

## **Directional Valve Size 06 WL 4.06**

Installation dimensions ISO 4401/DIN 24340 A6

## Functional Description

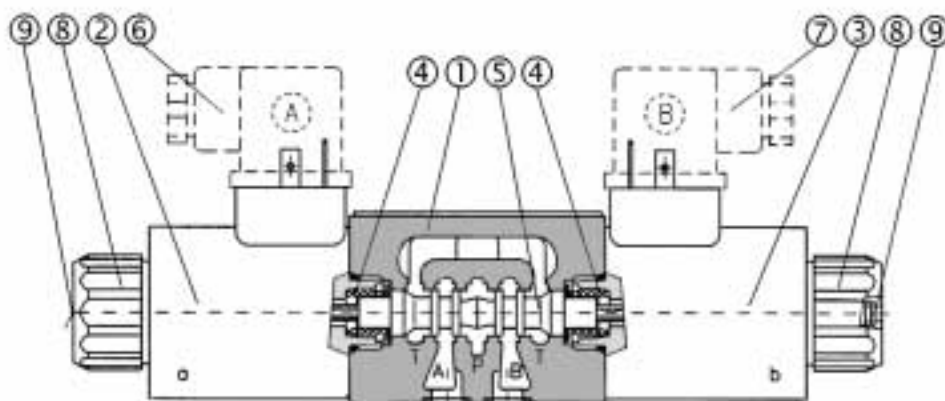
The directional control valves WL 4/06 consists of housing (1), a control spool (5) with two centering springs (4) and cylindrical operating solenoids (2, 3).

The three-position directional valves are fitted with 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 D.C. solenoids. For AC supply the solenoids are provided with a rectifier, which is integrated directly into the connector. The plug connectors (6, 7) can be turned by 90°. By loosening the fixing nut (8), the

solenoids can be turned arbitrarily in the range of 360°, or replaced. This enables the operating coils to be replaced without opening the pressure-tight spaces.

In the case of solenoid malfunction or power failure, the spool of the valve can be repositioned by manual override (9), provided the pressure in T-port does not exceed 25 bar. The basic surface treatment of the valve housing (1) is phosphate coated and the operating solenoids (2, 3) are zinc coated.

