

“A3HG” Series High Pressure Variable Displacement Piston Pumps

“A3HG” series pumps are high pressure variable displacement piston pumps based on CNIP’s highly reputable “A3H” series pumps and meeting international standards (ISO and SAE). They have a rated pressure of 315 Kgf/cm² and a maximum operating pressure of 350 Kgf/cm².

While inheriting the high performance of the conventional A3H series, A3HG series pumps feature higher rated pressure design (280 Kgf/cm²→315 Kgf/cm²) These pumps meet JIS standards as well as ISO standards common in Europe and SAE standards in North America to ensure interchangeability with pumps available on the global market. In addition to wide displacement range like the A3H series, they are equipped with a through drive to allow for multiple pump installations with a pump on the drive side and another pump with up to the same capacity as the other pump on the non-drive side.

Thus, A3HG series pumps provide an extended maximum flow range and support a variety of control types. As a hydraulic pressure source for all types of equipment, they can be used in a wide range of applications.



Features

- **Wide assortment of models to ensure interchangeability with pumps available on the global market.**

European models: Compatible with ISO 3019-2, North American models: Compatible with SAE J744. Standard models are available with keyed or splined shaft end.

- **Wide displacement range and high volumetric efficiency**

While inheriting the high performance of A3H series pumps, A3HG series pumps feature higher rated pressure design 315 Kgf/cm². They can be used as pumps capable of handling moderate to high loads in a wide range of applications.

- **Through drive supplied as standard**

The through drive allows for multiple pump installation with a pump on the drive side and another pump with up to the same capacity as the other pump on the non-drive side. All pumps meeting international standards can be used on the non-drive side.

- **Control types**

Pressure compensator type (01), pressure compensator type with external pilot (07), and load sensing type (14) are available.

Specifications

ModelNumbers		A3HG16	A3HG37	A3HG56	A3HG71	A3HG100	A3HG145	A3HG180
Items								
Geometric Displacement	cm ³ /rev.	16.3	37.1	56.3	70.7	100.5	145.2	180.7
Minimum Adj. Flow	cm ³ /rev.	8.0	16.0	35.0	45.0	63.0	95.0	125.0
Rated Pressure	Kgf/cm ²	315						
Max. Oper. Pressure	Kgf/cm ²	350						
Shaft Speed Range	Max	3600	2700	2500	2300	2100	1800	1800
	Min.	600						
Suction Pressure		-0.167~0.5 Kgf/cm ² at 600-1800 r/min. 0~0.5 Kgf/cm ² at speed above 1800 r/min. (Gauge Pressure)						
Hydraulic Fluid		Petroleum Base Oils (Equivalent to ISO VG 32 or 46)						
Viscosity	mm ² /sec.	20 - 400						
Oil Temperature	°C	0-60 (Within Specified Viscosity Range)						
Seal Material		FKM (Fluoro Rubber)						
Mass*	Kg	17	26.5	32.5	45	56.5	68.5	88

* Mass of A3HG※ -FR01KK-E※-10


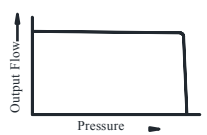
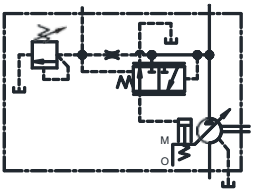
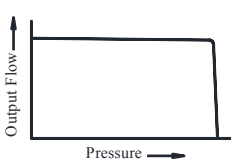
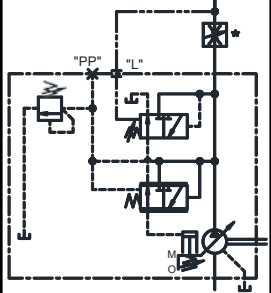
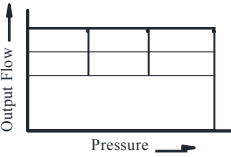
Model Number Designation

