 - Manual override (only version 2URED6C5...U1...)
- 10 - Space required to remove the plug-in connectors - item 4, 5

NOTE:

Valve version 2URED6C1...U1...M... with spool position sensor type M is adjusted at factory and it is not allowed to change its settings. In case of any damages of the sensor or valve one must change complete valve.

NOTES:

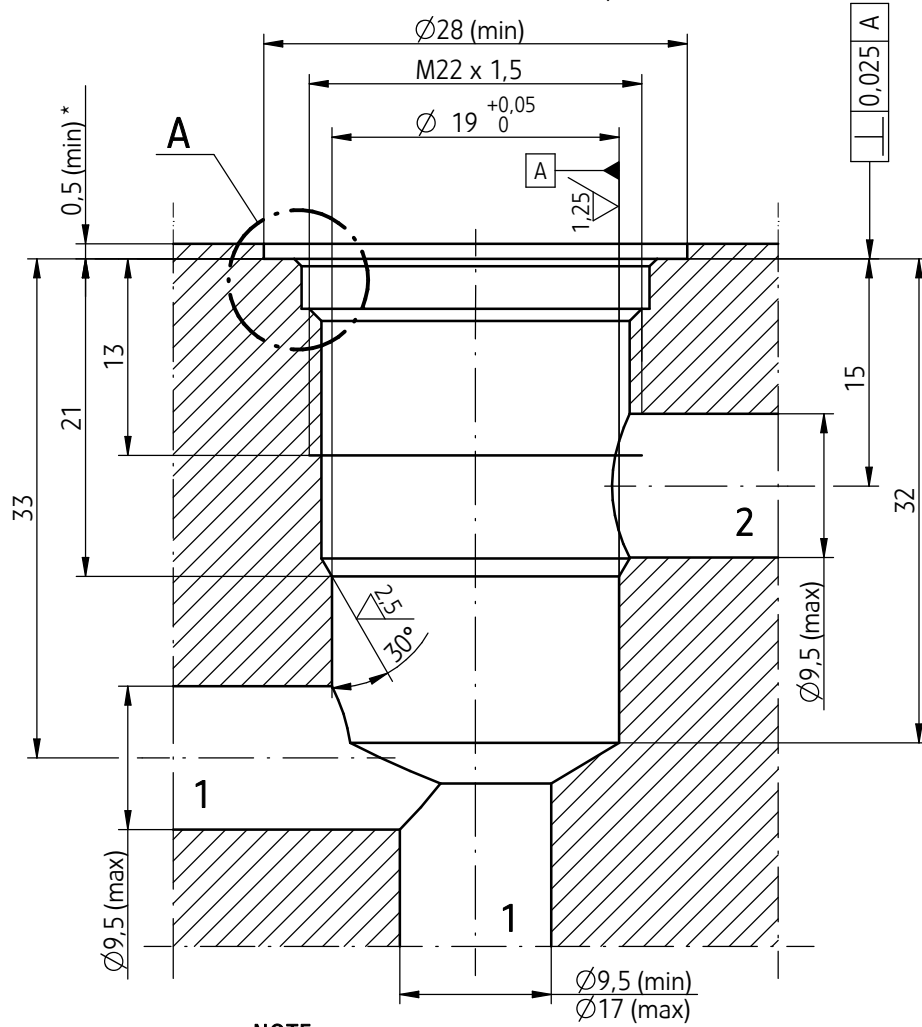
- (*) - Additional space to remove the coil ~ 50 mm
- (**) - Additional space for sensor plug - item 8 and electrical wire ~ 70 mm

OVERALL AND CONNECTION DIMENSIONS

versions: 2URED6C1...M1...; ...C1...M1...M...; ...C5...M1...
 cavity M - 06 -2 (M22 x 1,5; 2-way)

tightening torque $M_d = 50 - 55 \text{ Nm}$

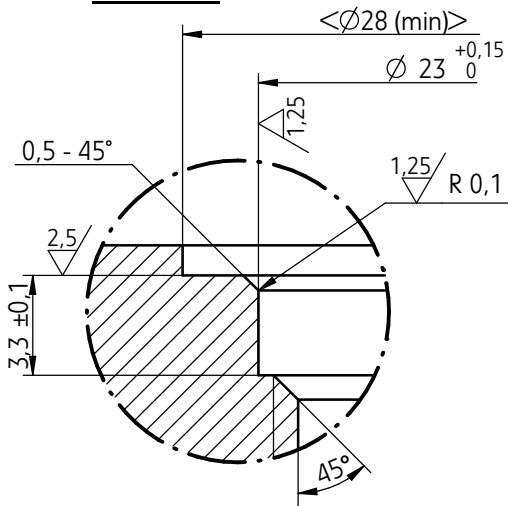
$\text{⊙} \varnothing 0,025$ - applied to all diameters of main hole and phase



