Solenoid Operated Directional Valve HWE Series

Features and Handling

• WE Series is a direct solenoid operated directional spool valve. The valve porting pattern follows DIN 24 340 form A. The Valves come with wet pin DC or AC solenoids with removable coil which can be rotated through 90 degree.

• The standard valves come with DIN 43650 electrical connector with light and manual override to permit the spool to be moved without the solenoid being energized.

• For correct operation, ensure that the solenoid pressure chamber is filled with oil. Do not exceed permissible voltage range of the coil.

• Keep surge pressure below the maximum permissible back pressure port T. Keep hydraulic oil clean at ISO cleanliness code 19/16

Specification

Model	Maximum Flow L/min (USgpm)	Maximum Pressure bar (psi)	Weight kg (lb)
4HWE 6	60 (15.8)	300 (4350)	Single coil 1.6 (3.52) Double coil 2.4 (5.28)
4HWE10	100 (26.4)		Single coil 4.5 (9.9) Double coil 6.2 (13.64)

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change at any time without notice.

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Symbols

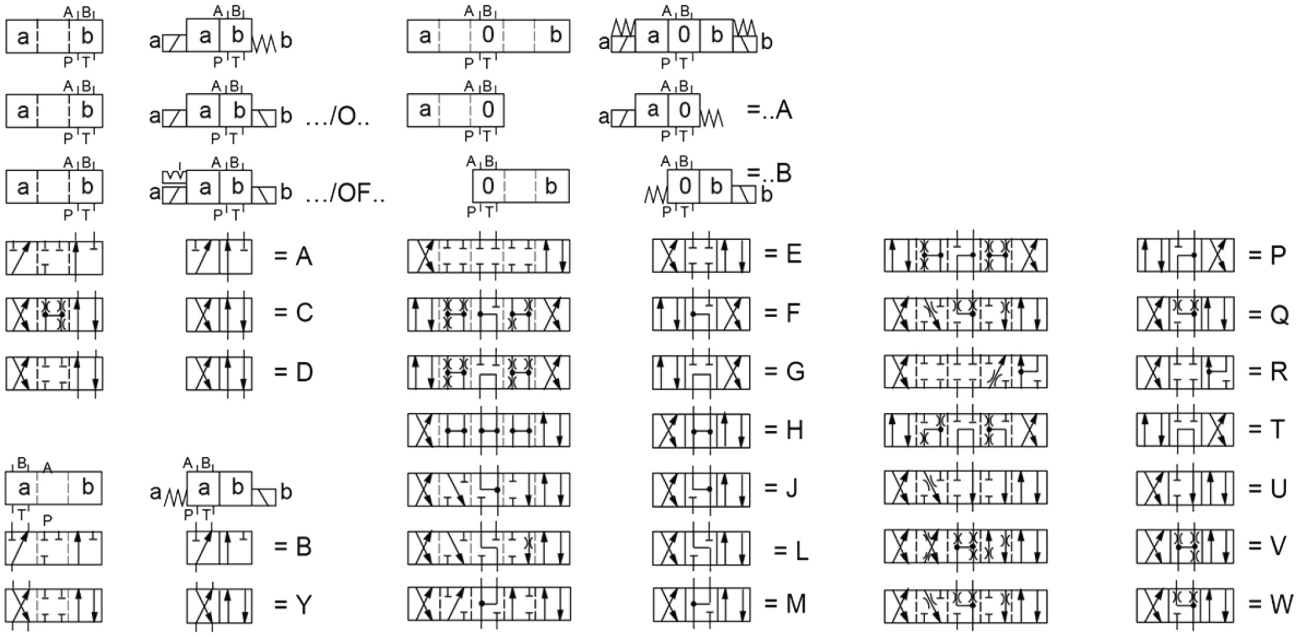
Notes

1. With ../O and ../OF, spool A, C, and D can come without spring return with or without detent.

2. With ordering a spool with only two position “0” & “a” or “0” & “b”, specify the desired position a or b after the spool code.

