



全懋精機股份有限公司
CAMEL PRECISION CO., LTD.

Internal Gear Pump

內嚙合齒輪泵





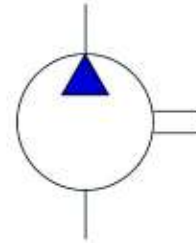
Internal Gear Pump

內啮合齒輪泵



油壓記號

SYMBOL



型式號碼 / Model Code

IGC - 4F - 032 - R - 20

設計番號

Design No.

回轉方向 (由軸側方向觀之)

Direction of Rotation (View from shaft end)

R: 順時針方向

R: Clockwise

L: 逆時針方向

L: Counterclockwise

排量: c.c./rev

Displacement

安裝方式

Mounting Type

F: ISO type flange

法蘭 L: ISO type foot 腳座

E: DIN type flange

法蘭 S: Secondary Pump 多聯式後段泵

系列號碼:

Series No.

內啮合齒輪泵系列

Internal Gear Pump Series

IGC: 系列, 最高 175 kgf/cm² Max. 175 kgf/cm²

產品特性:

1. 最高轉速可達2500 rpm
2. 噪音低, 提供極佳的操作環境
3. 低脈衝, 運轉平順
4. 徑向及軸向壓力補償, 效率超高
5. 優異的吸力, 作動油黏度範圍廣泛
6. 流量範圍20 to 125 cc/rev
7. 只需低轉速50 rpm, 即可達到140kgf/cm²保壓壓力
8. 注塑機伺服節能適用本產品

FEATURE:

1. Max. speed could be up to 2500 rpm
2. Low noise to provide a comfortable working environment
3. Low pulsation, Smooth rotation.
4. High overall efficiency through axial & radial pressure compensation.
5. Good suction attribute and wide oil viscosity range.
6. Displacement form 20 to 125 cc/rev.
7. High efficiency. 50 rpm can reach 140 kgf/cm² to hold pressure.
8. Servo-Energy saving system for injection molding machine is applicable to IGC series.



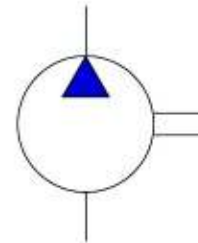
Internal Gear Pump

內啮合齒輪泵



油壓記號

SYMBOL



型式號碼 / Model Code

IGH - 4F - 32 - R - 20

設計番號

Design No.

回轉方向 (由軸側方向觀之)

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R: Clockwise

L: 逆時針方向

L: Counterclockwise

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安裝方式

Mounting Type

F: ISO type flange

法蘭 L: ISO type foot 腳座

E: DIN type flange

法蘭 S: Secondary Pump 多聯式後段泵

系列號碼:

Series No.

內啮合齒輪泵系列

Internal Gear Pump Series

IGH:

H: 系列, 最高 300 kgf/cm², H:Series,Max. 300 kgf/cm²

IGM:

M: 系列, 最高 250 kgf/cm², M:Series,Max. 250 kgf/cm²

產品特性:

1. 高壓力, 最高300 kgf/cm².
2. 極靜音, 完全符合低音工作環境要求.
3. 低脈衝, 運轉平順.
4. 徑向及軸向壓力補償, 效率超高
5. 優異的吸力, 作動油黏度範圍廣泛,
6. 流量範圍廣, 從3.5c.c 到 125c.c.
7. 可以多聯式泵浦連結使用, 應用在多重迴路中.

FEATURE:

1. High Pressure, max.pressure 300 kgf/cm².
2. Extremely low noise.
3. Low pulsation, Smooth rotation.
4. High overall efficiency through axial & radial pressure compensation.
5. Good suction attribute and wide oil viscosity range.
6. Displacement from 3.5 to 125 c.c. and multiple stage pumps are available.



