

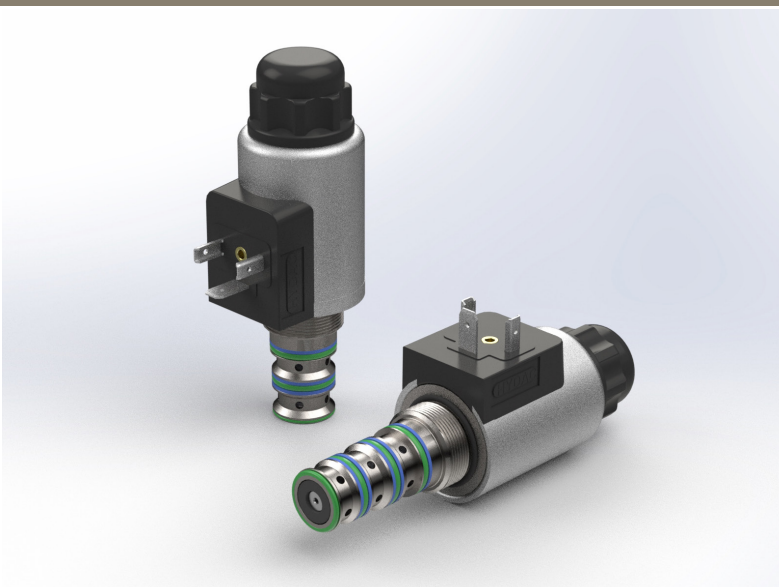
Directional poppet valve cartridges

Type WS700

NG 6, Cartridge
up to 25 l/min, up to 700 bar

Features

- Direct operated
- Poppet tight (bidirectional)
- High operational safety and reliable switching
- High duty cycles and long lifetime
- High corrosion resistance
- All connections can be loaded to the maximum operating pressure
- Replacement of coils without opening of the pressure tight spaces



Applications

- Portable power units
- Control of cylinders as superior and space-saving alternatives to spool valves which require additional leakage free shutoff valves
- Forming technology - clamping
- Presses, test benches and systems
- Lifting and transport systems
- Hydraulic tools
- Accumulator charging systems
- Seat-tight pilot control of passive and/or active logic valves

Design

- Patented valve-design
- Pressure compensated design of hardened and specially grinded valve cones
- Strong return springs
- Hidden manual override
- Available as 2/2 or 3/2 directional poppet valve cartridges with solenoid actuation
- 360° turnable and exchangeable plug-in coil

Technical data

Hydraulic fluid	Mineral oil according to DIN 51524 (other fluids on request)
Fluid temperature range	– 20 to 80 °C
Ambient temperature range	– 30 to 50 °C
Viscosity range	5 to 400 mm ² /s
Porting	NG 6
Max. operating pressure	700 bar
Max. flow rate	25 l/min, see switching capacity diagram page 8
Filtration (recommendation)	according to NAS 1638 class 6 resp. ISO/DIN 4406 17/15/12
Duty cycle ED	100 %
Solenoid voltage (nominal power)	24 VDC (26.7 W)
Tolerance	+/- 10 %
Switching time	see table on page 9
Degree of protection	IP 65 according to EN 60529 / DIN 40050 (or according coil choice)
Service life	B10: 1 million according to ISO 19973
Weight	With solenoid coil: 3/2= 400g, 2/2= 380g Without solenoid coil: 3/2= 170g, 2/2= 150g
Material/Surface finish	Solenoid coil: ZnNi-plated (1000 h salt spray test)

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Type code

Example

WS 700 - 6M - E - 3 / 2 - D - 24 DG - V - A 00

Directional poppet valve cartridges

Size 700 bar

Nominal size 6 ...

