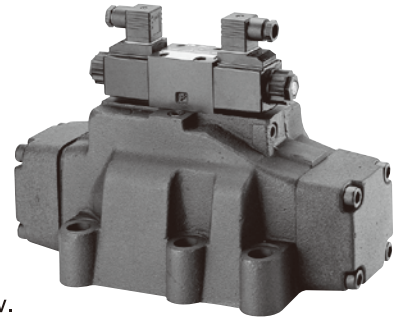


特點 CHARACTERISTICS :

- 此系統閥用於控制液流的開啓、停止和方向
 - 電液操作(WEH)，液壓（液控）(WH)
 - 安裝面按DIN 24340 A型，ISO 4401 和 CETOP-RP 121 H
 - 彈簧或壓力對中，彈簧或壓力復位
 - 濕式直流或交流電磁鐵
 - 可選的手動應急操作器
-
- Valves used to control the start, stop and direction of a fluid flow.
 - Electro-hydraulic operation (WEH), hydraulic operation(WH)
 - For subplates mounting,
Porting pattern to DIN 24340 form A, ISO 4401 and CETOP-RP 121 H
 - Spring or pressure-centred, spring or hydraulic offset
 - Wet-pin DC or AC solenoids, optional
 - Manual override, optional



型號說明 HOW TO ORDER :

4 WEH - 16 H E -ET / O E - W240 - 20

10 : 帶燈的集中連接盒 WITH LAMP CENTRAL CONNECTION
20 : 插入式接頭帶密封套 PLUG-IN CONNECTION

線圈電壓 COIL VOLTAGE
G12 : 12V DC G24 : 24V DC W110 : 110/60Hz
W220 : 220/60Hz W240 : 240/60Hz

E : 高性能帶濕式電磁鐵先導閥
E : High-performance Pilot valve with wet-pin solenoids

雙電磁鐵二位閥先導閥芯復位，僅對閥芯C、D、K、Z而言以及主閥中液壓閥芯復位：無彈簧復位 = O
無彈簧帶定位機構 = OF (在先導閥中)
Spool return in the pilot valve for 2-position valve and 2 solenoids only possible with spools C, D, K, Z and hydraulic spool return in the main valve: **Without spring return=O**
Without spring return with detent=OF (in the pilot valve)

無代號：內部控制油供給，內部控制油洩油
T：內部控制油供給，外部控制油洩油
ET：外部控制油供給，外部控制油洩油
E：外部控制油供給，內部控制油洩油
No code : Pilot oil supply internal, Pilot oil drain internal
T : Pilot oil supply internal, Pilot oil drain external
ET : Pilot oil supply external, Pilot oil drain external
E : Pilot oil supply external, Pilot oil drain internal

符號見C-c9-5, C-c9-6頁
For symbols as C-c9-5, C-c9-6

閥芯復位 SPOOL RETURN
無代號：彈簧 NO CODE : By means of spring
H : 液壓 Hydraulic

規格16 = 1 / 2" 規格25 = 3 / 4" 規格32 = 1-1 / 4"
Series 16 = 1 / 2" Series 25 = 3 / 4" Series 32 = 1-1 / 4"

操作方式 TYPES OF OPERATION
WEH : 電液 Electro-hydraulic
WH : 液壓 hydraulic

四通型 = 4
4-way design = 4

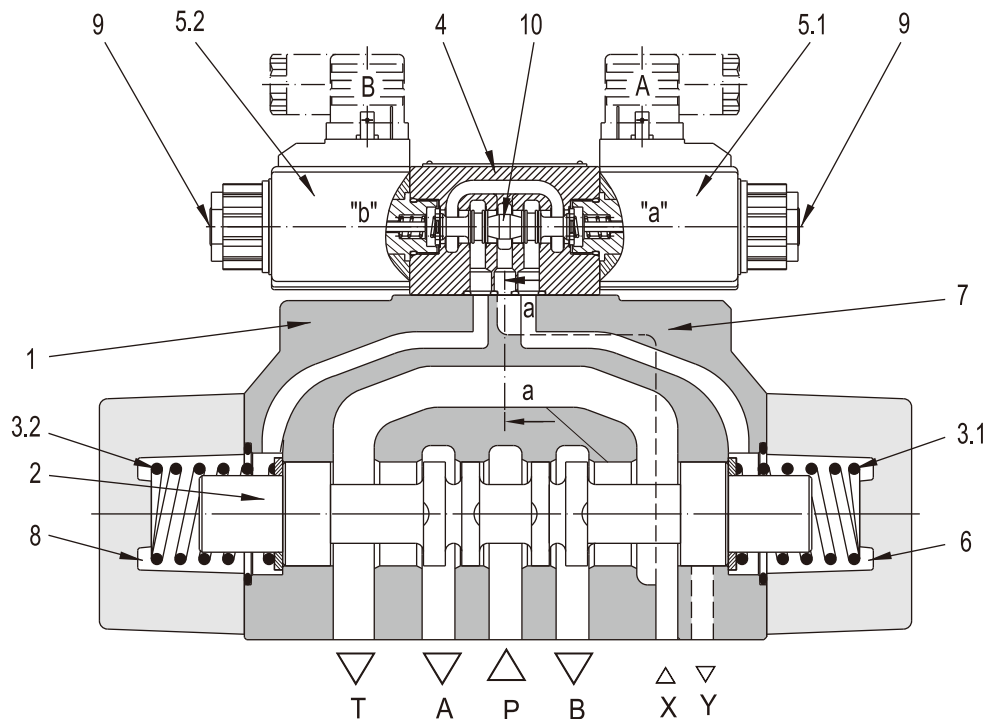
功能說明 FUNCTIONAL DESCRIPTION :

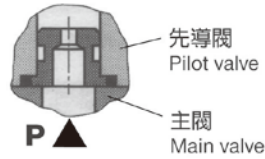
- WEH型方向閥是帶電—液操作的方向滑閥，用以控制液流的開啓、停止和方向。
- 此類閥組成主要包括閥體(1)、控制閥芯(2)和一個或二個復位彈簧(3.1)和(3.2)的主閥及帶一個或二個電磁"a"(5.1)，電磁閥"b"(5.2)的先導閥(4)。
- 主閥閥芯(2)由彈簧或壓力保持在中位或初始位置。
- 在彈簧對中的閥中，兩個彈簧控(6)和(8)通過處於初始位置的先導閥與油箱連通。經過控制油路(7)向先導閥(4)供油。控制油可以由內部或外部供給（外部供給經油口X）。
- 主閥閥芯(2)由先導閥(4)液壓操作。
- 當先導閥操作，施壓於主閥芯的一端，移動閥芯至操作位置。根據操作方向，閥開啓，液流由P至A和B至T或P至B和A至T。
- 當電磁鐵斷電，先導閥復位至靜態位置（脈沖閥除外、彈簧的油箱卸荷。控制油從彈簧腔經先導閥排入Y口）。
- 控制油可內部或外部泄油（外部經油口Y）。
- 可選的手動應急操作器(9)，在電磁鐵不通電情況下。可對先導閥(4)中的控制閥芯(10)進行操作。

- Valves of type WEH are directional spool valves with electrohydraulic operation.
- They control the start, stop and direction of a fluid flow.
- The directional valves basically consist of the main valve with housing (1), main control spool (2), one or two return springs (3.1) and (3.2) and the pilot valve (4) with one or two solenoids "a" (5.1) and/or "b" (5.2).
- The main control spool (2) in the main valve is held in the neutral or in the initial position either by the springs or by means of pressure.
- In the initial position, the two spring chambers (6) and (8) are connected to the tank without pressure via the pilot valve (4). The pilot valve is supplied with pilot fluid via the pilot line (7). The pilot oil supply can be either internal or external (external via port X). When the pilot valve is operated, e.g. solenoid "a", the pilot spool (10) is shifted to the left and thus spring chamber (8) is pressurised with pilot pressure. Spring chamber (6) remains unpressurised.
- The pilot pressure acts on the left side of the main control spool (2) and pushes it against the spring (3.1). As a consequence, the ports P to B and A to T are connected in the main valve. When the solenoid is de-energized, the pilot spool returns to its initial position (exception: detented spool). The spring chamber (8) is unloaded to tank. The pilot oil is expelled from the spring chamber via the pilot valve into the Y channel. The pilot oil supply and drain are internal or external (external via port Y). An optional manual override (9) permits pilot spool (10) to be operated without energising the solenoid.

