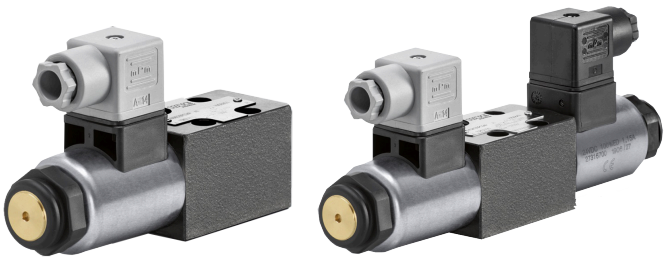
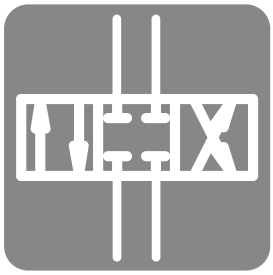
4/2- & 4/3-way directional spool valve type HAM, HBM, HCM (size 4)

operating pressure p_{max}	320 bar
volume flow V_{max}	30 L/min





Product characteristics

Spool valves belong to the group of directional control valves. They control the direction of movement and the speed of single and double-acting hydraulic consumers.

The 4/2 and 4/3 directional spool valves type HAM, HBM, HCM and HAL are available as manifold mounting valves. They are available with nominal size 4 hole pattern (NG4).

Features & benefits:

- low pressure losses
- high power density
- directly controlled
- solenoid can be exchanged without problem
- inductive position monitoring of the neutral position

Table of Contents

Technical data

General

type	spool valve, directly controlled
design	manifold mounting valve
weight	▪ 0.9 kg with 1 DC solenoid ▪ 1.25 kg with 2 DC solenoids
ambient temperature	-30 to +50 °C
mounting position	arbitrary (preferably horizontal)
connection size	ISO 4401-02-01-0-05 (NG04)
max. permissible switching frequency	15,000/h

Hydraulic parameters

Hydraulic fluid: mineral oil according to DIN 51524, other media on request

max. operating pressure	P, A, B: 320 bar T: 100 bar
hydraulic fluid temperature	-25 to +70 °C
viscosity	10-600 mm²/s
permissible degree of pollution	max. class 19/16/13 according ISO 4406
filter recommendation	filter retention rate $\beta_{25} > 75$

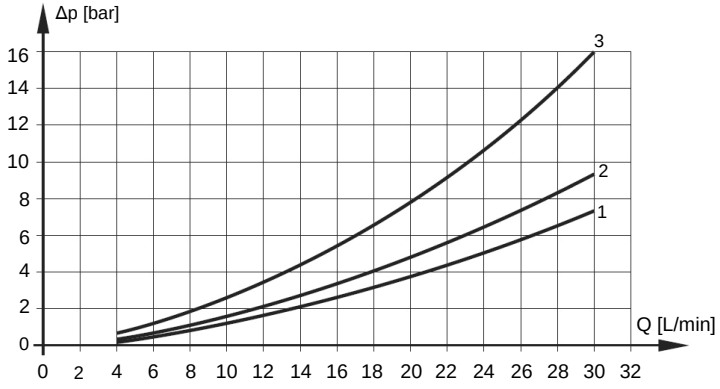
Actuation

actuation	electromagnetic
voltage	DC; AC see order information
power consumption	30 W
duty cycle	continuous operation
degree of protection (DIN 40050)	IP65 with plug
connection	connector DIN43650-AF2-PG9