A3HG16	-F	R	01	K	K	-E1	D	-10													
Series Number	Mounting	Direction of Rotation	Control Type	Pressure Adj. Range Kg/cm ²	Shaft Extension	Port/Flange Type	Number of Pump Mtg. Bolts	Design Number													
A3HG16 (16.3cm ³ /rev.)	F : Flange Mounting	(Viewed from Shaft end) R : Clockwise (Normal)	01 : Pressure Compensator Type 07 : Pilot Pressure Control Type Pressure Compensator 14 : Load Sensing Control Type	K: 50~350 N/A for the control types 07 & 14	K: Keyed Shaft SP: Splined Shaft	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Flange</th> <th>Port/Flange Thread</th> </tr> </thead> <tbody> <tr> <td>E1</td> <td>ISO</td> <td>Metric</td> </tr> <tr> <td>U1</td> <td rowspan="3" style="text-align: center;">SAE</td> <td>Unified</td> </tr> <tr> <td>U2</td> <td>BSPF/Metric</td> </tr> <tr> <td>J1</td> <td>Rc/Metric</td> </tr> </tbody> </table>	Code	Flange	Port/Flange Thread	E1	ISO	Metric	U1	SAE	Unified	U2	BSPF/Metric	J1	Rc/Metric	C : 2 D : 4	10
Code							Flange	Port/Flange Thread													
E1							ISO	Metric													
U1							SAE	Unified													
U2								BSPF/Metric													
J1								Rc/Metric													
A3HG37 (37.1cm ³ /rev.)																					
A3HG56 (56.3cm ³ /rev.)																					
A3HG71 (70.7 cm ³ /rev.)																					
A3HG100 (100.5cm ³ /rev.)																					
A3HG145 (145.2cm ³ /rev.)																					
A3HG180 (180.7cm ³ /rev.)																					

Application

Press machines, pipe bending machines, pipe end forming machines, steel mill machines, rolling mill machines, concrete making machines, compactors, tube forming machines, other general industrial machinery/equipment, and general industrial vehicles.

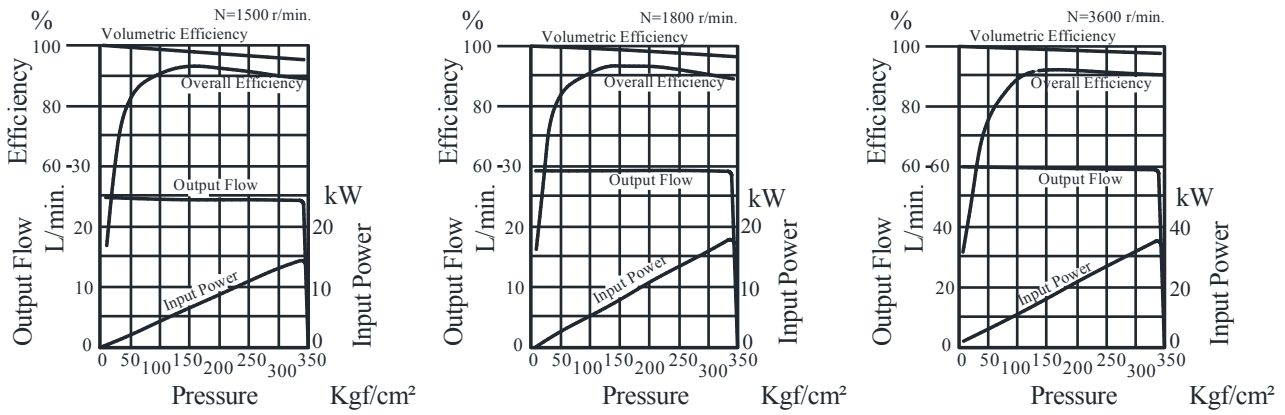
Control Type

Control Type	Graphic Symbols	Performance Characteristics	Description
“01” Pressure compensator type			<ul style="list-style-type: none"> When the system pressure increases and approaches the preset full cut-off pressure, the pump flow decreases automatically while maintaining the set pressure as it is. The output flow and full cut-off pressure can be manually adjusted.
“07” Pilot Pressure Control Type Pressure Compensator			<ul style="list-style-type: none"> The pump is used in combination with a remote control relief valve or multistage pressure control valve. By controlling the pilot pressure, the full cut-off pressure can be remote-controlled according to user requirements.
“14” Load Sensing Control Type			<ul style="list-style-type: none"> This is an energy-saving type control which regulates the pump flow and load pressure to be at the absolute minimum necessary level to operate the actuator. This type of control automatically regulates the output flow so that the inlet-outlet differential pressure of the flow control valve at the output side is constant. To do so, the load pressure must be introduced to the load sensing port “L” of the pump through the external piping. This type of control can actualize the remote control of the full cut-off pressure by connecting a remote control relief valve to the pilot port “PP”.

