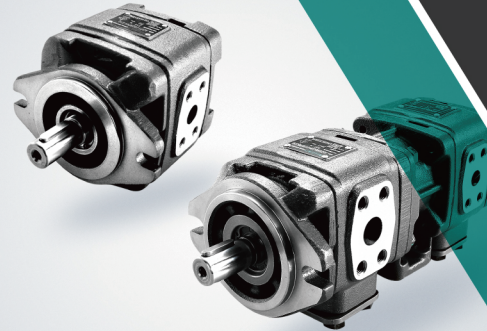


AGP SERIES

INTERNAL GEAR PUMP



Quality creates the future



INTERNAL GEAR PUMP



ABOUT MEGMEET

MEGMEET is a comprehensive solution provider for hardware and software R&D, production, sales, and service in the field of electrical automation. With power electronics and automation control at its core, MEGMEET's main businesses include Power Solutions, Industrial Automation, New Energy Solutions, Intelligent Equipment, Home Appliance Control Solutions, and Precision Connection.

MEGMEET is committed to creating a cleaner living environment for all human beings through more efficient energy utilization and improved manufacturing efficiency. MEGMEET aims to become the world leader in electrical automation and achieve the goal of MEGMEET EVERYWHERE.

- 2800+**
R&D Staff
- 10**
R&D Centers
- 7800+**
Total Employees
- 8**
Manufacturing Bases
- 1800+**
No. of Patents & IP Rights

R&D Investment

R&D Investment
>2800 亿元

Percentage of Total Investment
36%

Percentage of Total Sales
>11%

Norms & Industry Standards

No. of Patents & IP Rights
1800+
P 1804, S 100, U 100

National & International standards
23
• 5 national
• 18 international

Industry Standards Defined
27
• 16 national
• 11 international



Company Profile

Founded in May 2019, Zhejiang Allead Precision Technology Co., Ltd. (hereinafter referred to as the "Company") is a holding subsidiary of Shenzhen MEGMEET Electrical Co., Ltd. The Company is a holding company integrating the R&D, manufacturing and sales of internal gear pump, and serves the green and energy-saving system in new energy industry.

The Company's main scope of business includes: hydraulic part, hydraulic system, servo system, motor, reducer, domestic and international trades and others. The Company has a wide market prospect and competitive potential relying on its precise product manufacturing and high technical requirements.

The Company adopts the advanced and mature machining equipment and test equipment at home and abroad, promotes the lean manufacturing, intelligent manufacturing and 6S management. The Company's quality system was gradually improved to TS16949 based on ISO9001 to provide customer with more continuous and excellent product guarantees.



Contents

AGP(H)

Internal gear pump

Features:	01
Designation of Type	02
Function description, section view and symbol	03
Technical data	04
Characteristic curve	06
Noise curve	07
Size of combined pump element	08
Appearance Size of oil port flange	11
Appearance and features of combined pump	12
Description of Two-in and Two-out Combined Pump	14
AGP (H) 11 Series Combined Pump Connection Size	15
AGP (H) 21 Series Combined Pump Connection Size	16
AGP (H) 22 Series Combined Pump Connection Size	17

AGPD

Features:	19
Designation of Type	20
AGPD (H) 00 Series Mounting Connection Size	21
AGPD (H) 10 Series Mounting Connection Size	22
AGPD (H) 11 Series Mounting Connection Size	23
AGPD (H) 21 Series Mounting Connection Size	24
AGPD (H) 22 Series Mounting Connection Size	25
Oil inlet and outlet size of front and rear pump	26
Oil inlet size of intermediate	27
Project planning information	28
Precautions for Commissioning	31



AGP(H) Series Internal Gear Pump

Product Appearance and Introduction

Standard Type

AGP0 Series

Spec.: 8、10、13、16、20、25

AGP1 Series

Spec.: 25、32、40、50、63

AGP2 Series

Spec.: 80、100、125、145、160

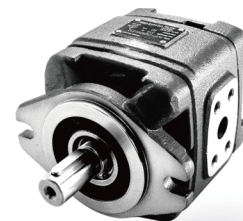
High speed

AGPH1 Series

Spec.: 25、32、40、50、63

AGPH2 Series

Spec.: 80、100、125、145、160



Product Features

- The axial and radial pressure compensation design is adopted so that it can keep a high volume even under the low speed and low viscosity.
- Ultra-low noise: the high strength cast iron and unique silencing design are adopted inside, making lower noise.
- Ultra-low flow and pressure fluctuation: it can still keep the stable flow and pressure output at low speed.
- High pressure design: the highest use pressure can reach 35MPa.
- Wide speed range: the highest speed can reach 3000r/min.
- It is not sensitive to oil pollution with long service life.
- It can be widely used in industry, such as the hydraulic system of plastic machine, shoe machine, die casting machinery and others, particularly suitable for energy saving system driven by servo frequency conversion.

High speed

It is specially designed and developed for requirements of high pressure and high-speed working condition for servo variable frequency drive.

- Through the flow rate analysis for oil suction and compression under the high speed and high pressure, the internal oil channel is re-optimized, and partial oil suction ports are enlarged.
- The optimization of product internal structure can improve the dynamic stability of pressure compensation structure and enhance the product reliability.

Pump type

Internal gear pump **AGP**

Other configuration marks

Standard Type **Omit**
High speed **H**

Series no.

Displacement 8...20...25 **0**
Displacement 25...63 **1**
Displacement 80...160 **2**

Spec.

Displacement (ml/r)						
008	010	013	016	020	025	Series 0
025	032	040	050	063		Series 1
080	100	125	145	160		Series 2

Rotation direction (viewing from shaft end)

Clockwise **R**
Anti-clockwise **L**

Shaft extension form

Flat key shaft **P**
Spline shaft **S**

Sealing form

Fluororubber (FKM) **V**
Nitrile rubber (NBR) **W**
Water glycol and other special hydraulic oils **U**

Flange mounting form

SAE 2-hole mounting flange **S**

Design Mark

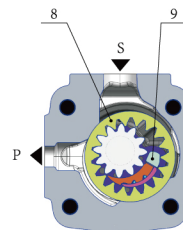
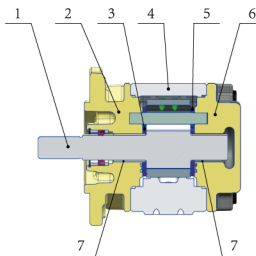
Design Code **10**

AGP H 1 -050 R P W -S 10

Function description, section view and symbol

Structure AGP (H) series hydraulic pump is a backlash compensation internal gear pump with fixed displacement.

Its basic composition is: (1) gear shaft, (2) front end cover, (3) front oil distribution disc, (4) pump body, (5) rear oil distribution disc, (6) rear end cover, (7) sliding bearing, (8) inner gear ring, (9) positioning lever, (10) auxiliary crescent plate, (11) plastic rod, (12) main crescent plate.



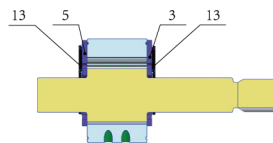
Oil suction and discharge process

Install the gear shaft (1) according to fluid dynamics, and rotate the inner gear ring (8) according to the rotating direction shown in figure. Refill the oil through the opened gear backlash in oil suction area. The oil is transferred to the pressure field (P) from the oil suction area (S) through the gear backlash between gear shaft and inner gear ring.

In this way, the oil is discharged from the closed gear backlash and transferred to the pressure oil port (P). The oil suction area and discharge area, are separated by radial compensation components (10 to 12) and gear engagement and disengagement between the internal gear and gear shaft.

Axial compensation: the discharge chamber in pressure field is axially sealed through the front and rear oil distribution discs (3) (5).

