



## 功能說明

## FUNCTIONAL DESCRIPTION

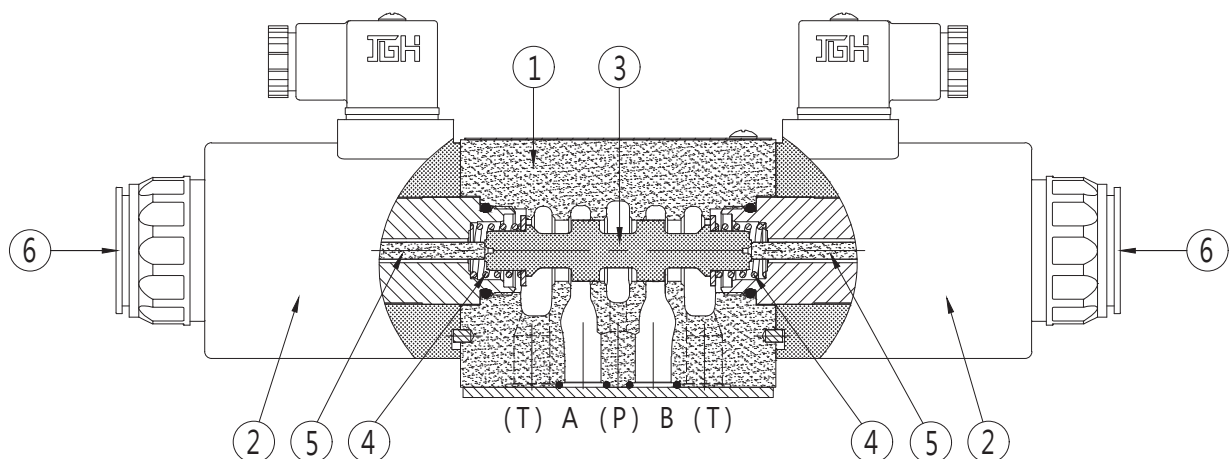
- WE型方向控制閥是電磁鐵操作的換向滑閥，用以控制油液的開啟、停止和方向。
  - 這種方向控制閥主要包括閥體(1)、一個或二個電磁鐵(2)、控制閥芯(3)和一個或二個復位彈簧(4)。
  - 在未通電的狀態下，控制閥芯(3)由復位彈簧(4)保持在中間或初始位置(脈沖閥除外)。控制閥芯(3)由濕式電磁鐵(2)操作。
  - 為了保證獲得滿意的操作，務必使電磁鐵的壓力腔充滿油液。
  - 電磁鐵(2)的力量經過推杆(5)作用在控制閥芯(3)上，將其由靜止推向所需位置。這就使油液從P至A，B至T，P至B或A至T自由流動。
  - 當電磁鐵(2)斷電時，控制閥芯(3)被復位彈簧(4)推向初始位置。
  - 可選的手動應急操作(6)在電磁鐵不通電的情況下可控制閥芯(3)運動。
  - 型號4WE 6../OF... (脈沖閥，僅限於符號D)。
  - 這一型號包括帶二個切換位置、二個電磁鐵和一個定位機構的方向控制閥。兩個切換位分別固定，因此沒有必要使電磁鐵一直通電。
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- Type WE directional control valve are solenoid operated directional spool valve. They control the start, stop and direction of flow.
  - Essentially the directional control valve consist of housing (1), one or two solenoids (2), the control spool (3), and one or two return springs (4).
  - In the de-energised condition the control spool (3) is held in the neutral or initial position by means of return springs (4) (except for impulse spool). The control spool (3) is operated by wet pin solenoids (2).
  - To guarantee satisfactory operation care should be taken to ensure that the solenoid pressure chamber is filled with oil.
  - The force of the solenoid (2) acts via the plunger (5) on the control spool (3) and pushes this from its neutral position to the required end position. 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-energised, the control spool (3) is returned to its neutral position by means of return springs (4).
  - An optional hand emergency (6), allows movement of the control spool (3) without energising the solenoid.
  - Type 4WE 6../OF... (impulse spool, only for symbols D)  
This design incorporates directional control valve with 2 switching positions, 2 solenoids and a detent.  
Both switching positions are thus fixed alternately and there is no need to continually energise the solenoid.

