



目錄 atalog

HL系列內嚙合齒輪泵單泵

HL series internal gear pump single pumps _____ P03-09

HL0 _____ P 05-06

HL1 _____ P 07-08

HL2 _____ P 08-09

HL系列內嚙合齒輪泵雙聯泵

HL series internal gear pump double pumps _____ P10-21

HL10 _____ P 11-14

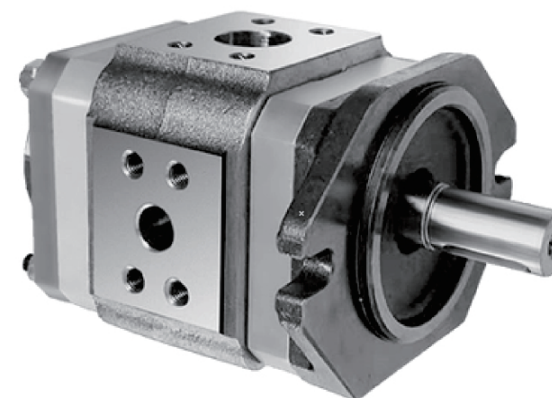
HL11 _____ P 15-16

HL21 _____ P 17-18

HL22 _____ P 19-20

HL系列雙聯泵油口尺寸 Oil outlet dimensions of HL series double pumps _____ P 21

使用注意事項 Application notice _____ P 21



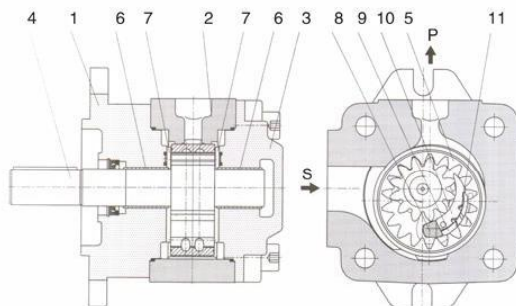
HL系列內啮合齒輪泵單泵 HL series internal gear single pump

結構、特點

Structure and characteristics



產品結構 product mix



1. 前蓋 2. 泵體 3. 後蓋 4. 齒輪軸 5. 內齒圈 6. 滑動軸承 7. 前後側板 8. 定位杆 9. 月牙副板 10. 月牙主板 11. 塑料棒
Main Spare parts 1.Front cover 2.pump body 3.Rear cover 4.Gear shaft 5.Internal gear 6.ball bearing 7.Side plate 8.Locating Rod 9. Radial compensation by Filler segment carrier 10.Filler sealing segment 11. Plastic bar.

產品特點 Characteristic

- 採用軸向和徑向壓力補償設計，即使在低轉速和低粘度下仍可保持較高的容積效率。
With special design of pressure compensate, it is High Volumetric efficiency even when low rotation speed and low viscosity.
- 超低的噪音，採用高強度鑄鐵和內部獨特的消音設計，使噪音更低。
The noise is very low. Adopt high-strength iron casting and special noise-deduction design inside, the noise of pump is much lower.
- 流量及壓力波動極小，在低速狀況下仍可保持穩定的流量和壓力輸出。
Very low flow and pressure fluctuation. It can keep stable flow and pressure even it is low Speed.
- 高壓力設計，最高使用壓力可達到35MPa。
It is high-pressure design. The highest pressure is 35MPa.
- 轉速範圍寬廣，最高轉速可達3600r/min。
Rotation speed range is large. The highest rotation speed is 3600r/min.
- 吸油特性佳。
Excellent oil absorption.
- 對油液污染不敏感，使用壽命長。
It is not sensitive to greasy dirt so that the lifetime is much longer.
- 結構緊湊。
Compact structure.

型號說明 Model Designation

泵類型 Pump Type

內啮合齒輪泵 Internal gear pump	HL
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系列號 SerieS NO

排量 3.5---20 Displacement	0
排量 25---63 Displacement	1
排量 80---160 Displacement	2

規格Spec

排量Displacement(ml/r)									
3.5	5	6.3	8	10	13	16	20	25	32
40	50	63	80	100	125	160			

軸伸形式 Displacement

平鍵軸 Straight key shaft	P
平鍵軸 Straight key shaft	B
花鍵軸 Spline shaft	S

設計號Design No

排量 Displacement 13---160	10
排量 Displacement 3.5---10	20

旋轉方向（從軸端看） Direction of rotation(View from shaft end)

順時針 Clockwise	R
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★注：B型平鍵軸僅用于排量3.5.....10泵

Note: B type straight key shaft is only used for displacement 3.5... 10 pumps.