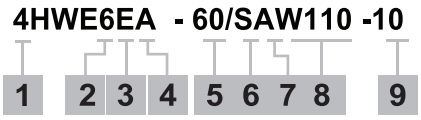
Example : Spool E with spool position “a”

Ordering code : 4HWE6EA-60/0AW110-10



Solenoid Operated Directional Valve
HWE Series

Ordering Code



1. Number of port
   - 4 - 4 ports

2. Valve Size
   - 6 - NG6 (CETOP3)
   - 10 - NG10 (CETOP5)

3. Spool type (see the table below)

4. Three position spool with
   - solenoid A only = A
   - solenoid B only = B

5. Design
   - 60 - for HWE6
   - 30 - for HWE10

6. Spring and Detent
   - S - Spring return

7. Coil type
   - A - Wet pin oil immersed with removable coil

8. Coil Voltage
   - G12 - 12V DC
   - G24 - 24V DC
   - W220 - 220V AC 50/60 Hz
   - W110 - 110V AC 50/60 Hz

9. Further detail for future use

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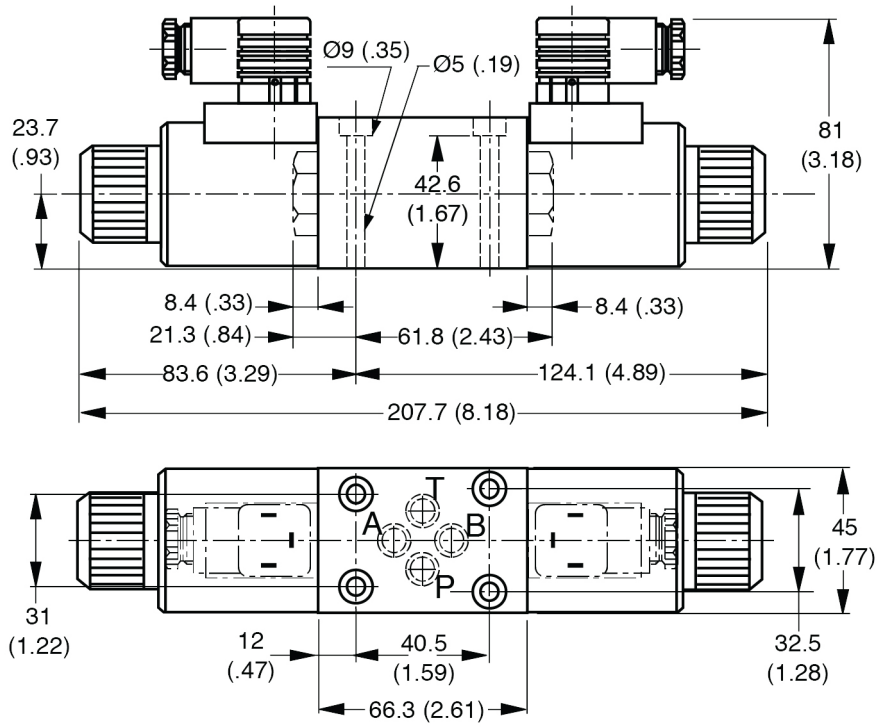
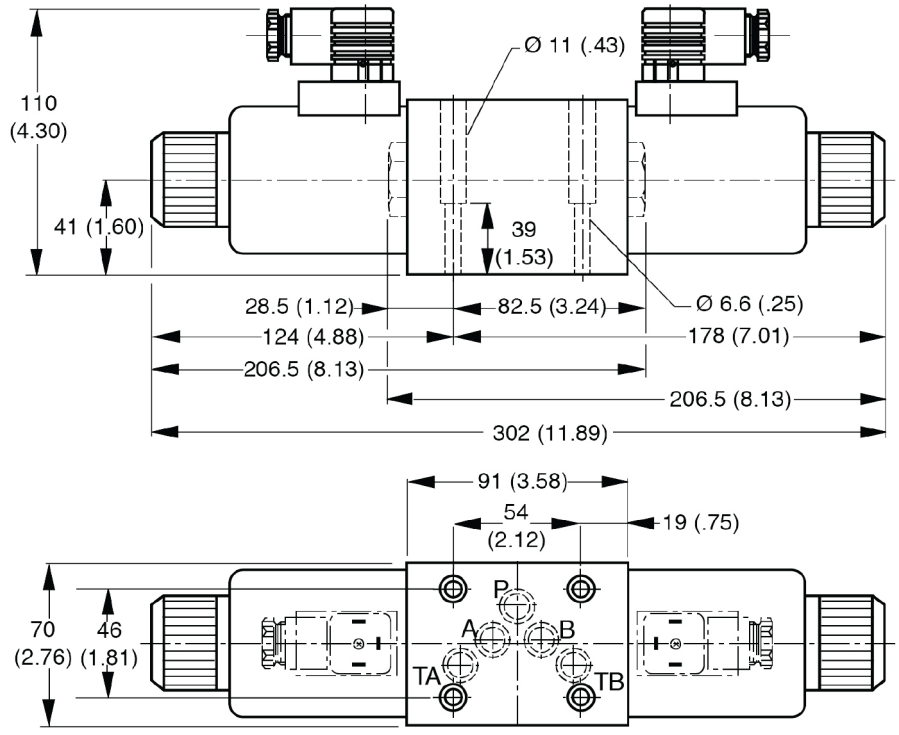
Installation Dimension mm (inch)