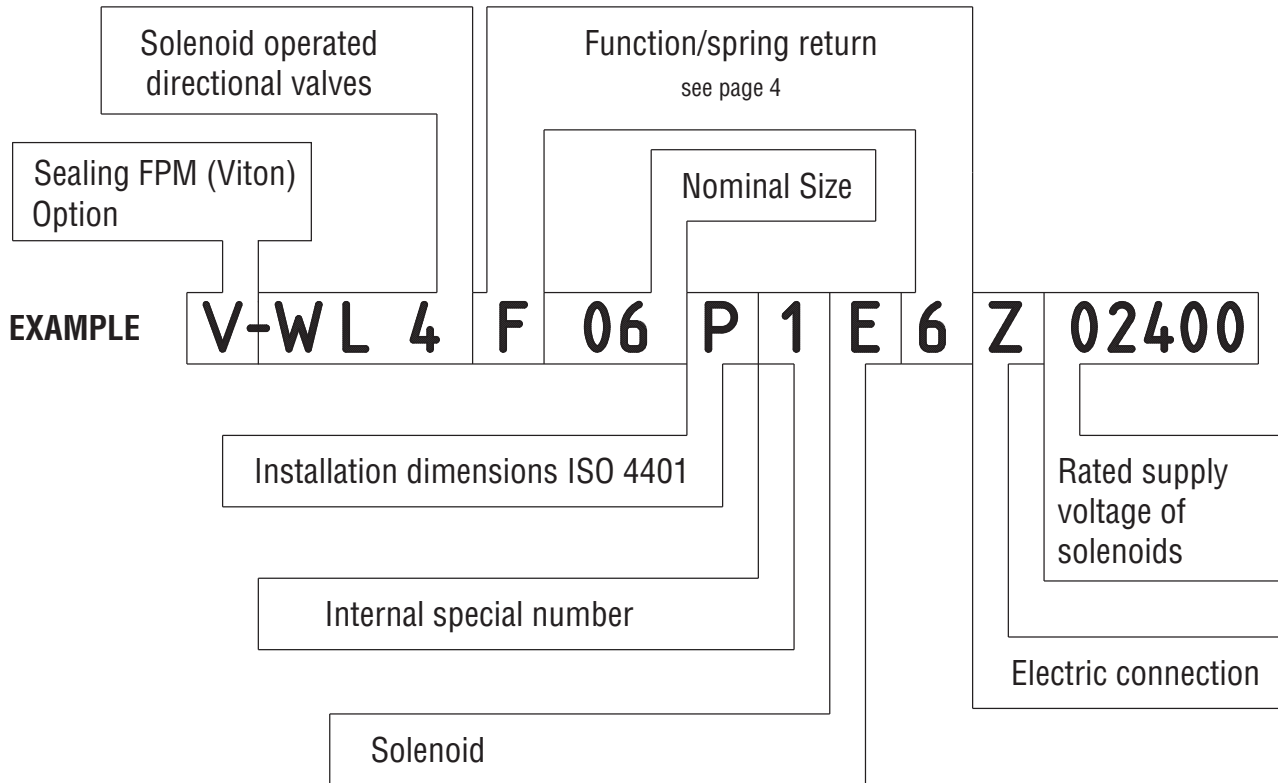


## Technical Data

Nominal size	6	Permissible rated voltage variation	DC: -10 ... +6% AC: ±10%
Maximum flow	see p-Q characteristics	Max. switching frequency	15000 1/h
Max. operating pressure at ports P, A, B	4641 psi (320 bar)	Switching time, on; at v = 98 SUS (20 mm <sup>2</sup> /s)	DC: 30 ... 50 ms AC: 30 ... 40ms
Max. operating pressure at port T	2320 psi (160 bar)	Switching time, off; at v = 98 SUS (20 mm <sup>2</sup> /s)	DC: 10 ... 50 ms AC: 30 ... 70ms
Pressure losses	see Δp-Q characteristics	Duty cycle	100%
Hydraulic fluid	Hydraulic oils of DIN 51254/25 other Hydraulic fluids on request	Service life	10 <sup>7</sup> cycles
Fluid temperature range (NBR)	-22 ... +176 °F (-30 ... +80 °C)	Enclosure type to DIN 40 050	IP 65
Ambient temperature range	... +122 °F (... +50 °C)	Weight-valve with 1 Solenoid valve with 2 Solenoids	3.52 Lb (1.6 kg) 4.84 Lb (2.2 kg)
Viscosity range	98 ... 1840 SUS (20 ... 400 mm <sup>2</sup> /s)	Mounting position	optional
Maximum degree of fluid contamination	Class 18/15 to ISO 4406. Therefore we recommend a filter with a retention rate β <sub>10</sub> ≥ 75.		

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**Ordering Code**



Solenoid	
<b>E</b>	Coil of solenoid equipped with standard plug-in electrical connector DIN 43 650
<b>EG</b>	Coil of solenoid with integrated rectifier equipped with standard plug-in electrical connector DIN 43 650

Rated supply voltage of solenoids	
01200	12V DC / 2,72 A
02400	24V DC / 1,29A
11550	115V AC / 0,35 A / 50(60) Hz
23050	230V AC / 0,17 A / 50(60) Hz
other voltages on request	

Electric connection		DIN 43 650, Protection IP 65, (DIN 40 050)
<b>Y</b>	without electrical plug	
<b>Z</b>	with electrical plug (Pg 11)	
<b>L</b>	with electrical plug and signal lights in conduit adapter (Pg 11)	

Directional valves with damping on request: T2 = nozzle Ø 0,6  
T3 = throttle screw

Directional valves with manual override on request: N2 = covered with rubber protective.