One side of axial gasket behind the discharge area bears the backpressure of pressure field (13). Those pressures balance the axial gasket and discharge area to realize the ideal sealing effect with a lower mechanical loss.

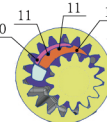


Radial compensation

The radial compensation components include auxiliary crescent plate (10), main crescent plate (12) and plastic rod (11).

Both auxiliary crescent plate (10) and main crescent plate (12) are arranged in pressure field and the pressure formed therefrom is borne by the positioning pin. A small pressure assembly can press the auxiliary crescent plate and main crescent plate onto gear shaft and tip of inner gear ring. In this way, the pressure field and oil suction area can be separated through the automatic backlash adjustment.

It is the precondition to continuously keep high volume efficiency in the whole working time. The backlash adjustment between auxiliary crescent plate and main crescent plate can be made with the plastic rod.



Hydrodynamic and Hydrostatic Installation

The gear shaft (1) is supported by a radial sliding bearing (7) lubricated by fluid dynamics. The inner gear ring (8) is installed in pump body (4) in a hydrostatic way.

Engagement

The engagement of involute tooth edges has a long engagement length for lower flow rates and pressure fluctuations, thus ensuring low-noise operation.

Technical Data (if the application is out of the specified range of technical parameters, please consult with Allead!)

Overview		
Design	Internal gear pump - backlash compensation	
Connection form	SAE 2 standard hole flange meeting ISO 3019-1	
Pipeline connection	Flange oil port	
Shaft load	Only radial force and axial force after adjusting (such as: belt pulley)	
Rotating direction (viewing from shaft end)	Clockwise or anti-clockwise (to be provided as required), it is not bilateral rotation	
Hydraulic		
Hydraulic oil	HLP - mineral oil conforming to part 2 of DIN 51524 HFC - aqueous polymer solution conforming to DIN EN ISO12922 ¹⁾ ; sealing design W; HEES - hydraulic oil conforming to DIN ISO 15380 ¹⁾ HFD-U - hydraulic oil conforming to VDMA24317 ¹⁾ and DIN EN ISO12922 ¹⁾ ISO VG46 anti-wear hydraulic oil is recommended and other hydraulic oils can be provided according to specific requirements!	
Hydraulic oil Temperature range	HLP hydraulic oil C Special hydraulic oil C	-10 to +80; please consult with us for other relevant temperatures! -10 to +50; please consult with us for other relevant temperatures!
Ambient temperature range	C	-20 to +60
Viscosity range mm ² /s		10 to 300 (suggested: n=2000r/min) 10 to 100 (suggested: n=3000r/min)
The allowable maximum pollution degree of hydraulic oil shall conform to cleanliness grade of ISO 4406 (C)		Grade: 20/18/15 ³⁾

Attention

- ¹⁾ The constraints for special hydraulic oil are applicable to those mediums.
²⁾ Hydraulic oil HFC: input speed $n_{max} = 2000$ r/min.
³⁾ The specified assembly cleanliness level must be followed in hydraulic system. The effective filtering can avoid fault and prolong the service life of assembly.

Series no.	AGPO						
Spec.		8	10	13	16	20	25
Weight	m kg	4.6	4.8	4.9	5.2	5.6	6
Speed range ¹⁾	n_{min} r/min	600	600	600	600	600	600
	n_{max} r/min	3000	3000	3000	3000	3000	3000
Displacement	V ml/r	8.2	10.2	13.3	16.0	20.0	25.0
Flow ²⁾	q _v l/min	12.2	15.1	19.7	23.7	29.6	37.1
Inertia moment (orbiting the drive shaft) Absolute value of working pressure - input	J kgm ²	0.00018	0.00019	0.00025	0.00027	0.00037	0.00042
	P bar	0.8 to 2 (short-term, 0.6 bar at starting)					
Nominal pressure - output, continuous operation - HLP hydraulic oil Special hydraulic oil ³⁾	P _N bar	315	315	315	315	250	250
		220	220	220	220	175	175
Intermittent operation ⁴⁾	P _{max} bar	350	350	350	350	300	300
	HLP hydraulic oil Special hydraulic oil ³⁾	245	245	245	245	210	210

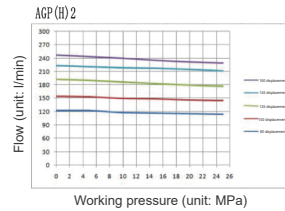
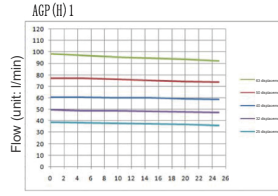
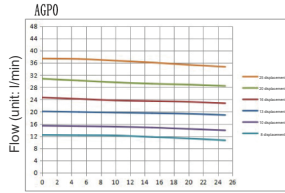
Series no.	AGP(H) 1					
Spec.		25	32	40	50	63
Weight	m kg	14.5	15	16	17	18.5
Speed range ¹⁾	n_{min} r/min	200	200	200	200	200
	n_{max} r/min	3000	3000	3000	3000	3000
Displacement	V ml/r	25.3	32.7	40.1	50.7	63.7
Flow ²⁾	q _v l/min	37.5	48.5	60.9	75.1	94.4
Inertia moment (orbiting the drive shaft) Absolute value of working pressure - input	J kgm ²	0.00045	0.00055	0.00066	0.00081	0.00237
	P bar	0.8 to 2 (short-term, 0.6 bar at starting)				
Nominal pressure - output, continuous operation - HLP hydraulic oil Special hydraulic oil ³⁾	P _N bar	315	315	315	315	315
		220	220	220	220	220
Intermittent operation ⁴⁾	P _{max} bar	350	350	350	350	350
	HLP hydraulic oil Special hydraulic oil ³⁾	245	245	245	245	245

Series no.	AGP(H) 2					
Spec.		80	100	125	145	160
Weight	m kg	43.5	45.5	48	50	52
Speed range ¹⁾	n_{min} r/min	200	200	200	200	200
	n_{max} r/min	3000	3000	3000	3000	3000
Displacement	V ml/r	81.4	100.2	125.3	145.2	162.8
Flow ²⁾	q _v l/min	120.6	148.5	185.7	215.2	241.3
Inertia moment (orbiting the drive shaft) Absolute value of working pressure - input	J kgm ²	0.0028	0.00329	0.00407	0.00442	0.00506
	P bar	0.8 to 2 (short-term, 0.6 bar at starting)				
Nominal pressure - output, continuous operation - HLP hydraulic oil Special hydraulic oil ³⁾	P _N bar	315	315	315	250	210/230 ⁵⁾
		220	220	220	175	145/150 ⁵⁾
Intermittent operation ⁴⁾	P _{max} bar	350	350	350	280	260/280 ⁵⁾
	HLP hydraulic oil Special hydraulic oil ³⁾	245	245	245	195	180/195 ⁵⁾

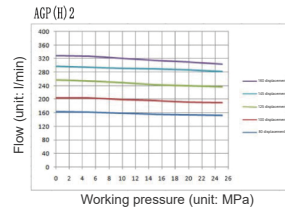
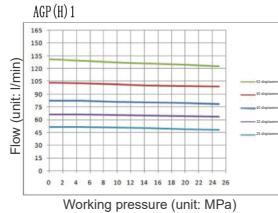
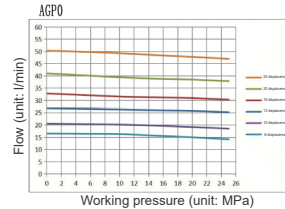
- ¹⁾ Hydraulic oil HFC: input speed $n_{max} = 2000$ r/min.
²⁾ Measuring condition: $n=1500$ r/min, $p=1$ bar, $v=46$ mm²/S, $t=50$ °C
³⁾ Attention! The constraints for special hydraulic oil are applicable to those mediums.

