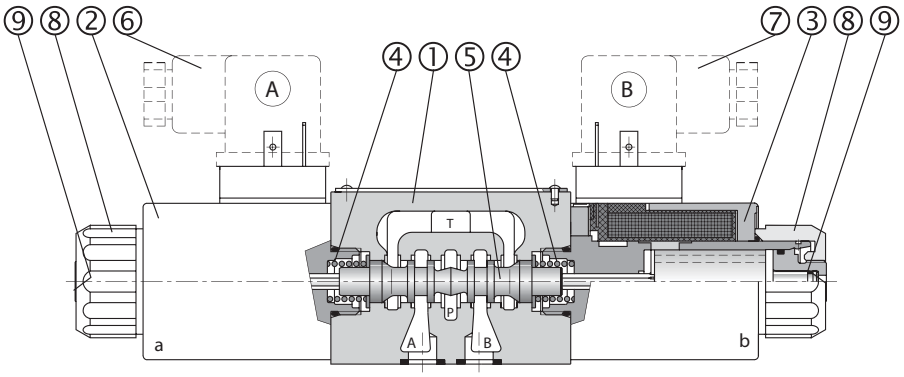
OVERVIEW



DCV 03 directional control valves consist of: housing (1), control spool (5), with two centering springs (4), and cylindrical operating solenoids (2, 3).

The three-position directional valves have two solenoids and two springs. Two-position directional valves have either one solenoid and one return spring or two solenoids and a detent assembly.

The operating solenoids are DC. For AC supply the solenoids are provided with a rectifier, which is integrated directly into the coil.

The plug connectors (6, 7) can be rotated 90°. By loosening the nut (8), the solenoids can be rotated 360°. This enables the solenoids to be replaced without opening the valves.

In the case of solenoid malfunction or power failure, the spool can be actuated by manual override (9), provided the pressure in T-port does not exceed 25 bar [360 psi].

The valve housing (1) is phosphate coated. The operating solenoids (2, 3) are zinc coated.

FEATURES

- 3 position, 4-way, and 2 position, 4-way directional valves
- Cylindrical operating solenoids with separate operating coils – connector can be rotated 90°
- 4-land spool – reduced functional dependence on fluid viscosity
- Push button manual override
- Installation dimensions to ISO 4401-03-02-0-94 and DIN 24340-A6



ORDER CODE

DCV03 - 3Z11 - 01200 - E12 - K1 - N2 - T1 - D2 - B

Directional control valve

Nominal size

Operating positions

Code	Description
2	Two position
3	Three position

Spool

See *Spool options*, page 4

Voltage

Code	Description
01200	12 VDC/ 2.72 A
02400	24 VDC / 1.29 A
12060	115 VAC / 0.35 A / 60 Hz
23050	230 VAC / 0.17 A / 50 Hz

The AC coils correspond with E5 coils only.

Connector

Code	Description
E1	DIN 43650
E2	DIN 43650 with diode
E3	AMP junior
E4	AMP junior with diode
E5	DIN 43650 with rectifier in coil
E8	Lead wires
E9	Lead wires with diode in coil
E12	Deutsch
E13	Deutsch with diode in coil

Manual override

Code	Description
00	Standard
N1	Covered with coil nut
N2	Protective rubber boot.

Connector plug (DIN 43650)

Code	Description
Omit	No plug
K1	Connector plug
K2	Connector plug with LED

Requires E1, E2, or E5 coil connection

Spool speed control orifice

Code	Description
Omit	None
T1	0.7 [0.03 in] orifice

P port orifice

Code	Description
Omit	None
D2	1.5 mm [0.06 in]
D4	2.2 mm [0.09 in]