性能參數 Performance parameter

系列號 Series NO	規格 Specifications	排量 Ml/r Displacement	工作壓力 Pressure MPa		轉速範圍 Rotation Speed r/min		重量度(kg) Weight
			額定 Rated	最高 Max	最高 Max	最低 Min	
HL0	3.5	3.6	31.5	35	3600	400	4
	5	5.2	31.5	35	3600	400	4.2
	6.3	6.4	31.5	35	3600	400	4.4
	8	8.2	31.5	35	3600	400	4.6
	10	10.2	31.5	35	3600	400	4.8
	13	13.3	31.5	35	3000	600	4.9
	16	16.0	31.5	35	3000	600	5.2
HL1	20	20.0	25	30	3000	600	5.6
	25	25.3	31.5	35	3000	200	14.5
	32	32.7	31.5	35	3000	200	15
	40	40.1	31.5	35	3000	200	16
	50	50.7	31.5	35	3000	200	17
HL2	63	63.7	25	30	3000	200	18.5
	80	81.4	31.5	35	3000	200	43.5
	100	100.2	31.5	35	3000	200	45.5
	125	125.3	31.5	35	3000	200	48
	160	162.8	21	26	3000	200	52

外形尺寸
Shape size



P型平鍵軸 P Type Straight key shaft

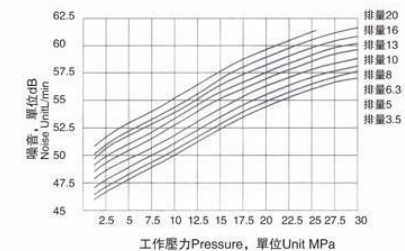


Technical drawing of a B-type straight key shaft. The drawing shows a side view and a cross-sectional view. The side view indicates a total length of 59, a shaft diameter of 52, and a key length of 15.875 with a tolerance of +0.015. The cross-sectional view shows a key with a height of 3.97 and a tolerance of +0.01, and a shaft diameter of 17.67 with a tolerance of +0.1.

Note: for displacement only 3.5... 10 pump

流量壓力特性 Flow-Pressure characteristic

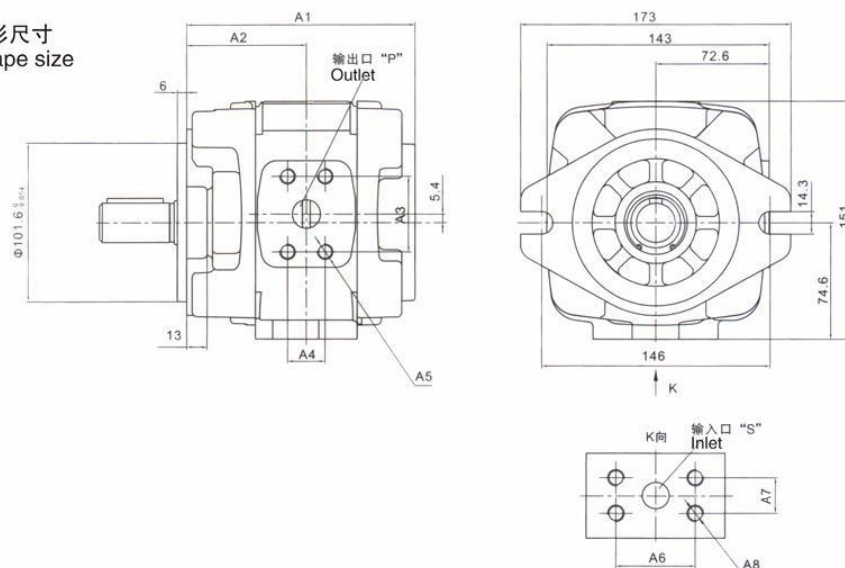
Noise curve testing position: the distance between transducer and pump=1m



(testing conditions: $n=1450\text{r/min}$, $v=46\text{mm}^2/\text{s}$, $t=50^\circ\text{C}$)

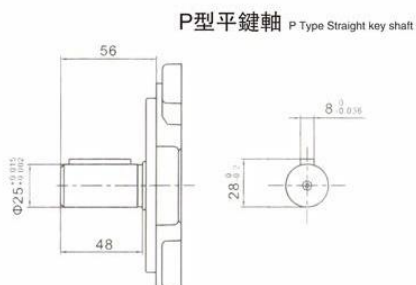
HL1

外形尺寸 Shape size

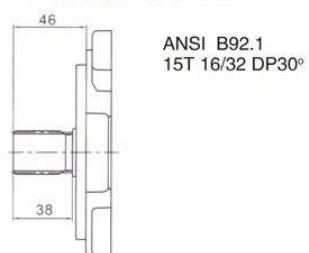


泵型號 Model No.	A1	A2	P	A3	A4	A5	S	A6	A7	A8
HL1-25	139	73	$\phi 18$	47.6	22.2	M10 深 17	$\phi 32$	58.7	30.2	M10 深 17
HL1-32	146	76.5	$\phi 18$	47.6	22.2	M10 深 17	$\phi 32$	58.7	30.2	M10 深 17
HL1-40	153	80	$\phi 20$	52.4	26.2	M10 深 17	$\phi 32$	58.7	30.2	M10 深 17
HL1-50	163	85	$\phi 20$	52.4	26.2	M10 深 17	$\phi 32$	58.7	30.2	M10 深 17
HL1-63	177	92	$\phi 20$	52.4	26.2	M10 深 17	$\phi 32$	58.7	30.2	M10 深 17