4HWE 6



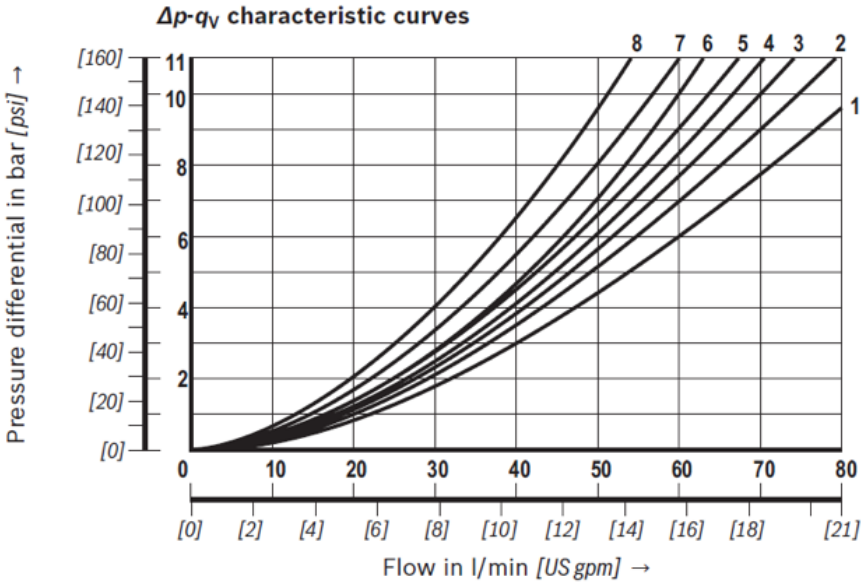
4HWE 10



Solenoid Operated Directional Valve HWE Series

Characteristic curves HWE6

(measured with HLP46, ϑ_{oil} = 40 ± 5 °C *[104 ± 9 °F]*)



7 Symbol "R" in spool position B – A
8 Symbol "G" and "T" in central position P – T
9 Symbol "H" in central position P – T

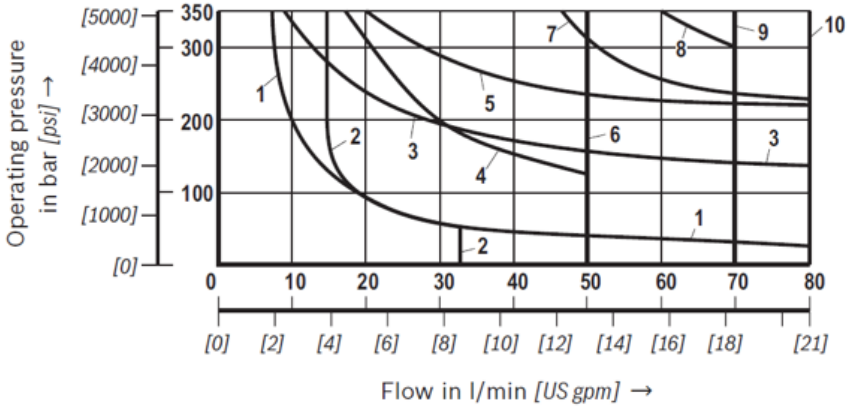
Symbol	Direction of flow			
	P – A	P – B	A – T	B – T
A; B	5	5	–	–
C	3	3	5	3
D; Y	6	6	5	5
E	5	5	3	3
F	3	5	3	3
T	8	8	4	4
H	2	1	2	2
J; Q	3	3	2	3
L	5	5	1	4
M	2	1	5	5
P	5	3	3	3
R	6	6	1	–
V	3	2	3	3
W	3	3	2	2
U	5	5	4	1
G	7	7	4	4

Solenoid Operated Directional Valve HWE Series

Performance limits HWE6

(measured with HLP46, ϑ_{oil} = 40 ± 5 °C *[104 ± 9 °F]*)