- ⁴⁾ Maximum: 10s; maximum duty ratio: 50%
⁵⁾ The parameters are for the standard / high-speed model

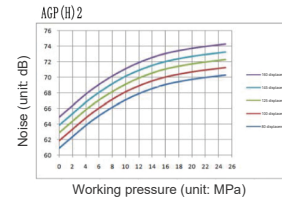
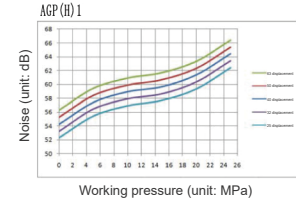
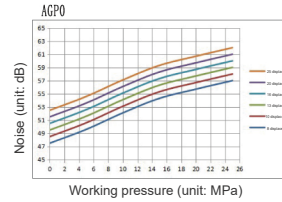
Flow pressure characteristics (measuring condition: $n=1500\text{r/min}$, $v=46\text{mm}^2/\text{s}$, $t=50\text{ }^\circ\text{C}$)



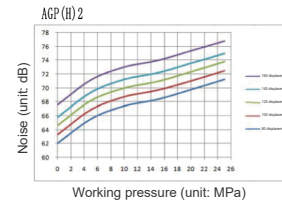
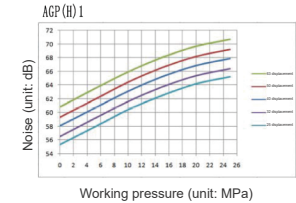
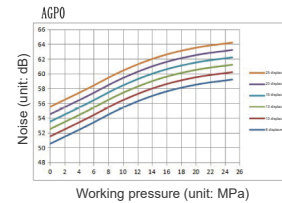
Flow pressure characteristics (measuring condition: $n=2000\text{r/min}$, $v=46\text{mm}^2/\text{s}$, $t=50\text{ }^\circ\text{C}$)



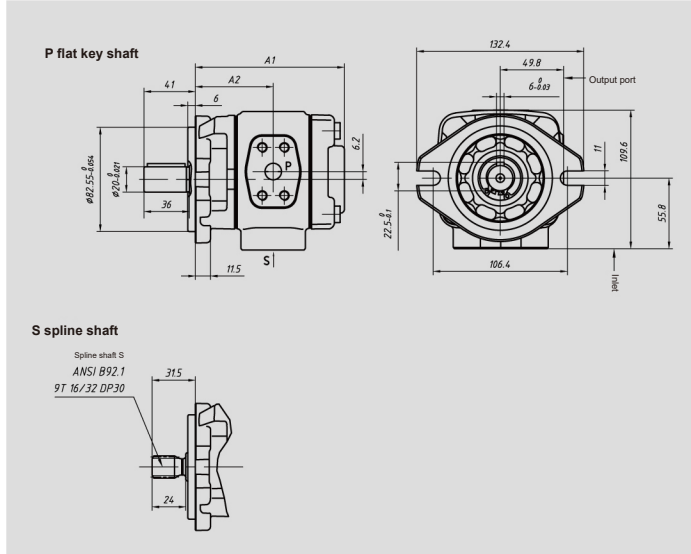
Noise pressure characteristics (measuring condition: $n=1500\text{r/min}$, $v=46\text{mm}^2/\text{s}$, $t=50\text{ }^\circ\text{C}$, distance from sensor to pump = 1m)



Noise pressure characteristics (measuring condition: $n=2000\text{r/min}$, $v=46\text{mm}^2/\text{s}$, $t=50\text{ }^\circ\text{C}$, distance from sensor to pump = 1m)



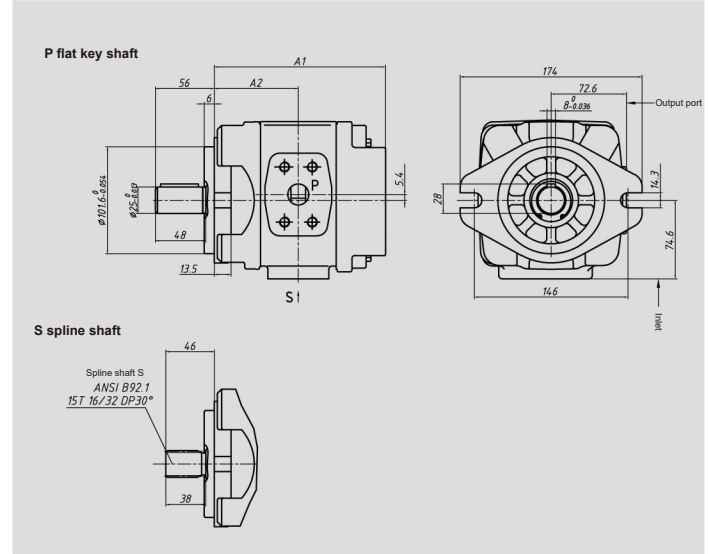
AGPO Series



Pump Model	A1	A2	S	P
AGP0-008 ※※-S10	102.5	54	$\phi 20$	$\phi 13$
AGP0-010 ※※-S10	106.5	56	$\phi 20$	$\phi 13$
AGP0-013 ※※-S10	113	59.3	$\phi 20$	$\phi 13$
AGP0-016 ※※-S10	118.5	62	$\phi 20$	$\phi 13$
AGP0-020 ※※-S10	126.5	66	$\phi 26$	$\phi 20$
AGP0-025 ※※-S10	134.5	70	$\phi 26$	$\phi 20$

Note: the items with "※" mark refer to the optional configuration items.

AGP (H) 1 Series

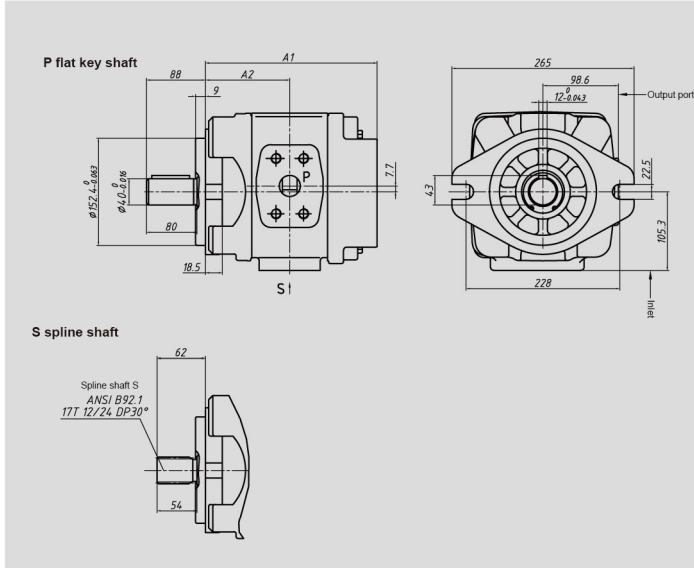


Pump Model	A1	A2	S (inlet)	P (outlet)
AGP(H)1-025 ※※-S10	139	73	$\phi 32$	$\phi 18$
AGP(H)1-032 ※※-S10	146	76.5	$\phi 32$	$\phi 18$
AGP1-040 ※※-S10	153	80	$\phi 32$	$\phi 18$
AGPH1-040 ※※-S10	153	80	$\phi 38$	$\phi 20$
AGP1-050 ※※-S10	163	85	$\phi 32$	$\phi 20$
AGPH1-050 ※※-S10	163	85	$\phi 51$	$\phi 25.4$
AGP1-063 ※※-S10	177	92	$\phi 32$	$\phi 20$
AGPH1-063 ※※-S10	177	92	$\phi 51$	$\phi 32$

Note: the items with "※" mark refer to the optional configuration items.