軸伸形式 Shaft extension form

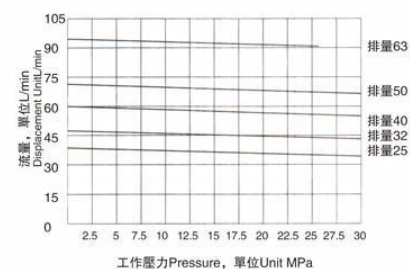


S 型花鍵軸 S Type Spline shaft



特性曲綫 Characteristic curve

流量壓力特性 Flow-Pressure characteristic

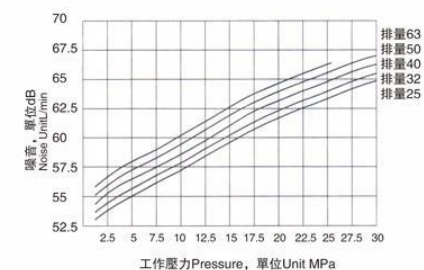


(測試條件: $n=1450\text{r/min}$, $V=46\text{mm}^3/\text{s}$, $t=50^\circ\text{C}$)

(testing conditions: $n=1450\text{r/min}$, $V=46\text{mm}^3/\text{s}$, $t=50^\circ\text{C}$)

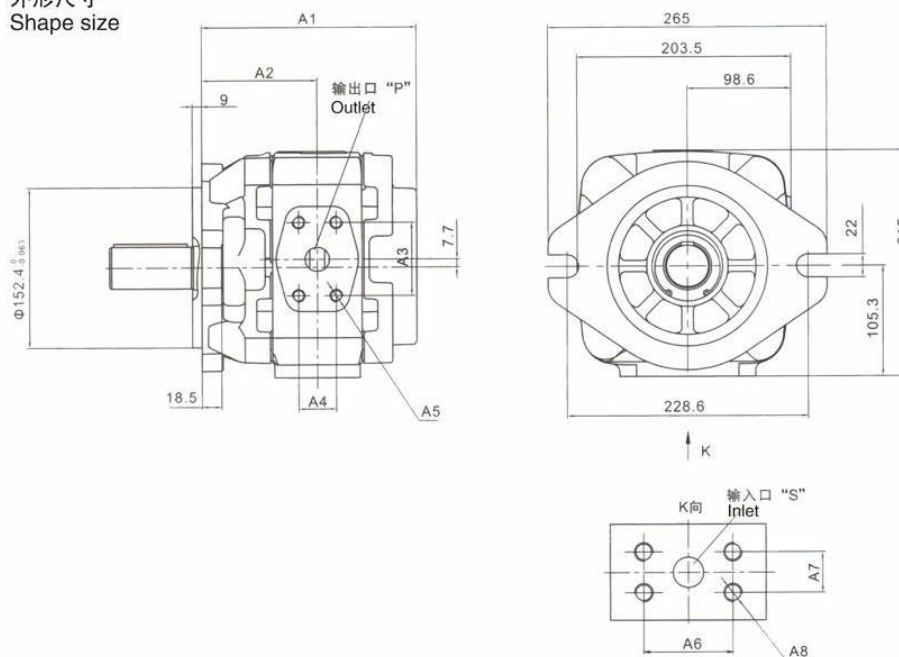
噪音曲綫 測量位置: 傳感器與泵距離=1m

Noise curve testing position: the distance between transducer and pump=1m



HL2

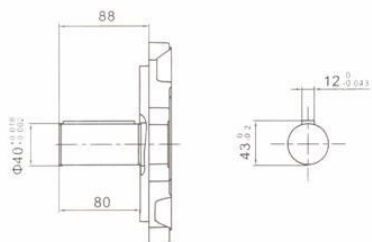
外形尺寸 Shape size



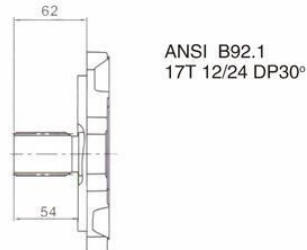
泵型號 Model No.	A1	A2	P	A3	A4	A5	S	A6	A7	A8
HL2-80	204	109.5	Φ32	69.9	35.7	M12 深 20	Φ50	77.8	42.9	M12 深 20
HL2-100	213	114	Φ32	69.9	35.7	M12 深 20	Φ50	77.8	42.9	M12 深 20
HL2-125	225	120	Φ38	79.4	36.5	M16 深 25	Φ63.5	88.9	50.8	M12 深 20
HL2-160	243	129	Φ38	79.4	36.5	M16 深 25	Φ76	106.4	61.9	M16 深 25

軸伸形式 Shaft extension form

P型平鍵軸 P Type Straight key shaft

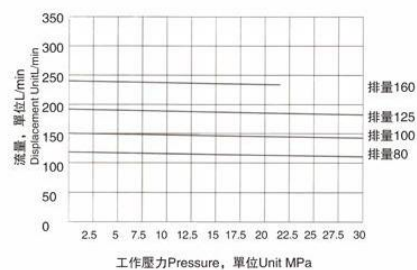


S型花鍵軸 S Type Spline shaft

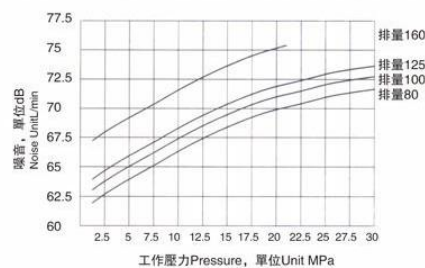


特性曲綫 Characteristic curve

流量壓力特性 Flow-Pressure characteristic



噪音曲綫 測量位置: 傳感器與泵距離=1m Noise curve testing position: the distance between transducer and pump=1m