## 剖面圖

## SECTION

型號：4WE-10(DC)-40

TYPE:4WE-10(DC)-40

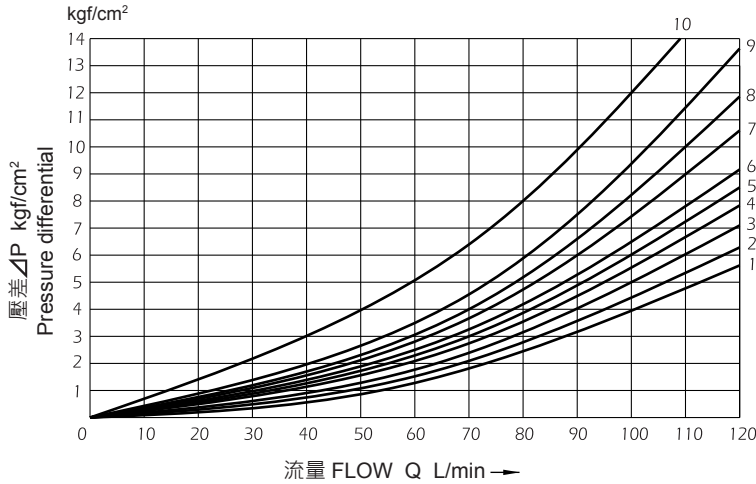


一般數據 General			
安裝位置 Installation Position		可選擇 optional	
最高周圍溫度範圍 Ambient temperature, max.	$t$ °C	50	
重量 Weight		AC	
	帶1個電磁鐵閥 Single coil $m$ kg	3.6	
	帶2個電磁鐵閥 Two coils $m$ kg	4.3	
		DC	
		5.5	
液壓數據 Hydraulic			
最高工作壓力 Operating pressure	油口A, B, P Port A, B, P	$p$ kgf/cm <sup>2</sup>	至315 315
	油口T Port T	$p$ kgf/cm <sup>2</sup>	至160 如果工作壓力超過油箱允許壓力·對於閥芯A和B的閥門·油口T須用作泄油口。 up to 160 With symbols A and B, port T must be used as a drain port if the operating pressure is above the permitted tank pressure.
最大流量 Flow, max.	$qv$	L/min	至120 up to 120
液壓油 Hydraulic fluid	1) 適用於丁腈橡膠密封和氟橡膠密封 Suitable for NBR and FPM seals 2) 只用於氟橡膠密封 only suitable for FPM seals		礦物油(HL, HLP); 按DIN 51 524 ; 快速生物解降油液按VDMA 24 568 HETG (菜籽油); HEPG (聚乙二醇); HEES (合成脂); 其他油液按要求 Mineral oil (HL, HLP) to DIN 51 524; Fast bil-degradable pressure fluids to VDMA 24 568; HETG (rape seed oil); HEPG (polyglycol); HEES (synthetic ester); other fluids on request.
油液 Pressure fluid	$t$	°C	-30至+80 (帶丁腈橡膠密封) -30 to +80 (NBR seals)
溫度變化範圍 Temperature range			-20至+80 (帶氟橡膠密封) -20 to +80 (FPM seals)
粘度範圍 Viscosity range	$v$	mm <sup>2</sup> /s	2.8至500 2.8 to 500
油液清潔度 Degree of fluid contamination			油液最高污染等級按NAS1638第9級。 因而我們推薦過濾器最小過濾精度 $\beta_{10} \geq 75$ Maximum permissible degree of contamination of the fluid is to NAS 1638 class 9. We, therefore, recommend a filter with a minmum retention rate of $\beta_{10} \geq 75$

