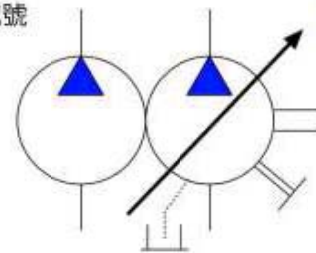




Variable Displacement Vane Pump With Cooling Circulation Pump 變量葉片泵附冷卻循環泵



油壓記號



SYMBOL

型式號碼/MODEL CODE

VCM-SF - 20 - ※ - 4CG - ※

設計號碼

20: 12, 20L

30: 30, 40L

冷卻循環泵系列

4CG (4L/min)

8CG (8L/min)

壓力範圍

A: 20 kgf/cm²B: 35 kgf/cm²

排量

12L, 20L, 30L, 40L

葉片泵系列

Design No.

20: 12, 20L

30: 30, 40L

Cooling circulation pump type

4CG (4L/min)

8CG (8L/min)

Pressure ranges

C: 55 kgf/cm²D: 70 kgf/cm²

Displacement

12L, 20L, 30L, 40L

Variable displacement vane pump series

產品特性:

1. 獨一無二的專利連結設計，縮短變量葉片泵和冷卻循環泵長度，體積更小，造型更輕巧。冷卻循環泵吸取油箱內的液壓油，輸送到冷卻系統後回到油箱，不斷循環，有效達到降低油溫的功能。
2. 冷卻循環泵內建壓力設定，輸出壓力保持在 3kgf/cm²，有效保護冷卻系統管路。
3. 經實驗證明，搭配合適的冷卻器，降溫效果比傳統冷卻回油 (DRAIN)更加明顯。
4. 油箱小型化，節省空間，減少液壓油容量，降低成本。

Characteristic:

- 1.Unique and patented attachment design, it reduces overall length and dimension after attached to a variable displacement vane pump, the entire combination became more compact. This cooling circulation pump intake oil from oil reservoir, deliver to cooling system. It effectively reduced oil temperature under continuous process of circulation.
- 2.Cooling circulation pump has build-in pressure setting, maintaining pressure at 3 kg/cm², protect pipe line of cooling system.
- 3.Rapid testes proven, to combine with proper cooler, it performed better cooling efficiency then cooling variable vane pump's drain by far.
- 4.By reducing size of reservoir, it could save space and volume of hydraulic oil. At the end, it saved cost.



Variable Displacement Vane Pump With Cooling Circulation Pump 變量葉片泵附冷卻循環泵

技術資料/TECHNICAL DATA

型式 MODEL	泵排量 (無負荷時) DELIVERY AT NO LOAD (L/min)		壓力調整範圍 PRESSURE ADJ. RANGE (kgf/cm ²)	容許回轉速度 SHAFT SPEED RANGE (rpm)		最高壓力 MAX. PRESSURE (kgf/cm ²)	重量 WEIGHT (kg)
	1800rpm	1500rpm		最高MAX.	最低MIN.		
SF-12A	12	10	10-20	1800	800	20	5.0
SF-12B			15-35			35	5.0
SF-12C			30-55			55	5.0
SF-12D			50-70			70	5.0
SF-20A	20	17	10-20	1800	800	20	5.0
SF-20B			15-35			35	5.0
SF-20C			30-55			55	5.0
SF-20D			50-70			70	5.0
SF-30A	30	25	10-20	1800	800	20	9.0
SF-30B			15-35			35	9.0
SF-30C			30-55			55	9.0
SF-30D			50-70			70	9.0
SF-40A	40	35	10-20	1800	800	20	9.0
SF-40B			15-35			35	9.0
SF-40C			30-55			55	9.0
SF-40D			50-70			70	9.0