(測試條件: $n=1450\text{r/min}$, $V=46\text{mm}^3/\text{s}$, $t=50^\circ\text{C}$)
(testing conditions: $n=1450\text{r/min}$, $v=46\text{mm}^3/\text{s}$, $t=50^\circ\text{C}$)

HL系列內啮合齒輪泵雙聯泵 HL series internal gear pump donble pumps

產品外觀及簡介 Appearance and introduction

雙聯泵是由兩個單泵串聯組裝而成, 具有一個共用進油口和兩個可以輸向兩個獨立回路的出油口。按照兩個泵的系列組合, 可獲得多種排量。

Donble pump is connected by two single pump.it is with the same inlet and two outlet to two independent loop.With two pumps connection,it get more different displacement.

HL10系列
HL10 Series
HL11系列
HL11 Series
HL21系列
HL21 Series
HL22系列
HL22 Series



HL	2	1	-100	-63	-P	-10	R
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泵類型 Pump Type
內啮合齒輪泵 Internal gear pump HL

前泵系列號 Front Pump Series No.

排量 25...63	1
排量 63...160	2

後泵系列號 Rear Pump Series No.

排量 3.5...20	0
排量 25...63	1
排量 80...160	2

設計號 Design No.

	10
	20

旋轉方向 (從軸端看) Direction of rotation (View from shaft end)

順時針 Clockwise	R
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前泵規格 Front Pump Specifications

排量 (ml/r)					
25	32	40	50	63	80
100	125	160			

後泵規格 Rear Pump Specifications

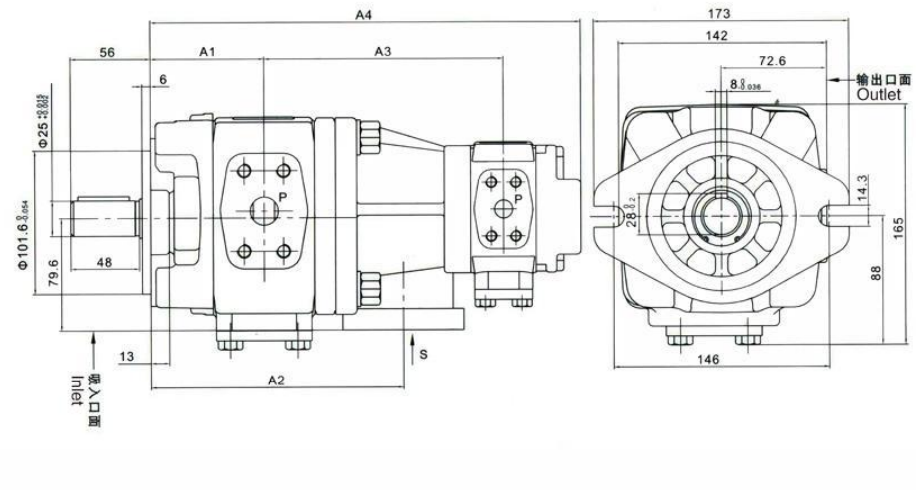
排量 (ml/r)							
3.5	5	6.3	8	10	13	16	20
25	32	40	50	63	80	100	125
160							

平鍵軸 Straight key shaft P
花鍵軸 Spline shaft S

★ 注: 20代表後泵為HL系列排量3.5—10泵
Mark : 20 means the displacement of rear pump(HLseries) is 3.5—10

HL10

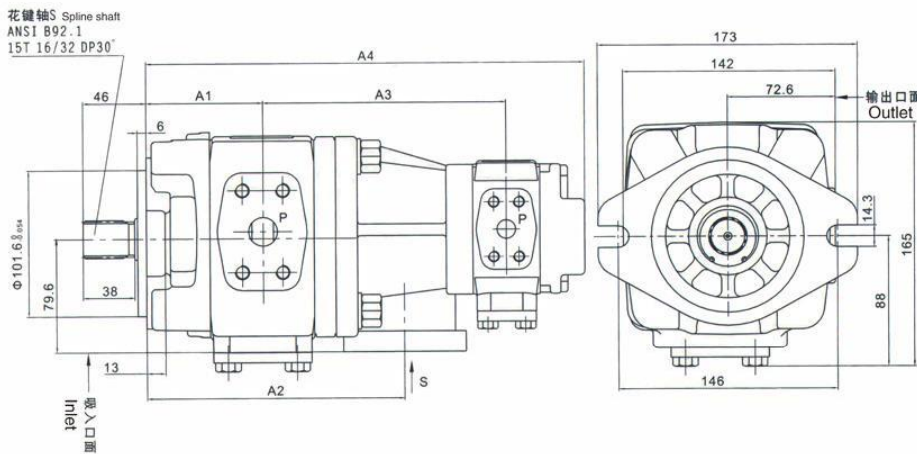
外形尺寸
Shape size



泵型号 Model No.	A1	A2	后泵规格 Rear Pump Specifications									
			3.5		05		6.3		08		10	
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4
HL10-25-※-P-20R	73	164.5	159	281	161	285	162.5	288	164.8	292.5	167.3	297.5
HL10-32-※-P-20R	76.5	171.5	162.5	288	164.5	292	166	295	168.3	299.5	170.8	304.5
HL10-40-※-P-20R	80	178.5	166	295	168	299	169.5	302	171.8	306.5	174.3	311.5
HL10-50-※-P-20R	85	188.5	171	305	173	309	174.5	312	176.8	316.5	179.3	321.5
HL10-63-※-P-20R	92	202.5	178	319	180	323	181.5	326	183.8	330.5	186.3	335.5

