

AH-4WE6...Type Solenoid-Operated Directional Valve



AH-WE6...60S...type

Size (NG) 6

Max. Working Pressure: 315 bar

Max. Flow: 80 L/min

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Features

- Direct operated directional solenoid valve,
- Porting pattern according to DIN 24 340 form A, ISO 4401 and CETOP-RP 121 H
- Wet-pin AC or DC solenoids with detachable coil
- Pressure-tight chamber needs not to be opened for a coil change
- Electrical connection as individual or central connection

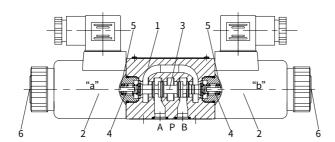
Function and configurations

AH-WE6...60S...type valves are solenoid operated directional spool valves. They control the start, stop and direction of hydraulic oil flow. The directional control valves consist of valve body(1), one or two solenoids (2), the valve core (3), and one or two return springs (4). In the de-energized condition the valve core(3) is held in the neutral or initial position by means of return springs (4) (except for impulse spools). The control spool (3) is actuated via wet pin solenoids (2).

To ensure proper operation, the pressure chamber of the solenoid must be filled with oil.

The valve core(3) is moved to the expected position by solenoids(2) and pushing rod(5). This gives free-flow from P to A and B to T or P to B and A to T.

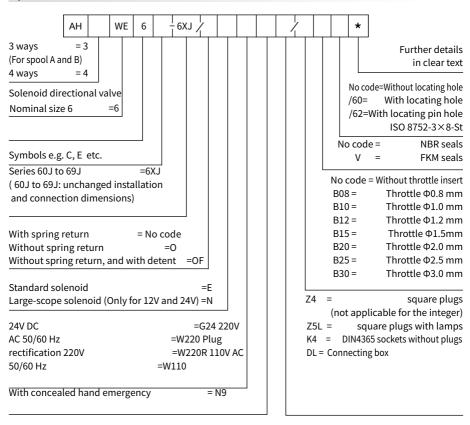
When solenoid (2) is de-energized, the valve core (3) is returned to its initial position by means of the return springs (4). The solenoids may also control the valve core (3) by an optional override button(6) under the de-energized condition.



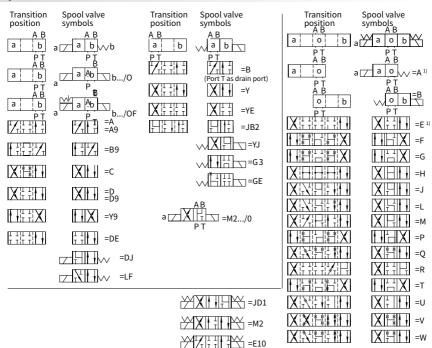


Damp insert

Specification

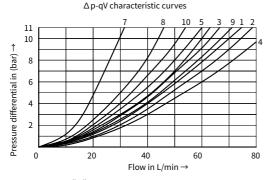


Symbols



Characteristic curves

(Measured at t=40°C ±5°C, using HLP46)



7 Symbol "R" in switched positions B → A
8 Symbol "G" and "T" in neutral position P \rightarrow T
9 Symbol "H" in neutral position $P \rightarrow T$

Spool	Flow direction			
symbol	P to A	P to B	A to T	B to T
A, B	3	3	-	-
l c	1	1	3	1
D, Y E	5	5	3	3
E	3	3	1	1
F	1	3	1	1
T	10	10	9	9
Н	2	4	2	2
J, Q	1	1	2	1
L	3	3	4	9
М	2	4	3	3
Р	2 3 5	1	1	1
R	5	5 2	4	-
V	1	2	1	1
W	1	1	2	2
U	3	3	9	4
G	6	6	9	9