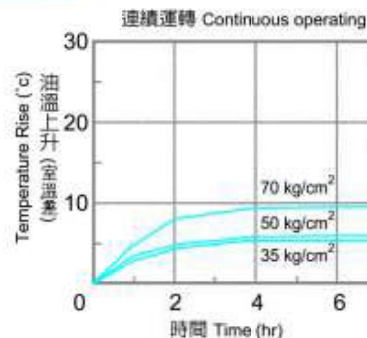
冷卻循環泵 Cooling circulation pump

型式 MODEL	泵排量 (無負荷時) DELIVERY AT NO LOAD (L/min)		壓力調整範圍 PRESSURE ADJ. RANGE (kgf/cm ²)	容許回轉速度 SHAFT SPEED RANGE (rpm)	
	1800rpm	1500rpm		最高MAX.	最低MIN.
4CG	4	3	3	1800	800
8CG	8	6	3	1800	800

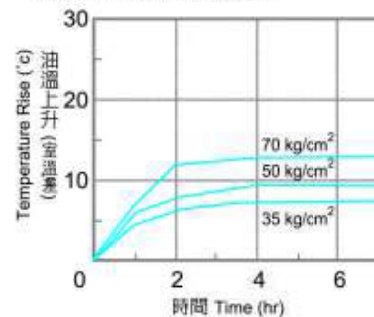
性能曲線圖/PERFORMANCE CURVES

VCM-SF-20※-4CG-20:

測試條件 Testing condition
操作用油 Hydraulic oil: ISO VG32
馬達轉速 Speed: 1800 rpm
油箱容積 Capacity of tank: 30L
室溫 Ambient Temperature: 30°C

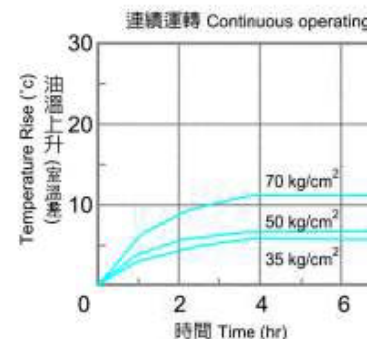


Continuous operated cylinder (Ø20xØ40x250mm)
W/cylinder working cycle: 12 strokes/min.
連續操作CYLINDER (Ø20xØ40x250mm)
作動頻率12次往返 / 每分鐘

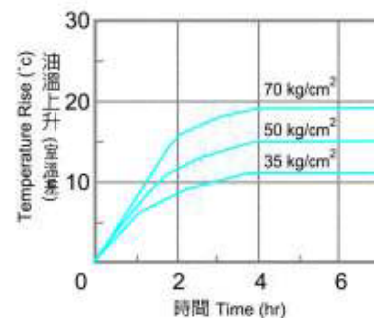


VCM-SF-30※-4CG-30:

測試條件 Testing condition
操作用油 Hydraulic oil: ISO VG32
馬達轉速 Speed: 1800 rpm
油箱容積 Capacity of tank: 40L
室溫 Ambient Temperature: 30°C



Continuous operated cylinder (Ø20xØ40x250mm)
W/cylinder working cycle: 12 strokes/min.
連續操作CYLINDER (Ø20xØ40x250mm)
作動頻率12次往返 / 每分鐘