NOTE:

(*) - Max counterbore - 4,9

detail A

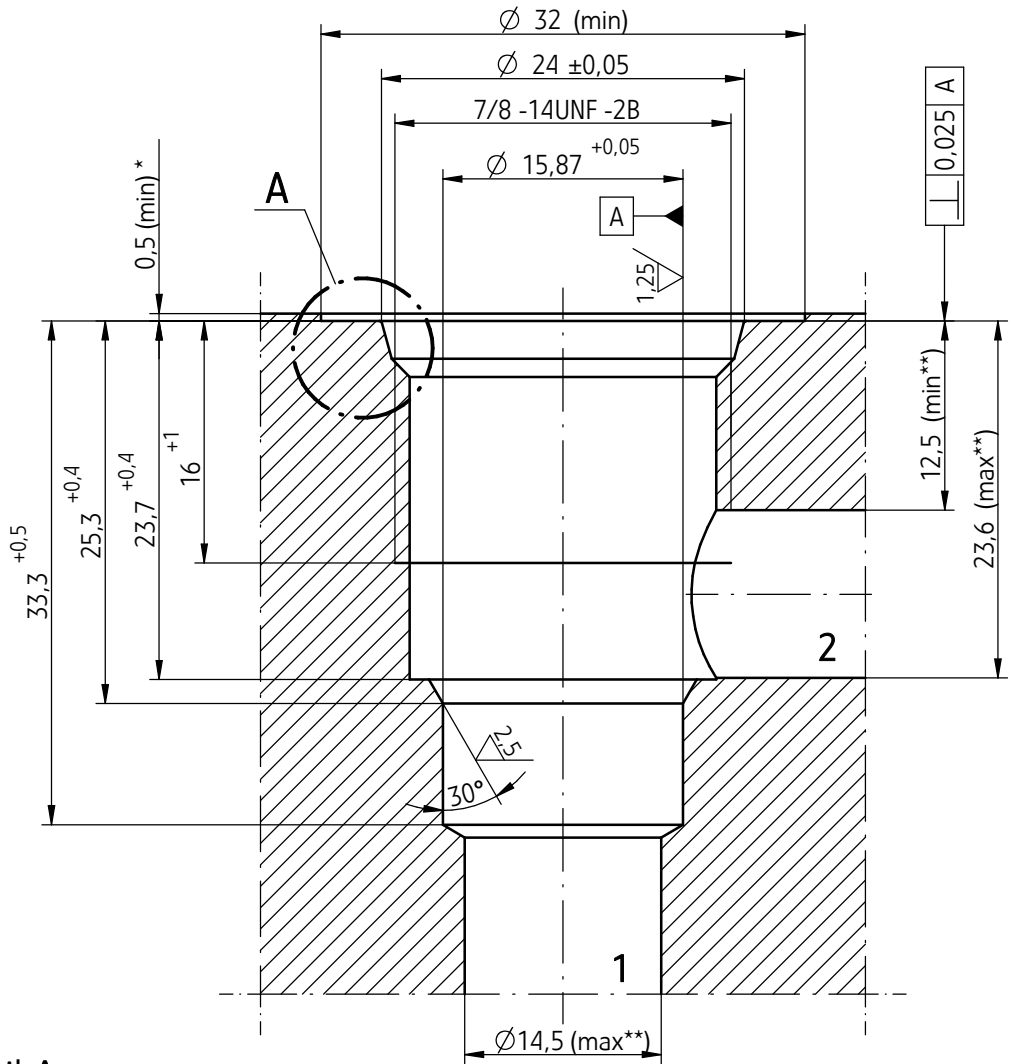


OVERALL AND CONNECTION DIMENSIONS

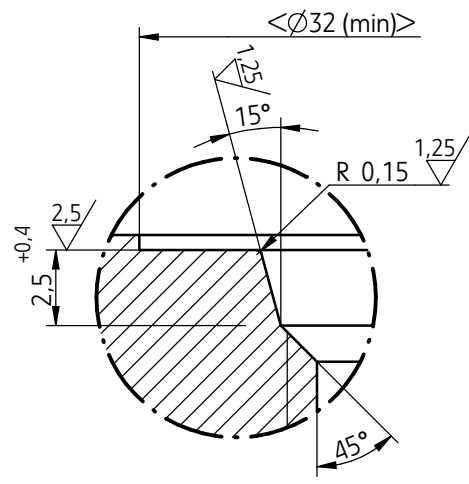
versions: 2URED6C1...U1...; ...C1...U1...M...; ...C5...U1...
 cavity U - 06 - 2 (7/8 -14UNF - 2B; 2-drogowe)

tightening torque $M_d = 50 - 55 \text{ Nm}$

$\text{⊙} \text{ } \varnothing 0,025$ - applied to all diameters of main hole and phase



detail A



NOTE:
 (*) - Max counterbore - 4,9
 (**) - Diameter of port: 1, 2 located on circuit within specified limit dimensions - min $\varnothing 6,5$

HOW TO ORDER

2	URED	6	+	/	2															*
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Number of service ports 2-way = 2																				
Nominal size (NS) NS6 = 6																				
Spool symbol (spool diagrams acc. to page 3) spool C1 = C1 spool C5 = C5																				
Series number (12-19) - connection and installation dimensions unchanged = 1X series 12 = 12																				
Number of working positions 2-position valve = 2																				
Type of connection cavity M22 x 1,5 = M1 cavity 7/8-14 UNF-2B = U1																				