Seals

Code	Description
B	Buna-N
V	Viton

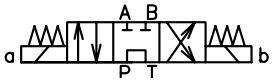
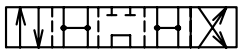
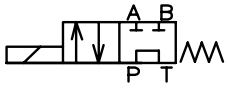
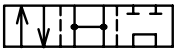
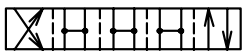
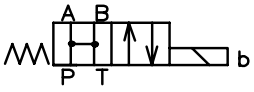
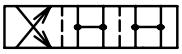
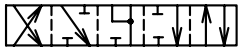
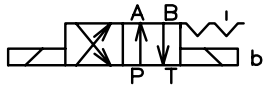
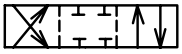
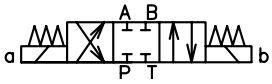
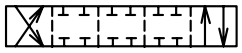
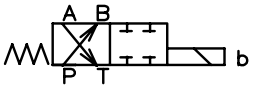
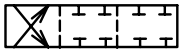
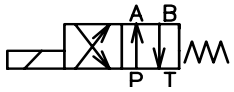
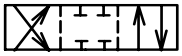
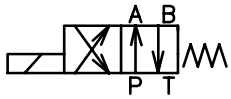
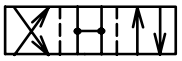
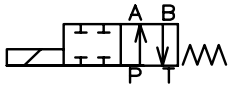
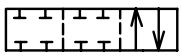
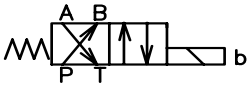
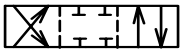
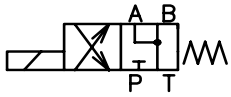
TECHNICAL DATA

Specifications

Nominal size		6.0 [0.24]
Maximum flow	**l/min [US gal/min]**	See p-Q characteristics below. Replace valves with: NFPA D03, CETOP 3, NG6
Maximum operating pressure	**bar [psi]**	350 [5075]
Maximum back pressure (port T)	**bar [psi]**	210 [3050]
Pressure drop	**bar [psi]**	see Δ p-Q characteristics, page 4
Weight – with 1 solenoid with 2 solenoids	**Kg [lb]**	1.6 [3.52] 2.2 [4.84]

SPOOL OPTIONS

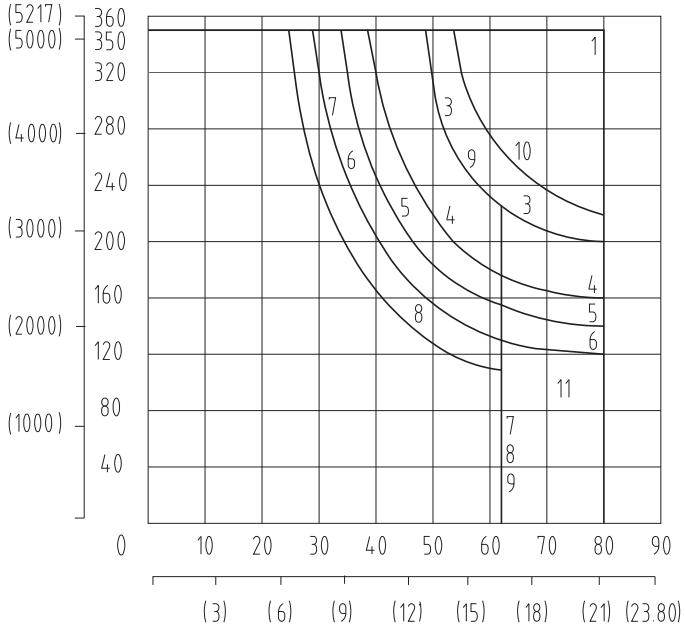
Functional Symbols

3 - Position			2 - Position		
Code	**Symbol**	**Transition**	**Code**	**Symbol**	**Transition**
C11			**C51**		
H11			**H11**		
P11			**H51**		
Y11			**J15**		
Z11			**K11**		
			R11		
			R21		
			R31		
			X11		
			Y51		