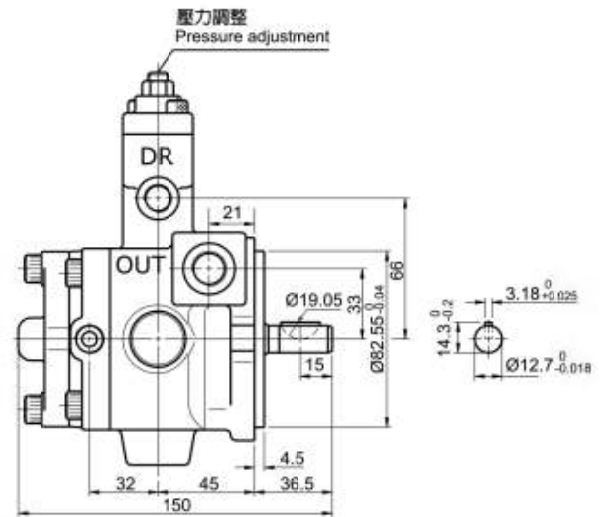
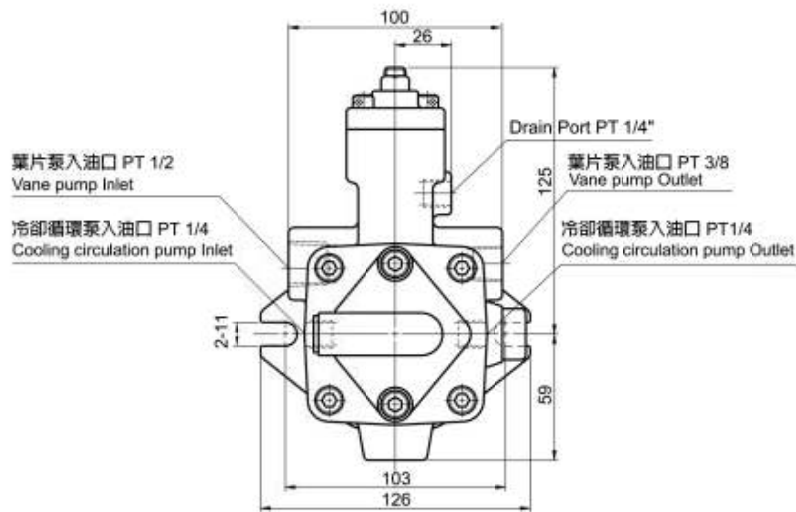




Variable Displacement Vane Pump With Cooling Circulation Pump 變量葉片泵附冷卻循環泵

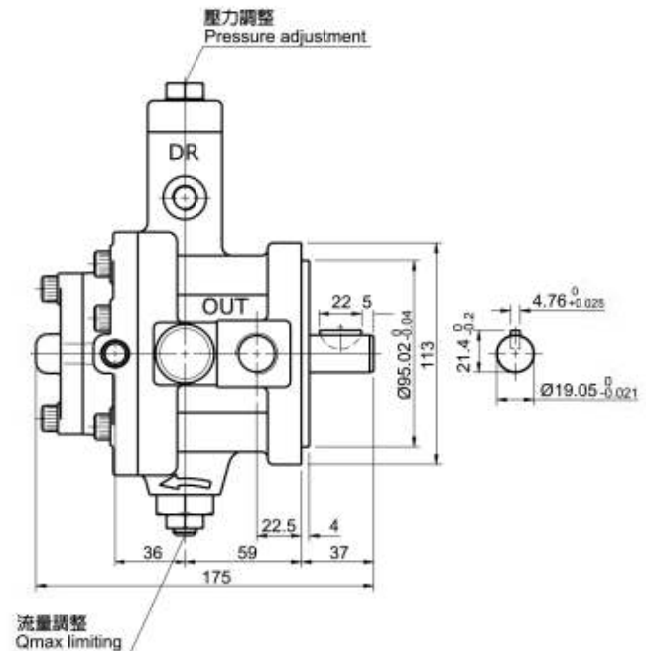
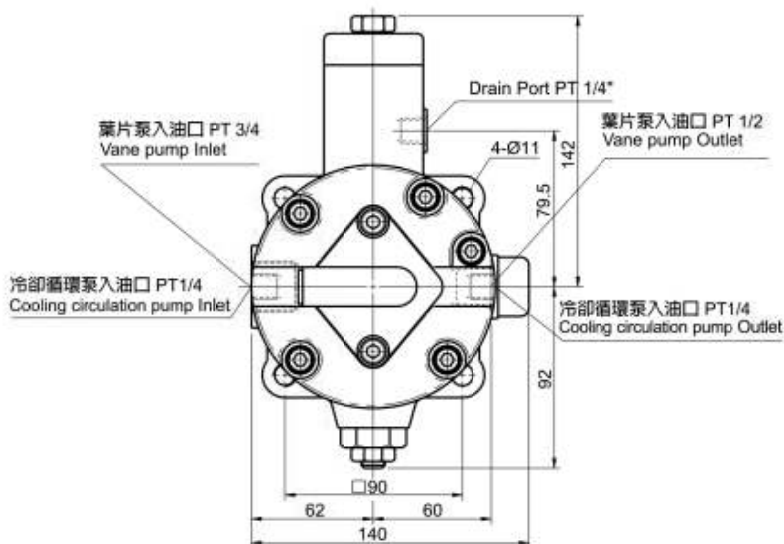
- VCM-SF-12※-※CG-20
- VCM-SF-20※-※CG-20