剖面圖 SECTION :

型號：4WEH 25 TYPE：4WEH 25

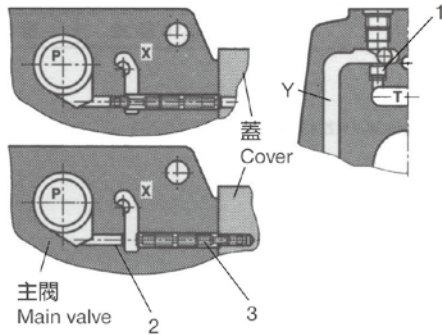




規格16 Size 16

剖面圖 D-D
Section D-D

剖面圖 C-C
Section C-C



控制油供給
外部：2堵死
內部：2打開

Pilot oil supply
external : 2 plugged
internal : 2 open

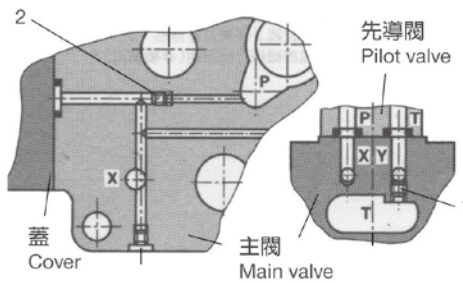
控制油洩油
外部：1堵死
內部：1打開

Pilot oil drain
external : 1 plugged
internal : 1 open

規格25 Size 25

剖面圖 B-B
Section B-B

剖面圖 A-A
Section A-A



控制油供給
外部：2堵死
內部：2打開

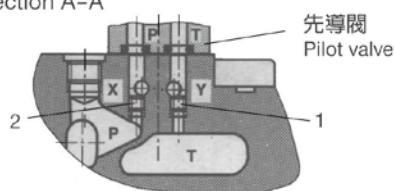
Pilot oil supply
external : 2 plugged
internal : 2 open

控制油洩油
外部：1堵死
內部：1打開

Pilot oil drain
external : 1 plugged
internal : 1 open

規格32 Size 32

剖面圖 A-A
Section A-A



控制油供給
外部：2堵死
內部：2打開

Pilot oil supply
external : 2 plugged
internal : 2 open

控制油洩油
外部：1堵死
內部：1打開

Pilot oil drain
external : 1 plugged
internal : 1 open

控制油供給 PILOT OIL SUPPLY :

4WEH... 和 4WE...ET

控制油供給從單獨的回路經油口X由外部提供。
控制油洩油經油口Y由外部引回油箱。

4WEH...T...

控制油供給從主閥經油口P由內部提供。
控制油洩油經油口Y由外部流回油箱。底板中油口X堵死。
由內控至外控或由外控至內控轉換（規格16）：拆下電磁鐵側端蓋，拔下插塞，兩端換位。插入插塞，把端蓋復位。

4WEH...

控制油供給從主閥經油口P由內部提供。
控制油洩油經油口T由內部流回油箱。底板中油口X和Y堵死。

4WEH...E...

控制油供給從單獨的回路經油口X由外部提供。
控制油洩油經油口T由內部流回油箱。底板中油口Y堵死。
元件1螺紋堵，M6 DIN 906-8.8,3 對邊寬。
元件2螺紋堵，M6 DIN 906-8.8,3 對邊寬。
端蓋固定螺釘擰緊扭矩 M_A ：規格16:35Nm
規格25:68Nm
先導閥固定螺釘擰緊扭矩 M_A ：規格16至32:9Nm

插裝式節流塞

如果先導閥P口控制油流量必須加以限制，需採用插裝式節流塞。
插裝式節流塞安裝在先導閥P口。

4WEH...and 4WH...ET

The pilot oil supply is sourced externally via channel X from a separate circuit.
The pilot oil drain is led externally via channel Y to tank.

4WEH...T...

The pilot oil supply is sourced internally from channel P of the main valve.
The pilot oil drain is led externally via channel Y to tank. Port X in the subplate is plugged.
Changeover from external to internal or from internal to external pilot oil supply (size 16) : Remove the cover on the solenoid side " a " , remove the plugs and tum end-for-end, insert plugs and replace the cover.

4WEH...

The pilot oil supply is sourced internally from channel P of the main valve.
The pilot oil drain is led intemally via channel T to tank. Ports X and Y in the supplate are plugged.

4WE...E...

The pilot oil supply is sourced externally via channel X from a separate circuit. The pilot oil drain is led internally via channel T to tank. Port Y in the subplate is plugged.
1.Plug screw M6 DIN 906-8.8,3 A/F-Pilot oil drain
2.Plug screw M6 DIN 906-8.8,3 A/F-Pilot oil supply
3.Plug screw M8 x 1 DIN 906-8.8,4 A/F-
Tightening torques M_A for cover fixing screws: Size 16 : 35Nm
Size 25 : 68Nm
Tightening torques M_A for pilot valve fixing screws: Size 16 to 32 : 9Nm

Throttle Insert

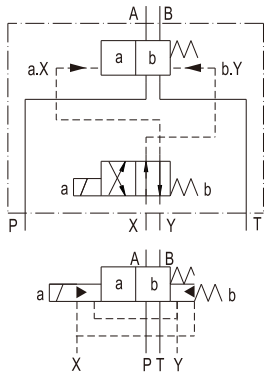
The use of a throttle insert is required if the pilot oil supply in the P channel of the pilot valve is to be limited.
This throttle is inserted in the P channel of the pilot valve.

二位閥的詳細與簡化符號 (按DIN ISO 1219)

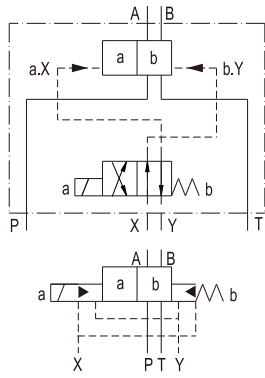
彈簧復位閥

液壓復位閥

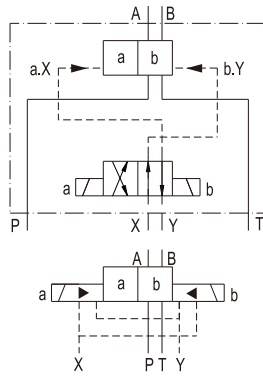
型號 4WEH../..



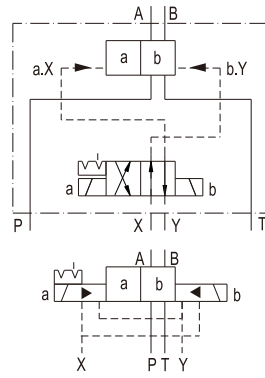
型號 4WEH../H../..



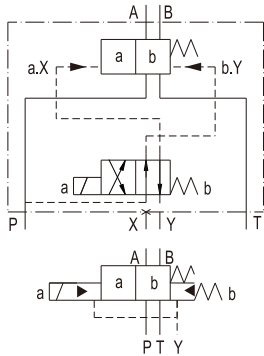
型號 4WEH../H../O../..



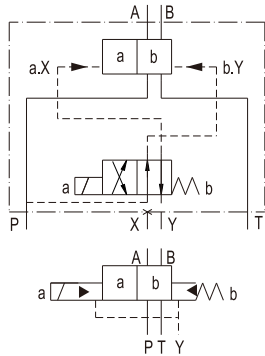
型號 4WEH../H../OF../..



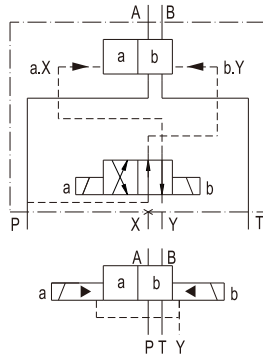
型號 4WEH../..E../..



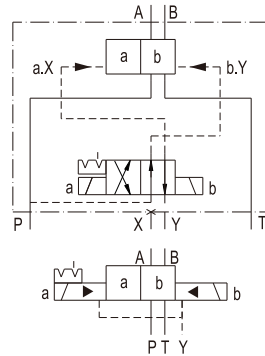
型號 4WEH../H../..E../..