電器數據 Electrial		
電壓類型 Type of voltage	直流 DC voltage	交流 AC voltage
可用電壓 Type of voltage $t$ °C (交流電磁鐵訂貨細節見下) (For ordering details of AC/DC solenoids see below)	12.24	110, 220V/50Hz 110, 220V/60Hz
額定吸力 Rated force (N)	100	54
額定行程 Rated stroke (mm)	3.6	4
全行程 Total stroke (mm)	8.5	8.5
工作循環 Duty cycle (%)	100	100
絕緣等級 Insulation class	B	H
最高操作頻率 Max operation frequency (t/h)	12000	12000
允許電壓波動範圍 Supply voltage tolerance (%)	+10 ~ -15	+10 ~ -15
防護等級 Protection class	IP65	IP65
工作壓力 Working Pressure (Mpa)	21	21
流入電流 Inrush VA (VA)	36	71
消耗功率 Power consumption (W)	36	38
工作壽命 Working life (t)	$10 \times 10^6$	$10 \times 10^7$

特性曲線 (在  $v = 41 \text{ mm}^2/\text{s}$  及  $t = 50^\circ\text{C}$  時測得)

Characteristic Curves (measured at  $v = 41 \text{ mm}^2/\text{s}$  and  $t = 50^\circ\text{C}$ )



符號 Symbol	流動方向 Flow direction			
	P→A	P→B	A→T	B→T
A, B	3	3	-	-
C, X	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

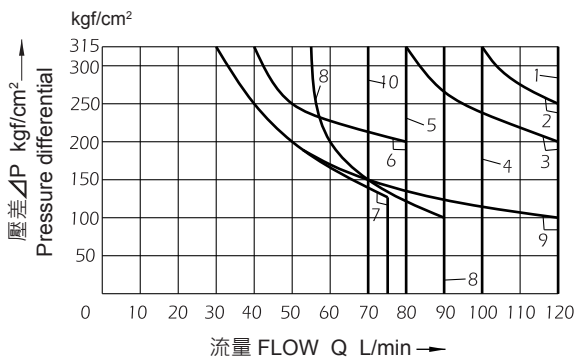
選擇位 Op.pos.	P→A	P→B	A→T	B→T
R	-	9	-	-

中位 Mid.pos.	P→A	P→B	B→T	A→T	P→T
F	4	-	-	9	9
P	-	5	8	-	10
G, T	-	-	-	-	9
H	-	-	-	-	3

性能極限 (在  $v = 41 \text{ mm}^2/\text{s}$  及  $t = 50^\circ\text{C}$  時測得)

Switching power limits (measured at  $v = 41 \text{ mm}^2/\text{s}$  and  $t = 50^\circ\text{C}$ )

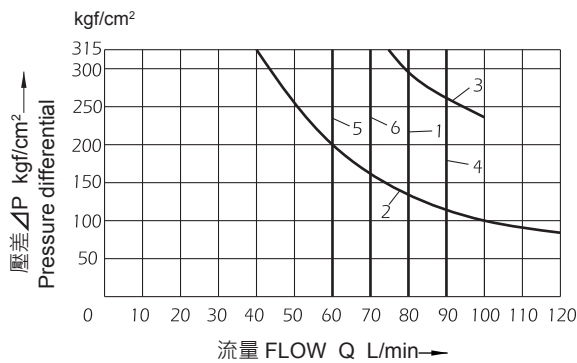
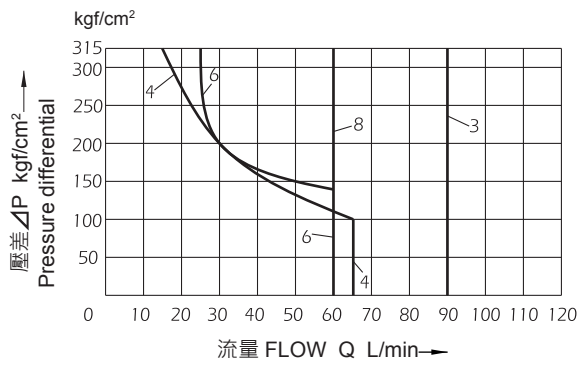
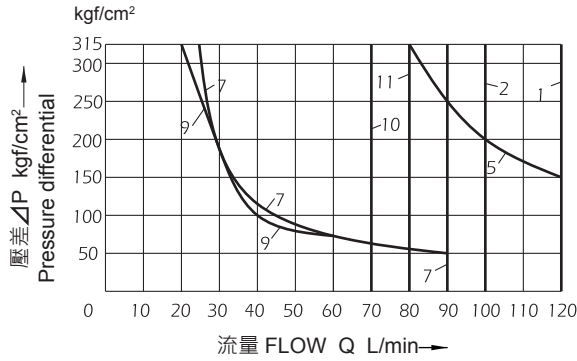