Technical data

Fixing position			Optional		
Environment temperature range °C		°C	-30 to +50 (NBR seal)		
Environment ten	iperature range	C	-20 to +50 (FKM seal)		
Maiaht	Single solenoid	kg	1.5		
Weight	Double solenoids	kg	2.0		
	Port A,B,P	bar	315		
Max.operating pressure Port T		bar	210 (DC),160 (AC), when the operating pressure exceed the permission value, port T must be used as drain port for spool symbol A and B		
Max. flow-rate L/min		L/min	80 (DC), 60 (AC)		
Flow cross section mm ²		mm²	for symbol Q 6% of nominal cross section		
(switching neutral position) mm		mm ²	for symbol W 3% of nominal cross section		
Fluid			Mineral oil suitable for NBR and FKM seal		
			Phosphate ester for FKM seal		
Fluid temperature range °C		9.6	-30 to +80 (NBR seal)		
		٠.(-20 to +80 (FKM seal)		
Viscosity range mm²/s		mm²/s	2.8 to 500		
Degree of contamination			Maximum permissible degree of fluid contamination: Class 9. NAS 1638 or 20/18/15, ISO4406		

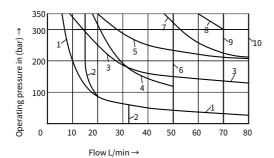
Electric data

Type of voltage		DC	AC 50Hz	
Usable voltage		V	12,24,281,48,96,110,205,220	110, 127, 220
Permissible voltage (deviation)		%	Standard solenoid:+10~-15; Large-scope solenoid:+20~-30	
Power consumption		W	Standard solenoid:30; Large-sco	pe solenoid:32
Holding power		VA	-	50
Making capacity		VA	-	220
Duty		Continuous working		
Switching time to ISO 6403	ON	ms	25 to 45	10 to 20
Switching time to ISO 6403 OFF		ms	10 to 25	15 to 40
Switched frequency times/h		to 15000	to 7200	
Type of protection to DIN 40050		IP65(Z4, Z5L plug), IP67 (K7 Deutsch)		
Max. coils temperature °C		°C	+150	+180

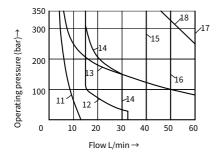
Performance limits

The specified switching performance limits are valid with two directions of flow. Due to the flow forces acting within the valve, the permissible switching performance limit can be significantly lower with only one direction of flow! The switching performance limit was determined with the solenoid at operating temperature, at 15 % under-voltage and without tank pre-loading.

	Solenoid DC		Solenoid AC-50Hz		Solenoid AC-60Hz
Curve	Spool symbol	Curve	Spool symbol	Curve	Spool symbol
1	A, B ₁₎	11	A, B ₁₎	19	A, B ₁₎
2	V	12	V	20	V
3	A, B	13	A, B	21	A, B
4	F, P	14	F, P	22	F, P
5	J	15	G, T	23	G, T
6	G, H, T	16	Н	24	J, L, U
7	A/O, A/OF, L, U		A/O, A/OF, C/O,	25	A/O, A/OF, Q, W
8	C, D, Y	17	C/OF, D/O, D/OF	26	C, D, Y
9	М] 11	E, J, L, M	27	Н
10	E, R ₂₎ , C/O, C/OF		Q, R ₂₎ , U, W	28	C/O, C/OF, D/O
10	D/O, D/OF, Q, W	18	C, D, Y	20	D/OF, M, R, E, R ₂₎

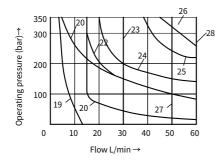


Solenoid DC			
Curve Solenoid voltage(V)			
1 to 10 12, 24, 48, 96, 205			

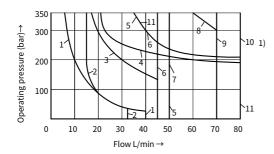


Solenoid AC			
Curve Solenoid voltage			
	W110	110V, 50Hz	
11 to 18	W127	127V, 50Hz	
	W230	230V, 50Hz	

Performance limits (Measured at t=40°C ±5°C, using HLP46)