Characteristic lines

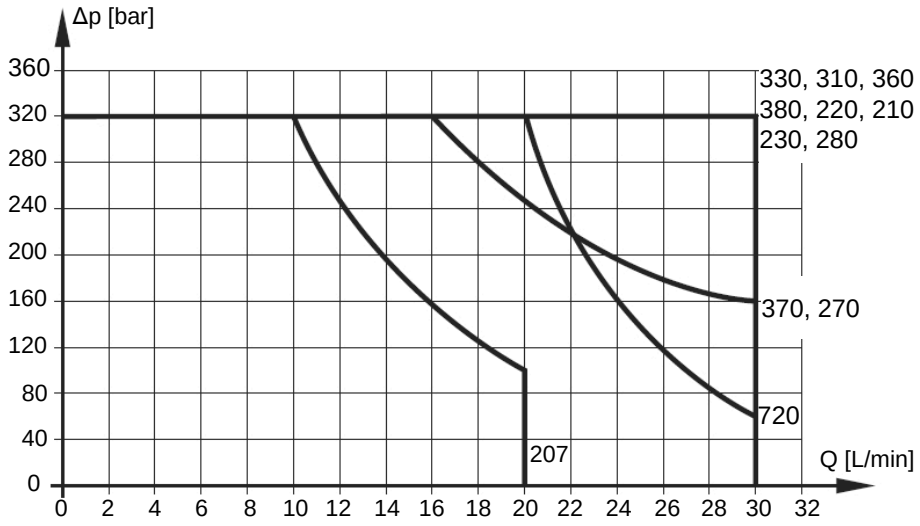
measured at 40 °C temperature of hydraulic fluid, viscosity 45 mm²/s, tolerance ±5 %

symbol	flow from: P→A	P→B	A→T	B→T	P→T
	curve:				
	1	1	1	1	
220	2	2	2	2	
310	1	1	1	1	2
370	3	3	3	3	2
207	1	1			
720	2	2	2	2	
270	3			3	2
210 280		1	1		