Connection thread
metric ... M

Design
Cartridge E

Number of ports 2 or 3

Number
of positions 2

Control function see overview „Product information“

Control method 0 without solenoid
24 solenoid 24 VDC

Solenoid coil DG DIN plug

Seal material V FKM

Design

00 ... 99
For internal
purposes

Index

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For internal
purposes

Design revision

For internal purposes

Example

EAP 700 - 3 / 2 - G1/4 - A 00

Single subplates

Size 700 bar

Number of ports 2 or 3

Number
of positions 2

Threaded connection G1/4 G 1/4" port

Design

00 ... 99
For internal
purposes

Index

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purposes

Design revision

For internal purposes

Product information

Directional poppet valve cartridges

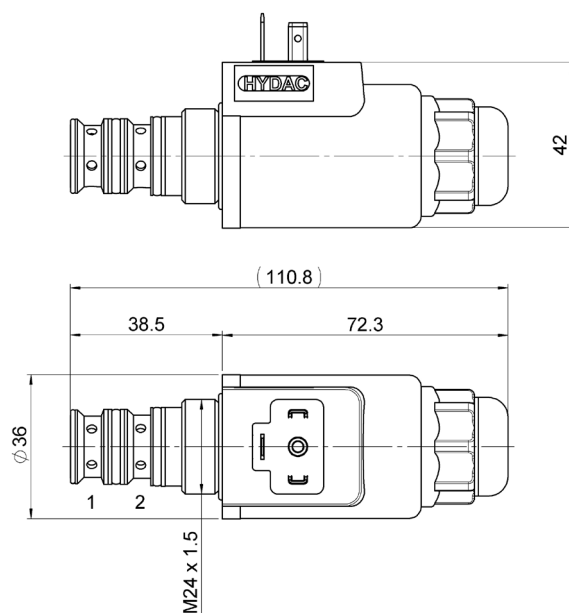
Valve type	2/2	
Control function	W	V
Part No. without coil	4473088	4473087
Part No. 24 VDC	4464731	4461773
Symbol		
Valve type	3/2	
Control function	D	
Part No. without coil	4463279	
Part No. 24 VDC	4463277	
Symbol		

Single subplates

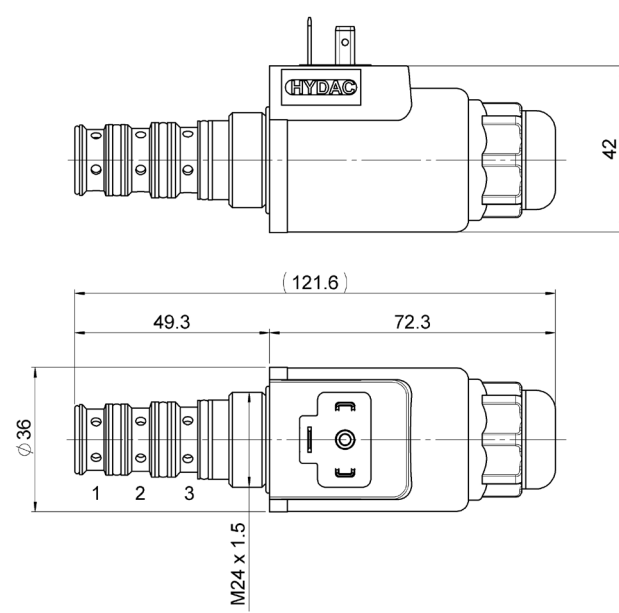
for valve type	2/2	3/2
Part No.	4555338	4544096
Symbol		