單位/Unit : mm



- VCM-SF-30※-※CG-30
- VCM-SF-40※-※CG-30

單位/Unit : mm



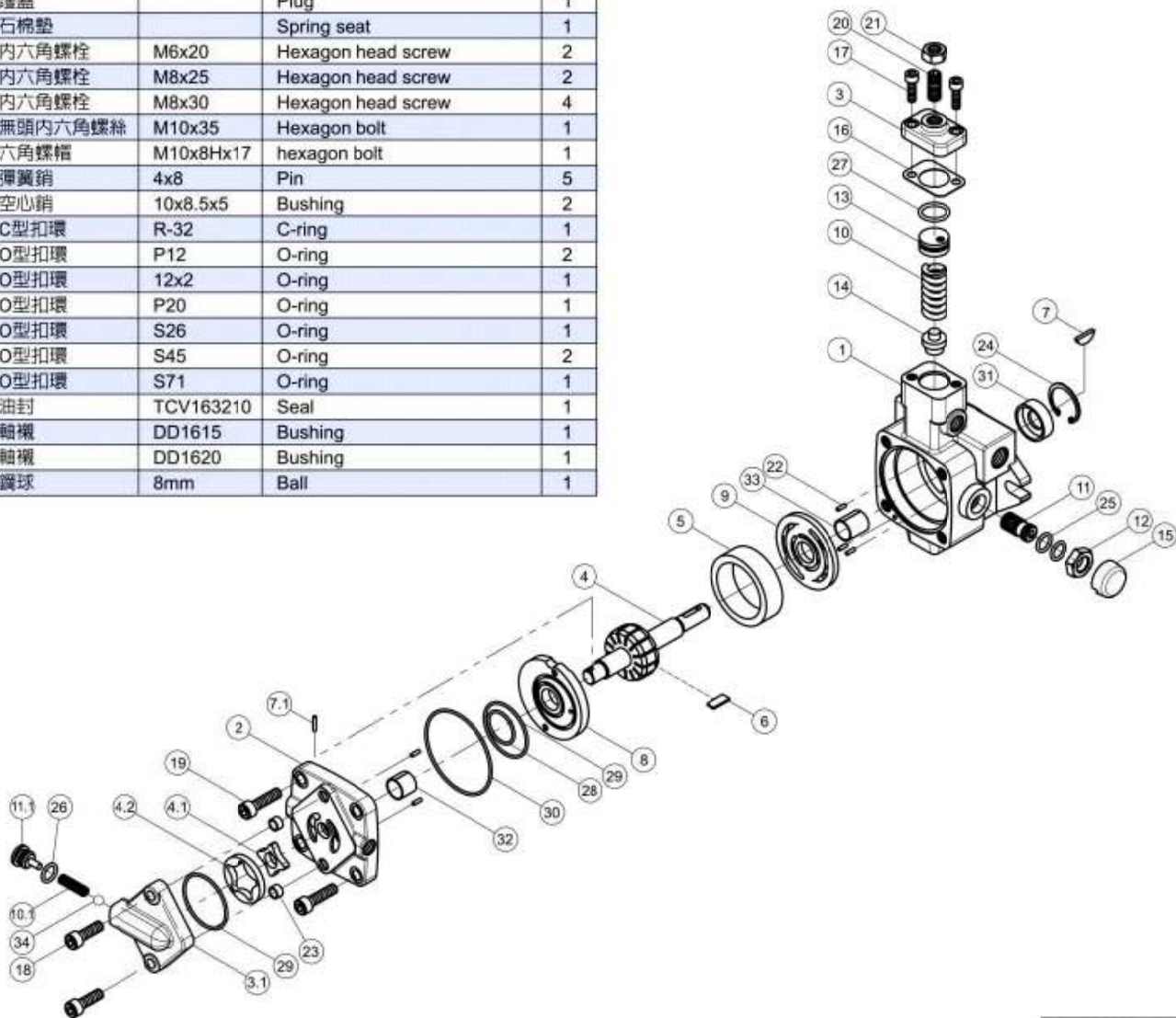


Variable Displacement Vane Pump With Cooling Circulation Pump 變量葉片泵附冷卻循環泵

編號 NUMBER	零件名稱	規格 DESCRIPTION	PARTS	數量 Q'ty
1	本體		Body	1
2	後蓋		Back cover	1
3	側蓋		Cover	1
3.1	冷卻循環泵後蓋		Cooling circulation pump cover	1
4	轉子		Rotor	1
4.1	內轉子		Gerotor (inner rotor)	1
4.2	外轉子		Gerotor (outer rotor)	1
5	凸輪環		Cam-ring	1
6	葉片		Vane	13
7	鍵		Key	1
7.1	插銷		Pin	1
8	上側板		Front plate	1
9	下側板		Rear plate	1
10	彈簧		Spring	1
10.1	彈簧		Spring	1
11	螺栓		Socket screw	1
11.1	螺釘		Screw	1
12	螺帽		Screw nut	1
13	活塞		Piston	1
14	活塞		Piston	1
15	護蓋		Plug	1
16	石棉墊		Spring seat	1
17	內六角螺栓	M6x20	Hexagon head screw	2
18	內六角螺栓	M8x25	Hexagon head screw	2
19	內六角螺栓	M8x30	Hexagon head screw	4
20	無頭內六角螺絲	M10x35	Hexagon bolt	1
21	六角螺帽	M10x8Hx17	hexagon bolt	1
22	彈簧銷	4x8	Pin	5
23	空心銷	10x8.5x5	Bushing	2
24	C型扣環	R-32	C-ring	1
25	O型扣環	P12	O-ring	2
26	O型扣環	12x2	O-ring	1
27	O型扣環	P20	O-ring	1
28	O型扣環	S26	O-ring	1
29	O型扣環	S45	O-ring	2
30	O型扣環	S71	O-ring	1
31	油封	TCV163210	Seal	1
32	軸襯	DD1615	Bushing	1
33	軸襯	DD1620	Bushing	1
34	鋼球	8mm	Ball	1