曲線 Curve	符號 Symbol
1	C, C/O, C/OF D, D/O, D/OF T, M
2	E
3	A/O, A/OF L, U, J, Q, W
4	H
5 <sup>1)</sup>	R
6	G
7	T
8	F, P
9	A, B
10	V

回油 (與面積比無關)  
Return flow (independent of area ratio)

性能極限 (在  $v = 41 \text{ mm}^2/\text{s}$  及  $t = 50^\circ\text{C}$  時測得)

Switching power limits (measured at  $v = 41 \text{ mm}^2/\text{s}$  and  $t = 50^\circ\text{C}$ )



110V, 60Hz; 120V, 60Hz; 220V, 60 Hz; 240V, 60Hz	
曲線 Curve	符號 Symbol
1	C, C/O, C/OF D, D/O, D/OF Y
2	E, L U, Q, W
3	M
4	A, B
5	A/O, A/OF, J
6	G
7	F, P
8	V
9	T
10	H
11	R

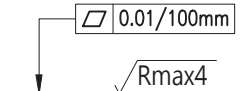
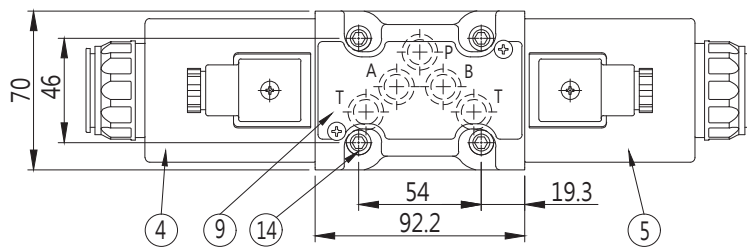
110V, 60Hz 220V, 60 Hz	
曲線 Curve	符號 Symbol
1	C, C/O, C/OF D, D/O, D/OF Y
2	A/O, A/OF
3	E
4	M
5	V
6	H