Dimensional drawings

2/2 directional poppet valve cartridge

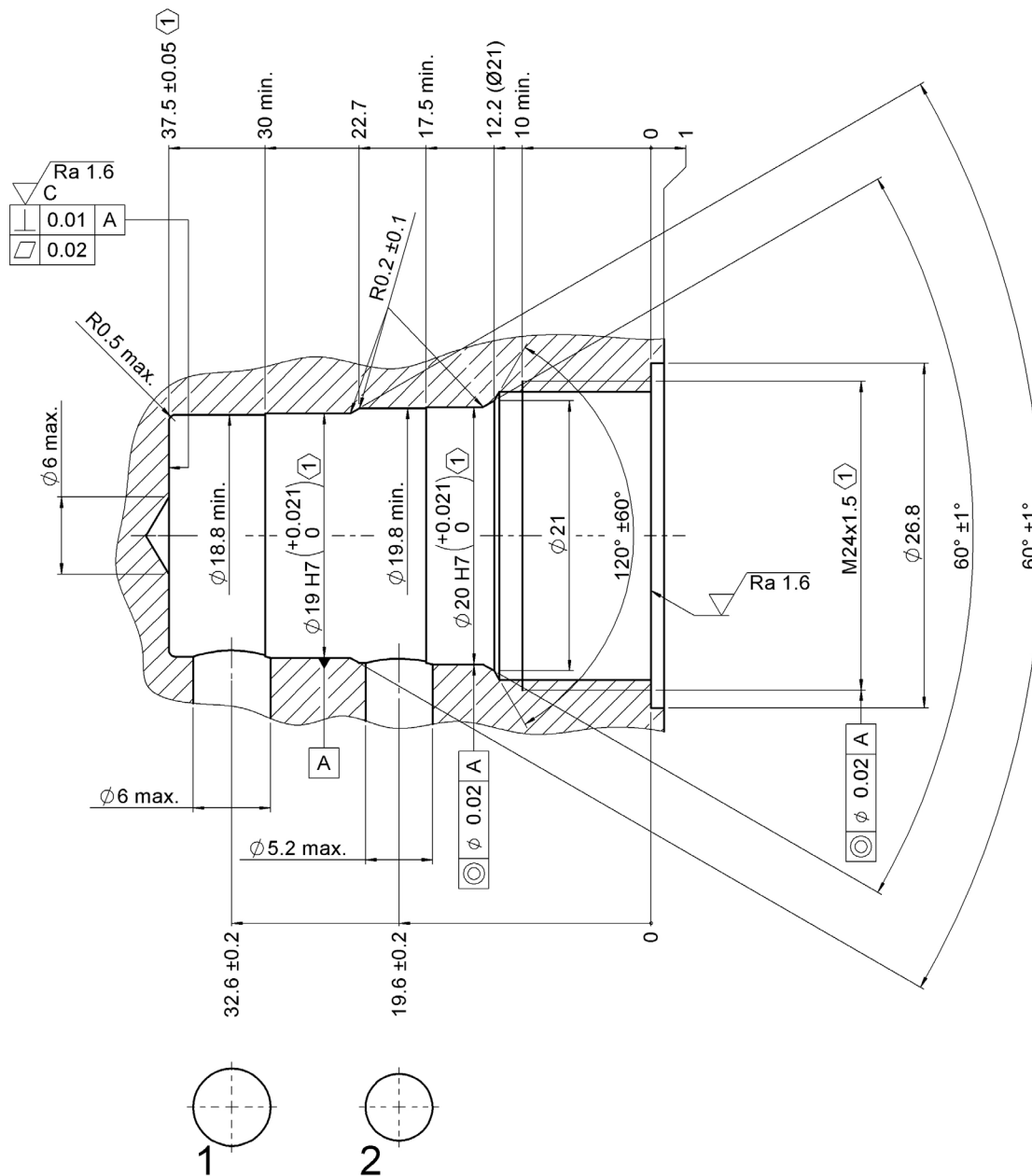


3/2 directional poppet valve cartridge



Cavity 2/2 directional poppet valve cartridge

ADA-model-no.: 4607282



① In gleicher Aufspannung gefertigt
Machined in one clamping

Tolerierung ISO 8015
Tolerancing ISO 8015



Allgemeintoleranzen ISO 2768-mH
General tolerances ISO 2768-mH

Ra 1.6 (✓)