Mounting connection size

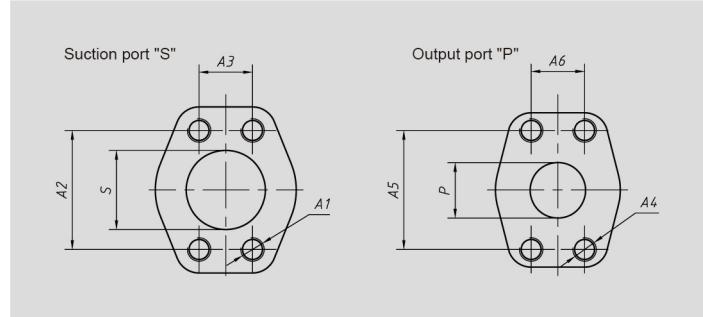
AGP (H) 2 Series



Pump Model	A1	A2	S (inlet)	P (outlet)
AGP(H)2-080 ※※※-S10	199	109.5	φ51	φ32
AGP2-100 ※※※-S10	208	114	φ51	φ32
AGPH2-100 ※※※-S10	208	114	φ64	φ32
AGP(H)2-125 ※※※-S10	220	120	φ64	φ38
AGP2-145 ※※※-S10	229.5	125	φ64	φ38
AGP(H)2-145 ※※※-S10	229.5	125	φ76	φ38
AGP(H)2-160 ※※※-S10	238	129	φ76	φ38

Note: the items with "※" mark refer to the optional configuration items.

Connection Size of oil port flange



Series	Spec.	S	A1	A2	A3	P	A4	A5	A6
AGP0	8	φ20	M10 depth: 15	47.6	22.2	φ13	M8 depth 13	38.1	17.5
	10								
	13								
	16								
	20								
25	φ26	58.7	30.2	φ20	M10 depth: 15	47.6	22.2		
AGP(H)1	25	φ32	M10 depth: 19	58.7	30.2	φ18	M10 depth 17	47.6	22.2
AGP1	40	φ32	M10 depth: 19	58.7	30.2	φ20	M10 depth 17	52.4	26.2
AGPH1	40	φ38	M12 depth: 21	69.9	35.7				
AGP1	50	φ32	M10 depth: 19	58.7	30.2				
AGPH1	50	φ51	M12 depth: 21	77.8	42.9	φ25.4	M12 depth 20	57.2	27.8
AGP1	63	φ32	M10 depth: 19	58.7	30.2	φ20	M10 depth 17	52.4	26.2
AGPH1	63	φ51	M12 depth: 21	77.8	42.9	φ32	M12 depth 20	66.6	31.8
AGP(H)2	80	φ51	M12 depth: 23	77.8	42.9	φ32	M12 depth 20	69.9	35.7
AGP2	100	φ51	M12 depth: 23	77.8	42.9				
AGPH2	100	φ64	M12 depth: 23	88.9	50.8				
AGP(H)2	125	φ64	M12 depth: 23	88.9	50.8	φ38	M16 depth: 25	79.4	36.5
AGP2	145	φ64	M12 depth: 23	88.9	50.8				
AGPH2	145	φ76	M16 depth: 30	106.4	61.9				
AGP(H)2	160	φ76	M16 depth: 30	106.4	61.9				

AGP(H) Series Internal Gear Pump

Product Appearance and Introduction

Two-in and Two-out Combined Pump

AGP (H) 1 series +AGP (H) 1 series

Spec.: 25. 32. 40. 50. 63

+

Spec.: 25. 32. 40. 50. 63

AGP (H) 2 series +AGP (H) 1 series

Spec.: 80. 100. 125. 145. 160

+

Spec.: 25. 32. 40. 50. 63

AGP (H) 2 series +AGP (H) 1 series

Spec.: 80. 100. 125. 145. 160

+

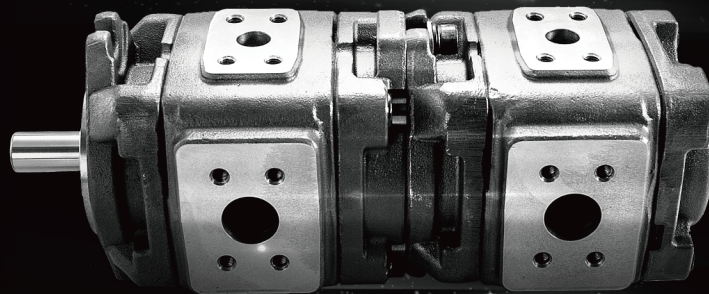
Spec.: 80. 100. 125. 145. 160



Product Features

- It adopts the floating spline coupling structure with shafts connected in series, and plays a role of front and rear self-centering to ensure the stable operation of pump and low noise.
- The combination is flexible and convenient, and can be randomly combined with the front and rear displacement of the same series.
- The rear pump can rotate for 180°, and the oil inlet direction and position can be changed flexibly.
- They share one drive, which greatly decreases the equipment and system cost, and reduces the assembling space.
- The combined pump is featured by compact structure, low production cost, small volume and light weight, and convenient to install and maintain the front and rear pumps.
- It can be widely used in industry, such as the hydraulic system of plastic machine, shoe machine, die casting machinery, electrical forklift and others, particularly suitable for energy saving system driven by servo frequency conversion.

AGP(H) SERIES DOUBLEPUMP



AGP(H) SERIES INTERNAL GEAR PUMP

Model Description of Two-in and
Two-out Combined Pump

Ordering Example: AGPH21-125-063RPW-S10.

AGP H 2 1 -100 -050 R P W -S 10

● Pump type

Internal gear pump	AGP
--------------------	-----

● Other configuration marks

Standard Type	Omit
High speed	H

● Front pump series no.

Displacement 25... 63	1
Displacement 80... 160	2

● Rear pump series no.

Displacement 25... 63	1
Displacement 80... 160	2

● Front pump spec.

Displacement (ml/r)					
025	032	040	050	063	Series 1
080	100	125	145	160	Series 2

● Rear pump spec.

Displacement (ml/r)					
025	032	040	050	063	Series 1
080	100	125	145	160	Series 2

● Rotation direction (viewing from shaft end)

Clockwise	R
Anti-clockwise	L

● Shaft extension form

Flat key shaft	P
Spline shaft ¹⁾	S

● Sealing form

Fluororubber (FKM)	V
Nitrile rubber (NBR)	W

● Flange mounting form

SAE 2-hole mounting flange	S
----------------------------	---

● Design Mark

Design Code	10
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Note: ¹⁾ The shaft extension form of rear pump is spline shaft type only.

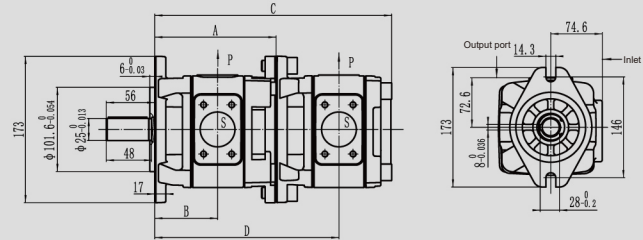
Connection size of combined pump

AGP (H) 11 Series

The dimension diagram shows the combination of front and rear pumps

Combination type: AGP (H) 11-**-**S-10¹⁾

Size of combined pump element (unit: mm)



Front pump model AGP (H) 1-**-**S-10F1 ¹⁾	A	B	Rear pump model AGP (H) 1-**-**S-10B ¹⁾																	
			25		32		40		50		63									
			C	D	C	D	C	D	C	D	C	D								
25	142.5	73	282	215.5																
32	149.5	76.5	289	222.5	296	226														
40	156.5	80	296	229.5	303	233	310	236.5												
50	166.5	85	306	239.5	313	243	320	246.5	330	251.5										
63	180.5	92	320	253.5	327	257	334	260.5	344	265.5	358	272.5								

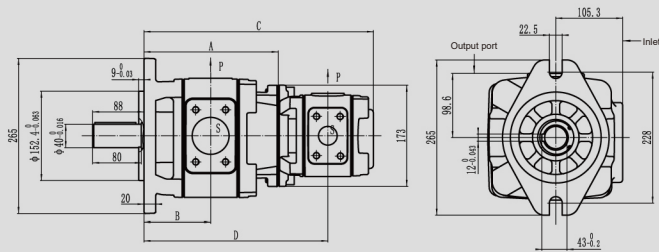
Note: ¹⁾ The items with "*" mark refer to the optional configuration items.