■ VCM-SF-12※※CG-20

■ VCM-SF-20※※CG-20





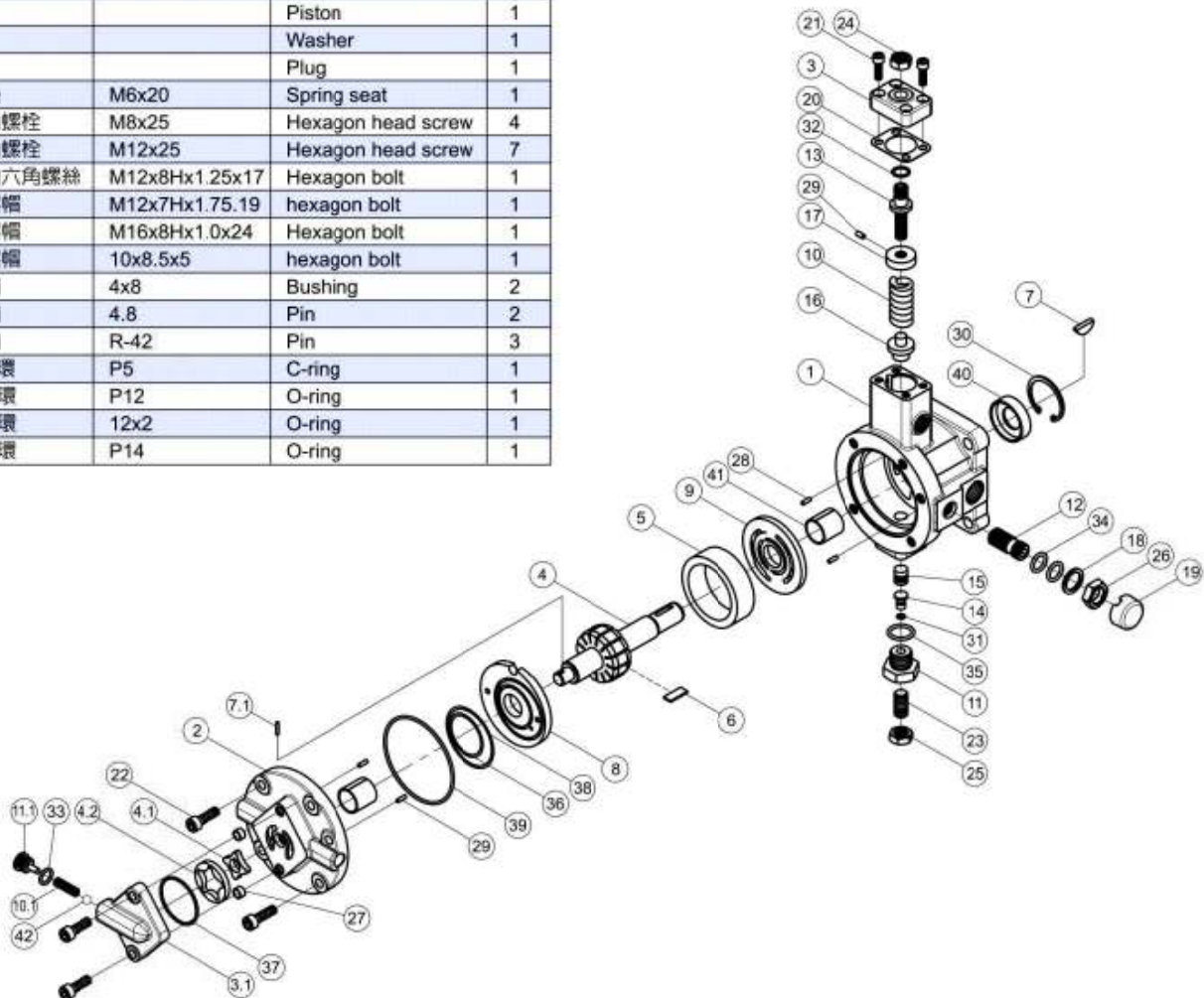
Variable Displacement Vane Pump With Cooling Circulation Pump 變量葉片泵附冷卻循環泵