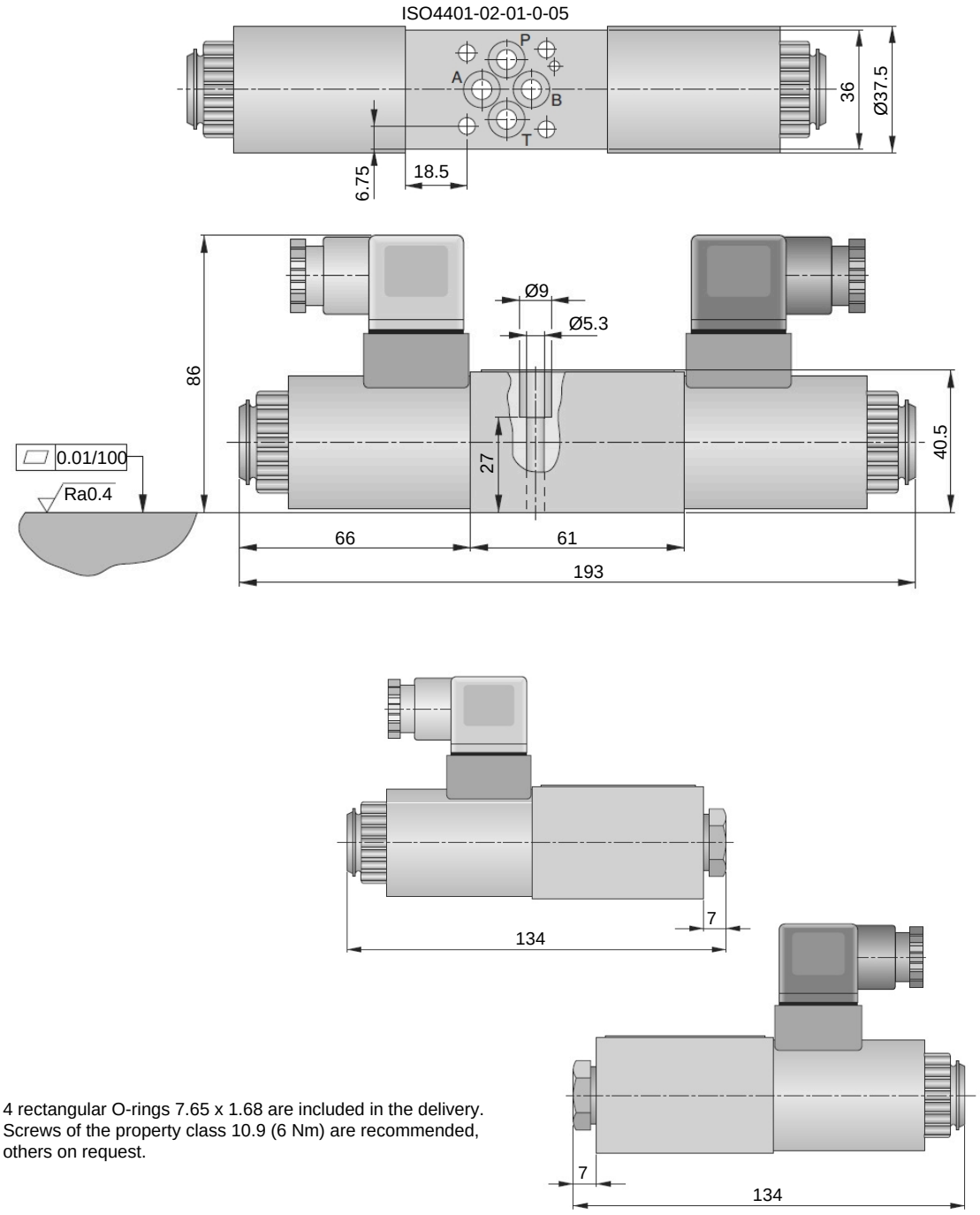
Operating limits

The diagram shows the operating limits of the valves in applications where all 4 ports are in use. If there is flow through the valve in one direction only, the limits will change. In some cases this might lead to less advantageous results.



Dimensions and connections

Dimensions are given in mm.



4 rectangular O-rings 7.65 x 1.68 are included in the delivery.
Screws of the property class 10.9 (6 Nm) are recommended, others on request.

Order information

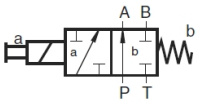
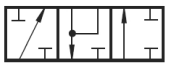
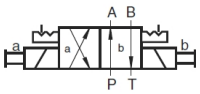
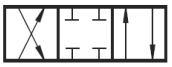
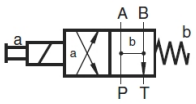
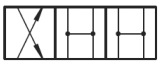
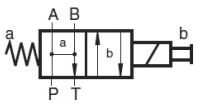
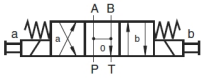
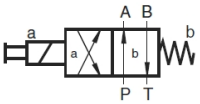
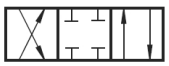
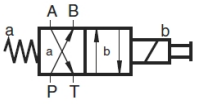
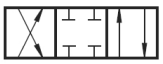
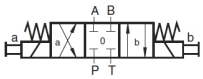
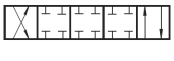
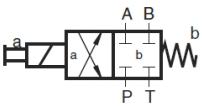
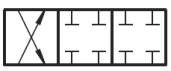
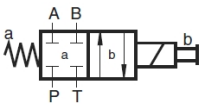
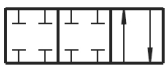
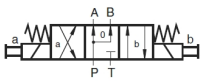
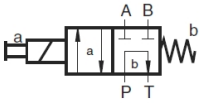
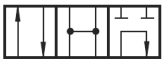
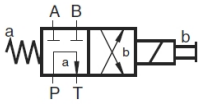
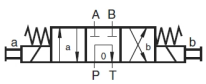
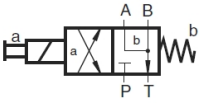
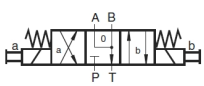
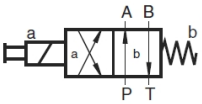
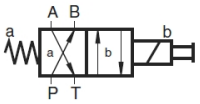
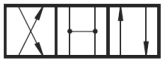
type code

HAM	210	PC04	P
type	switching symbols	size	electrical data

type

HAM	solenoid on side A
HBM	solenoid on side B
HCM	2 solenoids

switching symbols

	HAM	overlap	HBM	overlap		HCM	overlap
207					220		
210					310		
220					330		
230					360		
270					370		
280					380		
720							

size

PC04	size 4

electrical data

N	12 V (DC) 30 W
P	24 V (DC) 30 W
A	115 V 50/60 Hz (AC) 30 W rectifier integrated in connector socket
B	230 V 50/60 Hz (AC) 30 W rectifier integrated in connector socket

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