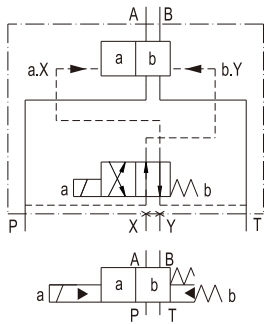
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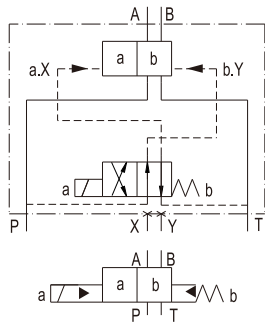
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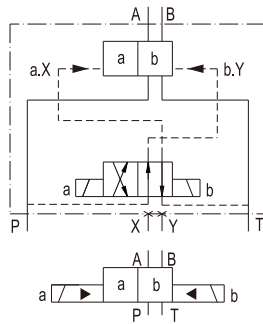
型號 4WEH../..ET../..



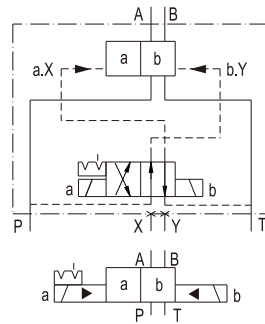
型號 4WEH../H../..ET../..



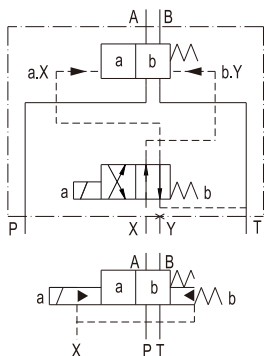
型號 4WEH../H../O../..ET../..



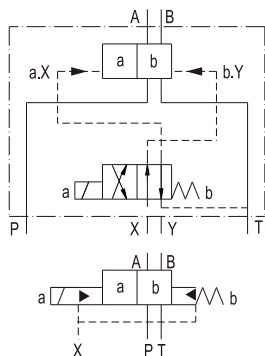
型號 4WEH../H../OF../..ET../..



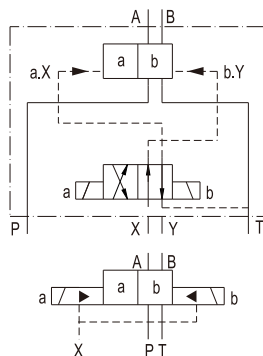
型號 4WEH../..T../..



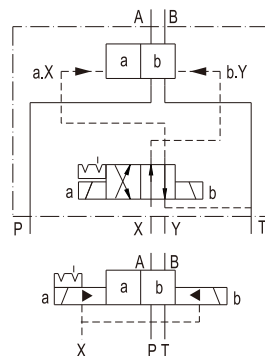
型號 4WEH../H../..T../..



型號 4WEH../O../..T../..



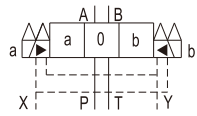
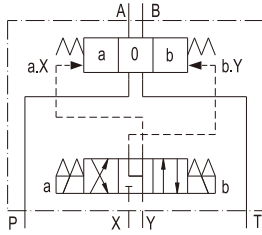
型號 4WEH../H../OF../..T../..



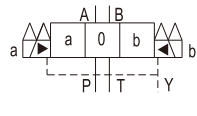
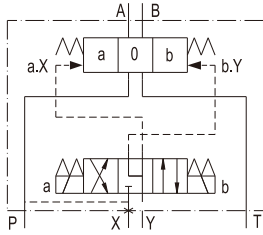
三位閥的詳細與簡化符號 (按DIN ISO 1219)

彈簧對中閥

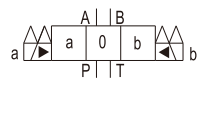
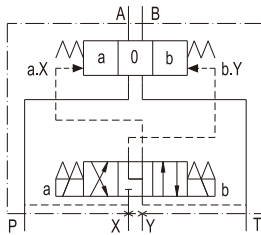
型號 4WEH../..



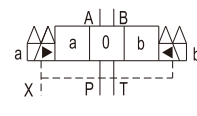
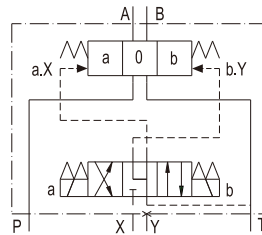
型號 4WEH../.E..



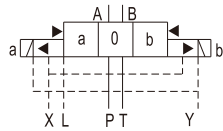
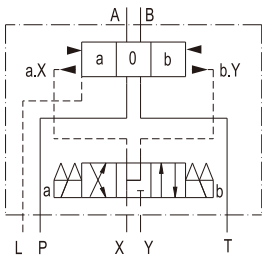
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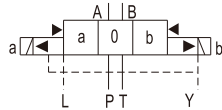
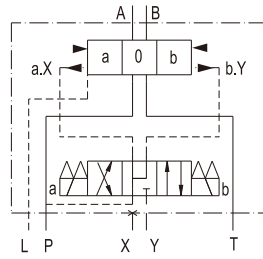
型號 4WEH../.T..



型號 4WEH../.H../..



型號 4WEH../.H../.E..





久岡油壓工業股份有限公司

JEOU GANG HYDRAULIC INDUSTRIAL CO., LTD.

技術數據 TECHNICAL DATA

規格 (訂貨型號) Sizes (ordering code)	16	25	32	
最高公稱壓力 Operating pressure, max. - 油口P、A、B - Port P、A、B	4WEH型 Type 4WEH kgf/cm ²	280	280	280
	H-4WEH型 Type H-4WEH kgf/cm ²	350	350	350
	外部Y口控制油泄油 Pilot oil drain Y external kgf/cm ²		250	250
	內部Y口控制油泄油 Pilot oil drain Y internal kgf/cm ²		160 / 210 DC 100 / 160 AC	
	外部控制油泄油 - 直流電磁鐵 DC kgf/cm ²	160 / 210		
	- 交流電磁鐵 AC kgf/cm ²	100 / 160		
	用於4WH型 with version 4WH kgf/cm ²	250	250	250
最高控制壓力 (對於高的控制壓力，需要一個壓力比閥) Pilot pressure, max. (With higher pilot pressures, a pressure reducing valve is required.)	kgf/cm ²	250	250	250
最低控制壓力 - 外部X口控制油供給，內給X口控制油供給 (不用於閥芯：C, F, G, H, P, T, V, Z, S) Pilot pressure, min. - Pilot oil supply X external, pilot oil supply X internal (not with spools: C, F, G, H, P, T, V, Z, S)				
	彈簧對中三位閥 3-position valve, spring-centred kgf/cm ²	12	13	8.5
	壓力對中三位閥 3-position valve, pressure-centred kgf/cm ²	12	18	8.5
	彈簧復位二位閥 2-position valve, with spring offset kgf/cm ²	12	13	10
	液壓復位二位閥 2-position valve, with hydraulic offset kgf/cm ²	12	8	5
- 內部X口控制油供給 (對閥芯：C, F, G, H, P, T, V, Z, S2) - Pilot oil supply X internal (with spools: C, F, G, H, P, T, V, Z, S2)	kgf/cm ²	4.5	4.5	4.5
1) 在三位閥中，壓力對中可能的條件： $P_{pilot} \geq 2 \times P_{tank} + P_{pilot min.}$ 2) 閥芯S僅用於規格16 3) 對閥芯C, F, G, H, P, T, V, Z，如果在中位由P至T（三位閥）或當閥經中位（二位閥）運動時，流量足夠確保由P至T的壓降為6.5 bar，才能用內部控制油供給。 4) 對閥芯C, F, G, H, P, T, V, Z, S2）（借助於預載閥或足夠大的流量） 5) 高性能閥"6E" (RC 23 178)		1) As 3-position valve with spring-entring only possible if $P_{pilot} \geq 2 \times P_{tank} + P_{pilot min.}$ 2) Spool S only for size 16 3) For symbols C, F, G, H, P, T, V, Z internal pilot oil supply is only possible, if the flow from P to T in the neutral position (in a 3-position valve) or when the valve is moving through the neutral position (in a 2-position valve) is large enough to ensure a min. pressure differential of 6.5 bar from P to T 4) For spools C, F, G, H, P, T, V, Z, S2) (by means of a preload valve or a sufficiently large flow) 5) High-Performance valve "6E" (RE 23 178)		



久岡油壓工業股份有限公司

JEOU GANG HYDRAULIC INDUSTRIAL CO., LTD.