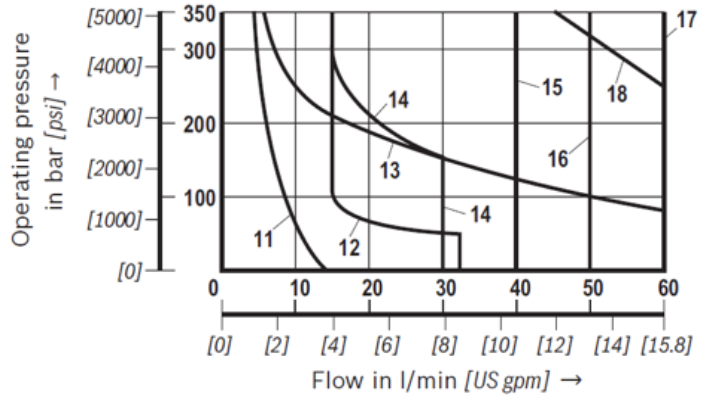
Notice!
The specified performance limits are valid for operation with two directions of flow (e.g. from P to A and simultaneous return flow from B to T).
Due to the flow forces acting within the valves, the admissible performance limit may be considerably lower with only one direction of flow (e.g. from P to A while port B is blocked).
In such cases of application, please consult us!
The performance limit was determined when the solenoids were at operating temperature, at 10% undervoltage and without tank preloading.



DC solenoid	
Characteristic curve	**Symbol**
1	A; B[1]
2	V
3	A; B
4	F; P
5	J
6	G; H; T
7	A/O; A/OF; L; U
8	C; D; Y
9	M
10	E[2]; R[3]; C/O; C/OF; D/O; D/OF; Q; W

Solenoid voltage (DC solenoid)
12; 24 V

1) With manual override
2) P – A/B pre-opening
3) Return flow from actuator to tank



AC solenoid	
Characteristic curve	**Symbol**
11	A; B[1]
12	V
13	A; B
14	F; P
15	G; T
16	H
17	A/O; A/OF; C/O; C/OF; D/O; D/OF; E[2]; J; L; M; Q; R[3]; U; W
18	C; D; Y

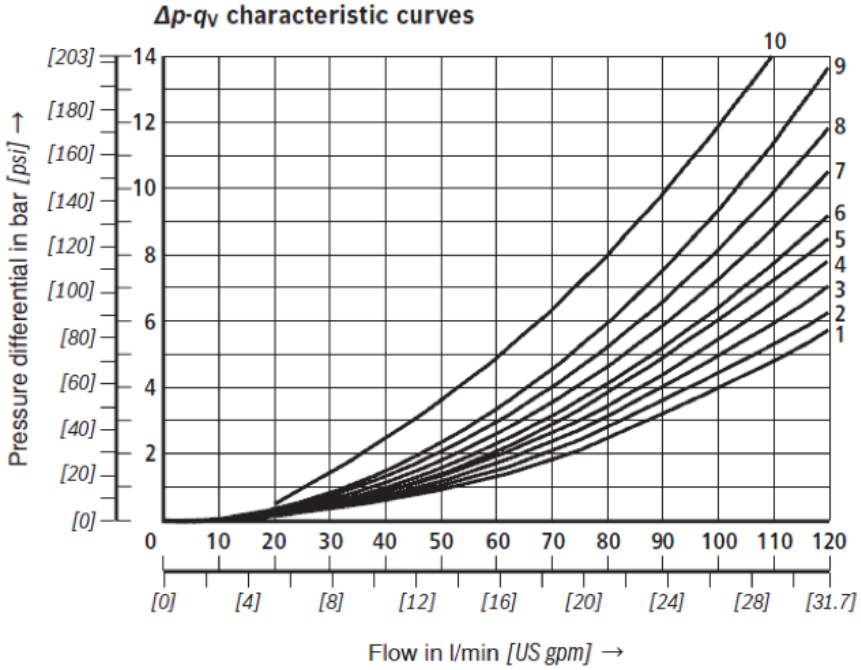
Solenoid voltage (AC solenoid)
110 V; 50 Hz 220 V; 50 Hz

1) With manual override
2) P – A/B pre-opening
3) Return flow from actuator to tank

Solenoid Operated Directional Valve HWE Series

Characteristic curves HWE10

(measured with HLP46, ϑ_{oil} = 40 ± 5 °C *[104 ± 9 °F]*)



Central position:

Spool symbol	Direction of flow				
	P – A	P – B	B – T	A – T	P – T
F	4	–	–	9	9
P	–	5	8	–	10
G, T	–	–	–	–	9
H	–	–	–	–	3

