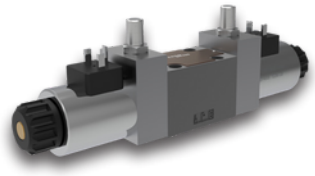
4/2 and 4/3 Directional Control Valve, Solenoid Operated

RPE3-06

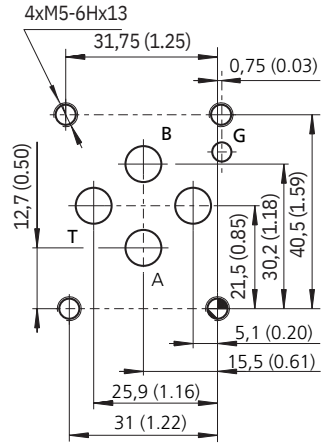
Size 06 (D03) Q_{max} 80 l/min (21 GPM) p_{max} 350 bar (5100 PSI)



Technical Features

› Direct acting, directional control valve with subplate mounting interface acc. to ISO 4401, DIN 24340 (CETOP 03)
› High transmitted hydraulic power up to 350 bar with optimized design to minimize pressure drop
› Five chamber housing design with reduced hydraulic power dependence on fluid viscosity
› The valve is available with interchangeable DC solenoids, also for AC power supply using a built-in rectifier bridge
› Wide range of solenoid electrical terminal versions available
› Wide range of interchangeable spools and manual overrides available
› CSA Certificate upon request
› Inductive contactless Normally Open and Normally Closed spool position sensor option
› Soft-shift spool speed control option
› The coil is fastened to the core tube with a retaining nut and can be rotated by 360° to suit the available space
› In the standard version, the valve housing is phosphated for basic surface corrosion protection and as preparation for painting. Steel parts are zinc-coated for 240 h salt spray protection acc. to ISO 9227
› Enhanced surface protection for mobile sector available for the valve housing and steel parts (ISO 9227, 520 h salt spray)

ISO 4401-03-02-0-05



Ports P, A, B, T - max Ø7.5 mm (0.29 in)

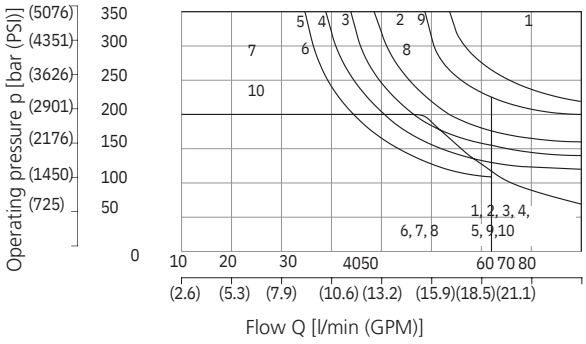
Technical Data

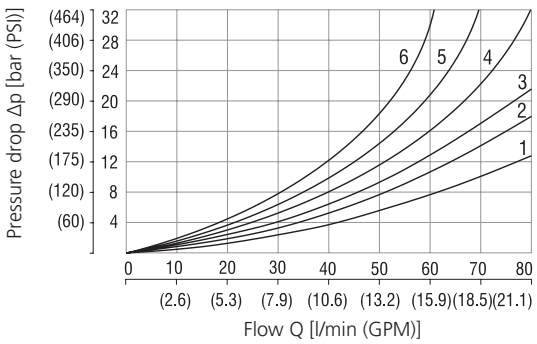
Valve size			06 (D03)
Max. flow		l /min (GPM)	80 (21.1)
Max. operating pressure at ports P, A, B		bar (PSI)	standard 350 (5080)
			BG320 (4640) acc. to CSA
Max. operating pressure at port T		bar (PSI)	210 (3050)
Fluid temperature range (NBR)		°C (°F)	-30 ... +80 (-22 ... +176)
Fluid temperature range (FPM)		°C (°F)	-20 ... +80 (-4 ... +176)
Ambient temperature range		°C (°F)	-30 ... +50 (-22 ... +122)
Supply voltage tolerance		%	AC: ±10 DC: ±10
Max. switching frequency		1/h	15 000
Switching time at ν=32 mm2/s (156 SUS)	ON	ms	AC: 30 ... 40 DC: 30 ... 50
	OFF	ms	AC: 30 ... 70 DC: 10 ... 50
Weight - valve with 1 solenoid		kg (lbs)	1.6 (3.52)
- valve with 2 solenoids			2.2(4.85)
		Datasheet	Type
General information		GI_0060	Products and operating conditions
Coil types / connectors		C_8007 / K_8008	C22B* / K*
Mounting interface		SMT_0019	Size 06
Spare parts		SP_8010	

Characteristics measured at ν = 32 mm2/s (156 SUS)

Operating limitsPressure drop related to flow rate

Operating limits for maximum hydraulic power at rated temperature and supply voltage equal to 90 % nominal.