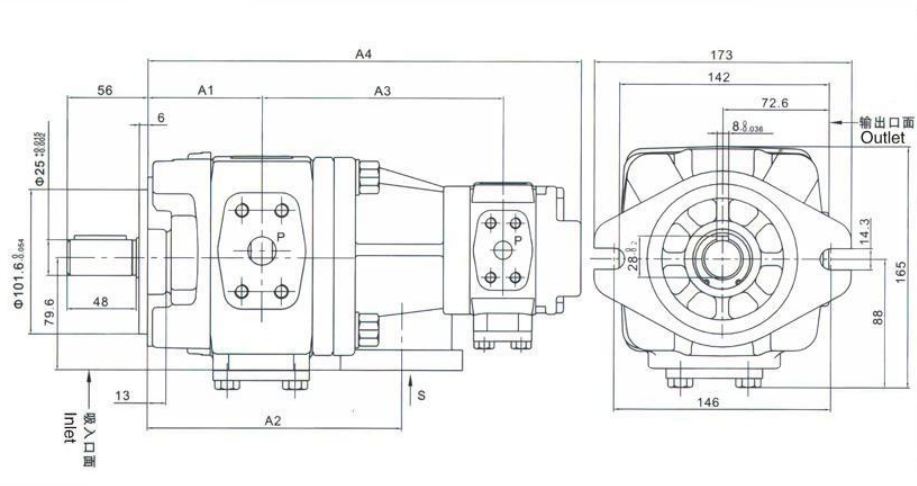
HL10

外形尺寸
Shape size



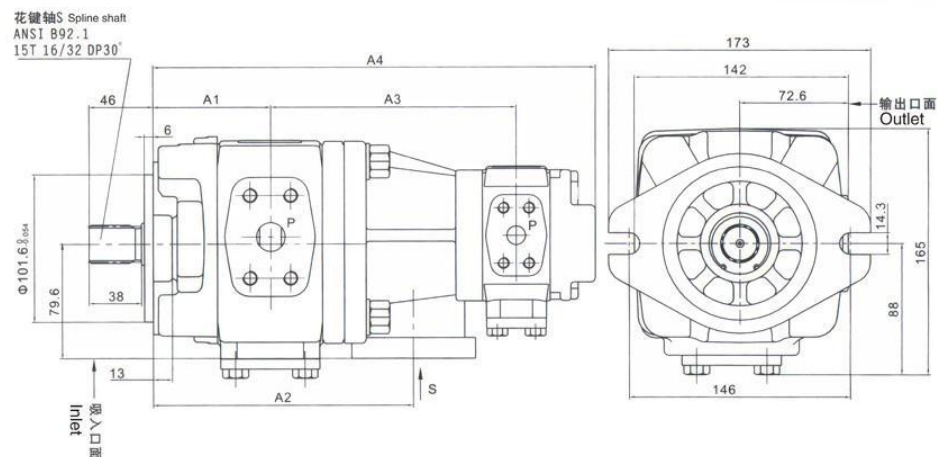
泵型号 Model No.	A1	A2	后泵规格 Rear Pump Specifications									
			3.5		05		6.3		08		10	
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4
HL10-25-※-S-20R	73	164.5	159	281	161	285	162.5	288	164.8	292.5	167.3	297.5
HL10-32-※-S-20R	76.5	171.5	162.5	288	164.5	292	166	295	168.3	299.5	170.8	304.5
HL10-40-※-S-20R	80	178.5	166	295	168	299	169.5	302	171.8	306.5	174.3	311.5
HL10-50-※-S-20R	85	188.5	171	305	173	309	174.5	312	176.8	316.5	179.3	321.5
HL10-63-※-S-20R	92	202.5	178	319	180	323	181.5	326	183.8	330.5	186.3	335.5

外形尺寸
Shape size



泵型号 Model No.	A1	A2	后泵规格 Rear Pump Specifications					
			13		16		20	
			A3	A4	A3	A4	A3	A4
HL10-25-※-P-10R	73	164.5	165.8	297	168.5	302.5	172.5	310.5
HL10-32-※-P-10R	76.5	171.5	169.3	304	172	309.5	176	317.5
HL10-40-※-P-10R	80	178.5	172.8	311	175.5	316.5	179.5	324.5
HL10-50-※-P-10R	85	188.5	177.8	321	180.5	326.5	184.5	334.5
HL10-63-※-P-10R	92	202.5	184.8	335	187.5	340.5	191.5	348.5