液壓油 3) 適用於丁腈橡膠密封和氟橡膠密封 4) 只用於氟橡膠密封 Hydraulic fluid 3) Suitable for NBR and FPM seals 4) Only suitable for FPM seals	礦物油(HL, HLP)按 DIN 51 524 ; 快速生物降解油液按 VDMA 24 568 HETG(菜籽油) ; HEPG(聚乙二醇) ; HEES(合成酯) ; 其他油液按要 Mineral oil (HL, HLP) to DIN 51 524 ; Fast bio-egradable hydraulic fluids to VDMA 24 568 HETG (rape seed oil) ; HEPG (polyglycols) ; HEES (synthetic esters) ; other hydraulic fluids on enquiry						
油液溫度範圍 Fluid temperature range	°C	-30至+80 (帶丁腈橡膠密封) -30 to +80 (for NBR seals)					
		-20至+80 (帶氟橡膠密封) -20 to +80 (for NBR seals)					
粘度範圍 Viscosity range	mm ² /s	28至500 28 to 500					
油液清潔度 Cleanliness	油液最高污染等級按NAS 1638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 hydraulic fluid to NAS 1638 class 9. We therefore recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$.						
用於閥操作的控制油容量 Pilot oil volume for shifting operation							
- 三位閥彈簧對中 - 3-position valve, spring-centred	cm ³	5.72	14.2		29.4		
- 二位閥 - 2-position valve	cm ³	11.45	28.4		58.8		
- 三位閥，液壓對中 - 3-position valve, pressure-centred	cm ³	WH	WEH	WH	WEH	WH	WEH
從中位至位置a from neutral position to shifted position "a"	cm ³	2.83	2.83	7.15	7.15	14.4	14.4
從位置a至中位 from shifted position "a" to neutral position	cm ³	2.9	5.73	14.18	7.0	29.4	15.1
從中位至位置b from neutral position to shifted position "b"	cm ³	5.72	5.73	14.18	14.15	29.4	29.4
從位置b至中位 from shifted position "b" to neutral position	cm ³	2.83	8.55	19.88	5.73	43.8	14.4
用於更短操作時間的控制油流量 Pilot oil flow for shortest shifting time		大約35 approx. 35		大約35 approx. 35		大約35 approx. 35	
重量 Weight	單電磁鐵閥 Valve with one solenoid	kg	大約8.3 approx. 8.3	大約17.6 approx. 17.6		大約40.5 approx. 40.5	
	雙電磁鐵閥，彈簧對中 Valve with two solenoid, spring-centred	kg	大約8.6 approx. 8.6	大約18.0 approx. 18.0		大約41.0 approx. 41.0	
	雙電磁鐵閥，液壓對中 Valve with two solenoid, pressure-centred	kg	大約8.6 approx. 8.6	大約19.0 approx. 19.0		大約41.0 approx. 41.0	
	液控閥 Valve with hydraulic operation (4 WH...)	kg	大約7.3 approx. 7.3	大約16.5 approx. 16.5		大約39.5 approx. 39.5	
	液控阻尼調整 Shifting time adjustment	kg	大約0.8 approx. 0.8	大約0.8 approx. 0.8		大約0.8 approx. 0.8	
	壓力比閥 Pressure reducing valve	kg	大約0.4 approx. 0.4	大約0.4 approx. 0.4		大約0.4 approx. 0.4	
安裝位置 Installation position	可選擇：液壓復位閥"H"，(閥芯C, D, K, Z, Y)水平 Optional: valve with hydraulic spool return "H" (spools C, D, K, Z, Y) horizontal						



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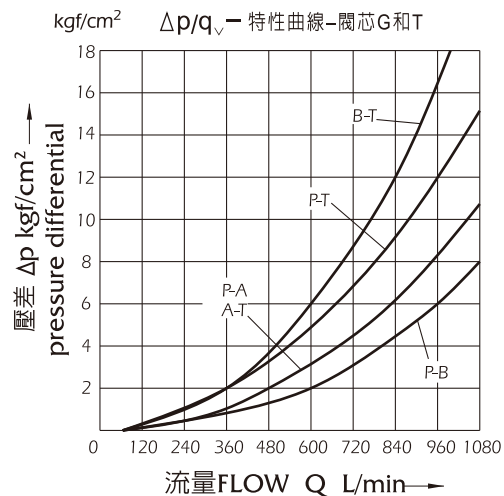
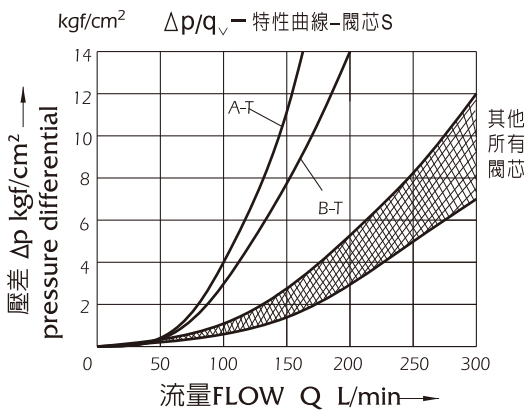
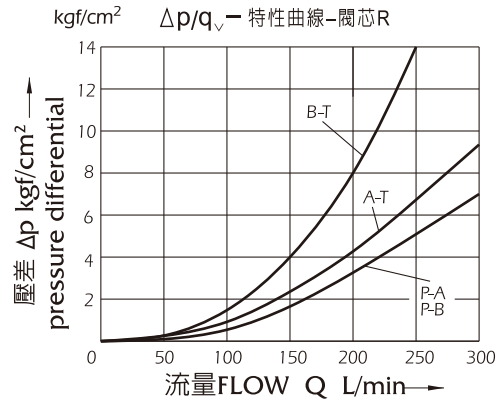
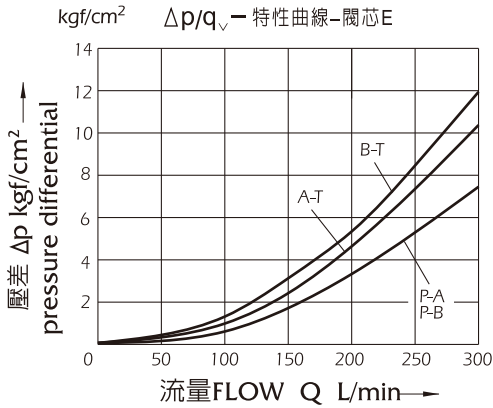
操作時期 ¹⁾ Shifting times ¹⁾																	
1) 操作時間 = 從電磁鐵通電到主閥芯的控制台肩開啓的時間。 1) Shifting time = Contacting at the pilot valve up to start of opening of the control land in the main valve																	
規格 16 (先導閥6X系列E) Size 16 (Pilot valve series 6X/E)	閥從中位至操作位置的操作時間 (用於直流 (DC) 和交流 (AC) 操作) Shifting time of the valve from neutral position to shifted position with AC and DC operation																
	在控制壓力下 at pilot pressure	kgf/cm ²		DC 50		AC		DC 150		AC		DC 250		AC			
	- 三位閥, 彈簧對中 - 3-position valve, spring-centred	ms		35		65		30		60		30		58			
	- 二位閥 - 2-position valve	ms		45		65		35		55		30		50			
	- 三位閥 - 3-position valve	電磁鐵操作 Solenoid operated		a	b	a	b	a	b	a	b	a	b	a	b		
	壓力對中 pressure-centred	ms		30	30	65	65	25	25	55	63	20	25	55	60		
	閥從操作位置至中位的操作時間 Shifting time of the valve from shifted position to neutral position																
	- 三位閥 - 3-position valve	ms		30至45用於DC /30用於AC 30 to 45 for DC /30 for AC													
	- 二位閥 - 2-position valve	ms		45...60		45		35...50		35		30...45		30			
	- 三位閥 - 3-position valve	從一 From—		a	b	a	b	a	b	a	b	a	b	a	b		
壓力對中 pressure-centred	ms		20...35		20		20...35		20		20...35		20				
規格 25 (先導閥6X系列E) Size 25 (Pilot valve series 6X/E)	閥從中位至操作位置的操作時間 (用於直流 (DC) 和交流 (AC) 操作) Shifting time of the valve from neutral position to shifted position with AC and DC operation																
	在控制壓力下 at pilot pressure	kgf/cm ²		DC 70		AC		DC 140		AC		DC 210		AC			
	- 三位閥, 彈簧對中 - 3-position valve, spring-centred	ms		50		85		40		75		35		70			
	- 二位閥 - 2-position valve	ms		120		160		100		130		85		120			
	- 三位閥 - 3-position valve	電磁鐵操作 Solenoid operated		a	b	a	b	a	b	a	b	a	b	a	b		
	壓力對中 pressure-centred	ms		30	35	55	65	30	35	55	65	25	30	50	60		
	閥從操作位置至中位的操作時間 Shifting time of the valve from shifted position to neutral position																
	- 三位閥, 彈簧對中 - 3-position valve, spring-centred	ms		40至55用於DC /40用於AC 40 to 55 for DC /40 for AC													
	- 二位閥 - 2-position valve	ms		120		125		85		100		85		90		75	
	- 三位閥 - 3-position valve	從一 From—		a	b	a	b	a	b	a	b	a	b	a	b		
壓力對中 pressure-centred	ms		30...50		30		35		30...50		30		35				