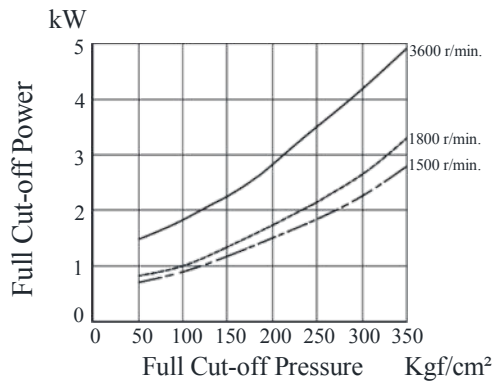
Note : Consult CNIP for further details.

Typical Performance Characteristics of "A3HG16-01K" Oil Viscosity 32 cSt [ISO VG 32, 40°C]

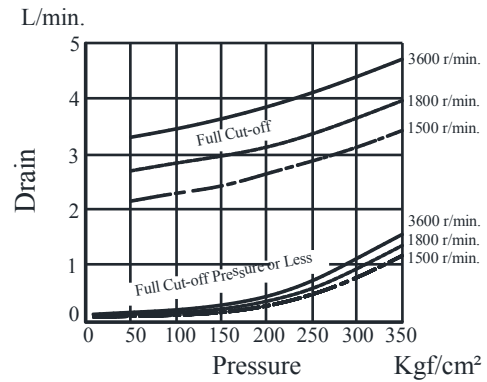
Performance Characteristic Curve



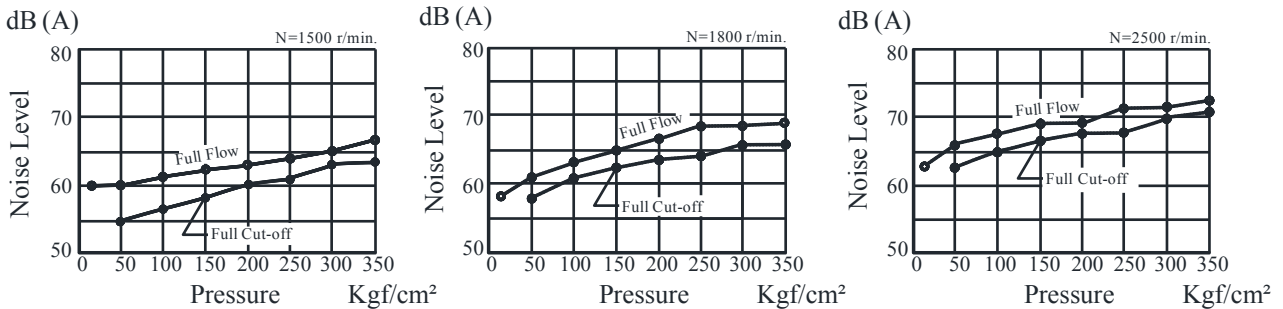
Full Cut-off Power



Drain



Noise Level (dB): [One meter(3.3 ft.) away from the back of the pump]