-0.05
-0.3
+0.4
+0.2

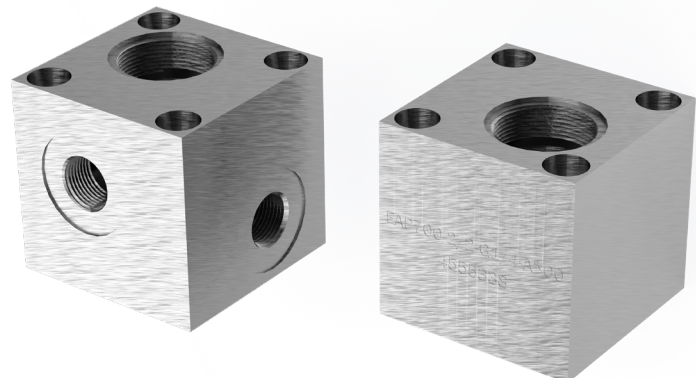
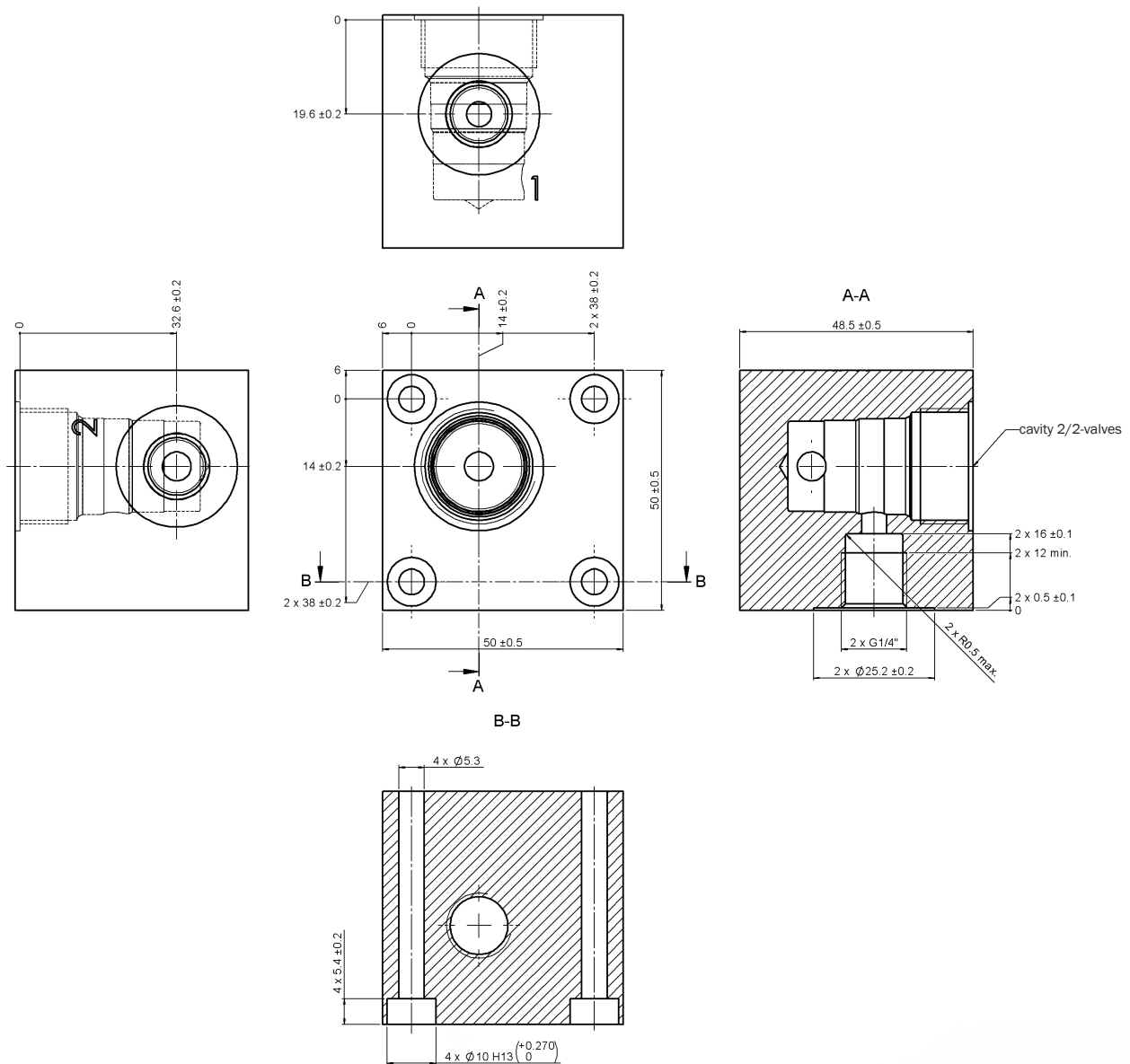
The responsibility of the material design with regard to strength lies with the user

Information on production can be found in the document 'manufacturing process and tools for WS700 cavity'