Spool symbol					
1	Z11	5	F11	7	Z91
6	C11	3	R11	5	R31
5	H11	4	R21	5	H51
1	P11	5	A51	7	F51
2	Y11	1	P51	3	X11
5	L21	2	Y51	7	K11
8	B11	6	C51	7	N11
6	Y41	1	Z51	10	X25
1	Z21	7	Z71	1	J15
5	C41	7	Z81	9	J75

Spool symbol	P-A	P-B	A-T	B-T	P-T
Z11,L21,B11,R11 R21,X11,N11,J15	2	2	3	3	
C11	5	5	5	6	3
H11	2	2	2	3	3
P11	1	1	3	3	
Y11	2	2	2	2	
Y41	3	3	3	3	
Z21,Z51,H51	2	3			
C41	4	4			
F11	1	2	3		5
A51,J75	2	2			3

	P-A	P-B	A-T	B-T	P-T
P51	1	3			
Y51	2	2			
C51	2	3			4
Z71	3	3			
Z81	3	3			
Z91	3	3			3
R31	2	3			
F51	2	3			
K11	2	3			
X25	3	3	3		

For operating limits under conditions and flow directions other than shown contact our technical support. Admissible operating limits may be considerably lower with only one direction of flow (A or B plugged, or without flow.)

Ordering Code

RPE3 - 06 □ □ / - □ □ □ □ □ □ □

4/2 and 4/3 directional control valve, solenoid operated

Valve size

Number of spool positions
two positions 2
three positions 3

Spool symbols
see the table "Spool Symbols"

Rated supply voltage of solenoids
(at the coil terminals)

12 V DC / 2.72 A	01200
24 V DC / 1.29 A	02400
27 V DC / 1.07 A	02700
205 V DC / 0.15 A	20500
24 V AC / 1.56 A / 50 (60 Hz)	02450
120 V AC / 0.26 A / 60 Hz	12060
230 V AC / 0.15 A / 50 (60) Hz	23050

CSA upon request - only for 320 bar (4640 PSI)

Connector

EN 175301-803-A	E1
E1 with quenching diode	E2
AMP Junior Timer - axial direction (2 pins; male)	E3A
E3A with quenching diode	E4A
EN 175301-803-A with integrated rectifier	E5
Loose conductors (two insulated wires)	E8
E8 with quenching diode	E9
Deutsch DT04-2P - axial direction (2 pins; male)	E12A
E12A with quenching diode	E13A

- For directional valves with two solenoids, one solenoid must be de-energized before the other solenoid can be charged.
- For AC voltage supply use coils with connector type E5.
- For other solenoid voltage supply options see data sheet C_8007.

Spool monitoring

No designation	without sensors
S1	normally-open sensor
S4	normally-closed sensor

Seals

No designation	NBR
V	FPM (Viton)

Soft-shift spool speed control

No designation	without soft-shift control
T1	orifice ∅ 0.7 mm (0.03 inch) in solenoid

Manual override

No designation	standard
N1	cap nut covered
N2	rubber boot protected
N3	detent assembly with the ball
N4	hand screw
N5	socket head screw, size 3
N7	detent assembly with the nut
N8	with ball
N9	without manual override