操作時期 Shifting times												
1) 操作時間 = 從電磁鐵通電到主閥芯的控制台肩開啓的時間。 1) Shifting time = Contacting at the pilot valve up to start of opening of the control land in the main valve												
閥從中位至操作位置的操作時間(用於直流(DC)和交流(AC)操作) Shifting time of the valve from neutral position to shifted position with AC and DC operation												
規格 32 (先導閥6X系列E) Size 32 (Pilot valve series 6X/E)	在控制壓力下 at pilot pressure		kgf/cm ²		DC 50 AC		DC 150 AC		DC 250 AC			
	- 三位閥, 彈簧對中 - 3-position valve, spring-centred		ms		65 80		50 90		35 105			
	- 二位閥 - 2-position valve		ms		100 130		75 100		60 115			
	- 三位閥 - 3-position valve		電磁鐵操作 Solenoid operated		a b a b		a b a b		a b a b			
	壓力對中 pressure-centred		ms		55 60 100 105		40 45 85 95		35 40 85 95			
	閥從操作位置至中位的操作時間 Shifting time of the valve from shifted position to neutral position											
	- 三位閥 - 3-position valve		ms		60至75用於DC /50用於AC 60 to 75 for DC /50 for AC							
	- 二位閥 - 2-position valve		ms		115...130		90		85...100		70 65...80 65	
	- 三位閥 - 3-position valve		從— From—		a b a b		a b a b		a b a b		a b a b	
	壓力對中 pressure-centred		ms		30...65		30 40		60...90 30 30		105...155 50 50	

特性曲線【在 $\nu = 41 \text{ mm}^2/\text{s}$ 及 $t = 50^\circ\text{C}$ 時測得】

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

● 4WEH-16...型



性能極限：4WEH-16...型【在 $\nu=41 \text{ mm}^2/\text{s}$ 及 $t=50^\circ\text{C}$ 時測得】

Performance limits: Type 4WEH-16...(measured at $\nu=41 \text{ mm}^2/\text{s}$ and $t=50^\circ\text{C}$)

二位閥(允許流量 q_v L/min) 2-position valve (Permissible flow q_v L/min)						需帶X內控 預載閥 X=內控 Pre-load valve, required for X=internal
閥芯 Spool	公稱壓力 ΔP kgf/cm ² Operating pressure P_{max} in kgf/cm ²					
	70	140	210	280	350	
主閥彈簧復位 with spring offset in the main valve						閥芯C和Z 大約至 160 L/min Spools C, Z up to approx. 160 L/min
C,D,K,Z,Y	300	300	300	300	300	
主閥彈簧復位 with spring offset in the main valve						
C	300	300	300	300	300	
D,Y	300	270	260	250	230	
K	300	250	240	230	210	
Z	300	260	190	180	160	
主閥液壓復位 with hydraulic offset in the main valve						
HC,HD,HK	300	300	300	300	300	
HZ,HY	300	300	300	300	300	

三位閥(允許流量 q_v L/min) 3-position valve (Permissible flow q_v L/min)						需帶X內控 預載閥 X=內控 Pre-load valve, required for X=internal
閥芯 Spool	公稱壓力 ΔP kgf/cm ² Operating pressure P_{max} in kgf/cm ²					
	70	140	210	280	350	
彈簧對中 spring-centred						通常閥芯 F, G, H, P和S Spools F, G, H, P and S in general
E,H,J,L,M Q,U,W,R	300	300	300	300	300	
C	300	300	300	300	300	
D,Y	300	270	260	250	230	
K	300	250	240	230	210	
Z	300	260	190	180	160	
壓力對中(最低控制壓力16 kgf/cm ²) Pressure-centred (at min. pilot pressure of 16 kgf/cm ²)						閥芯大約至 160 L/min Spools V up to approx. 160 L/min
所有閥芯 for all spools	300	300	300	300	300	

- 1) 當最低控制壓力12 kgf/cm² 存在時，可達到所給流量值。
- 2) 當控制功力降低時，流量值受復位彈簧能使閥復位的流量值的限制。

- 1) The flow valves given are achieved when the minimum pilot pressure of 12kgf/cm² is present.
- 2) The flow valves given are limiting valves at which the return spring can return the valve when the pilot pressure fails.

⚠ 注意！

當使用一個主閥芯壓力對中的三位四通閥超出所給的性能極限時，要求控制壓力更高。因而，如果回路公稱壓力為350 kgf/cm²，流量為300L/min，則要求控制壓力為16 kgf/cm²。因而，此閥的最大流量只取決於經過閥的可接受的壓降。

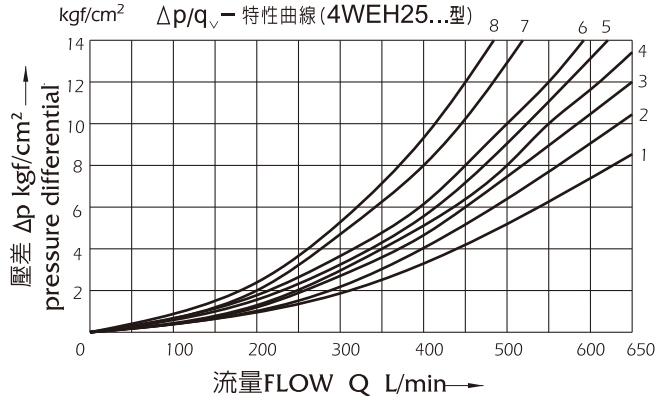
⚠ Attention

When using 4/3-way directional valves with spring-centring of the control spool in the main valve, which exceeds the given performance limits, a higher pilot pressure is required. Example: At an operating pressure of $P_{max} = 350 \text{ kgf/cm}^2$ and a flow of $q_v = 300 \text{ L/min}$, a pilot pressure of 16 kgf/cm^2 is required. The maximum flow for those valves is therefore only dependent on the ΔP valve which is acceptable for the system.