Internal Gear Pump

內嚙合齒輪泵

技術資料 / Technical Data

型式 MODEL	泵排量 Theoretical Displacement c.c/rev.	最高壓力 MAX. Pressure kgf/cm ² 持續Cont. 瞬間Peak.		容許回轉速 Shaft Speed Min. Max.		重量 WEIGHT Kg	入口 Inlet Port	出口 Outlet Port
IGC-4	20	140	175	200	2500	9.5	1-1/4"	3/4"
	25	140	175	200	2500	10.0	1-1/4"	3/4"
	32	140	175	200	2500	10.5	1-1/4"	3/4"
IGC-5	40	140	175	100	2200	19.0	1-1/2"	1"
	50	140	175	100	2200	20.0	1-1/2"	1"
	64	140	175	100	2200	21.0	1-1/2"	1"
IGC-6	80	140	175	100	2000	39.0	2"	1-1/2"
	100	140	175	100	2000	41.0	2"	1-1/2"
	125	140	175	100	2000	43.0	2"	1-1/2"
IGM-2	3.5	220	250	600	2000	2.4	1/2"	1/2"
	5	220	250	600	2000	2.5	1/2"	1/2"
	6.5	220	250	600	2000	2.6	1/2"	1/2"
	8	220	250	600	2000	2.8	1/2"	1/2"
IGM-3	10	220	250	600	2000	4.8	1"	1/2"
	13	220	250	600	2000	5.0	1"	1/2"
	16	220	250	600	2000	5.3	1"	1/2"
IGM-4	20	220	250	600	2000	9.5	1-1/4"	3/4"
	25	220	250	600	2000	10.0	1-1/4"	3/4"
	32	220	250	600	2000	10.5	1-1/4"	3/4"
IGM-5	40	220	250	600	2000	19.0	1-1/2"	1"
	50	220	250	600	2000	20.0	1-1/2"	1"
	64	220	250	600	2000	21.0	1-1/2"	1"
IGM-6	80	220	250	600	2000	39.0	2"	1-1/2"
	100	220	250	600	2000	41.0	2"	1-1/2"
	125	220	250	600	2000	43.0	2"	1-1/2"
IGH-2	3.5	250	300	600	2000	2.4	1-1/2"	1/2"
	5	250	300	600	2000	2.5	1-1/2"	1/2"
	6.5	250	300	600	2000	2.6	1-1/2"	1/2"
	8	250	300	600	2000	2.8	1-1/2"	1/2"
IGH-3	10	250	300	600	2000	4.8	1"	1/2"
	13	250	300	600	2000	5.0	1"	1/2"
	16	250	300	600	2000	5.3	1"	1/2"
IGH-4	20	250	300	600	2000	9.5	1-1/4"	3/4"
	25	250	300	600	2000	10.0	1-1/4"	3/4"
	32	250	300	600	2000	10.5	1-1/4"	3/4"
IGH-5	40	250	300	600	2000	19.0	1-1/2"	1"
	50	250	300	600	2000	20.0	1-1/2"	1"
	64	250	300	600	2000	21.0	1-1/2"	1"



Internal Gear Pump

內嚙合齒輪泵

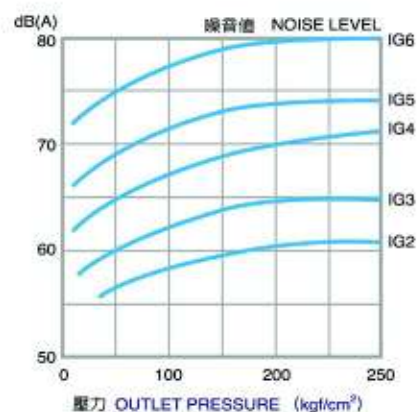
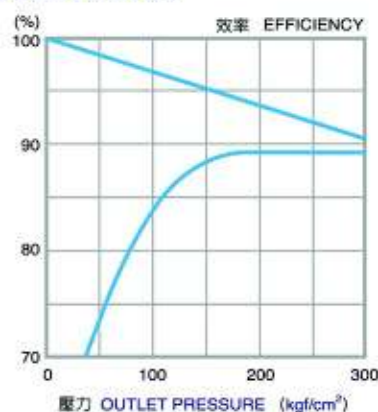
馬力-流量特性 / Delivery & Power Rating