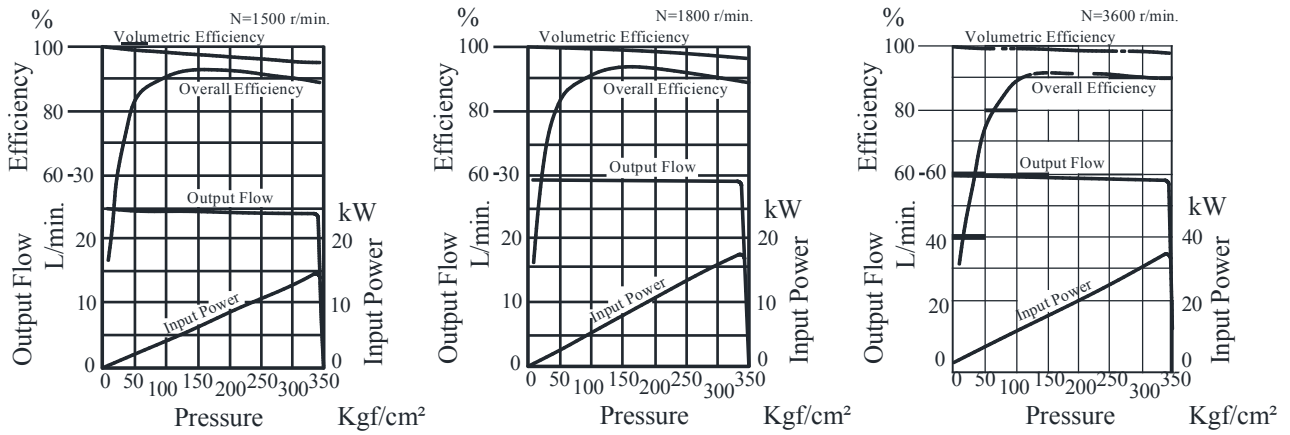


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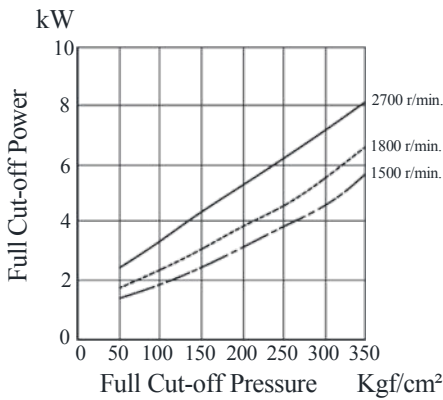
"A3HG" Series High Pressure Variable Displacement Piston Pumps

Typical Performance Characteristics of "A3HG37-01K" Oil Viscosity 32 cSt [ISO VG 32, 40°C]

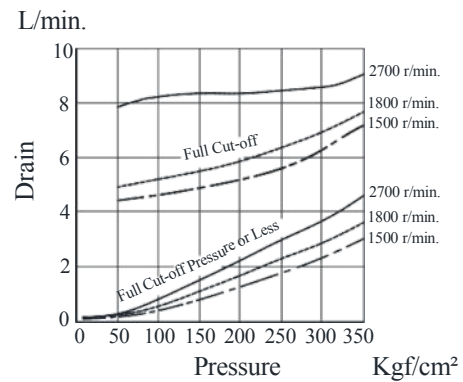
Performance Characteristic Curve



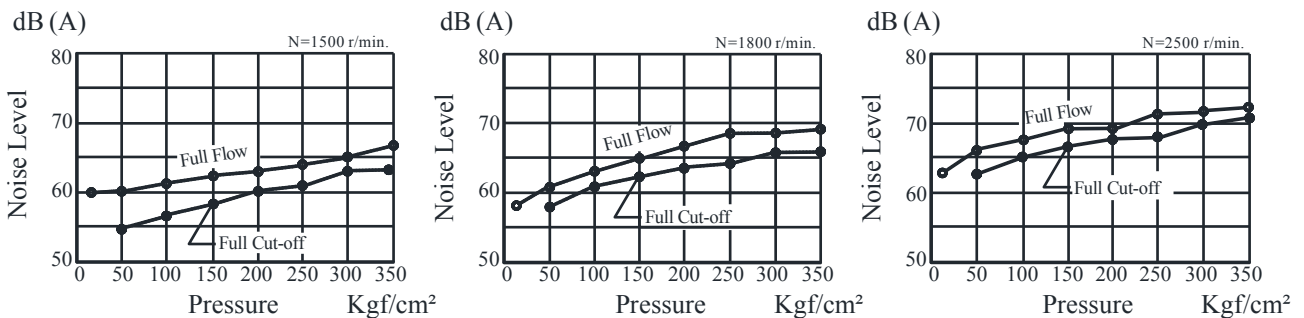
Full Cut-off Power



Drain



Noise Level (dB): [One meter (3.3 ft.) away from the back of the pump]