AGP (H) 21 Series

The dimension diagram shows the combination of front and rear pumps

Combination type: AGP (H) 21-***S10¹⁾

Size of combined pump element (unit: mm)



Front pump model AGP (H) 2-***S10F1 ¹⁾	A	B	Rear pump model AGP (H) 1-***S-S10B ¹⁾																	
			25		32		40		50		63									
			C	D	C	D	C	D	C	D	C	D								
80	220.5	109.5	359.5	293.5	346.5	297	373	300.5	383.5	305.5	397.5	312.5								
100	229.5	114	368.5	302.5	375.5	306	382.5	309.5	392.5	314.5	406.5	321.5								
125	241.5	120	380.5	314.5	387.5	318	394.5	321.5	404.5	326.5	418.5	333.5								
145	251	124.8	390	324	397	327.5	404	331	414	336	428	343								
160	259.5	129	398.5	332.5	405.5	336	412.5	339.5	422.5	344.5	436.5	351.5								

Note: ¹⁾ The items with "*" mark refer to the optional configuration items.

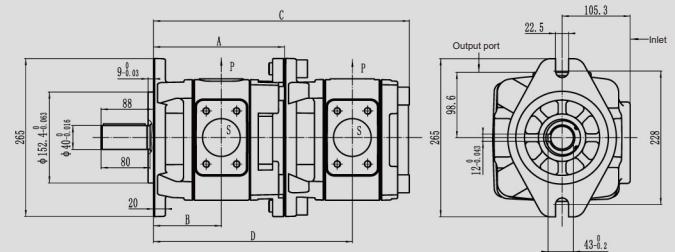
Connection size of combined pump

AGP (H) 22 Series

The dimension diagram shows the combination of front and rear pumps

Combination type: AGP (H) 22-***S10¹⁾

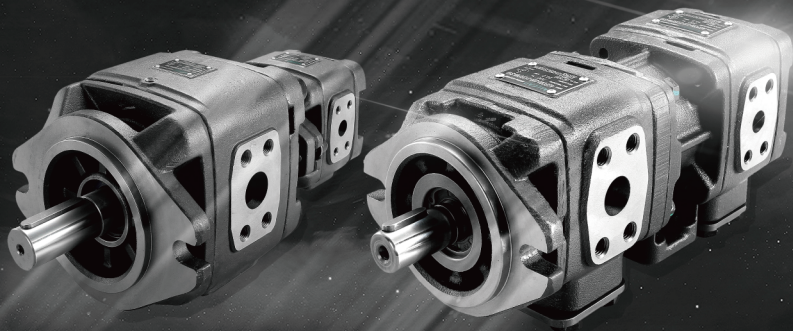
Size of combined pump element (unit: mm)



Front pump model AGP (H) 2-***S10F2 ¹⁾	A	B	Rear pump model AGP (H) 2-***S-S10B ¹⁾																	
			80		100		125		145		160									
			C	D	C	D	C	D	C	D	C	D								
80	211	109.5	410	319.5																
100	220	114	419	329.5	428	334														
125	232	120	431	341.5	440	346	452	352												
145	241.5	124.8	440.5	351	449.5	355.5	461.5	361.5	471	366										
160	250	129	449	359.5	458	364	470	370	479.5	374.5	488	379								

Note: ¹⁾ The items with "*" mark refer to the optional configuration items.

AGPD SERIES DOUBLEPUMP



AGPD Series Internal Gear Pump

Product Appearance and Introduction

AGPD combined pump

AGP0 Series Spec. 8/10/13/16/20/25	+	AGP0 Series Spec. 8/10/13/16/20/25
AGP (H) 1 Series Spec. 25/32/40/50/63	+	AGP0 Series Spec. 8/10/13/16/20/25
AGP (H) 1 Series Spec. 25/32/40/50/63	+	AGP (H) 1 Series Spec. 25/32/40/50/63
AGP (H) 2 Series Spec. 80/100/125/145/160	+	AGP (H) 1 Series Spec. 25/32/40/50/63
AGP (H) 2 Series Spec. 80/100/125/145/160	+	AGP (H) 2 Series Spec. 80/100/125/145/160



Product Features

- It adopts the floating spline coupling structure with shafts connected in series, and plays a role of front and rear self-centering to ensure the stable operation of pump and low noise.
- The combination is flexible and convenient, and can be randomly combined with the front and rear displacement of the same series.
- They share one drive, which greatly decreases the equipment and system cost, and reduces the assembling space.
- The combined pump is featured by compact structure and low production cost.
- It can be widely used in industry, such as the hydraulic system of plastic machine, shoe machine, die casting machinery, forklift and others, particularly suitable for energy saving system driven by servo frequency conversion.
- It is not sensitive to oil pollution with long service life.

Ordering Example: AGPDH21-100-63RPW-S10.

AGPD H 2 1 -100 -63 R P W -S 10

Pump type

One-in and two-out combined pump
AGPD

Other configuration marks

Standard Type Omit
High speed H

Front pump series no.

Displacement 08...25 0
Displacement 80...160 1
Displacement 80...160 2

Rear pump series no.

Displacement 08...25 0
Displacement 80...160 1
Displacement 80...160 2

Front pump spec.

Displacement (ml/r)							
008	010	013	016	020	025	Series 0	
025	032	040	050	063		Series 1	
080	100	125	145	160		Series 2	

Rear pump spec.

Displacement (ml/r)							
008	010	013	016	020	025	Series 0	
025	032	040	050	063		Series 1	
080	100	125	145	160		Series 2	

Rotation direction (viewing from shaft end)

Clockwise R
Anti-clockwise L

Shaft extension form

Flat key shaft P
Spline shaft¹⁾ S

Sealing form

Fluororubber V
Nitrile rubber (NBR) W

Flange mounting form

SAE 2-hole mounting flange S

Design Mark

Design Code 10

Note: ¹⁾ The shaft extension form of rear pump is spline shaft type only.

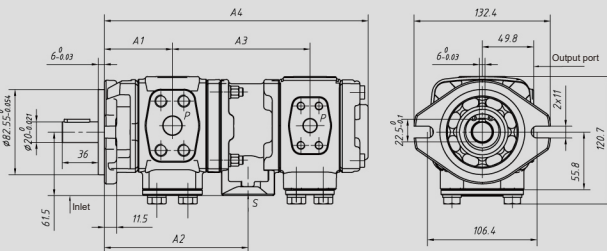
Mounting connection size

AGPD (H) 00 Series

The dimension diagram shows the combination of front and rear pumps

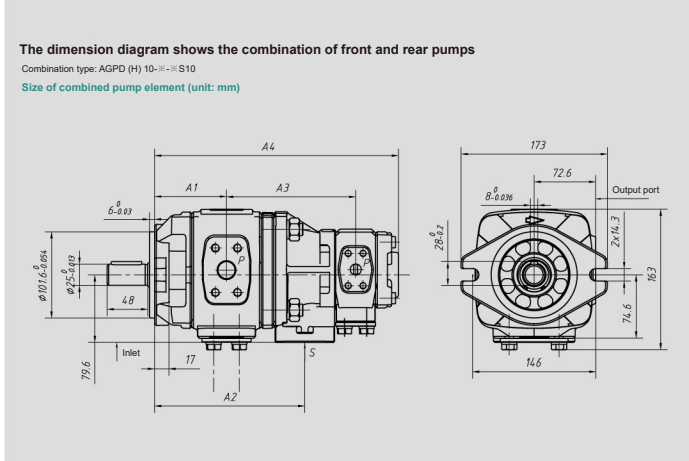
Combination type: AGPD (H) 00-**-**-S10

Size of combined pump element (unit: mm)