轉速 SPEED	ITEMS	吐出量DELIVERY L/min.						輸入馬力POWER INPUT(kw)					
	MODEL PRESSURE	7	70	140	210	250	300	7	70	140	210	250	300
1000 rpm	IG※-2-3.5	3.59	3.48	3.39	3.28	3.24	3.16	0.13	0.61	1.10	1.60	1.89	2.26
	-5	5.32	5.09	4.95	4.79	4.70	4.61	0.14	0.77	1.44	2.22	2.58	3.13
	-6.5	6.54	6.36	6.20	6.04	5.94	5.82	0.16	0.95	1.78	2.74	3.19	3.87
	-8	8.18	7.95	7.74	7.55	7.42	7.28	0.16	1.17	2.20	3.38	3.93	4.77
	IG※-3-10	10.1	9.95	9.7	9.4	9.3	9.1	0.17	1.56	2.68	4.17	4.96	6.0
	-13	13.1	13.0	12.6	12.4	12.2	12.0	0.26	1.98	3.50	5.25	6.17	7.58
	-16	15.7	15.3	15.0	14.7	14.5	14.2	0.32	2.32	4.15	6.23	7.33	9.01
	IG※-4-20	20.6	20.1	19.7	19.2	19.0	18.7	0.42	3.07	5.45	8.08	9.61	11.5
	-25	25.6	25.1	24.6	24.1	23.8	23.5	0.48	3.72	6.76	10.1	11.9	14.3
	-32	32.6	31.5	30.9	30.3	30.0	29.6	0.54	4.62	8.50	12.6	15.0	18.0
	IG※-5-40	40.7	39.8	38.9	38.1	37.6	37.0	1.1	6.06	10.7	16.0	18.9	23.3
	-50	50.2	49.2	48.3	47.3	46.8	46.1	1.2	7.28	13.3	19.7	23.3	28.0
	-64	63.9	62.5	61.4	60.2	59.5	58.6	1.3	9.14	16.9	25.0	30.3	35.6
	IG※-6-80	81.0	79.5	77.8	76.0	75.0	73.8	1.98	11.6	21.8	32.2	38.4	46.6
	-100	101.5	99.4	97.7	95.9	94.7	93.0	2.42	14.5	27.4	40.5	48.1	57.6
	-125	125.9	123.1	120.9	118.5	117.2	115.4	2.94	17.8	34.0	50.0	59.6	71.4
1500 rpm	IG※-2-3.5	5.40	5.24	5.11	4.97	4.90	4.80	0.19	0.94	1.65	2.41	2.83	3.39
	-5	7.85	7.65	7.44	7.25	7.13	6.98	0.22	1.15	2.17	3.25	3.78	4.60
	-6.5	9.1	9.58	9.35	9.13	8.99	8.84	0.23	1.44	2.68	4.01	4.67	5.67
	-8	12.2	11.8	11.60	11.35	11.2	11.0	0.25	1.75	3.30	4.95	5.76	7.00
	IG※-3-10	15.2	14.8	14.5	14.2	14.0	13.8	0.26	2.27	4.07	6.10	7.26	8.82
	-13	19.8	19.4	19.0	18.7	18.5	18.2	0.40	2.89	5.31	7.78	9.26	11.4
	-16	23.6	23.1	22.6	22.2	22.0	21.7	0.49	3.39	6.30	9.35	11.0	13.5
	IG※-4-20	30.9	30.3	29.7	29.2	28.8	28.4	0.61	4.61	8.17	12.2	14.4	17.3
	-25	38.4	37.7	37.1	36.5	36.1	35.7	0.77	5.58	10.2	15.1	17.9	21.5
	-32	48.3	47.5	46.7	45.9	45.4	44.9	1.02	6.93	12.8	18.9	22.5	27.0
	IG※-5-40	61.1	59.9	58.8	57.6	56.9	56.2	1.80	9.33	16.3	24.2	28.7	35.3
	-50	75.4	74.0	72.8	71.6	70.8	70.0	2.0	11.2	20.1	29.8	35.4	42.5
	-64	95.4	94.1	92.5	91.0	90.0	89.0	2.1	14.1	25.5	37.9	45.0	54.0
	IG※-6-80	121.9	119.4	117.2	115.0	113.5	111.8	3.15	18.3	33.2	48.9	58.4	70.8
	-100	152.4	149.6	147.3	144.7	143.2	141.3	3.85	22.6	41.2	61.4	73.0	87.5
	-125	188.8	185.4	182.3	179.3	177.5	175.4	4.69	27.4	51.2	76.0	90.4	108.0

測試條件: Testing Condition 油溫: Oil Temperature 40°C ±5 作動油: Operating Fluid: ISO VG68

性能曲線 / Performance Curve

回轉速 Revolving Speed: 1200min⁻¹
作動油 Operating Fluid: ISO VG68

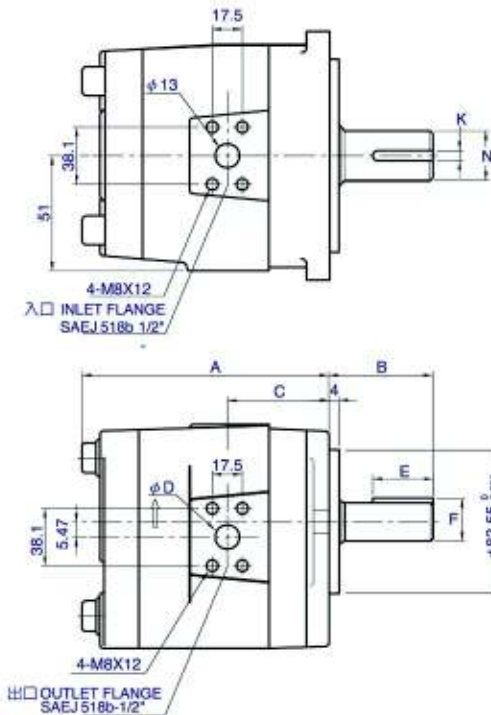




Internal Gear Pump

內嚙合齒輪泵

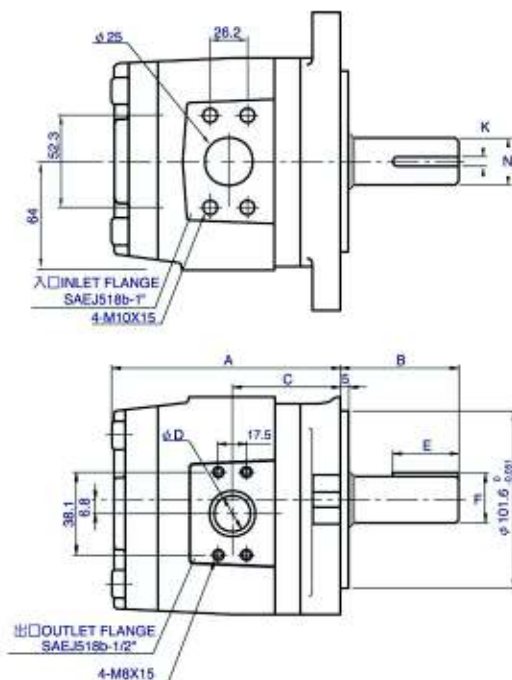
● IG※-2E※法蘭型 (順時針方向回轉) Flange Type (Clockwise Rotation)