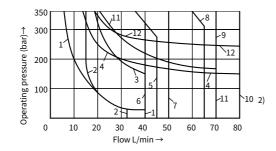


Solenoid AC			
Curve Solenoid voltage			
10 to 20	W110	110V, 60Hz	
19 to 28 W230 230V, 60Hz			



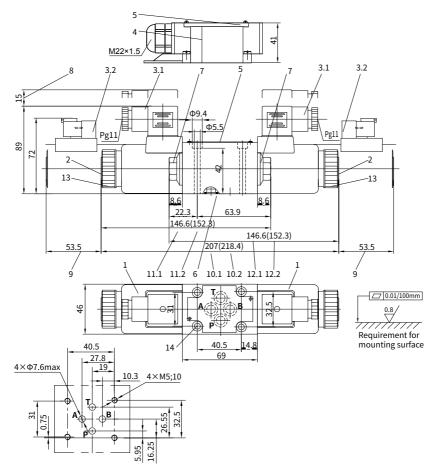
Solenoid DC			
Curve Solenoid voltage			
1 to 10 ₁₎ 110, 180			

Curve	Spool symbol	Curve	Spool symbol	Curve	Spool symbol
1	A,B	6	Т	101)	E, R, C/O, C/OF, D/O, D/OF, Q, W
2	V	7	Н		////
3	F, P	8	C,D	102)	R, C/O, C/OF, D/O, D/OF, Q, W
4	J, L, U	9	M	11	A/O, A/OF
5	G	9	IVI	12	Е



Solenoid AC		
Curve Solenoid voltage		
1 to 12, see10 ₂₎	220	

Valve with DC or rectification AC solenoid



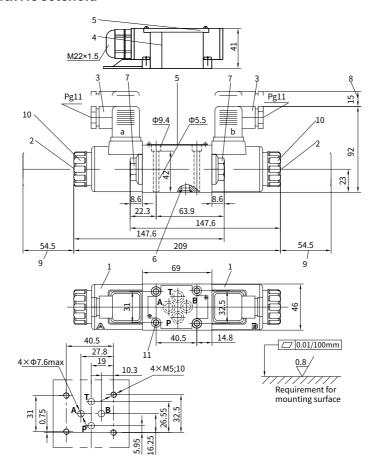
- 1 Solenoid
- 2 Manual override button
- 3.1 Plug-in connector to DIN 43 650
- 3.2 Deutsch connector assembly
- 4 Junction box with lead and light, M22×1.5 interface
- 5 Nameplate
- 6 O-ring: 9.25×1.78
- 7 Plug screw for valves with one solenoid
- 8 Space required to remove connector
- 9 Space required to remove coil
- 10.1 Dimension of 3-position valves, standard version
- 10.2 Dimension of 3-position valves, large-scope Type of voltage
- 11.1 Dimension of 2-position valves with solenoid at 'A', standard version

- 11.2 Dimension of 2-position valves with solenoid at 'A', large-scope Type of voltage
- 12.1 Dimension of 2-position valves with solenoid at 'B', standard version
- 12.2 Dimension of 2-position valves with solenoid at 'B', large-scope Type of voltage
- 13 Securing nut, tightening torque M_A=4Nm
- 14 Valve fixing screws.

Hexagon socket head cap screw M5×50 GB/T 70.1-10.9,

Tightening torque M_A=8.9Nm

Valve with AC solenoid



- 1 Solenoid
- 2 Manual override button
- 3 Plug-in connector to DIN 43 650 (rotatable 90°)
- 4 Junction box with lead and light, M22×1.5 interface
- 5 Nameplate
- 6 Seal rings 9.25×1.78
- 7 Plug screw for valves with one solenoid
- 8 Space required to remove connector
- 9 Space required to remove coil
- 10 Securing nut, tightening torque, $M_A = 4 \text{ Nm}$
- 11 Valve fixing screws. Hexagon socket head cap screw M5×50 GB/T 70.1-10.9, Tightening torque M_A=8.9Nm