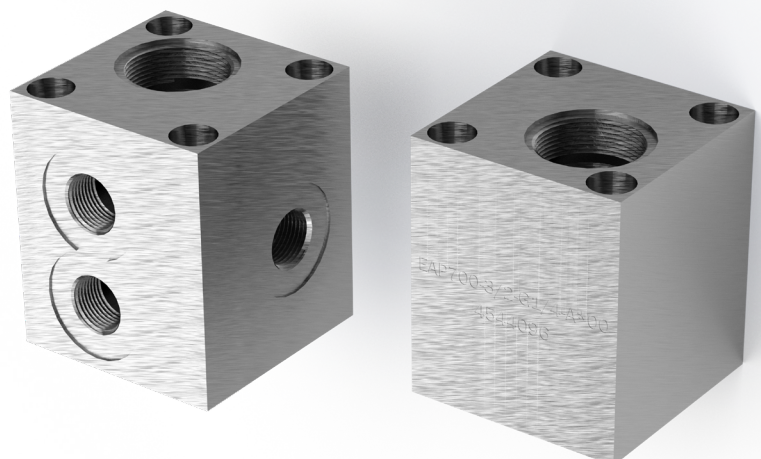
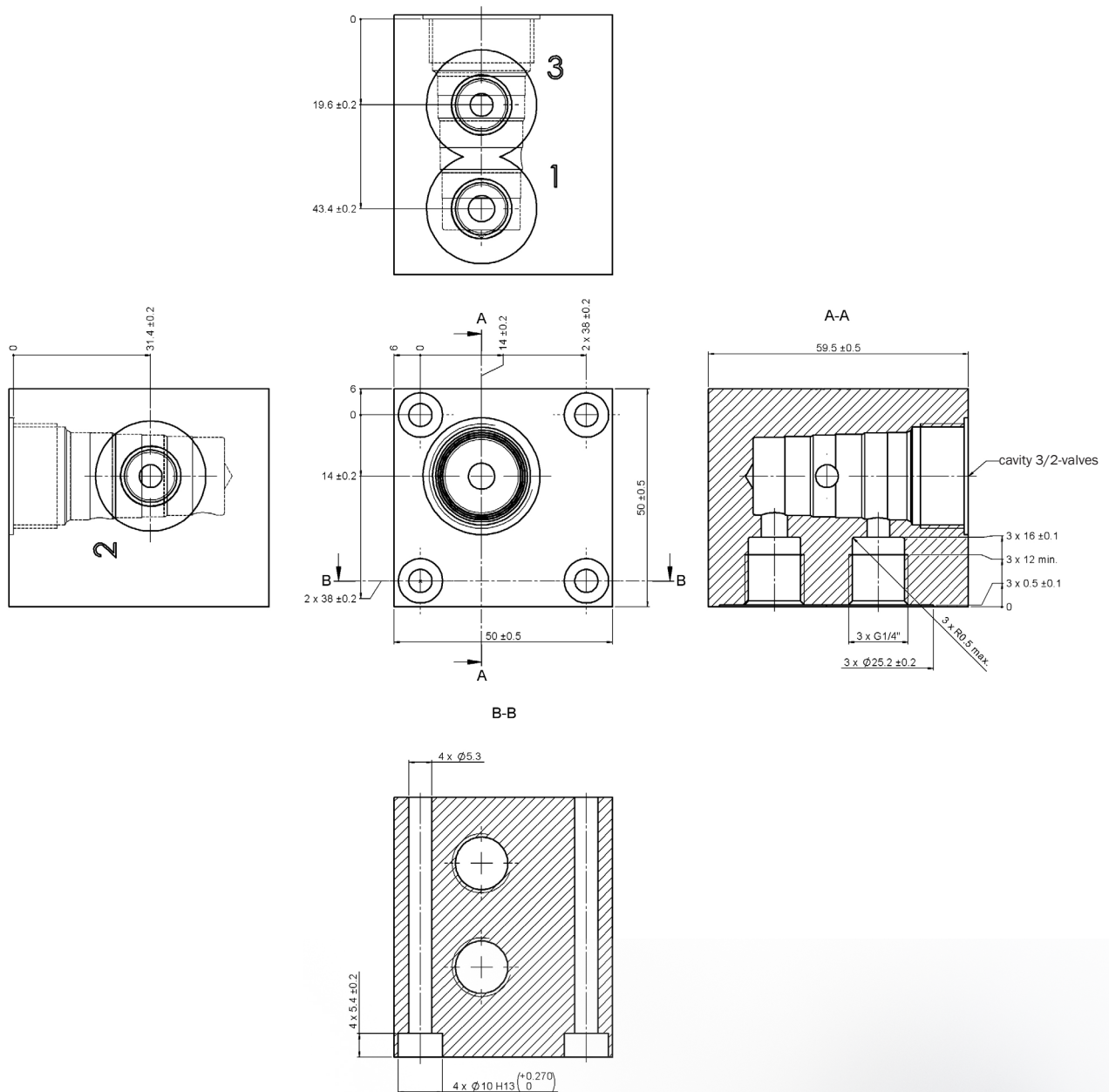
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Information on production can be found in the document 'manufacturing process and tools for WS700 cavity'