Front pump model	A1	A2	Rear pump model													
			08		10		13		16		20		25			
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4	A3	A4		
AGPD(H)00-08-IRPW-S10	54	115.5	113.5	216												
AGPD(H)00-10-IRPW-S10	56	119.5	115.5	220	117.5	224										
AGPD(H)00-13-IRPW-S10	59.3	126	118.8	226.5	120.8	230.5	124	237								
AGPD(H)00-16-IRPW-S10	62	131.5	121.5	232	123.5	236	126.8	242.5	129.5	249						
AGPD(H)00-20-IRPW-S10	66	139.5	125.5	240	127.5	244	130.8	250.5	133.5	257	137.5	265				
AGPD(H)00-25-IRPW-S10	70	147.5	129.5	248	131.5	252	134.8	258.5	137.5	265	141.5	273	145.5	281		

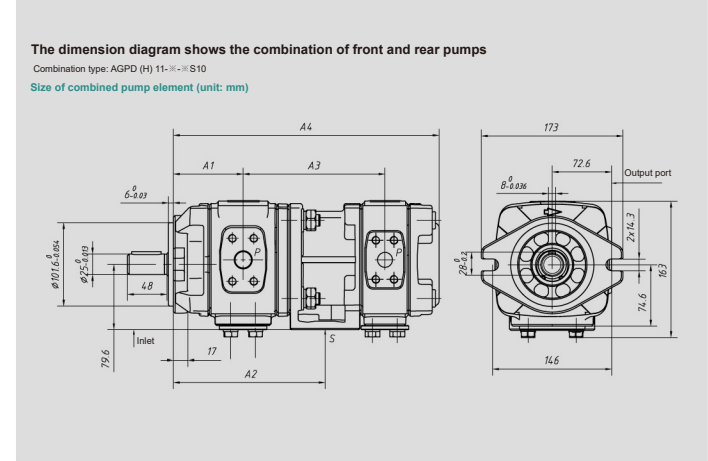
AGPD (H) 10 Series



Front pump model	A1	A2	Rear pump model													
			08		10		13		16		20		25			
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4	A3	A4		
AGPD(H)10-25-※RPW-S10	73	153.5	138.5	260	140.5	264	143.8	270.5	146.5	276	150.5	284	154.5	292		
AGPD(H)10-32-※RPW-S10	76.5	160.5	142	267	144	271	147.3	277.5	150	283	154	291	158	299		
AGPD(H)10-40-※RPW-S10	80	167.5	145.5	274	147.5	278	150.8	284.5	153.5	290	157.5	298	161.5	306		
AGPD(H)10-50-※RPW-S10	85	177.5	150.5	284	152.5	288	155.8	294.5	158.5	300	162.5	308	166.5	316		
AGPD(H)10-63-※RPW-S10	92	191.5	157.5	298	159.5	302	162.8	308.5	165.5	314	169.5	322	173.5	330		

Mounting connection size

AGPD (H) 11 Series



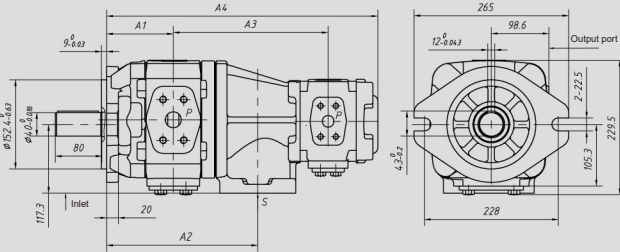
Front pump model	A1	A2	Rear pump model											
			25		32		40		50		63			
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4		
AGPD(H)11-25-※RPW-S10	73	161	161	300										
AGPD(H)11-32-※RPW-S10	76.5	168	164.5	307	168	314								
AGPD(H)11-40-※RPW-S10	80	175	168	314	171.5	321	175	328						
AGPD(H)11-50-※RPW-S10	85	185	173	324	176.5	331	180	338	185	348				
AGPD(H)11-63-※RPW-S10	92	199	180	338	183.5	345	187	352	192	362	199	376		

AGPD (H) 21 Series

The dimension diagram shows the combination of front and rear pumps

Combination type: AGPD (H) 21-※-※S10

Size of combined pump element (unit: mm)



Front pump model	A1	A2	Rear pump model									
			25		32		40		50		63	
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4
AGPD(H)21-80-※RPW-S10	109.5	231	204.5	380	208	387	211.5	394	216.5	404	223.5	418
AGPD(H)21-100-※RPW-S10	114	240	209	389	212.5	396	216	403	221	413	228	427
AGPD(H)21-125-※RPW-S10	120	252	215	401	218.5	408	222	415	227	425	234	439
AGPD(H)21-145-※RPW-S10	124.8	261.5	219.8	410.5	223.3	417.5	226.8	424.5	231.8	434.5	238.8	448.5
AGPD(H)21-160-※RPW-S10	129	270	224	419	227.5	426	231	433	236	443	243	457

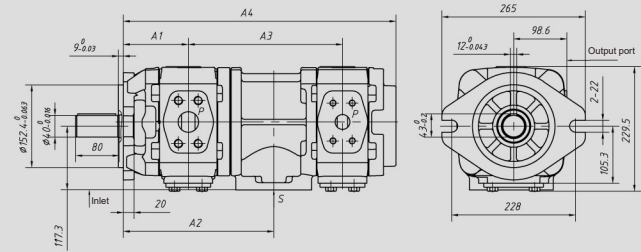
Mounting connection size

AGPD (H) 22 Series

The dimension diagram shows the combination of front and rear pumps

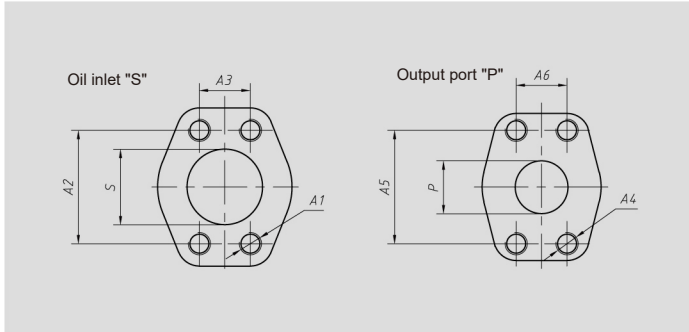
Combination type: AGPD (H) 22-※-※S10

Size of combined pump element (unit: mm)



Front pump model	A1	A2	Rear pump model									
			80		100		125		145		160	
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4
AGPD(H)22-80-※RPW-S10	109.5	238.5	233	432								
AGPD(H)22-100-※RPW-S10	114	247.5	237.5	441	242	450						
AGPD(H)22-125-※RPW-S10	120	259.5	243.5	453	248	462	254	474				
AGPD(H)22-145-※RPW-S10	124.8	269	248.3	462.5	252.8	471.5	258.8	483.5	263.5	493		
AGPD(H)22-160-※RPW-S10	129	277.5	252.5	471	257	480	263	492	267.8	501.5	272	510