## Functional Symbols

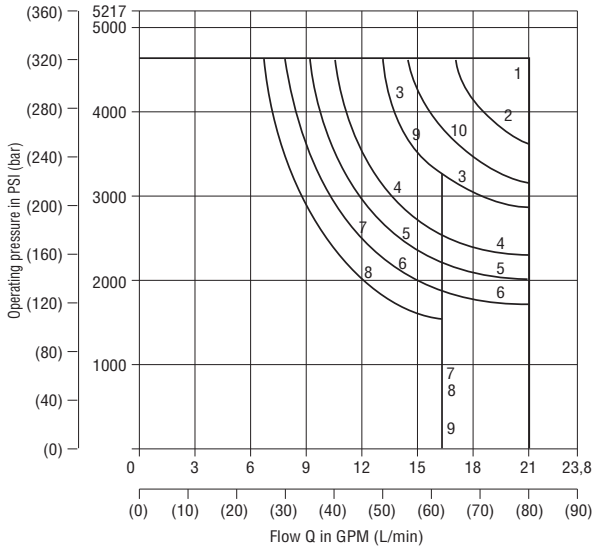
Function	Spring return	Symbol	Function	Spring return	Symbol	Function	Spring return	Symbol
F ...6			AP...0*			F ...1		
EN...6**			AN...0**			BP...1*		
SE...6			U ...0			BN...1**		
KF...6			KF...0			EN...1**		
SF...6			SF...0			SE...1		
AE...6			EN...0**			F ...4		
HF...6			F ...0			AF...1		
FV...6			F ...8			HE...1		
HE...6			SE ...0			F ...31		
AF...6			AE...0			AE...1		
			AF...0			HF...1		
			HF...0			SF...1		

\* P ≙ Overlap (positive)  
 \*\* N ≙ Overlap (negative)

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## p-Q Characteristics Measured at $v = 166 \text{ SUS (35 mm}^2\text{/s)}$ and $t = 104 \text{ }^\circ\text{F (40 }^\circ\text{C)}$

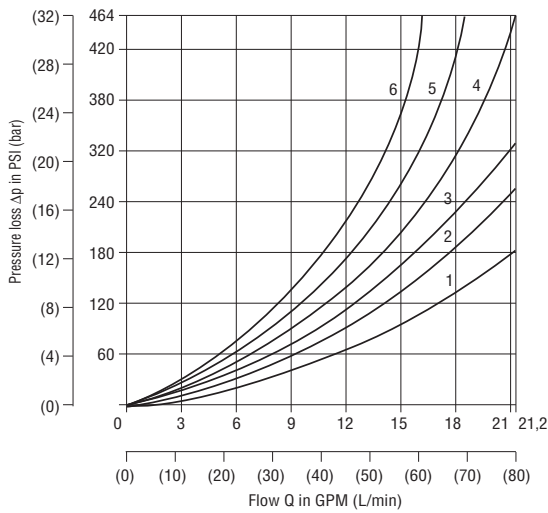
Operating limits for maximum hydraulic power transferred by the directional valve.



F ...6	1	F ...8	6
EN ...6	7	SE ...0	8
SE ...6	4	AE ...0	6
KF ...6	1	AF ...0	9
SF ...6	3	HF ...0	9
AE ...6	6	F ...1	1
HF ...6	9	BP ...1	5
FV ...6	1	BN ...1	4
HE ...6	6	EN ...1	7
AF ...6	9	SE ...1	8
AP ...0	4	F ...4	8
AN ...0	5	AF ...1	8
U ...0	6	HE ...1	6
KF ...0	1	F ...31	1
SF ...0	3	AE ...1	1
EN ...0	7	HF ...1	9
F ...0	1	SF ...1	3

## $\Delta p$ -Q Characteristics Measured at $v = 166 \text{ SUS (35 mm}^2\text{/s)}$ and $t = 104 \text{ }^\circ\text{F (40 }^\circ\text{C)}$

Pressure loss  $\Delta p$  related to flow rate.