特性曲線【在 $\nu = 41 \text{ mm}^2/\text{s}$ 及 $t = 50^\circ\text{C}$ 時測得】

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

● **4WEH-25...型**



閥芯 Spool	操作位置 Shifted position			
	P→A	P→B	A→T	B→T
E	1	1	1	3
F	1	4	3	3
G	3	1	2	4
H	4	4	3	4
J	2	2	3	5
L	2	2	3	3
M	4	4	1	4
P	4	1	1	5
Q	2	2	3	5
R	2	1	1	-
U	2	1	1	6
V	4	4	3	6
W	1	1	1	3
T	3	1	2	4

性能極限：4WEH-25...型【在 $\nu = 41 \text{ mm}^2/\text{s}$ 及 $t = 50^\circ\text{C}$ 時測得】

Performance limits: Type 4WEH-25...(measured at $\nu = 41 \text{ mm}^2/\text{s}$ and $t = 50^\circ\text{C}$)

二位閥(允許流量 q_v L/min) 2-position valve (Permissible flow q_v L/min)						需帶X內控 預載閥 X=內控 Pre-load valve, required for X=internal
閥芯 Spool	公稱壓力 ΔP kgf/cm ² Operating pressure P_{max} in kgf/cm ²					
	70	140	210	280	350	
主閥彈簧復位 with spring offset in the main valve						閥芯C和Z 大約至 180 L/min Spools C, Z up to approx. 180 L/min
C,D,K,Z,Y	700	700	700	700	650	
主閥彈簧復位 with spring offset in the main valve						
C	700	700	700	700	650	
D,Y	700	650	400	350	300	
K	700	650	420	370	320	
Z	700	700	650	480	400	
主閥液壓復位 with hydraulic offset in the main valve						閥芯HC和HZ 大約至 180 L/min Spools HC, HZ up to approx. 180 L/min
HC,HD,HK	700	700	700	700	700	
HZ,HY	700	700	700	700	700	
HC../O..	700	700	700	700	700	
HD../O..	700	700	700	700	700	
HK../O..	700	700	700	700	700	
HZ../O..	700	700	700	700	700	
HC../OF..	700	700	700	700	700	
HD../OF..	700	700	700	700	700	
HK../OF..	700	700	700	700	700	
HZ../OF..	700	700	700	700	700	

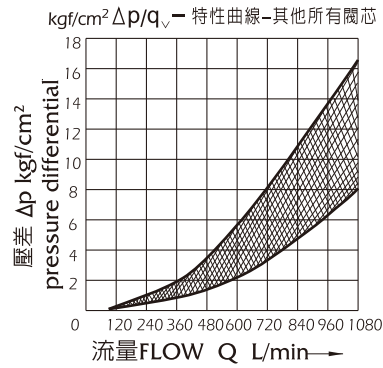
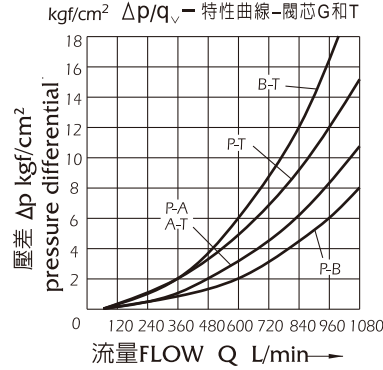
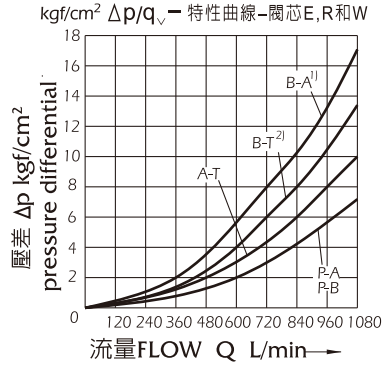
三位閥(允許流量 q_v L/min) 3-position valve (Permissible flow q_v L/min)						需帶X內控 預載閥 X=內控 Pre-load valve, required for X=internal
閥芯 Spool	公稱壓力 ΔP kgf/cm ² Operating pressure P_{max} in kgf/cm ²					
	70	140	210	280	350	
彈簧對中 spring-centred						閥芯F, G, H, P和T 大約至 180 L/min Spools F, G, H, P and T in general, spool V up to approx. 180 L/min
E,L,M Q,U,W	700	700	700	700	650	
G,T	400	400	400	400	400	
F	650	550	430	330	300	
H	700	650	550	400	360	
J	700	700	650	600	520	
P	650	550	430	330	300	
V	650	550	400	350	310	
R	700	700	700	650	580	
壓力對中(最低控制壓力18 kgf/cm ²) Pressure-centred (at min. pilot pressure of 18 kgf/cm ²)						
E,F,H,J	700	700	700	700	650	
L,M,P,Q	700	700	700	700	650	
R,U,V,W	700	700	700	700	650	
G,T	400	400	400	400	400	
在高於30 kgf/cm ² 時控制壓力 at >30 kgf/cm ² pilot pressure						
G,T	700	700	700	700	650	

- 1) 當最低控制壓力13 kgf/cm²存在時，可達到所給流量值。
 - 2) 當控制功力降低時，流量值受復位彈簧能使閥復位的流量值的限制。
- 1) The flow valves given are achieved when the minimum pilot pressure of 13 kgf/cm² is present.
 - 2) The flow valves given are limiting valves at which the return spring can return the valve when the pilot pressure fails.

特性曲線【在 $\nu = 41 \text{ mm}^2/\text{s}$ 及 $t = 50^\circ\text{C}$ 時測得】

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

● **4WEH-32...型**



性能極限：4WEH-32...型【在 $\nu = 41 \text{ mm}^2/\text{s}$ 及 $t = 50^\circ\text{C}$ 時測得】

Performance limits: Type 4WEH-32...(measured at $\nu = 41 \text{ mm}^2/\text{s}$ and $t = 50^\circ\text{C}$)

二位閥(允許流量 q_v L/min) 2-position valve (Permissible flow q_v L/min)		公稱壓力 ΔP kgf/cm ² Operating pressure P_{max} in kgf/cm ²					需帶X內控 預載閥 X=內控 Pre-load valve, required for X=internal
閥芯 Spool		70	140	210	280	350	
主閥彈簧復位 with spring offset in the main valve							閥芯C和Z 大約至 180 L/min Spools C, Z up to approx. 180 L/min
C,D,K,Z,Y		1100	1040	860	750	680	
主閥彈簧復位 with spring offset in the main valve							
C		1100	1040	860	800	700	
D,Y		1100	1040	540	480	420	
K		1100	1040	860	500	450	
Z		1100	1040	860	700	650	
主閥液壓復位 with hydraulic offset in the main valve							閥芯HC和HZ 大約至 180 L/min Spools HC, HZ up to approx. 180 L/min
HC,HD,HK		1100	1040	860	750	680	
HZ,HY		1100	1040	860	750	680	

三位閥(允許流量 q_v L/min) 3-position valve (Permissible flow q_v L/min)		公稱壓力 ΔP kgf/cm ² Operating pressure P_{max} in kgf/cm ²					需帶X內控 預載閥 X=內控 Pre-load valve, required for X=internal
閥芯 Spool		70	140	210	280	350	
彈簧對中 spring-centred							通常閥芯 F, G, H, P和T 閥芯V大約至 180 L/min Spools F, G, H, P and T in general, spool V up to approx. 180 L/min
E,J,L,M Q,R,U,W		1100	1040	860	750	680	
G,T,H,F,P		900	900	800	650	450	
V		1100	1000	680	500	450	
壓力對中(最低控制壓力8.5 kgf/cm ²) Pressure-centred (at min. pilot pressure of 8.5 kgf/cm ²)							
所有閥芯 for all spools		1100	1040	860	750	680	

- 當最低控制壓力10 kgf/cm² 存在時，可達到所給流量值。
- 當控制功力降低時，流量值受復位彈簧能使閥復位的流量值的限制。
- The flow valves given are achieved when the minimum pilot pressure of 10 kgf/cm² is present.
- The flow valves given are limiting valves at which the return spring can return the valve when the pilot pressure fails.

△ 注意！
當使用一個主閥芯壓力對中的三位四通閥超出所給的性能極限時，要求控制壓力更高。
因而，如果回路公稱壓力為 $P_{max} = 350 \text{ kgf/cm}^2$ ，流量為 $q_v = 1100 \text{ L/min}$ ，則要求控制壓力為 15 kgf/cm^2 。
因而，此閥的最大流量只取決於經過閥的可接受的壓降。

△ Attention
When using 4/3-way directional valves with spring-centring of the control spool in the main valve, which exceeds the given performance limits, a higher pilot pressure is required.
Example: At an operating pressure of $P_{max} = 350 \text{ kgf/cm}^2$ and a flow of $q_v = 1100 \text{ L/min}$, a pilot pressure of 15 kgf/cm^2 is required.
The maximum flow for those valves is therefore only dependent on the ΔP valve which is acceptable for the system.