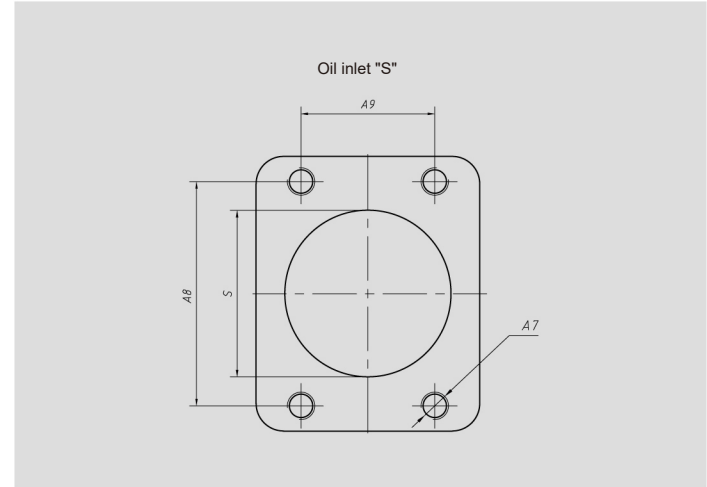
Oil inlet and outlet size of front and rear pump



Series	Spec.	S	A1	A2	A3	P	A4	A5	A6
AGPDO	8	Φ20	M10 depth: 15	47.6	22.2	Φ13	M8 depth: 13	38.1	17.5
	10			52.4	26.2				
	13			58.7	30.2				
	16			58.7	30.2				
20	Φ26	58.7	30.2	Φ20	M10 depth: 15	47.6	22.2		
AGPD(H)1	25	Φ32	M10 depth: 19	58.7	30.2	Φ18	M10 depth: 17	47.6	22.2
	32			58.7	30.2			47.6	22.2
AGPD1	40	Φ32	M10 depth: 19	58.7	30.2	Φ20	M10 depth: 17	52.4	26.2
AGPDH1	40	Φ38	M12 depth: 21	69.9	35.7			52.4	26.2
AGPD1	50	Φ32	M10 depth: 19	58.7	30.2			52.4	26.2
AGPDH1	50	Φ51	M12 depth: 21	77.8	42.9			Φ25.4	M12 depth: 20
AGPD1	63	Φ32	M10 depth: 19	58.7	30.2	Φ20	M10 depth: 17	52.4	26.2
AGPDH1	63	Φ51	M12 depth: 21	77.8	42.9	Φ32	M12 depth: 20	66.6	31.8
AGPD(H)2	80	Φ51	M12 depth: 23	77.8	42.9	Φ32	M12 depth: 20	69.9	35.7
AGPD2	100	Φ51	M12 depth: 23	77.8	42.9				
AGPDH2	100	Φ64	M12 depth: 23	88.9	50.8				
AGPD(H)2	125	Φ64	M12 depth: 23	88.9	50.8				
AGPD2	145	Φ64	M12 depth: 23	88.9	50.8	Φ38	M16 depth: 25	79.4	36.5
AGPDH2	145	Φ76	M16 depth: 30	106.4	61.9				
AGPD(H)2	160	Φ76	M16 depth: 30	106.4	61.9				

Note: the items in grey background refer to parameters of AGPH high-speed model.

Oil inlet size of intermediate



Series	S	A7	A8	A9
AGPD (H)00-※-※RPW-S10	Φ32	M10	58.7	30.2
AGPD (H)10-※-※RPW-S10	Φ38	M12	69.9	35.7
AGPD(H)11-※-※RPW-S10	Φ51	M12	77.8	42.9
AGPD(H)21-※-※RPW-S10	Φ76	M16	106.4	61.9
AGPD(H)22-※-※RPW-S10	Φ89	M16	120.7	69.9

Note: the items with "※" mark refer to the optional configuration items.

Project planning information

I. Overview

The planning information of the project refers to the basic overview, guidance and suggestions for Allead internal gear pump.

1.1 Intended use

Allead internal gear pump is forbidden to be used in explosive environment.

1.2 Technical Data

The system or machinery manufacturer must ensure to observe the allowable technical data and working condition.

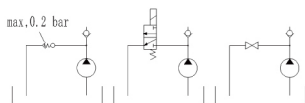
II. Planning of Hydraulic Project

2.1 Discharging Optional Parts for Commissioning

For Allead internal gear pump, the manual operation is provided to connect, disconnect or automatically discharge the optional part, and used for re-commissioning after completing the initial commissioning or maintenance and repairing. Integrate the discharge point into pressure pipeline, and put it in front of the first valve or one-way valve. The discharge can be performed at the maximum reverse pressure of 0.2bar.

Case of Discharge Pipeline

1. Automatic discharge through automatic discharge valve
2. The discharge pipe can be connected or disconnected
3. Manual discharge



2.2 Oil Suction Pipeline

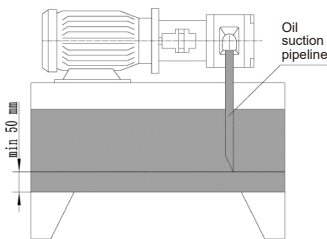
The required size for realizing the design flow must be noted on pipe section to realize the ideal oil suction speed (average: 0.6 to 1.2m/s). The oil suction speed shall not exceed the maximum (2m/s).

The design size of oil suction pipeline must be subjected to the allowable inlet working pressure (the absolute value is 0.6 to 2bar). The bending oil suction pipe and the oil suction pipe combining with several pumps must be avoided.

If the oil suction filter must be used, it is suggested choosing the pump with maximum flow to be installed on oil suction filter. After multiplying by 2-3 times factor, the absolute filtration accuracy is 50-80 μm. What must be ensured is that even though the filter is polluted, it still does not exceed the allowable minimum inlet working pressure of the system.

The immersion depth of selected oil suction pipe shall be as large as possible. It will not form the vortex even under the maximum flow. Otherwise it will be at the risk of air inhaling.

When designing the oil suction pipeline, it is not recommended to vertically install the oil suction port downwards, such as: the position of installing oil reservoir and the position under pump. The oil suction port shall face upwards or shall be located at both sides horizontally.



2.3 Pressure Pipeline

When designing the pressure pipeline, it is crucial to ensure the oil suction pipe, hose and connecting part are resistant against breakage sufficiently.

2.4 Pressure Limit

The setting and limit of allowable working pressure must be kept in system. When designing the overflow valve required for this purpose, the maximum flow and current pressure increasing speed shall be taken into consideration to ensure it will not exceed the allowable intermittent working pressure.

2.5 Pressure Holding Function

During the process of pressure holding, the pump in variable speed driver can run at a speed lower than designated minimum speed temporarily. The holding time and relevant required speed depend on the working viscosity and pressure grade.

Under the out-of-service condition (speed = 0), the leakage flow flows back to the oil reservoir through pump according to load pressure. If you want to safely and reliably prevent backflow, one-way valve must be used.

III. Mechanical Project Planning

3.1 Assembling and Disassembling of Optional Parts

When assembling and disassembling pump, the proper lifting equipment shall be provided when necessary. When assembling, the screws with the performance grade of 8.8 or 10.9 are needed.

3.2 Assembling

After mounting bolts at the side of machine, the required tightening torque must be applied to screw.

Project planning information

3.3 Oil Reservoir

The following requirements shall be observed for the oil reservoir:

- The oil reservoir with the maximum storage volume shall be chosen as far as possible according to the continuous flow or average flow so that the sufficient time can be provided for separating bubbles in medium of oil reservoir.
- The settling zone shall be provided for hydraulic oil in oil reservoir to separate air.
- The guide plate is provided so that the pollutant will be settled down to the bottom pump of oil reservoir and out of the area of oil suction.
- The surface size of oil reservoir is marked by some large values according to heat coming from oil reservoir wall.
- If condition permits, it is suggested that the position of installing oil reservoir shall be above the pump inlet, and the inlet pressure shall be ensured within the allowable value.