型式Model	A	C	ØD
IG*-2*-3.5	107	51	Ø8.9
IG*-2*-5	112	53.5	Ø11
IG*-2*-6.5	116	55.5	Ø12
IG*-2*-8	121	58	Ø13

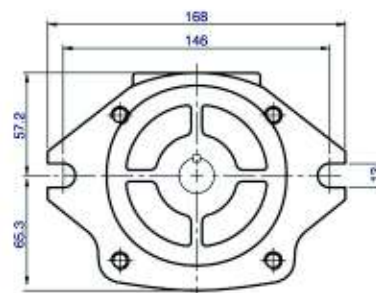
型式Model	B	E	F	K	N
IG*-2E-*	41	30	20.5	6/h7	18/h7

● IG※3E(F)-※法蘭型 (順時針方向回轉) Flange Type (Clockwise Rotation)



型式Model	A	C	ØD
IG*-3*-10	130	60	Ø14
IG*-3*-13	136	63	Ø17
IG*-3*-16	141	65.5	Ø18

型式Model	B	E	F	K	N
IG*-3E-*	41	30	22.5	6/h7	20/h7
IG*-3F-*	65	38	21.25	4.76/h7	19.05/h7

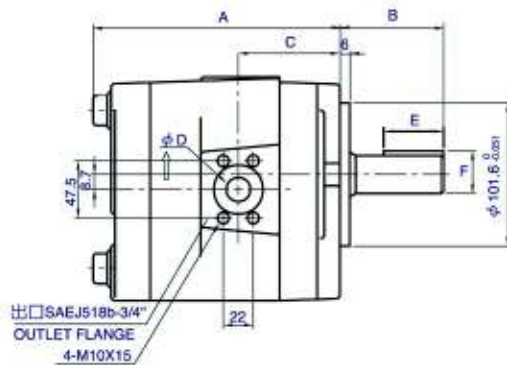
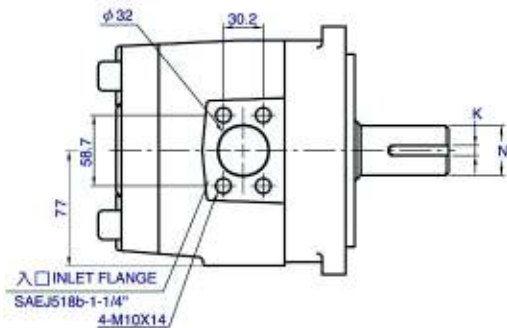




Internal Gear Pump

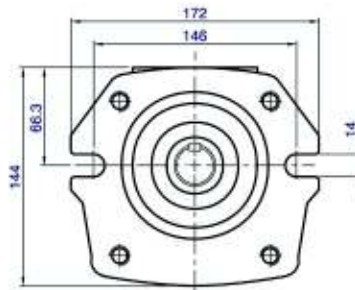
內嚙合齒輪泵

● IG※4E(F)-※法蘭型 (順時針方向回轉) Flange Type (Clockwise Rotation)

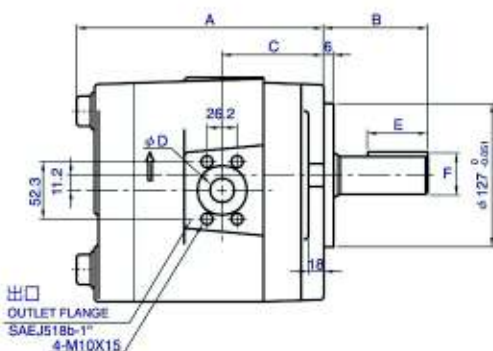
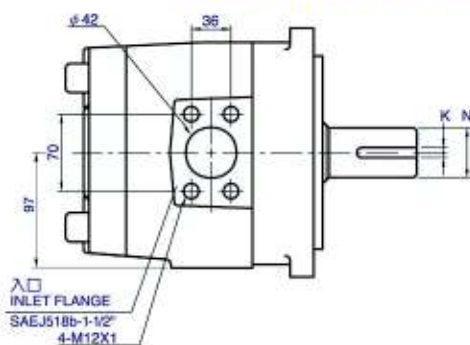


型式Model	B	E	F	K	N
IG*-4E-*	72	45	28	8/h7	25/h7
IG*-4F-*	78	60	27.85	6.375/h7	25.385/h7