清單 LIST OF ITEMS

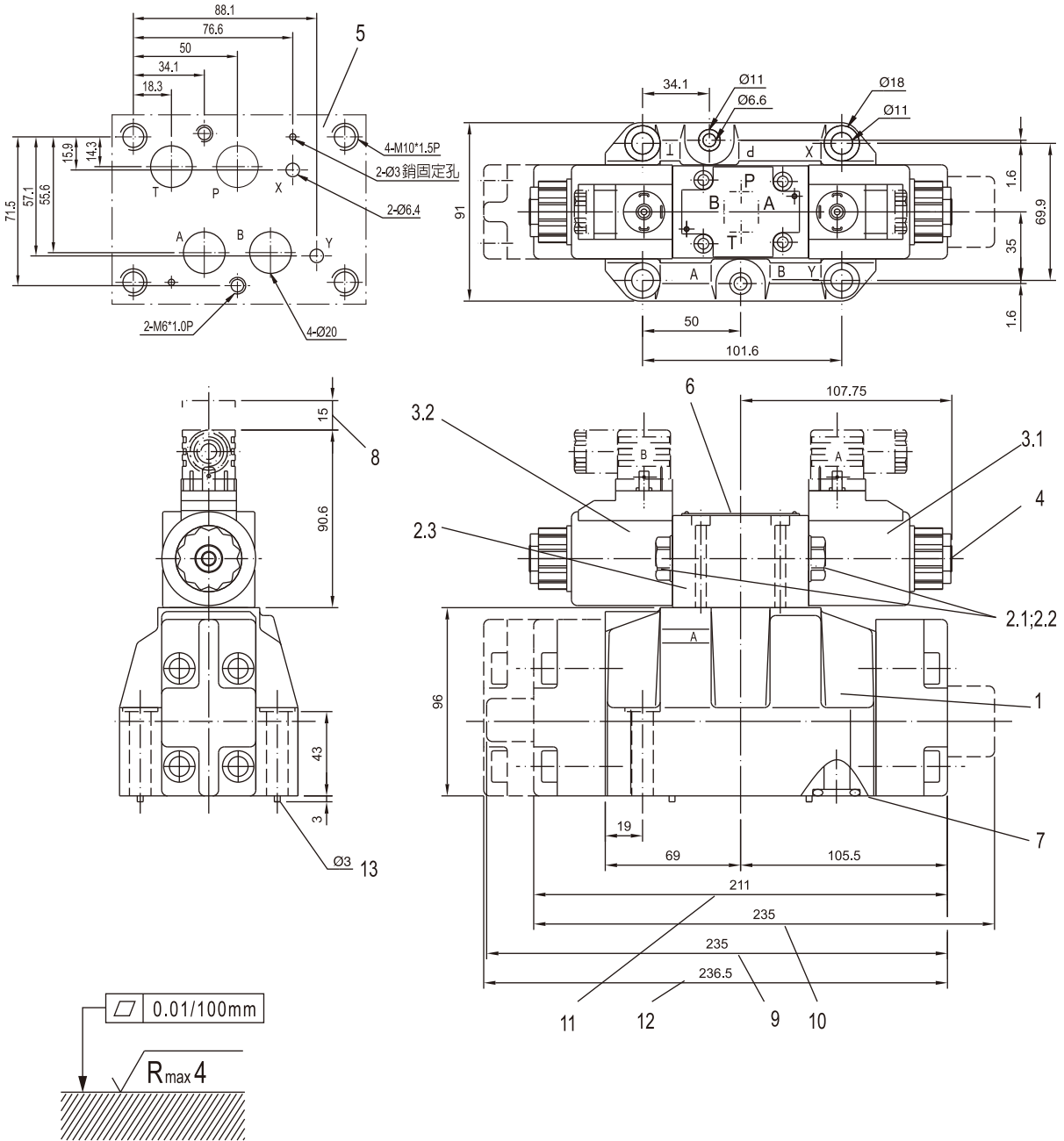
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用於主閥帶閥芯 C, D, K, Z, HC, HD, HK, HZ ● 先導閥型號 4WE 6... (單電磁鐵)
用於主閥帶閥芯 EA, FA 等彈簧復位 ● 先導閥型號 4WE 6... (單電磁鐵)
用於主閥帶閥芯 HEA, HFA 等液壓復位 2.2 ● 先導閥型號 4WE 6... (單電磁鐵)
用於主閥帶閥芯 Y, HY ● 先導閥型號 4WE 6... (單電磁鐵)
用於主閥帶閥芯 EB, FB 或彈簧復位 ● 先導閥型號 4WE 6... (單電磁鐵)
用於主閥帶閥芯 HEB, HFB 或液壓復位 2.3 ● 先導閥型號 4WE 6... (雙電磁鐵)
用於三位主閥, 彈簧對中 ● 先導閥型號 4WE 6... (雙電磁鐵)
用於三位主閥, 壓力對中 3.1 電磁鐵 "a" 3.2 電磁鐵 "b" 4 手動應急操作 "N", 可選
- 手動應急操作只能在箱壓為 50 kgf/cm² 左右時
才能使用。
注意不要損壞手動操作孔! 5 帶油口位置的機加工閥安裝面 6 先導閥銘牌 7 O-形圈 8 拔下插頭要求的空間 9 主閥彈簧復位 (Y) 二位閥 10 主閥彈簧復位 (C, D, K, Z) 二位閥 11 三位閥, 彈簧對中; 主閥液壓復位二位閥 12 三位閥, 壓力對中 13 定位梢 | <ul style="list-style-type: none"> 1 Main valve 2 Pilot valve type 4WE 6... 2.1 ● Pilot valve type 4WE 6... (1 solenoid)
for main valves with spools C, D, K, Z, HC, HD, HK, HZ ● Pilot valve type 4WE 6... (1 solenoid "a")
for main valves with spools EA, FA, etc., spring return ● Pilot valve type 4WE 6... (1 solenoid "a")
for main valves with spools HEA, HFA, etc.,
hydraulic spool return 2.2 ● Pilot valve type 4WE 6... (1 solenoid)
for main valves with spools Y, HY ● Pilot valve type 4WE 6... (1 solenoid "b")
for main valves with spools EB, FB, etc., spring return ● Pilot valve type 4WE 6... (1 solenoid "b")
for main valves with spools HEB, HFB, etc.,
hydraulic spool return 2.3 ● Pilot valve type 4WE 6... (2 solenoids)
for main valves with 3 positions, spring-centred ● Pilot valve type 4WE 6... (2 solenoids)
for main valves with 3 positions, pressure-centred 3.1 Solenoid "a" 3.2 Solenoid "b" 4 Manual override "N" optional
- The manual override can only be operated up to a tank
pressure of up to approx. 50 kgf/cm²
Take care not to damage the manual override bore! 5 Machined valve mounting surface, position of ports 6 Nameplate for the pilot valve 7 O-rings 8 Space required to remove the plug-in connector 9 2-position valves with spring offset
in the main valve (Y) 10 2-position valves with spring offset
in the main valve (C, D, K, Z) 11 3-position valves, spring-centred;
2-position valves with hydraulic offset in the main valve 12 3-position valves, pressure-centred 13 Locating pin |
|---|---|

規格 SIZE	油口O型環 Ports O-ring	
	A, B, T, P	X, Y
16	O-形圈 P22	O-形圈 P10
25	O-形圈 P30	O-形圈 P20
32	O-形圈 P42	O-形圈 P20