Control voltage for solenoids 12V DC = G12 24V DC = G24 110V DC = G110 110V AC 50Hz (plug-in connector with rectifier) = W110R 220V AC 50Hz (plug-in connector with rectifier) = W220R 230V AC 50Hz (plug-in connector with rectifier) = W230R																				
Manual override (only version 2URED6C5...) solenoids without manual override = no designation solenoids with manual override = N																				
Electrical connection plug-in connector type ISO 4400 (DIN 43650 - A) without LED = Z4 plug-in connector type ISO 4400 with LED = Z4L																				
Spool position sensor (only version 2URED6C1...) without spool position sensor = no designation with spool position sensor M = M																				
Sealing NBR (for fluids on mineral oil base) = no designation FKM (for fluids on phosphate ester base) = V																				
Further requirements in clear text (to be agreed with the manufacturer)																				

NOTES:

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

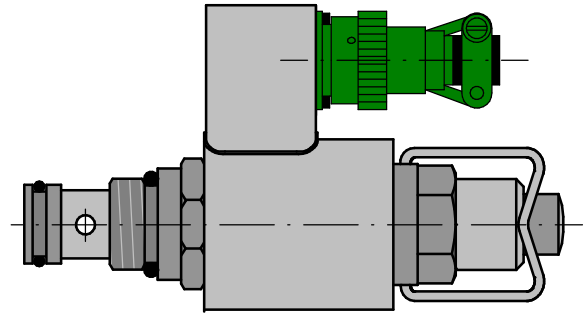
The symbols in bold are preferred versions in short delivery time.