CHARACTERISTICS

p - Q Characteristics

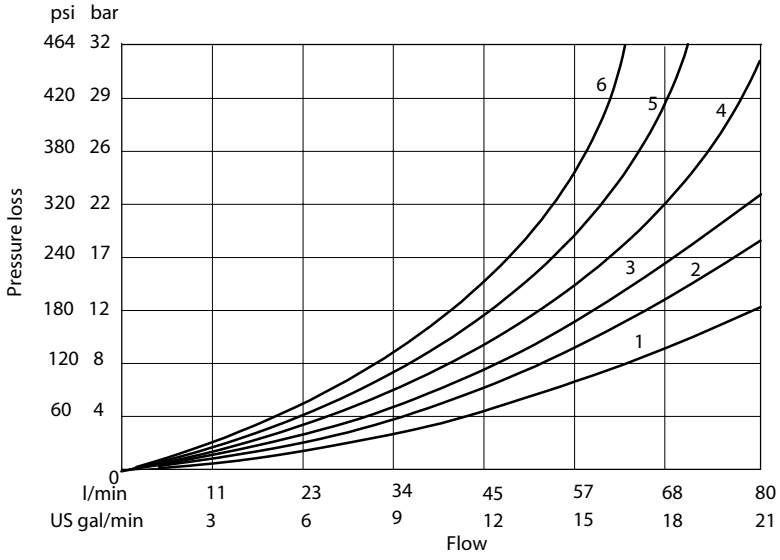
Operating limits for maximum hydraulic power transferred by the directional valve. Measured at viscosity = 35 mm^2/sec (cSt) [166 SUS].



Spool	Curve
C11	7
C51	7
H11	4
H51	8
J15	1
K11	8
P11	1
R11	4
R21	5
R31	6
X11	4
Y11	3
Y51	3
Z11	1

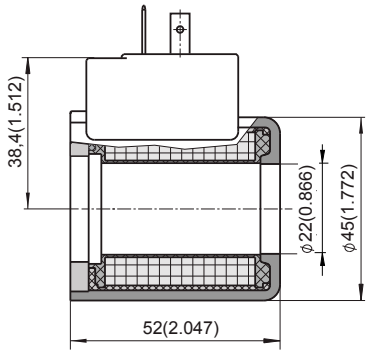
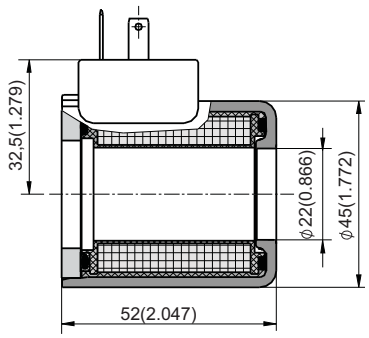
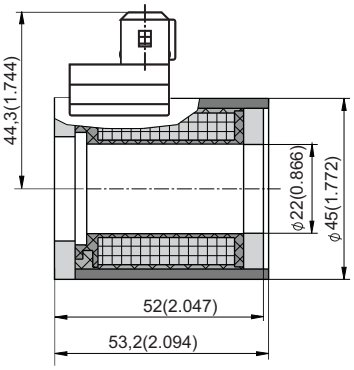
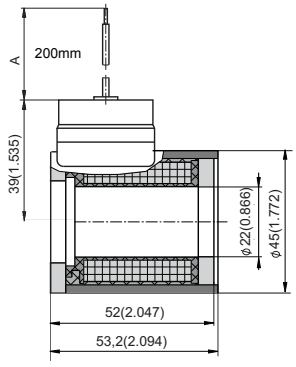
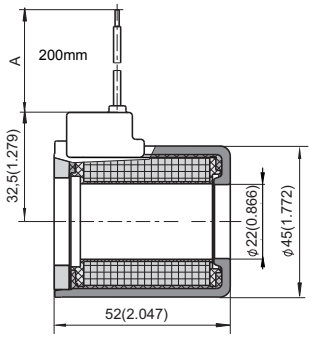
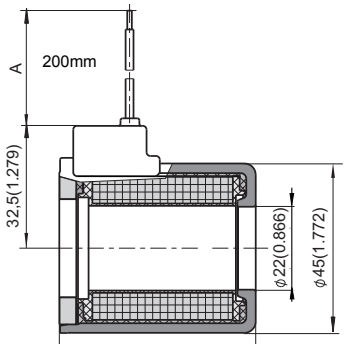
Δp-Q Characteristics

Measured at viscosity = 35 mm^2/sec (cSt) [166 SUS].