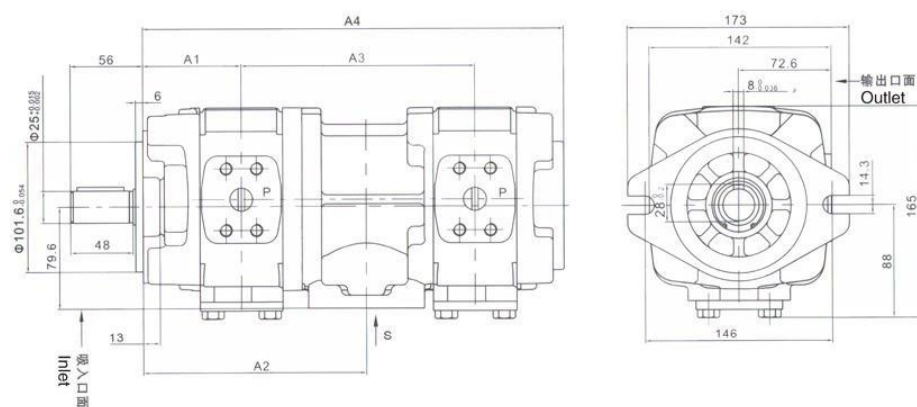
外形尺寸
Shape size



泵型号 Model No.	A1	A2	后泵规格 Rear Pump Specifications					
			13		16		20	
			A3	A4	A3	A4	A3	A4
HL10-25-※-S-10R	73	164.5	165.8	297	168.5	302.5	172.5	310.5
HL10-32-※-S-10R	76.5	171.5	169.3	304	172	309.5	176	317.5
HL10-40-※-S-10R	80	178.5	172.8	311	175.5	316.5	179.5	324.5
HL10-50-※-S-10R	85	188.5	177.8	321	180.5	326.5	184.5	334.5
HL10-63-※-S-10R	92	202.5	184.8	335	187.5	340.5	191.5	348.5

HL11

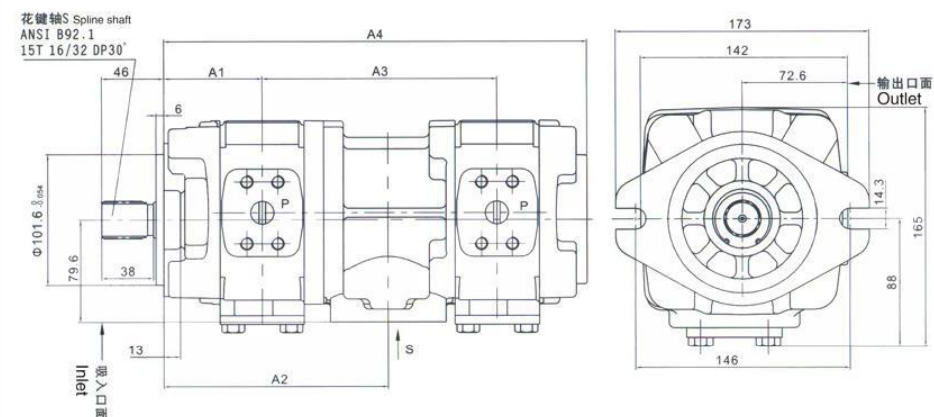
外形尺寸
Shape size



泵型号 Model No.	A1	A2	后泵规格 Rear Pump Specifications									
			25		32		40		50		63	
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4
HL11-25-※-P-10R	73	168	175	314								
HL11-32-※-P-10R	76.5	175	178.5	321	182	328						
HL11-40-※-P-10R	80	182	182	328	185.5	335	189	342				
HL11-50-※-P-10R	85	192	187	338	190.5	345	194	352	199	362		
HL11-63-※-P-10R	92	206	194	352	197.5	359	201	366	206	376	213	390