Coding example: 2URED6 C5 -12/2 M1 G24 Z4

Special execution version 2URED6C5... - SO 478

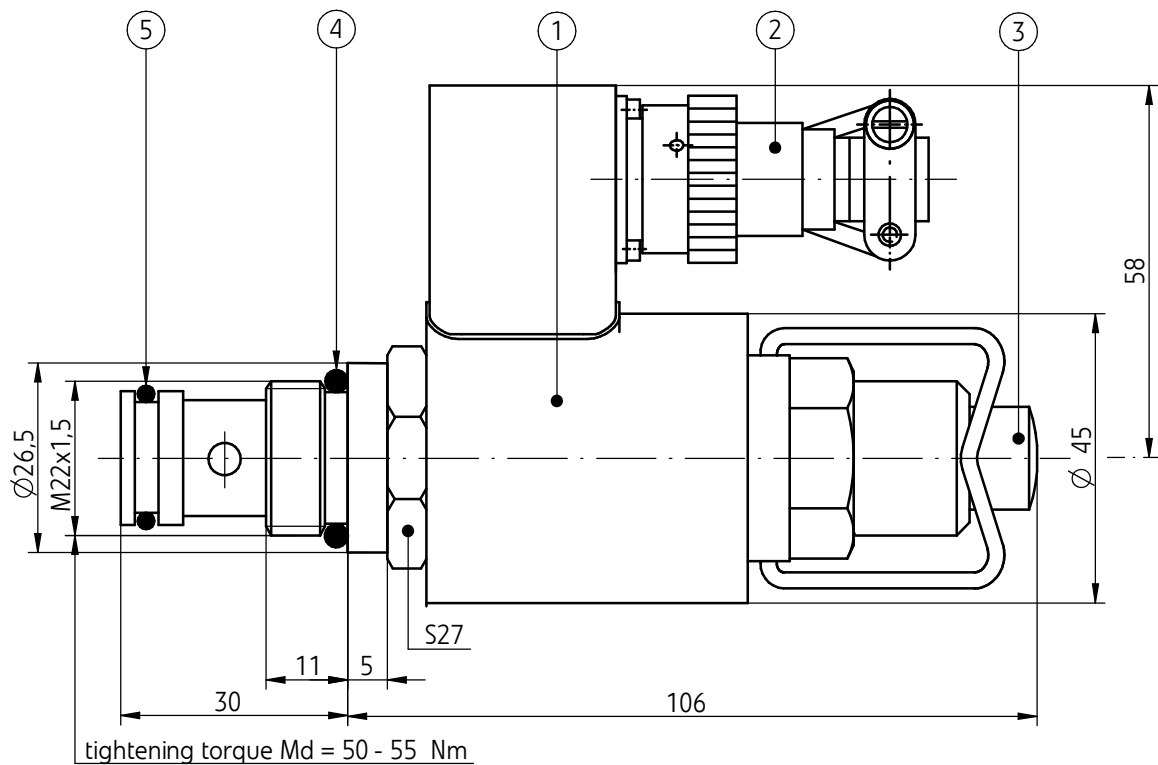
APPLICATION, DESCRIPTION OF OPERATION, TECHNICAL DATA, DIAGRAMS, PERFORMANCE CURVES, CONNECTION DIMENSIONS

as in standard version - acc. to page 1 - 3; 6.



OVERALL AND CONNECTION DIMENSIONS

version 2URED6C5... - SO 478



- 1 - Solenoid with plug-in cavity type MS3112E12-3P (producer SOURIAU)
- 2 - Plug-in connector type MS3116E12-3S (producer SOURIAU)
- 3 - Manual override
- 4 - Sealing o-ring 18 x 2,65
- 5 - Sealing o-ring 15,6 x 1,78

HOW TO ORDER

2	URED	6	C5	-	/	2	M1	G24	N	S	-	SO 478
----------	-------------	----------	-----------	----------	----------	----------	-----------	------------	----------	----------	----------	---------------

Number of service ports

2-way = 2

Nominal size (NS)

NS6 = 6

Spool symbol (spool diagrams acc. to page 3)

spool C5 = C5

Series number

(10-19) - connection and installation dimensions unchanged = 1X
series 12 = 12

Number of working positions

2-position valve = 2

Type of connection

cavity M22 x 1,5 = M1

Control voltage for solenoids

24V DC = G24

Manual override

solenoid with manual override = N

Electrical connection

special execution plug-in connector type MS3112E- 12-3P (SOURIAU) = S

Sealing

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

Special execution

version with special plug-in connector and swinging clamp of manual override = SO 478

NOTES:

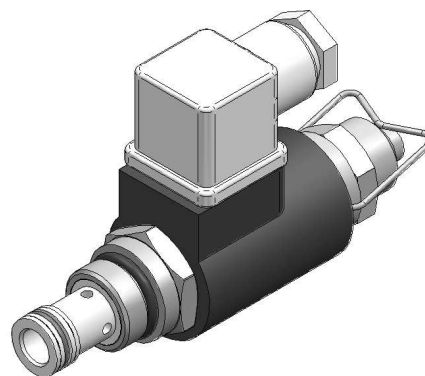
Directional cartridge valve should be ordered according to the above coding.