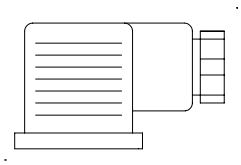
Spool	P-A	P-B	A-T	B-T	P-T
C11	5	5	5	6	3
C51	2			3	4
H11	2	2	2	2	3
H51		2	3		
J15	2	2	3	3	
K11		2	3		
P11	1	1	3	3	
R11	2	2	3	3	
R21	2	2	3	3	
R31	2			3	
X11	2	2	3	3	
Y11	2	2	2	2	
Y51		2	2		
Z11	2	2	3	3	

CONNECTORS

Code	Dimensional sketch	
E1, E2		E5 
E3, E4		
E8		E9 
E12, E13		

CONNECTOR OPTIONS

DIN 43650

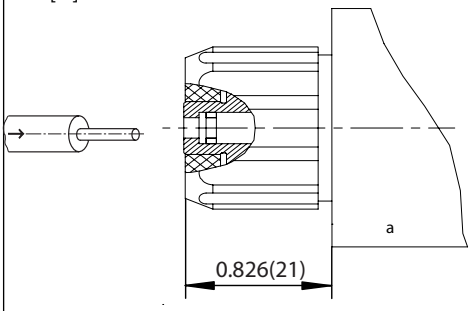


Code	Type	Model	Max. input voltage
K1	Plug B (black)	without rectifier	250 VDC
			230 VAC
	Plug A (grey)	without rectifier	250 VDC
			230 VAC
K2	Plug B (black)	without rectifier and with LED	30 VDC
			230 VAC
	Plug A (grey)	without rectifier and with LED	30 VDC
			230 VAC

MANUAL OVERIDE OPTIONS

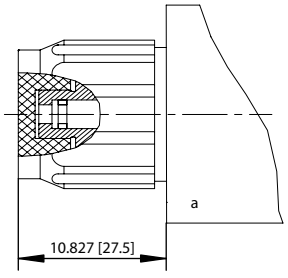
Standard

code 00
mm[in]



Covered with coil nut

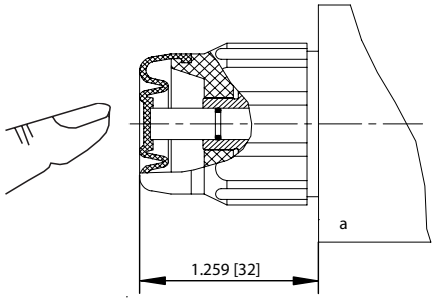
Code N1
mm[in]



Manual overide covered by coil nut

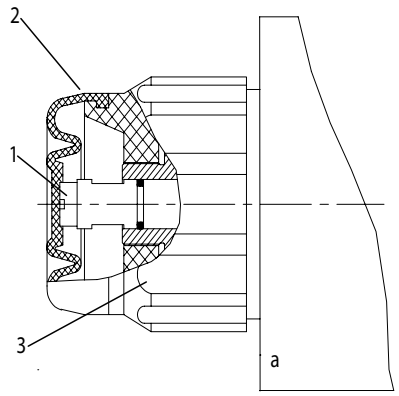
Rubber boot

Code N2
mm [in]

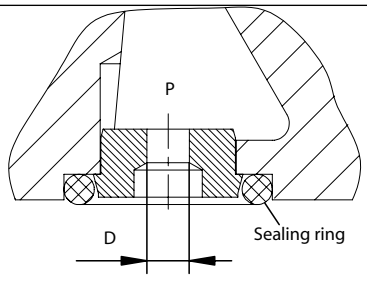


Manual override protected by rubber boot

SPOOL SPEED CONTROL ORIFICE

Code	Sketch	Description
T1		This directional valve provides cushioned control spool shifting by means of orifice situated in the solenoid armature. To ensure proper function, air bleeding required. To bleed : 1. Remove Boot (2) 2. Open Plug (1) 3. Tighten plug after air is removed 4. Replace boot