單位 UNIT : mm

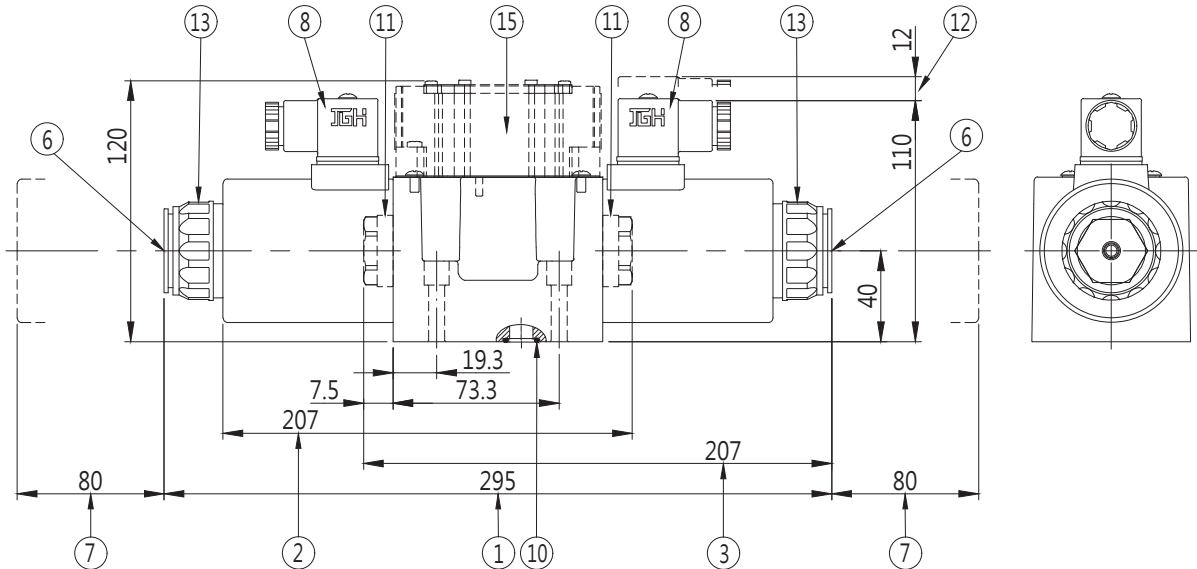
### 安裝尺寸 INSTALLATION DIMENSIONS

直流電磁閥 VALVE WITH DC SOLENOIDS

通用底板尺寸  
 APPLICATIVE SUB-PLATE DIMENSIONS  
**MC - 03 - 1**  
 (詳見 E01-09 Page E01-09)



要求配合件部表面精加工  
 Required surface finish  
 of the mating piece



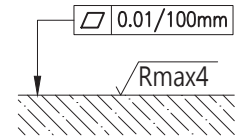
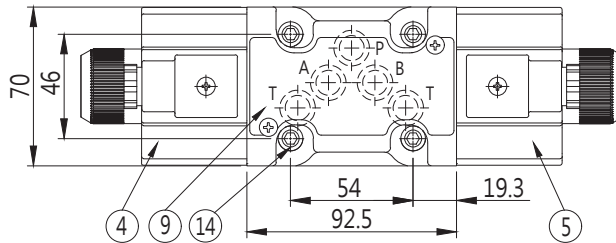
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|---|---|
| 1 3-位閥  | 1 3-position  |
| 2 2-位閥,帶1個電磁鐵(A, C, D, EA...)   | 2 2-position valve with 1 solenoid (A, C, D, EA...)   |
| 3 2-位閥,帶1個電磁鐵(B, X, Y, EB...)   | 3 2-position valve with 1 solenoid (B, X, Y, EB...)   |
| 4 電磁鐵"a"  | 4 Solenoid "a"  |
| 5 電磁鐵"b"  | 5 Solenoid "b"  |
| 6 手動應急操作(標準)<br>手動應急操作僅在油壓力約為50 kgf/cm <sup>2</sup><br>時才有可能<br>不要對手動應急操作孔造成損害!                   | 6 Hand emergency (Standard)<br>-The hand emergency can only be operated up<br>to a tank pressure of approx. 50 kgf/cm <sup>2</sup><br>Avoid damage to hand emergency pin hole |
| 7 取下電磁鐵所需空間   | 7 Space required to remove solenoid   |
| 8 插入式接頭按 DIN 43650  | 8 Plug-in connector DIN 43650   |
| 9 鋁牌  | 9 Name plate  |
| 10 O-形圈 AS-568-014  | 10 O-ring AS-568-014  |
| 11 帶1個電磁鐵的閥塞頭   | 11 Plug for valves with one solenoid  |
| 12 取下插入式接頭所需空間  | 12 Space required to remove plug-in connector   |
| 13 固定螺母安裝扭矩 4 N·m   | 13 Securing nut, Mounting torque 4 N·m  |
| 14 安裝面按 DIN 24 340 A型<br>ISO 4401 和 CETOP-RP 121 H<br>閥固定螺釘 M6x35L DIN 912-12.9<br>安裝扭矩 12~15 N·m | 14 Mounting face according to DIN 24 340 type A<br>ISO 4401 and CETOP-RP 121 H<br>valve fixing screw M6x35L DIN 912-12.9<br>Mounting torque 12~15 N·m                         |
| 15 帶燈的集中連接盒   | 15 With lamp central connection   |