Spool symbol	Direction of flow			
	P – A	P – B	A – T	B – T
A; B	3	3	–	–
C	3	3	4	5
D; Y	5	5	6	6
E	1	1	4	4
F	2	3	7	4
G	3	3	6	7
H	1	1	6	7
J	1	1	3	3
L	2	2	3	5
M	1	1	4	5
P	4	2	5	7
Q	1	2	1	3
R	3	6	4	–
T	3	3	6	7
U; V	2	2	3	3
W	2	2	4	5

Spool position:

Spool symbol	Direction of flow			
	P – A	B – A	A – T	P – T
R	–	9	–	–

Solenoid Operated Directional Valve HWE Series

Performance limits HWE10

(measured with HLP46, ϑ_{oil} = 40 ± 5 °C *[104 ± 9 °F]*)

Notice!
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Due to the flow forces acting within the valves, the admissible performance limit may be considerably lower with only one direction of flow (e.g. from P to A while port B is blocked).
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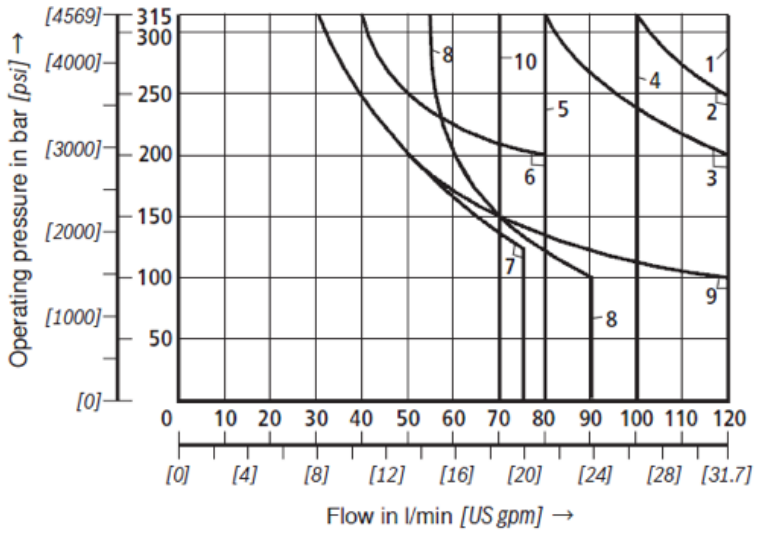
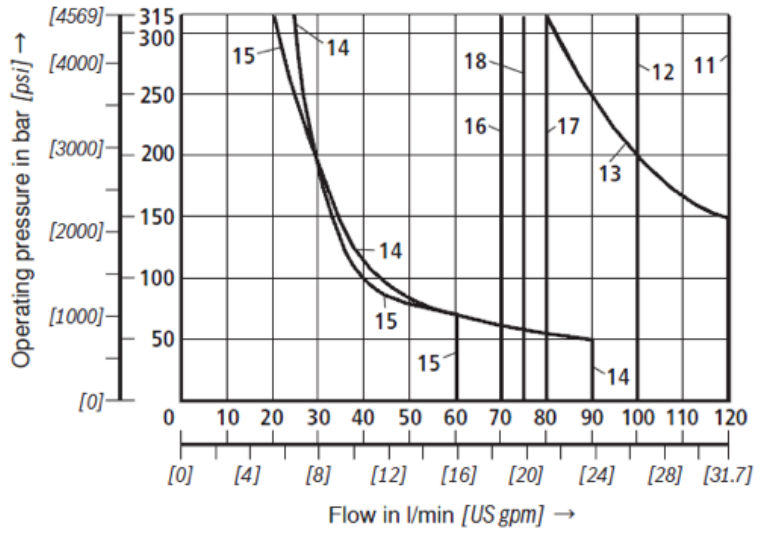


Solenoid voltage (DC solenoid)
12; 24 V

DC voltage	
Curve	**Spool symbol**
1	C; C/O; C/OF; D; D/O; D/OF; Y; M
2	E
3	A/O; A/OF; L; U; J; Q; W
4	H
5 [1]	R; L[2]; U[2]
6	G
7	T
8	F; P
9	A; B
10	V

[1] Return flow from actuator to tank (irrespecitve of the area ratio)
[2] Central position only



Solenoid voltage (AC solenoid)
110 V; 50 Hz 220 V; 50 Hz

AC voltage	
Curve	**Spool symbol**
11	C; C/O; C/OF; D; D/O; D/OF; Y
12	E; L; U; Q; W
13	A/O; A/OF; J
14	F; P
15	T
16	H
17	R
18 [2]	L; U
19	M

[2] Central position only