2/2 single subplate



3/2 single subplate

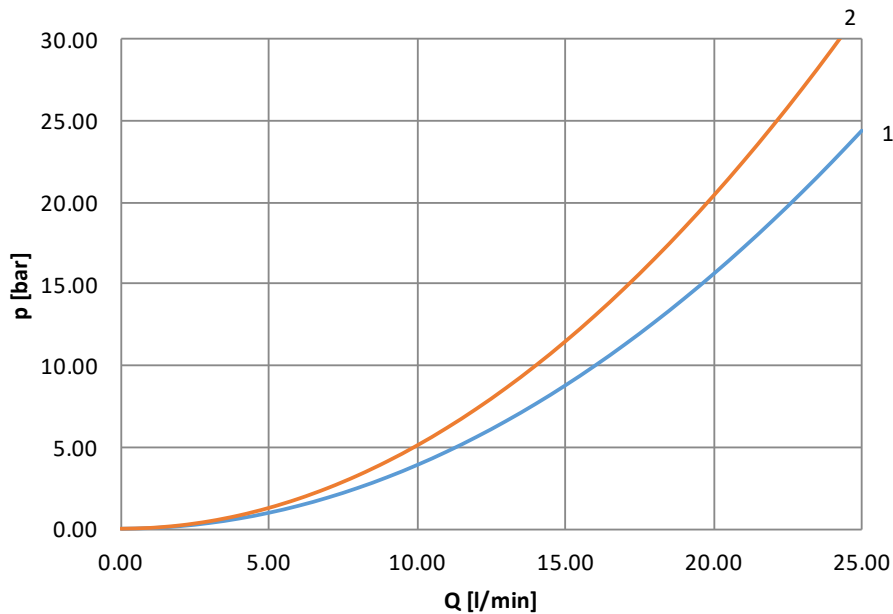


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Pressure drop

($\nu = 15 \text{ mm}^2/\text{s}$)



Valve type	Control function	1-2	2-1	2-3	3-2
2/2	W	1	1	-	-
2/2	V	2	2	-	-
3/2	D	2	2	1	1