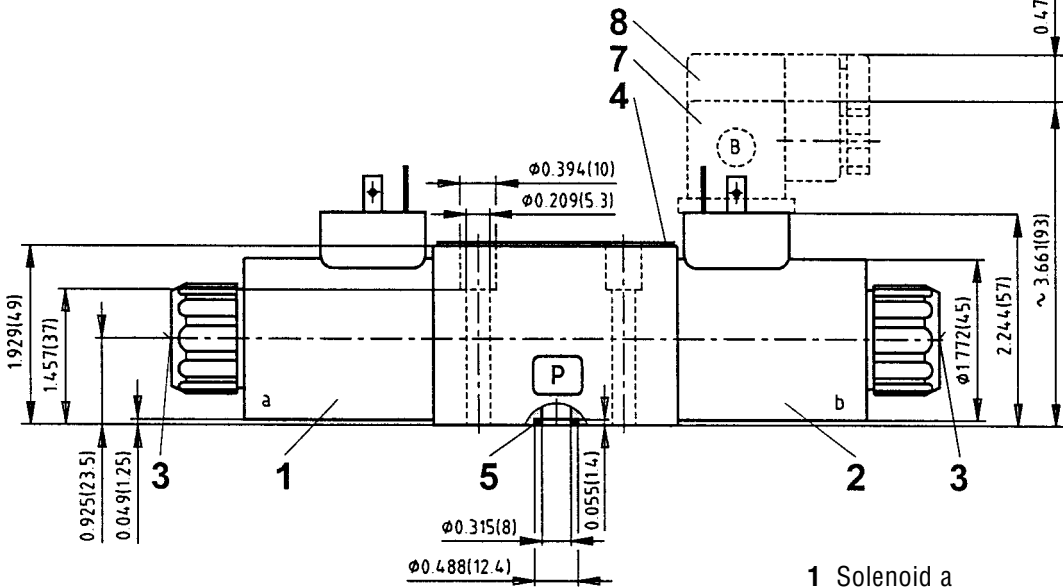
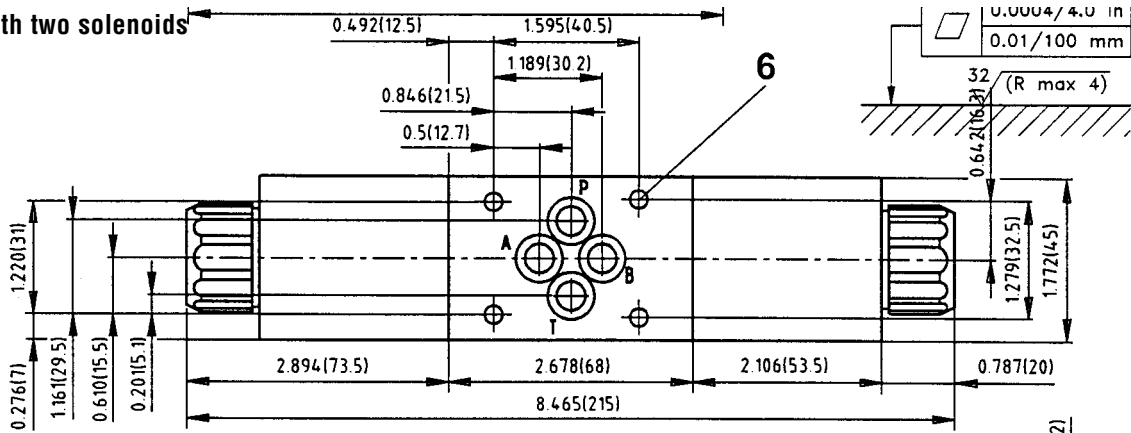


	P-A	P-B	A-T	B-T	P-T
F ...6	2	2	3	3	-
EN ...6	5	5	5	6	3
SE ...6	2	2	2	2	3
KF ...6	1	1	3	3	-
SF ...6	2	2	2	2	-
AE ...6	2	2	3	3	3
HF ...6	2	2	3	3	-
FV ...6	-	2	3	-	-
HE ...6	1	2	3	3	3
AF ...6	2	2	3	3	-
AP ...0	2	2	3	3	-
AN ...0	2	2	3	3	-
U ...0	2	2	-	-	-
KF ...0	-	1	3	-	-
SF ...0	-	2	2	-	-
EN ...0	5	-	-	6	4
F ...0	-	-	2	3	-
F ...8	2	-	-	3	-
SE ...0	-	2	3	-	3
AE ...0	2	2	3	-	3
AF ...0	-	2	3	-	-
HF ...0	-	2	3	3	-
F ...1	2	-	-	3	-
BP ...1	2	2	3	3	-
BN ...1	2	2	3	3	-
EN ...1	-	5	5	-	4
SE ...1	2	-	-	2	3
F ...4	-	2	3	-	-
AF ...1	2	-	3	3	-
HE ...1	1	-	-	3	3
F ...31	2	2	3	3	-
AE ...1	2	-	3	3	3
HF ...1	2	-	-	3	-
SF ...1	2	-	2	2	-

**Directional valve size 10** installation dimensions ISO 4401 / DIN 24340 A6

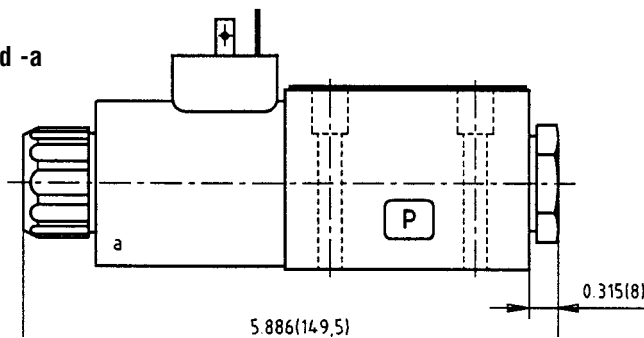
**Valve dimensions** Dimensions in inches and milimetres (in brackets)