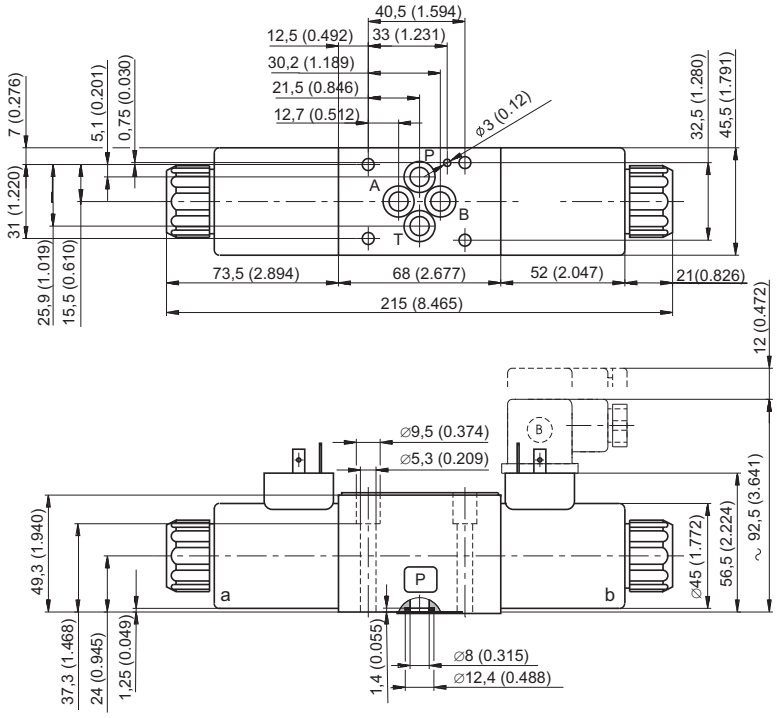
P-PORT ORIFICE OPTIONS

Code	D mm [in]		Description
None	None		The orifice installed in the P port restricts the input flow. Orifices can also be used in all ports. Flow can be bidirectional.
D2	1.5 [0.06]		
D4	2.2 [0.09]		

DIMENSIONS

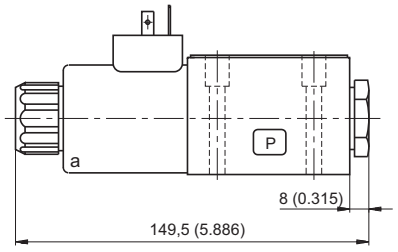
mm [in]

Valve with two solenoids



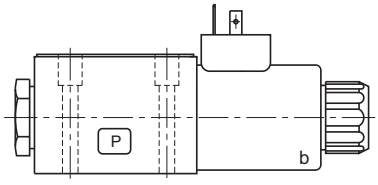
Valve with one solenoid – size a

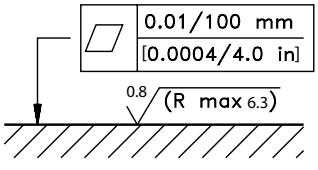
Functional symbols
R11, R21, Y51, C51, H51, J15