型式Model	A	C	ØD
IG*-4*-20	164	71	Ø18
IG*-4*-25	170	74	Ø20
IG*-4*-32	178	78	Ø24

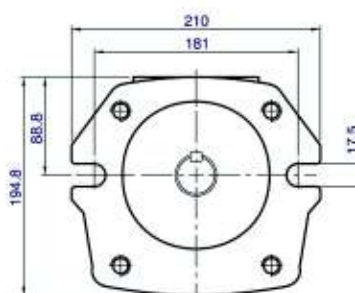


● IG※5E(F)-※法蘭型 (順時針方向回轉) Flange Type (Clockwise Rotation)



型式Model	B	E	F	K	N
IG*-5E-*	89	50	35	10/h7	32/h7
IG*-5F-*	85	50	35.33	7.938/h7	31.75/h7

型式Model	A	C	ØD
IG*-5*-40	199	91	Ø24
IG*-5*-50	206	94.5	Ø26
IG*-5*-64	216	99.5	Ø28

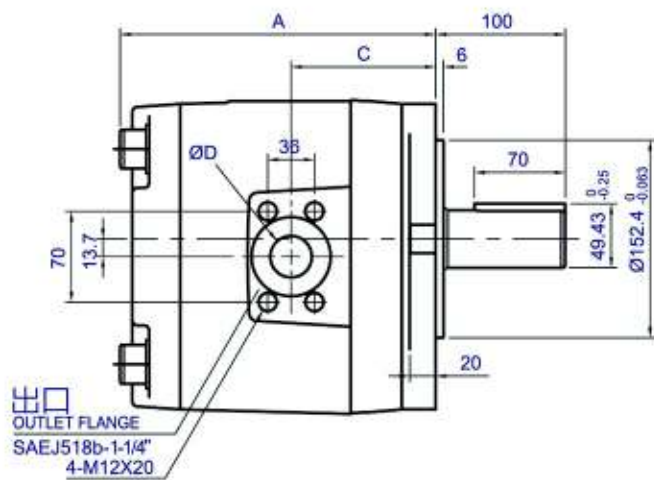
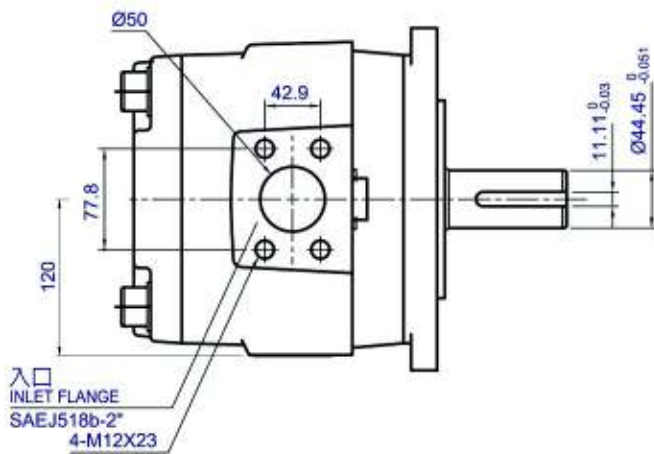




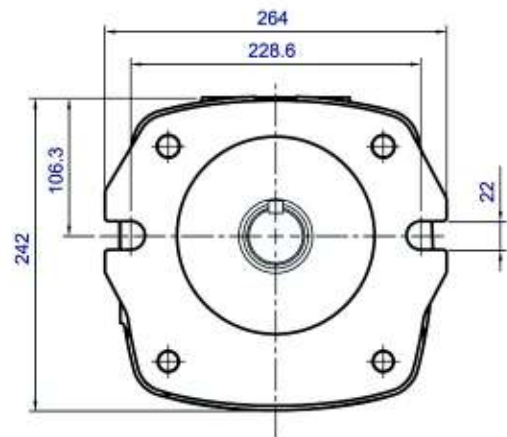
Internal Gear Pump

内啮合齒輪泵

- IG※6F-※法蘭型（順時針方向回轉）
Flange Type (Clockwise Rotation)



型式Model	A	C	ØD
IG*-6*-80	242.5	111.5	Ø32
IG*-6*-100	252.5	116.5	Ø36
IG*-6*-125	264.5	122.5	Ø38



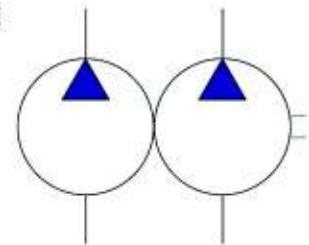


Internal Gear Pump

內嚙合齒輪泵



油壓記號



SYMBOL

型式號碼 / Model Code

IGH - 4E - 32 - R / IGH - 4S - 25 / IGM - 3S - 16

參照第二個泵

Refer to the secondary Pump

後泵排量

Displacement of shaft end pump

後泵系列號碼

Series No. of Secondary Pump

內嚙合齒輪泵系列號碼

Internal gear pump series

回轉方向 (由軸側方向觀之)

Direction of Rotation (Viewed from shaft end)

R: 順時針方向

R: Clockwise

L: 逆時針方向

L: Counterclockwise

前泵排量

Displacement of shaft end pump

前泵安裝方式

Mounting type of shaft end pump

E: 僅限DIN 法蘭型

E: DIN type flange only

前泵系列號碼

Series No. of shaft end pump

內嚙合齒輪泵系列號碼

Internal Gear Pump Series

IGH:

H: 系列, 最高 300 kgf/cm², H:Series,Max. 300 kgf/cm²

IGM:

M: 系列, 最高 250 kgf/cm², M:Series,Max. 250 kgf/cm²

IGC:

C: 系列, 最高 175 kgf/cm², C:Series,Max. 175 kgf/cm²

說明:

多聯泵之前端必須為最大流量的泵，
若流量相同則前泵必須是壓力最高的泵。
同理亦適用於第二及以後的泵。

Remark:

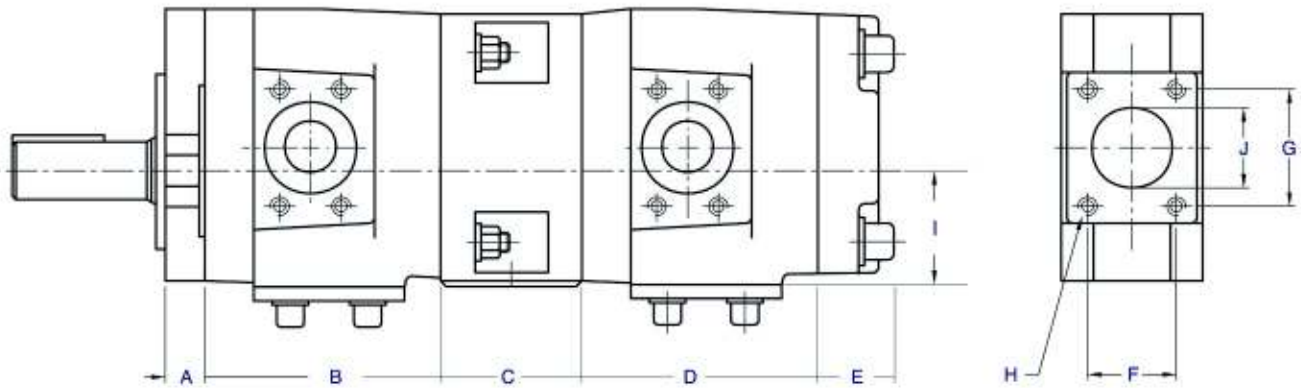
The shaft end pump of multiple stage pump should have the largest displacement. It is also the maximum pressure of all pumps in multiple pump when the displacement is the same with all pumps.
Likewise the secondary pump should have the second largest displacement of all pumps.



Multiple Stage Internal Gear Pump

多聯式內嚙合齒輪泵

尺寸圖 / Dimensions



相關尺寸說明 \ Dimensions

型式Model	IG※2				IG※3			IG※4			IG※5			IG※6		
Displacement	3.5	5.5	6.5	8	10	13	16	20	25	32	40	50	64	80	100	125
A	19	19	19	19	18	18	18	20	20	20	22	22	22	26	26	26
B,D	64	69	73	78	84	90	95	102	108	116	138	145	155	171	181	193
E	24	24	24	24	28	28	28	42	42	42	39	39	39	45	45	45

連接座尺寸 \ Dimensions of Connected Housing

型式Model	C	F	G	H	I	J	Inlet Flange
No.2	60	22.2	47.6	M8x12	54.5	Ø20	3/4"
No.3	70	30.2	58.7	M10x14	70.2	Ø31	1-14"
No.4	70	36	70	M12x20	74.3	Ø40	1-1/2"
No.5	90	50.8	89	M12x20	90	Ø60	2-1/2"
No.6	110	61.9	106.3	M16x23	108.3	Ø76	3"

單位 unit: mm

連接座尺寸說明:

No.2, 適用於 IG*-2E /IG*-2S

No.3, 適用於 IG*-3E /IG*-3S(2S)

No.4, 適用於 IG*-4E /IG*-4S(3S, 2S)

No.5, 適用於 IG*-5E /IG*-5S(4S, 3S, 2S)

No.6, 適用於 IG*-6E /IG*-6S(5S, 4S)

Remark of Connected Housing :

No.2, applicable to IG*-2E(S)/IG*-2S

No.3, applicable to IG*-3E(S)/IG*-3S(2S)

No.4, applicable to IG*-4E(S)/IG*-4S(3S, 2S)

No.5, applicable to IG*-5E(S)/IG*-5S(4S, 3S, 2S)

No.6, applicable to IG*-6E(S)/IG*-6S(5S, 4S)