單位UNIT : mm

安裝尺寸 INSTALLATION DIMENSIONS

4WEH-16...型



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

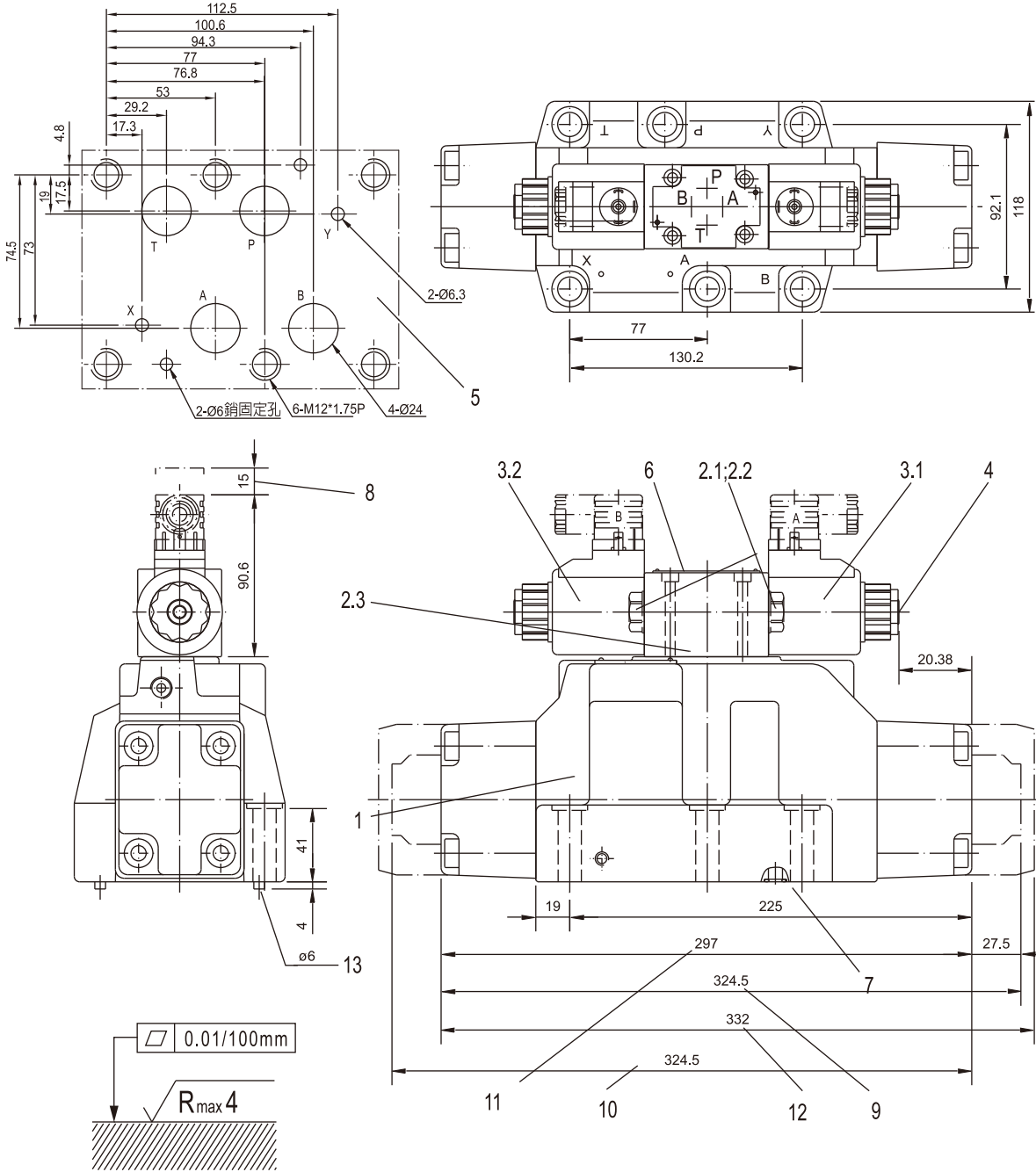
閥固定螺釘 4個M10x60 DIN 912-10.9, 擰緊扭矩 =75Nm
2個M6x50 DIN 912-10.9, 擰緊扭矩 =15.5Nm

Valve fixing screws
4 off M10x60 DIN 912-10.9, $M_A=75Nm$
2 off M6x60 DIN 912-10.9, $M_A=15.5Nm$

單位UNIT : mm

安裝尺寸 INSTALLATION DIMENSIONS

4WEH-25...型



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

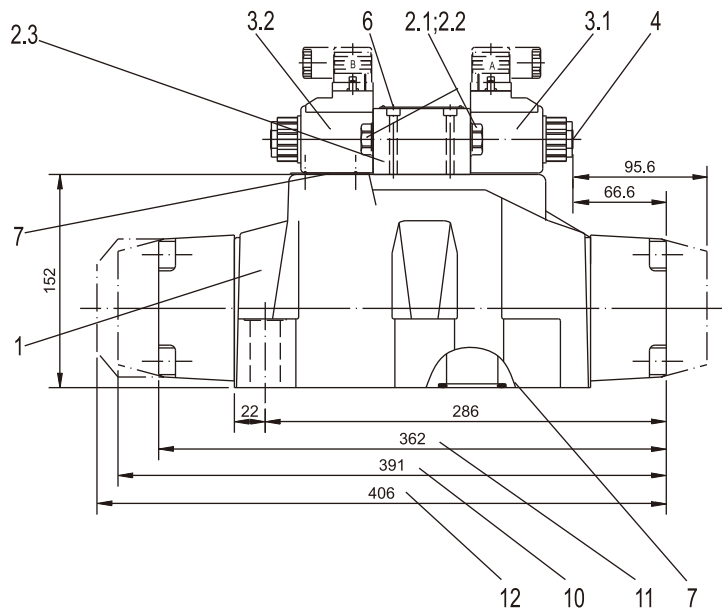
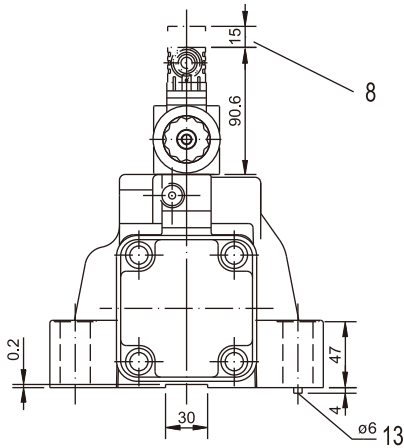
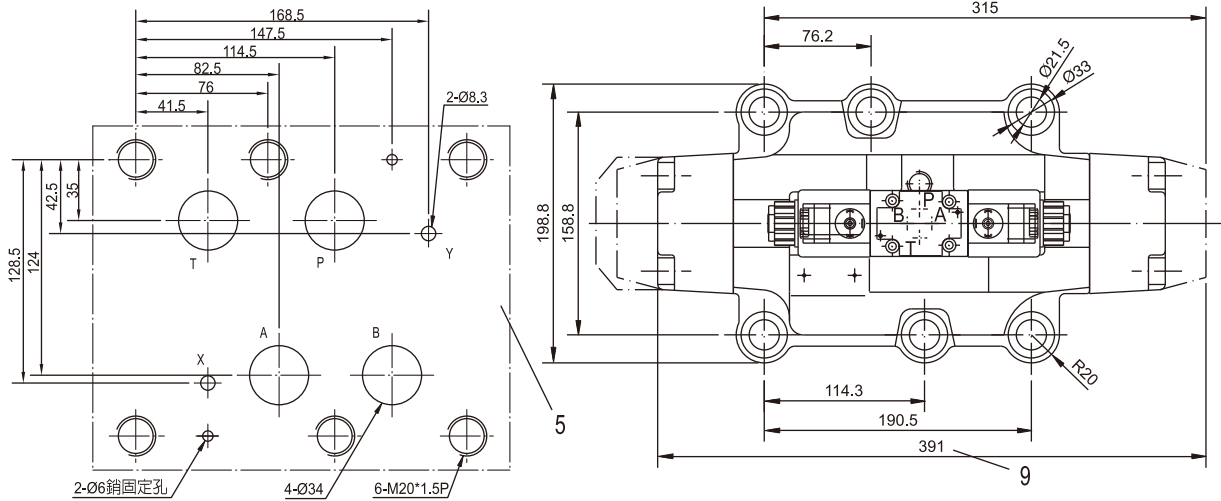
閥固定螺釘
6個M12x60 DIN 912-10.9, 擰緊扭矩 = 130Nm

Valve fixing screws
6 off M12x60 DIN 912-10.9, $M_A=130Nm$

單位UNIT : mm

安裝尺寸 INSTALLATION DIMENSIONS

4WEH-32...型



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

閥固定螺釘
6個M20x80 DIN 912-10.9, 擰緊扭矩 =430Nm

Valve fixing screws
6 off M20x80 DIN 912-10.9, M_A=430Nm