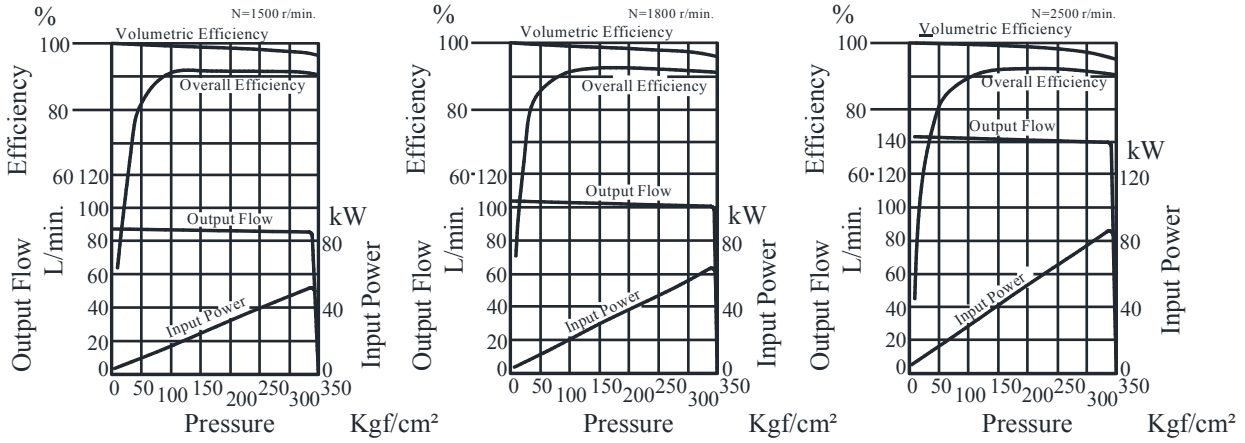


Typical Performance Characteristics of "A3HG56-01K" Oil Viscosity 32 cSt [ISO VG 32, 40°C]

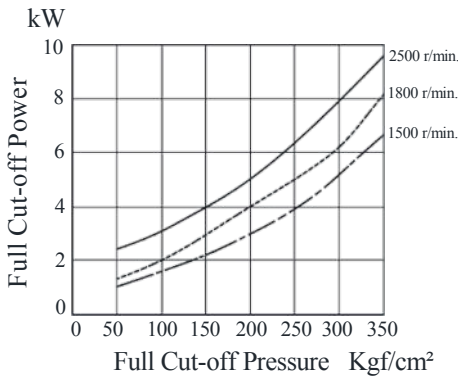
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"A3HG" Series High Pressure Variable Displacement Piston Pumps