Multiple Stage Internal Gear Pump

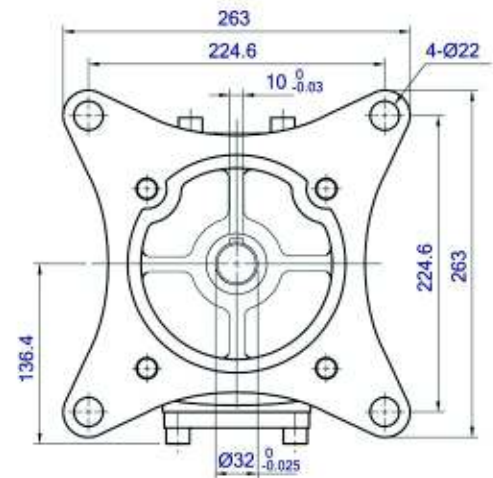
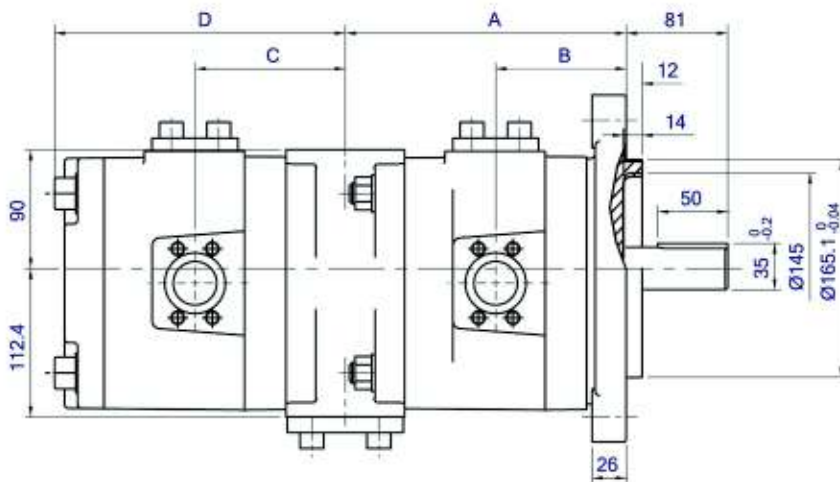
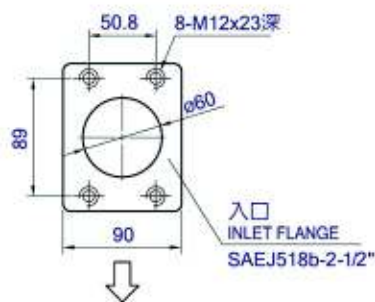
多聯式內嚙合齒輪泵

尺寸圖 / Dimensions

- IG※5+5,(5+4)

相關尺寸說明 \ Dimensions

型式Model	IG※5			IG※4		
Displacement	40	50	64	20	25	32
A	213	220	230			
B	99	102.5	107.5			
C	114	117.5	122.5	96	99	103
D	222	229	239	189	195	203





Multiple Stage Internal Gear Pump

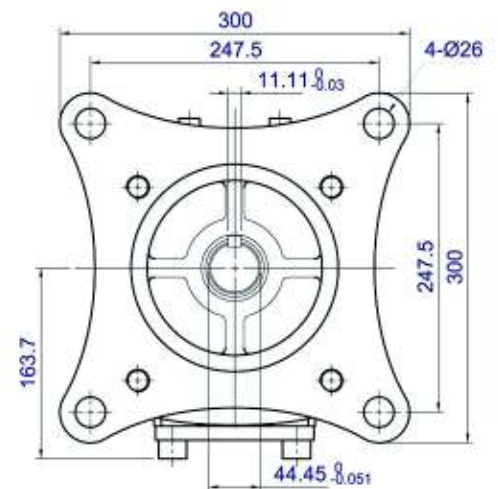
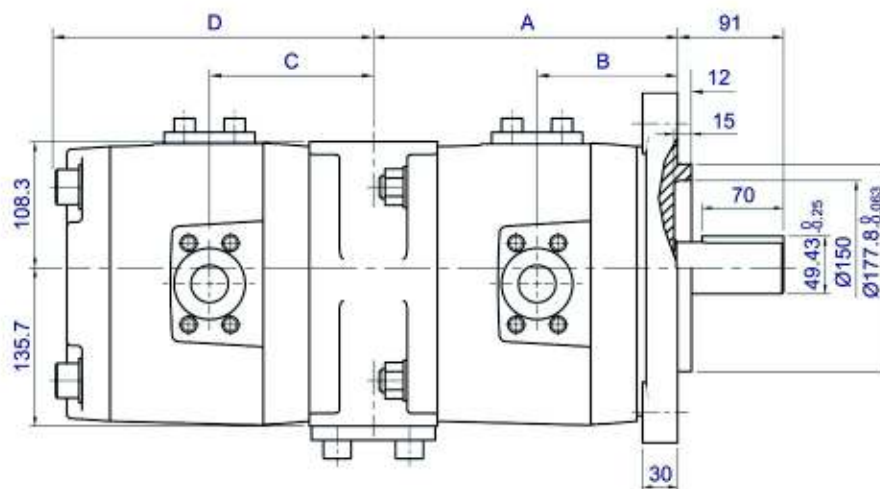
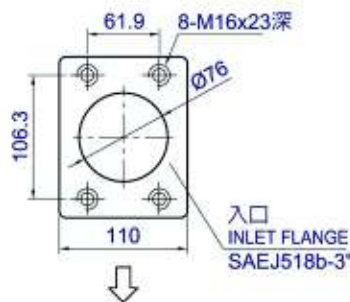
多聯式內嚙合齒輪泵