**Valve with two solenoids**



- 1 Solenoid a
- 2 Solenoid b
- 3 Manual override
- 4 Name plate
- 5 Square Ring 9.25 x 1.68 x 1.68 mm supplied in delivery packet
- 6 4 mounting holes
- 7 Conector plug to DIN 43650
- 8 Distance required to remove plug

**Valve with one solenoid - a**

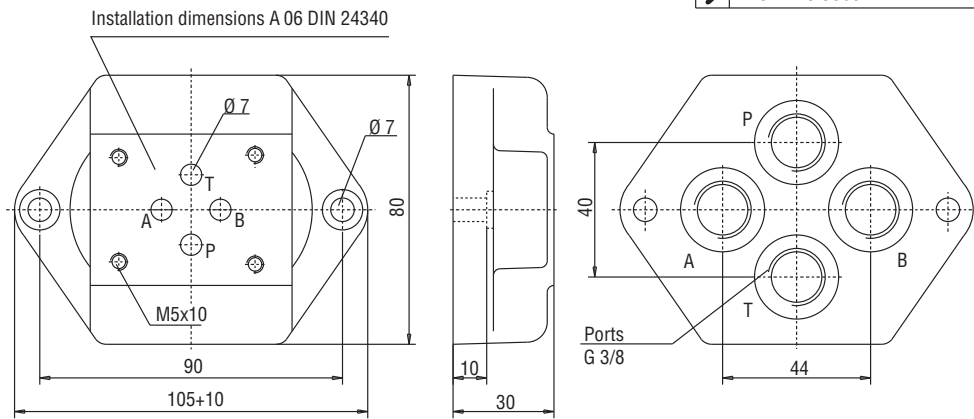


Required surface finish of interface

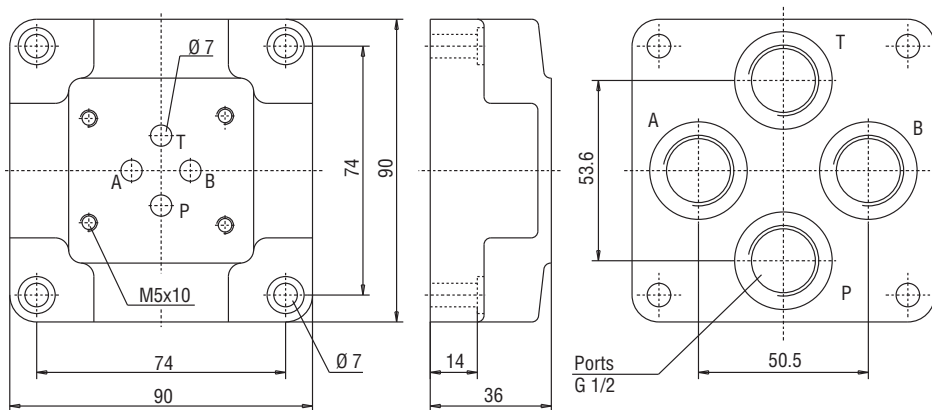
**Single-subplates for WL4/06** installation dimensions ISO 4401 / DIN 24340 A6

**Ordering code**

Size		internal special number	
<b>MWL 4</b>	<b>.</b>	<b>R</b>	<b>.</b>
<b>06</b>	<b>3</b>	<b>A</b>	<b>.</b>
Ports G 3/8	<b>06</b>	<b>3</b>	<b>Code no.</b>
Ports G 1/2	<b>08</b>	<b>2</b>	<b>0</b> All 4 ports open
			<b>1</b> Port A closed
			<b>2</b> Port B closed
			<b>3</b> Port P closed
			<b>4</b> Ports A+B closed
			<b>5</b> Ports B+P closed
			<b>6</b> Ports A+P closed
			<b>7</b> Ports A+T closed
			<b>8</b> Ports B+T closed
			<b>9</b> Port T closed



Ordering code: **MWL 4 06 R3A .**



Ordering code: **MWL 4 08 R2A .**

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WL4.06.e.05.2000