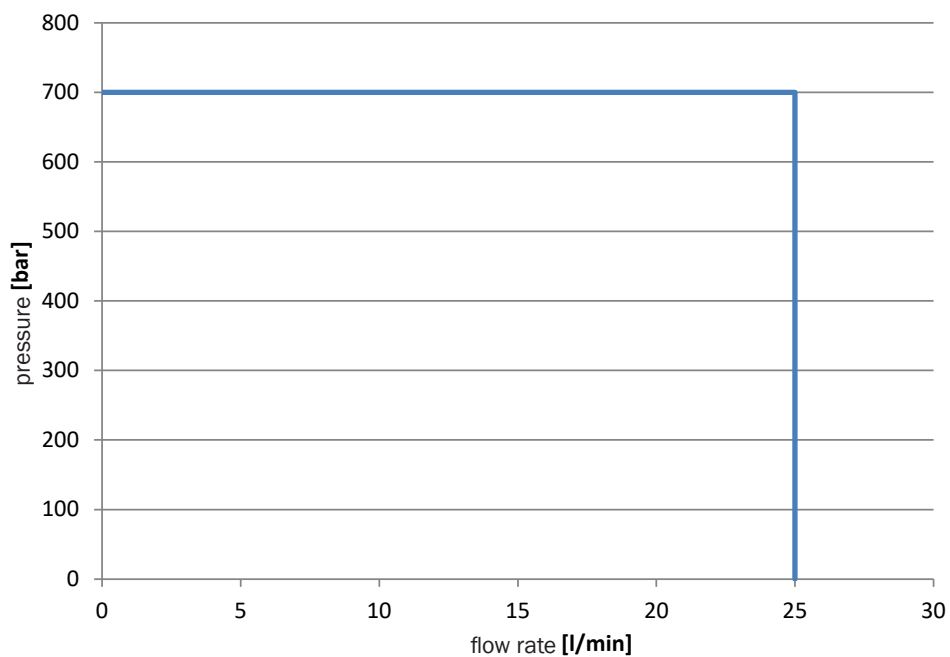
Hydraulic switching capacity

Hydraulic switching capacity at nominal operating voltage and ambient temperature range $T_a = 50^\circ \text{C}$

$\nu = 15 \text{ mm}^2/\text{s}$

Switch on current $I_{ON} \geq 0.7 \times I_N$

For applications with 2 connections under full pressure, the 3/2 directional poppet valve cartridge is recommended.



Switching times

Valve type	Control function	Switching on [ms]*		Switching off [ms]*
		at operating temperature (0.7 x I _N)	cold (1 x I _N)	
2/2	W	40	35	15
2/2	V	40	35	15
3/2	D	40	35	15

* indicative values

Electrical data (solenoid)

Voltage	DC voltage
Tolerance	+/- 10%
Nominal power	26,7 W
Nominal voltage	24 V
Nominal current	1,1 A (valid at R 21,2 Ohm)
Duty cycle	100%
Protection class (standard version)	IP65 acc. EN 60529 / DIN 40050 at correct assembly on cable socket

Electrical connection / solenoid variants

As an option to the standard version with the 24VDC solenoid coil, all solenoid coils of the Coil-50-1836 series can be used according to the table. For this purpose, the valve „without solenoid coil“ (control method „0“ in the type code) and the solenoid coil must be ordered separately and installed by the customer.

The coil nut and the sealing ring are included in the scope of delivery of the valve.

Connection	DIN 436050 radial	Junior Timer axial	Deutsch DT04 axial
Protection ¹	IP65	IP67	IP67
12 V Part No.	915151	3001033	3091665
24 V Part No.	915142	3001503	3091667
110 VAC Part No.	3019735 ²	on request	on request
230 VAC Part No.	3019736 ²	on request	on request

¹ Important note: The protection class applies to the solenoid coil. The prerequisite for this is the correct assembly of the mating connector and the same or better type of protection of the mating connector itself is a necessity.

² Rectifier is integrated in the solenoid coil

Plug for solenoid

Part description	Part No.
Plug for solenoid grey	6132484
Plug for solenoid black	3728850
Power reduction plug LRS2 KPL Z4 TR 2POL LED	4747017

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Spare parts

Part description		Part No.
Plastic nut	1 x M18 with cap	4422997
Seal kit 2/2	1 x O-Ring 15 x 1,5 -FPM -90Sh -BI	4552133
	1 x O-Ring 16 x 1,5 -FPM -90Sh -BI	
	1 x O-Ring 17 x 1,5 -FPM -90Sh -BI	
	1 x O-Ring 15 x 1 -FPM -90Sh -BI	
	1 x O-Ring 24 x 1,5 -FPM 75Sh -BI	
	1 x O-Ring 17,96 x 2,62 -FPM 75Sh -BI	
Seal kit 3/2	1 x O-Ring 14 x 1,5 -FPM -90Sh -BI	4548731
	1 x O-Ring 15 x 1,5 -FPM -90Sh -BI	
	1 x O-Ring 16 x 1,5 -FPM -90Sh -BI	
	1 x O-Ring 17 x 1,5 -FPM -90Sh -BI	
	1 x O-Ring 15 x 1 -FPM -90Sh -BI	
	1 x O-Ring 24 x 1,5 -FPM 75Sh -BI	
	1 x O-Ring 17,96 x 2,62 -FPM 75Sh -BI	

Examples of a cylinder control with two directional poppet valve cartridges (WS700-6M-E-3/2-D-...)