尺寸圖 / Dimensions

- IG※6+6,(6+5,6+4)

相關尺寸說明 \ Dimensions

型式Model	IG※6			IG※5			IG※4		
Displacement	80	100	125	40	50	64	20	25	32
A	261	271	283						
B	120.5	125.5	131.5						
C	140.5	145.5	151.5	124	127.5	132.5	106	109	113
D	272	282	294	232	239	249	199	205	213





操作指南:

1. 液壓油: 符合DIN第2及第3部份之HLP油, 黏度為ISO 46-68。
最適操作黏度: 20-100 cSt。
最大作動黏度: 1500 cSt。
最小黏度: 15 cSt。
2. 操作溫度範圍: 5 to 70°C。
3. 吸入壓力: Absolute 0.8-1.3 kgf/cm²。
4. 過濾器: 吸入口過濾器 100µm。
回油過濾器: 25 µm。
壓油清潔度, NAS 1638 第9級。
5. 流速: 吸油管: 2M /sec。
壓力管: 5M /sec。
回油管: 3M /sec。
6. 運轉: 傳動軸不得承受任何徑向或軸向壓力。
請使用彈性連軸器, 泵和馬達傳動軸必須緊密連接。
安裝時不得使用敲擊或任何不當之強力方式。
請注意泵與馬達之轉動方向是否配合。
其他藉由鏈條或皮帶傳動時請向我方查詢。
7. 泵之安裝方向不限, 但請注意在首次操作時務必將空氣排除。
8. 泵之啟動及停止前請先確定是在無負載狀況下方能為之。
9. 吸油管及壓力管之連結切勿過緊。
10. 運轉及初次啟動: 在遵循以上指示後請確認系統及連接機器之設備完全符合國家標準後方得啟動泵。
a. 檢查電動馬達之空轉及其轉動方向。
b. 泵運轉時應注意油槽之油量是否足夠。
不足時請先填滿油, 再運轉。
c. 泵啟動時應於無負載狀況下運轉。
d. 重覆短暫啟動泵 (寸動), 直到泵開始供油。
e. 在泵開始負載前, 應將系統中的空氣全部排除。
使運轉時不會產生空蝕現象及噪音。
f. 注意溫度變化, 當泵表面溫度明顯高於油溫時, 請立刻停止運轉並檢查相關機械設備。
g. 液壓設備在修理過程或首次啟動時系統會產生大量污損, 因此應使設備在無負載狀況下運轉並在運轉100小時後更換過濾器, 在更換泵時應特別留意壓油及設備組件之清潔。
h. 液壓設備之操作應由經驗豐富及合格之專業人員為之。

Operating Instruction:

1. Hydraulic Oil:
Use the hydraulic oil viscosity as same as ISO 46-68.
(Viscosity over 90 cSt). The hydraulic oil cleanness should be kept within NAS 1638, the 9th degree.
Optimal Operation Viscosity : 20-100 cSt
Maximum Operation Viscosity: 1500 cSt.
Minimum Operation Viscosity: 15 cSt.
2. Operating temperature: 5 to 70°C.
3. Suction Pressure: Absolute 0.8-1.3 kgf/cm²
4. Filter: Suction strainer 100µm.
Return filter: 25 µm.
Hydraulic oil cleanness: NAS 1638 the 9th degree.
5. Flow speed: Suction Line: 2 M/ Sec.
Pressure Line: 5 M/sec.
Return Line: 3 M/sec.
6. Rotation:
Do not cause any axial or radial pressure to the drive shaft.
Use flexible coupling. Tighten closely the pump shaft and motor shaft. Do not use improper way to instal the pump, such as hitting. Be aware of the rotating direction of pump and motor.
Any other request of installation, please consult with the suppliers.
7. Bleed the air when pump runs for the first time.
8. Please make sure the pump is on no-load state when start and stop operation.
9. Do not fasten too tight when being connect with the suction line and pressure line.
10. Start-up operation: Following the instruction and all other requirements before start up operation.
a. Make sure the rotation of electric motor is correct.
b. Check the oil level of oil tank before starting and filling the oil when it is insufficient.
c. Repeat power on and off when pump is first running until the pump starts to supply oil.
d. Pump should be run under no load state when starting operation.
e. Before starting, run the pump under no-load state, bleed the air out of the circuit to prevent noise and cavitation.
f. Be aware of the temperature variation: Once the temperature of pump is apparently higher than oil, Stop pump running and check all equipment closely.
g. When starting running of pump at the first time or after repair, whole hydraulic system are liable to be contaminated. Please run the pump under no-load state and replace or clean all filters after 100 hours.
h. Operation of hydraulic system should be handled by professionals.





變量葉片泵

 Variable Displacement Vane Pump

內嚙合齒輪泵

 Internal Gear Pump



外嚙合齒輪泵

External Gear Pump



電磁方向控制閥

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