單位 UNIT : mm

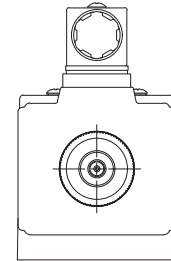
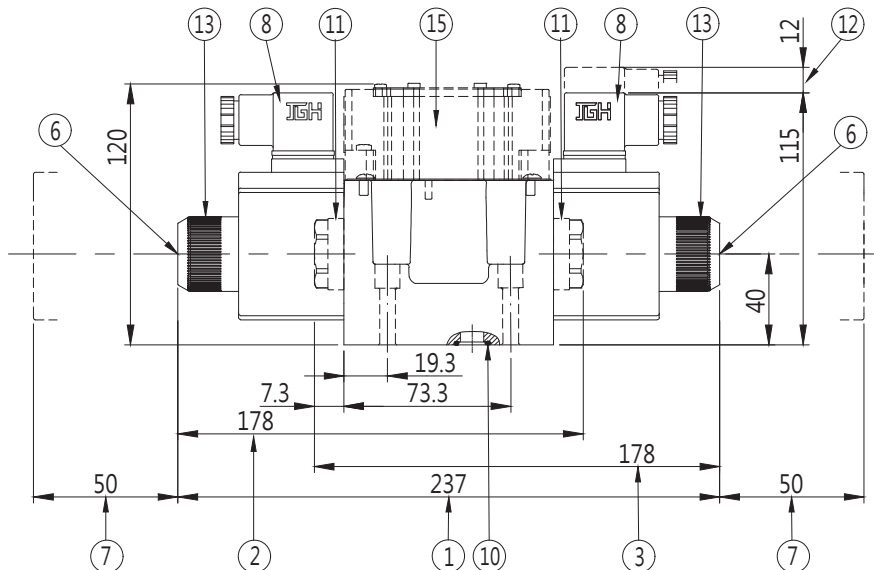
## 安裝尺寸 INSTALLATION DIMENSIONS

交流電磁閥 VALVE WITH AC SOLENOIDS

通用底板尺寸  
 APPLICATIVE SUB-PLATE DIMENSIONS  
**MC - 03 - 1**  
 (詳見 E01-09 Page E01-09)



要求配合件部表面精加工  
 Required surface finish  
 of the mating piece



- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1 3—位閥</li> <li>2 2—位閥,帶1個電磁鐵(A, C, D, EA...)</li> <li>3 2—位閥,帶1個電磁鐵 (B, X, Y, EB...)</li> <li>4 電磁鐵"a"</li> <li>5 電磁鐵"b"</li> <li>6 手動應急操作(標準)<br/>手動應急操作僅在油壓力約為50 kgf/cm<sup>2</sup><br/>時才有可能<br/>不要對手動應急操作孔造成損害!</li> <li>7 取下電磁鐵所需空間</li> <li>8 插入式接頭按 DIN 43650</li> <li>9 鋁牌</li> <li>10 O-形圈 AS-568-014</li> <li>11 帶1個電磁鐵的閥塞頭</li> <li>12 取下插入式接頭所需空間</li> <li>13 固定螺母安裝扭矩 4 N·m</li> <li>14 安裝面按 DIN 24 340 A型<br/>ISO 4401 和 CETOP-RP 121 H<br/>閥固定螺釘 M6x35L DIN 912-12.9<br/>安裝扭矩 12~15 N·m</li> <li>15 帶燈的集中連接盒</li> </ol> | <ol style="list-style-type: none"> <li>1 3-position</li> <li>2 2-position valve with 1 solenoid (A, C, D, EA...)</li> <li>3 2-position valve with 1 solenoid (B, X, Y, EB...)</li> <li>4 Solenoid "a"</li> <li>5 Solenoid "b"</li> <li>6 Hand emergency (Standard)<br/>-The hand emergency can only be operated up<br/>to a tank pressure of approx. 50 kgf/cm<sup>2</sup><br/>Avoid damage to hand emergency pin hole</li> <li>7 Space required to remove solenoid</li> <li>8 Plug-in connector DIN 43650</li> <li>9 Name plate</li> <li>10 O-ring AS-568-014</li> <li>11 Plug for valves with one solenoid</li> <li>12 Space required to remove plug-in connector</li> <li>13 Securing nut, Mounting torque 4 N·m</li> <li>14 Mounting face according to DIN 24 340 type A<br/>ISO 4401 and CETOP-RP 121H<br/>valve fixing screw M6x35L DIN 912-12.9<br/>Mounting torque 12~15 N·m</li> <li>15 With lamp central connection</li> </ol> |
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