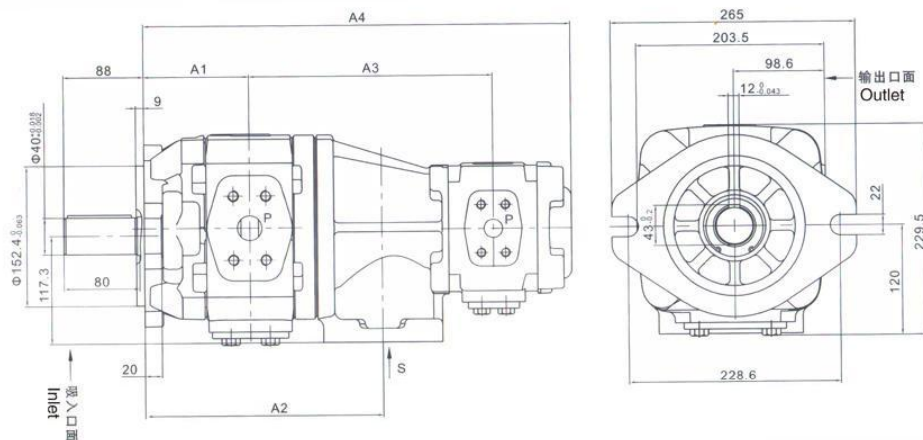
HL11

外形尺寸
Shape size



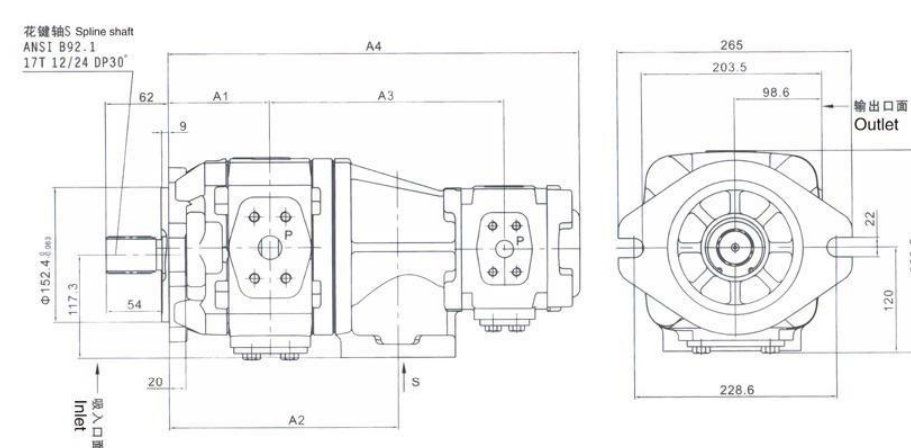
泵型号 Model No.	A1	A2	后泵规格 Rear Pump Specifications									
			25		32		40		50		63	
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4
HL11-25-※-S-10R	73	168	175	314								
HL11-32-※-S-10R	76.5	175	178.5	321	182	328						
HL11-40-※-S-10R	80	182	182	328	185.5	335	189	342				
HL11-50-※-S-10R	85	192	187	338	190.5	345	194	352	199	362		
HL11-63-※-S-10R	92	206	194	352	197.5	359	201	366	206	376	213	390

外形尺寸
Shape size



泵型号 Model No.	A1	A2	后泵规格Rear Pump Specifications									
			25		32		40		50		63	
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4
HL21-80-※-P-10R	109.5	249.5	241.5	417	245	424	248.5	431	253.5	441	260.5	455
HL21-100-※-P-10R	114	258.5	246	426	249.5	433	253	440	258	450	265	464
HL21-125-※-P-10R	120	270.5	252	438	255.5	445	259	452	264	462	271	476
HL21-160-※-P-10R	129	288.5	261	456	264.5	463	268	470	273	480	280	494

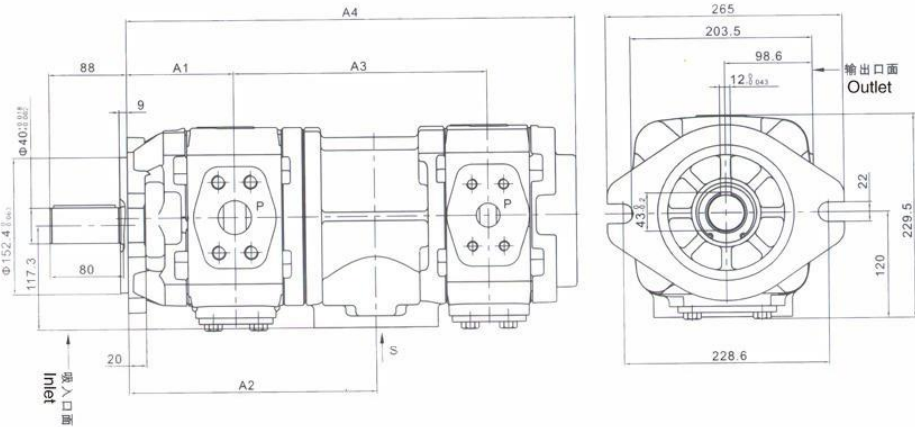
外形尺寸
Shape size



泵型号 Model No.	A1	A2	后泵规格 Rear Pump Specifications									
			25		32		40		50		63	
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4
HL21-80-※-S-10R	109.5	249.5	241.5	417	245	424	248.5	431	253.5	441	260.5	455
HL21-100-※-S-10R	114	258.5	246	426	249.5	433	253	440	258	450	265	464
HL21-125-※-S-10R	120	270.5	252	438	255.5	445	259	452	264	462	271	476
HL21-160-※-S-10R	129	288.5	261	456	264.5	463	268	470	273	480	280	494