Surface treatment

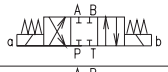
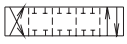
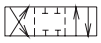
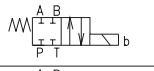
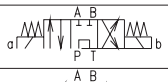
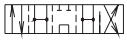
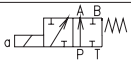
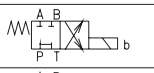
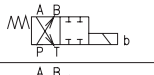
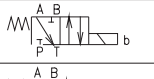
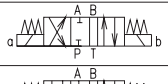
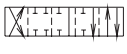
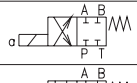
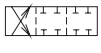
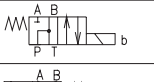
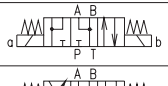
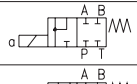
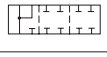
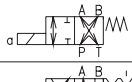
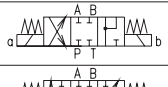
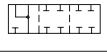
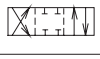
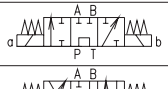
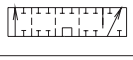
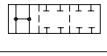
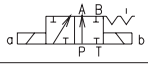
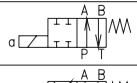
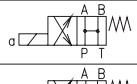
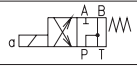
No designation	standard
A	zinc-coated (ZnCr-3), ISO 9227 (240 h)
B	zinc-coated (ZnNi), ISO 9227 (520 h)

CSA Certified

No designation	without certification
U	CSA marking

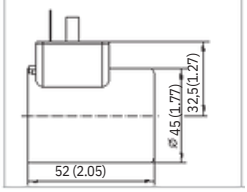
- The solenoid operated valves are delivered without connectors. For available connectors see data sheet K_8008.
- The orifice to the P port can be ordered separately, see data sheet SP_8010.
- Mounting bolts M5 x 45 DIN 912-10.9 or studs must be ordered separately. Tightening torque is 8.9+1 Nm (6.56+0.7 lbf.ft).
- Besides the commonly used valve versions shown other special models are available. Contact our technical support for their identification, feasibility and operating limits.

Spool Symbols

Type	Symbol	Interposition	Type	Symbol	Interposition	Type	Symbol	Interposition
Z11			R11			Z11		
C11			R21			X11		
H11			A51			C11		
P11			P51			H11		
Y11			Y51			K11		
L21			C51			N11		
B11			Z51			F11		
Y41			Z71			X25		
Z21			Z81			J15		
C41			Z91			J75		
F11			R31					
			H51					
			F51					

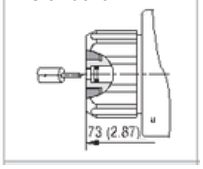
Type of Solenoid Coil in millimeters (inches)

E1, E2 / IP65

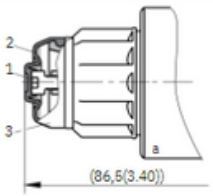


Manual Override in millimeters (inches)

No designation
- standard



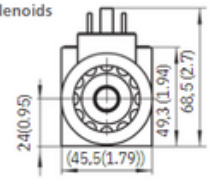
Spool Speed Control in millimeters (inches)

Designation T1	Important:
	This directional valve provides the means to control spool soft shifting by an orifice situated in the solenoid armature. To ensure the proper function of the valve, unobstructed venting of the solenoid is required through the bleeding plug (1). The plugs are accessible after removing the rubber boot (2) from the solenoid cap nut (3).
Switching time ON and OFF300 ... 800 ms	

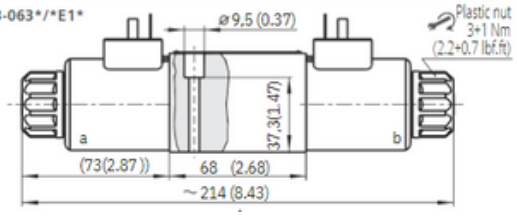
The switching times shown are valid for viscosity ν = 32 mm2/s (156 SUS) and nominal voltage.
They depend on working pressure and flow rate of the directional control valve.

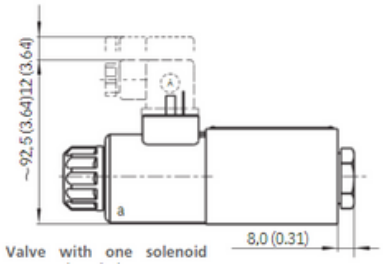
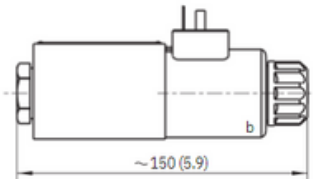
Dimensions in millimeters (inches)

Valve with two solenoids



RPE3-063*/*E1*





Valve with one solenoid