編號 NUMBER	零件名稱	規格 DESCRIPTION	PARTS	數量 Q'ty
1	本體		Body	1
2	後蓋		Back cover	1
3	側蓋		Cover	1
3.1	冷卻循環泵後蓋		Cooling circulation pump cover	1
4	轉子		Rotor	1
4.1	內轉子		Gerotor (inner rotor)	1
4.2	外轉子		Gerotor (outer rotor)	1
5	凸輪環		Cam-ring	1
6	葉片		Vane	13
7	鍵		Key	1
7.1	插銷		Pin	1
8	上側板		Front plate	1
9	下側板		Rear plate	1
10	彈簧		Spring	1
10.1	彈簧		Spring	1
11	螺釘		Screw	1
11.1	螺釘		Screw	1
12	螺栓		Screw bolt	1
13	螺栓		Screw bolt	1
14	活塞		Piston	1
15	活塞		Piston	1
16	活塞		Piston	1
17	活塞		Piston	1
18	華司		Washer	1
19	護蓋		Plug	1
20	石棉墊	M6x20	Spring seat	1
21	內六角螺栓	M8x25	Hexagon head screw	4
22	內六角螺栓	M12x25	Hexagon head screw	7
23	無頭內六角螺絲	M12x8Hx1.25x17	Hexagon bolt	1
24	六角螺帽	M12x7Hx1.75.19	hexagon bolt	1
25	六角螺帽	M16x8Hx1.0x24	Hexagon bolt	1
26	六角螺帽	10x8.5x5	hexagon bolt	1
27	空心銷	4x8	Bushing	2
28	定位銷	4.8	Pin	2
29	彈簧銷	R-42	Pin	3
30	C型扣環	P5	C-ring	1
31	O型扣環	P12	O-ring	1
32	O型扣環	12x2	O-ring	1
33	O型扣環	P14	O-ring	1

編號 NUMBER	零件名稱	規格 DESCRIPTION	PARTS	數量 Q'ty
34	O型扣環	P20	O-ring	2
35	O型扣環	S40	O-ring	1
36	O型扣環	S45	O-ring	1
37	O型扣環	S60	O-ring	1
38	O型扣環	S85	O-ring	1
39	O型扣環	TCV224211	O-ring	1
40	油封	DD2225	Seal	1
41	軸襯	8mm	Bushing	2
42	鋼球		Ball	1

■ VCM-SF-30※※CG-30

■ VCM-SF-40※※CG-30





操作須知:

1. 轉動方向: 標準泵的回轉方向乃以從軸心方向時正視為順時針方向
2. 液壓油: 70bar以下, 40°C時, 黏度為30-50cSt (ISO VG 32)的液壓油
70bar以上, 40°C時, 黏度為50-70cSt (ISO VG 32)的液壓油。
3. 洩油管: 洩油管請務必連接到油箱液面下, 背壓請保持在0.3 kgf/cm²以下
4. 工作油溫: 連續運轉溫度約為15-60°C
5. 軸心配差: 泵與馬達軸心偏心誤差須在0.05mm以下, 角度誤差1°
6. 吸油壓力: 吸油口壓力必須低於-0.3bar kgf/cm²
7. 流量調整: 調整流量時須先放鬆螺帽, 再旋轉調整螺絲, 右轉時為減量, 反之則為增量, 調整完畢請務必鎖緊螺帽
8. 壓力調整: 右轉壓力調整螺絲則輸出壓力降低, 左轉則升高
9. 初次使用: 請在無負載狀況下先行反覆啟動馬達, 以排除管路及泵的空氣, 為確保泵系統至中所含空氣已排除, 請讓泵在無負載狀況下運轉10分鐘

Handling:

1. The rotation of VCM-SM pump is clockwise when viewed from the shaft end.
2. The drain pipe is directly connected to the oil tank and the position must be below the level of oil.
3. Keep the suction pressure within -0.3 kgf/cm² at the suction port.
4. Pressure adjusting screw is turned clockwise to increase pressure and Counterclockwise to decrease pressure.
5. Flow adjusting screw is turned clockwise to increase flow and counterclockwise to decrease flow.
6. For proper alignment of pump and electric motor shaft, the eccentricity between them must be kept within 0.05mm and the eccentric angle error between them must be kept within 1°
7. When pressure is under 70 kgf/cm² the viscosity of oil must be within 30-50 cSt, when pressure is over 70 kgf/cm² the viscosity of oil must be within 50-70 cSt, at the temperature of 40°C.
8. When first time operation, the pump should be at no-load state-on delivery side and be repeated on and off the electric motor a number of times to make sure the air have been bled out of the system.