HL22

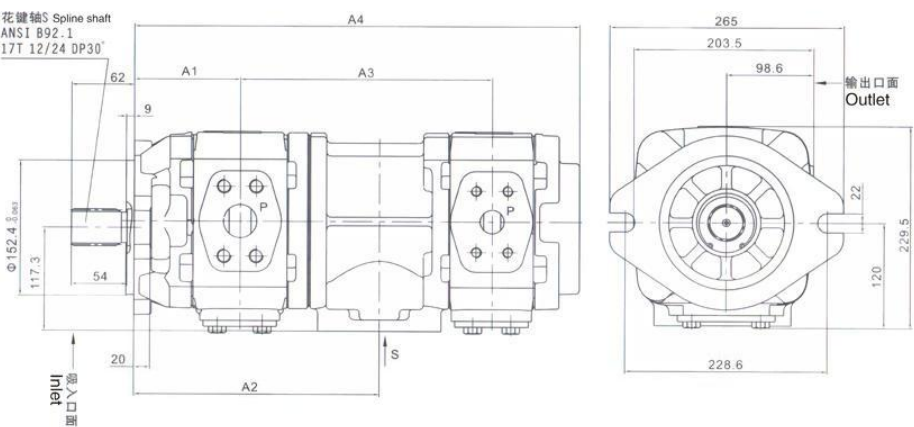
外形尺寸
Shape size



泵型号 Model No.	A1	A2	后泵规格 Rear Pump Specifications							
			80		100		125		160	
			A3	A4	A3	A4	A3	A4	A3	A4
HL22-80-※-P-10R	109.5	249.5	270	474						
HL22-100-※-P-10R	114	258.5	274.5	483	279	492				
HL22-125-※-P-10R	120	270.5	280.5	495	285	504	291	516		
HL22-160-※-P-10R	129	288.5	289.5	513	294	522	300	534	309	552

HL22

外形尺寸
Shape size



泵型号 Model No.	A1	A2	后泵规格 Rear Pump Specifications							
			80		100		125		160	
			A3	A4	A3	A4	A3	A4	A3	A4
HL22-80-※-S-10R	109.5	257	270	474						
HL22-100-※-S-10R	114	266	274.5	483	279	492				
HL22-125-※-S-10R	120	278	280.5	495	285	504	291	516		
HL22-160-※-S-10R	129	296	289.5	513	294	522	300	534	309	552

HL系列雙聯泵油口尺寸

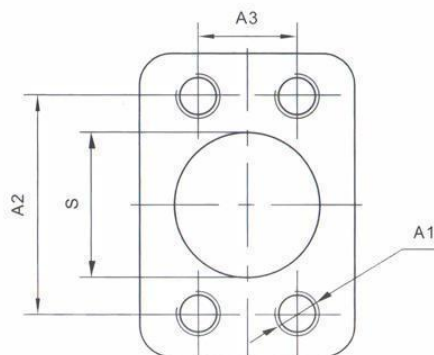
Oil outlet dimensions of HL series double pumps

吸入口“S”見下表

The suction port "S" is shown in the chart below.

輸出口“P”見相應單泵

Output "P", see the corresponding single pump.



系列 series	S	A1	A2	A3
HL10	Φ 51	M12 深 20 (M12 deep20)	77.8	42.9
HL11	Φ 60		88.9	50.8
HL21	Φ 89	M16 深 25 (M16 deep25)	120.7	69.9
HL22	Φ 102		130.2	77.8

使用注意事項 Application Notice

1、工作介質 Operating Oil

可使用粘度範圍在10-300mm²/s的石油基礦物油，推薦使用ISO VG46抗磨液壓油。
Viscosity range:10-300mm²/s, ISO VG46 Anti-wear hydraulic oil is recommended for better performance.

2、工作溫度 Operating Temperature

工作溫度範圍-10℃-100℃，為保證長期的可靠壽命，最佳工作溫度範圍20℃-80℃。
Operating temperature range:-10℃-100℃. To ensure the reliable lifetime,the best operating temperature range is 20℃-80℃

3、清潔度控制 Cleanliness Control

要求控制系統油液的清潔度水平，不超過9級(NAS 1638)或17/14 (ISO 4066)
Control cleanliness of system oil,can not over 9 lever(NAS 1638)or 17/14 (ISO 4066)

4、泵安裝 Installation

軸與電機連接處可能使用撓性聯軸器，以避免產生彎曲力矩或軸向推力，軸與電機軸最大允許同軸度誤差小於0.15mm
Shaft and motor should be connected by flexible coupling to avoid harmful effects.Concentricity of shafts between pump and motor is important to pump life and should be within 0.15mm

5、吸入口壓力與配管 Pressure of Inlet and Pipeline

允許吸入口絕對壓力為0.2-2Bar。合理的配管通徑應不小於泵的吸油口，以確保平均0.6-1.2m/s的最佳吸油速度。
Absolute pressure of inlet is 0.2-2Bar.Diameter of absorb pipeline can't be smaller than inlet to ensure the best average oil speed 0.6-1.2m/s.

6、進出口連接 Inlet/Outlet Connection

盡力避免進出油管採用鋼管硬連接，建議使用橡膠軟管，以避免出現額外的負載導致額外的噪音。
Rubber hose is recommended to avoid extra load causing extra noise.Don't connect with steel pipe.

7、排氣 Air Exhaust

在初次運轉前，應採用向泵內注油或增設排氣閥等方式，排除泵內和系統管路裏的空氣，如果泵內或管路內有空氣殘留會導致泵的震動和噪音，並間接影響泵的使用壽命。
Before the initial operation, the air in the pump and the system piping should be removed by filling the pump with oil or adding an exhaust valve. or it will cause vibration and noise of the pump and indirectly affect the service life of the pump

8、維護 Maintenance

為提高泵的使用壽命，應定期檢查系統的異常振動、噪音、油液溫度、油箱內是否有氣泡生成以及有無泄露等問題，並及時維護。
In order to mke the life of pump longer,customer should check the system in time.such as if abnormal shocking,noise,oil temperature,bubble in tank, leakage.....and maintenance in time.