3.4 Required Function of Hydraulic Station

The hydraulic station shall be provided with at least the following functions:

- Oil reservoir (its internal pressure is equal to ambient pressure according to the design) must be equipped with air filter that is used for pressure compensation.
- The hydraulic oil shall be only refilled through the oil filter to eliminate the possibility that the refilled hydraulic oil is not filtered.
- The pollutant or moisture shall be prevented from entering the system. When the pump is used in highly polluted environment, the oil reservoir pre-tightened with filter pressure shall be used.

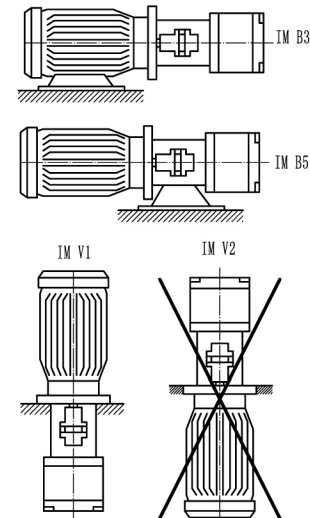
3.5 Assembling Position and Environmental Condition

When the assembling position is 1000m from the ground, the pump shall be placed inside or under the oil reservoir, or the oil reservoir shall be pre-tightened with compressed air to meet the allowable minimum inlet pressure. The oil suction pipeline with short distance and large section shall be chosen. The bending pipeline is not allowed to be used.

When the pump is assembled at a position over 10m below the oil reservoir, the additional measures must be taken to ensure to reduce the inlet pressure to the allowable maximum value.

When operating the pump in a salty or corrosive environment or when pressurizing through strong frictional substances, the shaft seal ring and sealing area at the system side shall be ensured not to directly expose to the environment.

3.6 Assembling Position



The assembling position shall not be under the motor and on the pump (such as: IMV2)

IV. Combined Pump

- When combining the pumps, make sure to comply with allowable working data of relevant pump types in each stage.
- The rotating direction of all combined pumps must be identical.
- The pump with maximum torque, the pump with variable displacement or the pump applying with intermittent load shall be provided as the combined pump in the first stage.
- The maximum shaft transmission torque shall be inspected by project planner according to different application cases.

Project Planning information

Allowable maximum torque (Nm)

Type	Drive torque		Output torque
	Flat key shaft ..P Spline shaft ..S		
AGP0	250	250	150
AGP(H)1	450	450	280
AGP(H)2	1100	1100	700

The pump-level drive torque is calculated as below

$$T = \frac{\Delta P X V X 0.0159}{\eta}$$

Hydraulic machinery

T: torque (Nm)

ΔP: working pressure (bar)

V: displacement (ml/r)

η : Hydraulic machinery efficiency

- The total torque of combined pump shall not exceed the maximum drive torque
- The combined suction is not allowed
- Before using different mediums to operate the pump combination, please contact with Allead
- The shaft design of rear pump must be "S" spline

V. Maintenance Plan and Operation Safety

To ensure the safety operation of pump and long-term service life, the hydraulic station, machine or system maintenance plan must be made.

Especially, the following working parameters must be ensured to follow:

- Required oil cleanliness grade
- Working temperature range
- Working medium grade

In addition, the following parameters of pump and system must be regularly checked for whether any changes:

- Vibration
- Noise
- Temperature difference between pump and hydraulic oil in reservoir
- Bubbles in oil reservoir
- Leakage prevention

The changes of those parameters indicate that assemblies (such as: drive motor, coupling, pump etc.) are worn. Immediately find out reasons and remove fault.

To realize the high operation safety of pump in machine or system, we suggest checking abovementioned parameters continuously and automatically. If those parameter changes are out of the normal fluctuation of intended working range, then automatically turn off the system. The plastic assembly of drive coupling must be replaced regularly with the replacement time not over 5 years. Additionally, the relevant information provided by the manufacturer must be observed.

For preventive maintenance of pump, we suggest that the authorized Allead service company shall replace sealing parts after it works for 5 years to the maximum.

VI. Annexes

6.1 SAE Connecting Flange

We suggest choosing SAE flange that meets requirements of AB 22-15 (with welded connection) or AB 22-13 (with threaded connection) and can be used for oil suction port and oil inlet.

6.2 Other Accessories

If it needs to install Allead AGP (H) Internal Gear Pump onto motor, please choose the mounting bracket and torsional elastic coupling as suggested.

Precautions for Commissioning

Preparations

- Check to confirm whether the system installation is completed in a clean way.
- The hydraulic oil shall be refilled through the filter with the minimum retention rate.
- Refill the hydraulic oil into pump through the oil suction pipe or pressurizing pipe.
- Check whether the rotating direction is in line with that of pump type.

Discharge

- Open the system discharge point or switch to pressure-free circulation according to operation instructions of the system. During the discharging process, it must be running at a low speed without pressure, and the speed shall not exceed 200 rpm per minute to ensure the discharge of zero-pressure closed air.
- If it needs to discharge the pump, open the pump and immediately close pump again (inch mode). Repeat such process till making sure the pump is fully discharged.
- Manually close and open the discharge port again.
- Open the bypass valve of oil outlet pipeline, and the bypass valve can be directly connected back to oil return tank. If there is no bypass valve, the joint of oil outlet hose will be fully loosened to discharge air. When no bubble is formed in hydraulic oil, re-tighten the pipe joint or hose.

Commissioning

- Before exhausting air of oil outlet, over-speed operation and long-term operation (within 20s) is strictly prohibited. If it fails to discharge oil, please operate it after finding out reasons.
- If the pump is fully discharged as confirmed, the motor can be turned on. Make pump operate with zero pressure till the system is emptied. When discharging the system, please comply with operation instructions of the system.
- Commission the system by following operation instructions and load the pump.
- After a period of working time, check whether the surface of hydraulic oil in oil reservoir has bubbles or forms bubbles.

Operation

- Notice the change of noise characteristics in operation process. Due to the temperature rise of working medium, some slight noises are normal. A large amount of noise increasing or short-term random changes of noise indicate the possibility of air inhalation. If the oil suction pipe is too short or the oil level of working medium is too low, the air may be inhaled through the vortex.
 - The changes of working speed, temperature, noise increasing or power consumption indicate that the system or pump is worn or damaged.
- Re-commissioning
- Check whether the pump and system are leaked. In case of any leakage, it indicates that there is a hole under the level indicator of hydraulic oil. The level enhancing of hydraulic oil in oil reservoir indicates the upper part of hydraulic oil is leaked.
 - If the pump is placed on the level of hydraulic oil, the pump may be idling due to leakage (for example: the shaft sealing part is worn). In such case, the system shall be re-discharged during the re-commissioning period. Prepare for repairing.
 - After completing the repair and maintenance, the system must be re-discharged.
 - If the system is intact, then turn on the motor.

Overview

- The pump we provide passes the function and performance test. It is not allowed to make any modifications for pump otherwise it may lead to failure of warranty!
- Only the manufacturer or dealer and agent authorized by the manufacturer can repair the product. The repairing made by user is not included in the scope of warranty.

Important Notes

- The pump can only be installed, maintained and repaired by the authorized and well-trained personnel who receive the guidance!
- The pump can only be operated following the allowable data (please refer to Pages 4 and 5 for details)!
- The pump can only be operated without controversy!
- When performing any operations for pump, please reduce the system pressure!
- Without permission, do not perform any transformation or modifications those may affect the safety and function!
- The protective equipment (such as: coupling protection) shall be connected. Do not disassemble the existing protective equipment!
- Please make sure all mounting screws are tightened correctly all the time! (Please follow the specified tightening torque)!
- The effective safety procedures and event preventive procedures must be observed under common situation!