Valve with one solenoid – size b

Functional symbols
X11, H11, K11

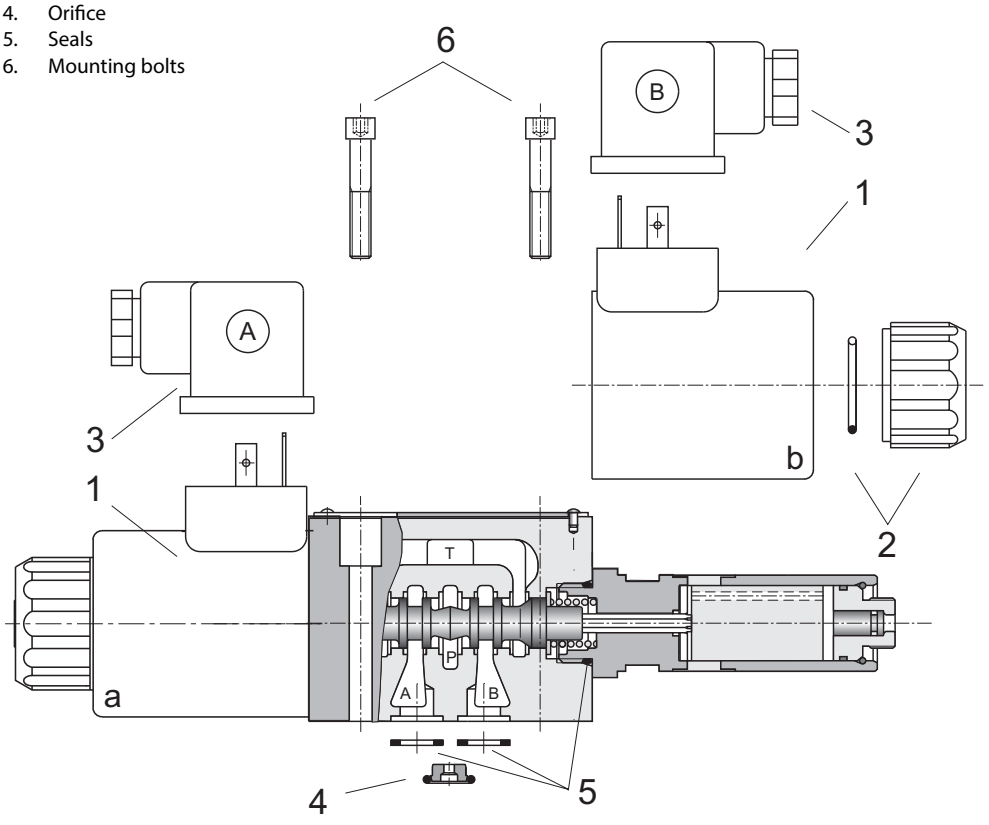




Required surface finish of interface

REPLACEMENT PARTS

1. Solenoid coil
2. Nut + sealing ring
3. Connector plug
4. Orifice
5. Seals
6. Mounting bolts



Solenoid

Voltage	E1 DIN 43650	E2 DIN 43650 w/Diode	E3 Amp Jr.	E4 Amp Jr. w/Diode	E5 DIN w/Rectifier	E8 Lead Wires	E9 Lead Wires w/Diode	E12 Deutsch	E13 Deutsch w/Diode
	Ordering Number								
01200	158-8004	11051915	***	158-8139	***	158-8083	***	158-8055	11030059
02400	158-8009	158-8053	***	***	***	***	***	158-8057	158-8129
12060	***	***	Not Available		158-8028	Not Available			
23050	***	***			158-8018				

*** Consult Factory

REPLACEMENT PARTS (continued)

Solenoid nut

M/O code	Type of nut	Ordering number
No Code	Standard nut	158-8005
N1	Closing nut	Consult factory
N2	Nut with rubber cap	Consult factory

Connector (DIN 43650)

Code	Model	Connector plug A gray	Connector plug B black
		Ordering number	
K1	No rectifier or LED	158-8076	088010080
K2	with LED	Consult factory	Consult factory

Orifice

Code	Diameter mm [in]	Ordering number
D2	1.5 [0.059]	158-8003
D4	2.2 [0.87]	158-8080

Seal kit

Type	Ordering number
Buna-N	158-8007
Viton	158-8062

Mounting bolts – set

Type, Qty	Ordering number
M5 x 45 DIN 912-10.9 (4 pcs)	158-8026
10-24 UNC x 1.75 (4 pcs)	158-8064