Coding example: 2URED6 C5 -12/2 M1 G24 N S - SO 478

Special execution version 2URED6C5... - SO 495

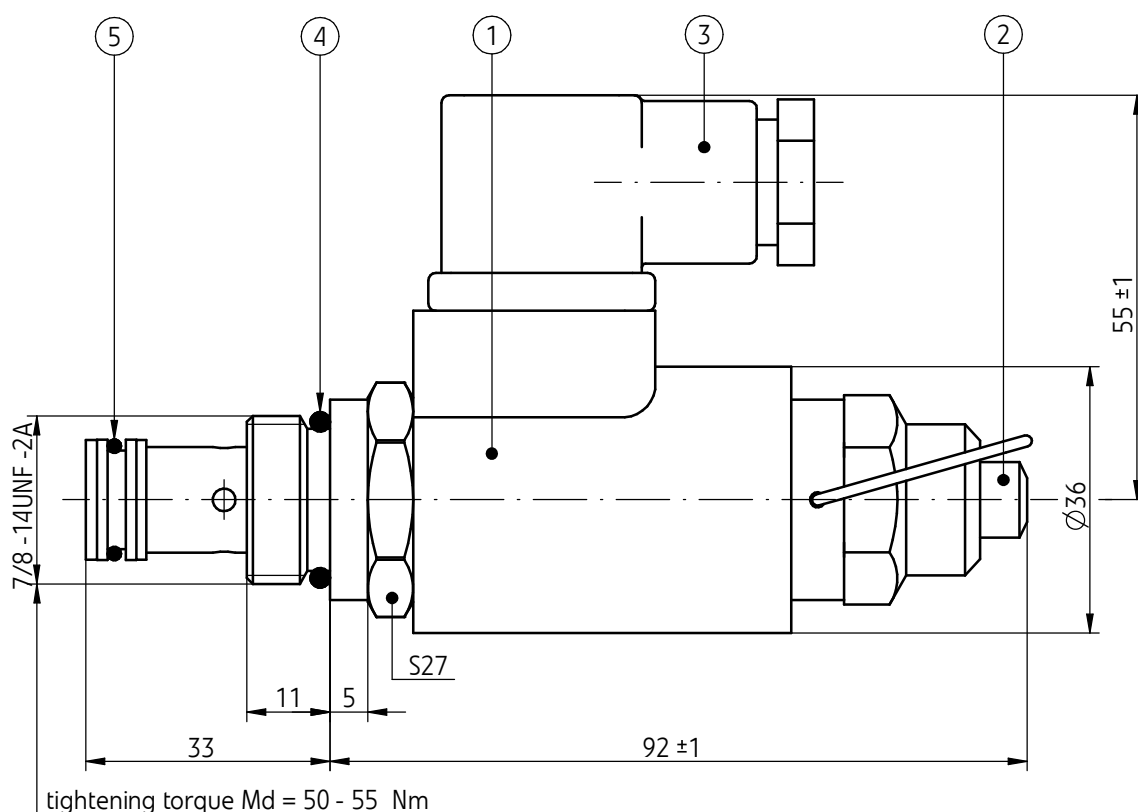
APPLICATION, DESCRIPTION OF OPERATION, TECHNICAL DATA, DIAGRAMS, PERFORMANCE CURVES, CONNECTION DIMENSIONS

as in standard version - acc. to page 1 - 3; 7.



OVERALL AND CONNECTION DIMENSIONS

version 2URED6C5... - SO 495



- 1 - Solenoid with swinging clamp of manual override
- 2 - Plug-in connector type ISO 4400 (DIN 43650 - A) without LED
- 3 - Manual override
- 4 - Sealing o-ring 18 x 2,65
- 5 - Sealing o-ring 12,42 x 1,78

HOW TO ORDER

2	URED	6	C5	-	/	2	U1	G24	N	Z4	-	SO 495
----------	-------------	----------	-----------	----------	----------	----------	-----------	------------	----------	-----------	----------	---------------

Number of service ports

2-way = 2

Nominal size (NS)

NS6 = 6

Spool symbol (spool diagrams acc. to page 3)

spool C5 = C5

Series number

(10-19) - connection and installation dimensions unchanged = 1X
series 12 = 12

Number of working positions

2-position valve = 2

Type of connection

cavity 7/8 -14 UNF-2B = U1

Control voltage for solenoids

24V DC = G24

Manual override

solenoid with manual override = N

Electrical connection

plug-in connector type ISO 4400 (DIN 43650 - A) without LED = Z4

Sealing

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

Lockable manual override

version with swinging clamp of manual override = SO 495

NOTES:

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

Coding example: 2URED6 C5 -12/2 U1 G24 N Z4 - SO 495

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