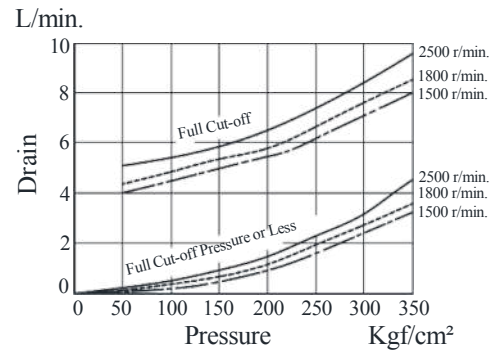
Performance Characteristic Curve



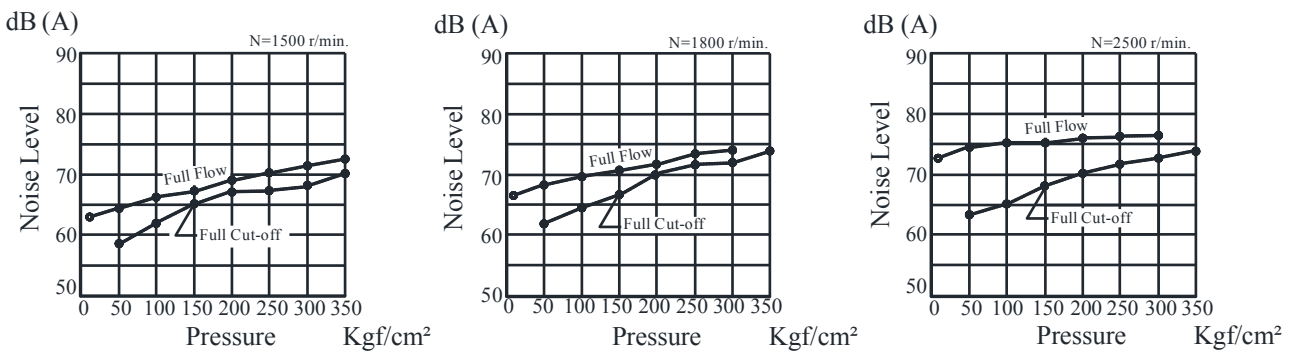
Full Cut-off Power



Drain

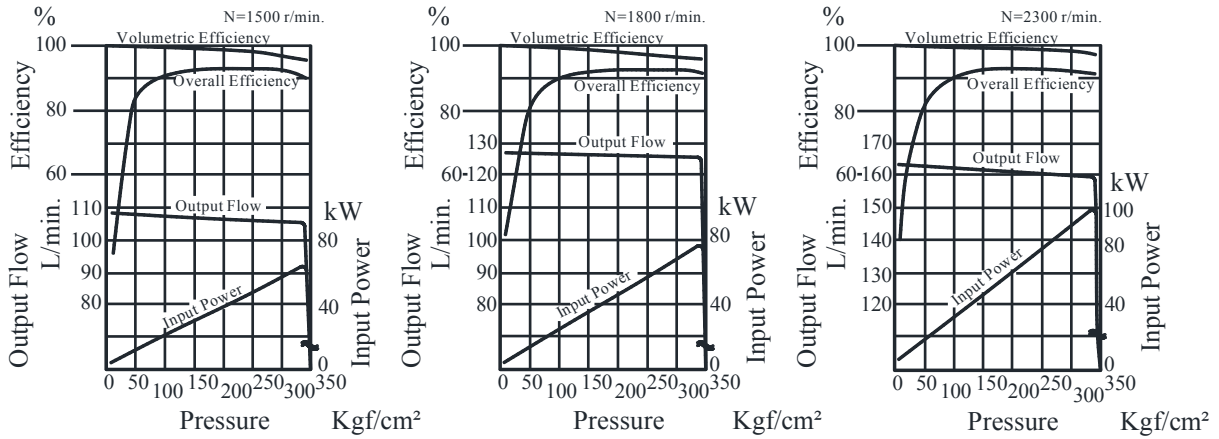


Noise Level (dB): [One meter(3.3 ft.) away from the back of the pump]

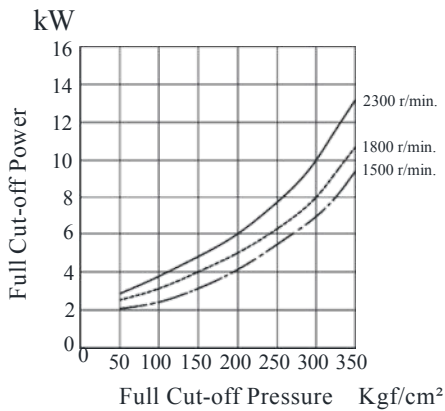


Typical Performance Characteristics of “A3HG71-01K※” Oil Viscosity 32 cSt [ISO VG 32, 40°C]

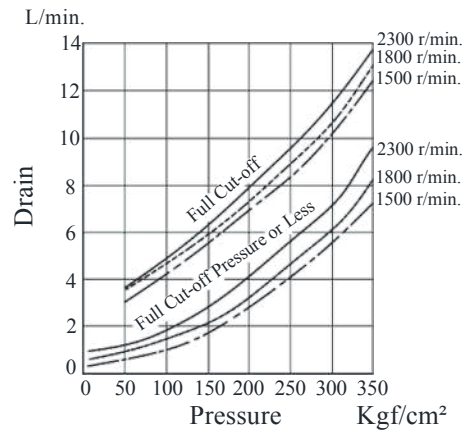
Performance Characteristic Curve



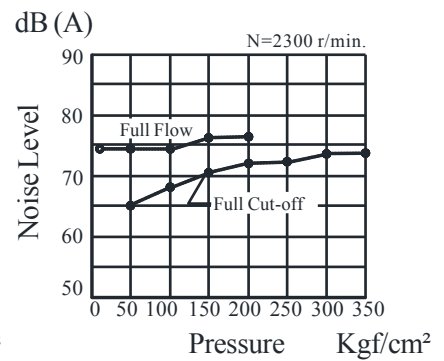
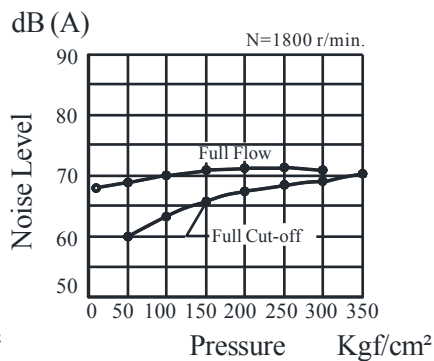
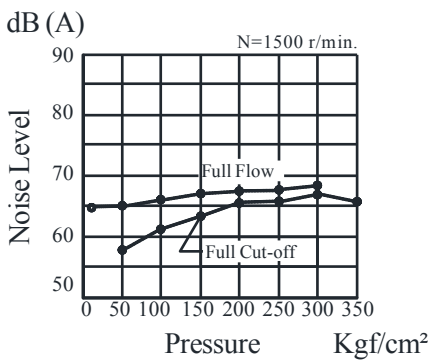
Full Cut-off Power



Drain



Noise Level (dB): [One meter(3.3 ft.) away from the back of the pump]

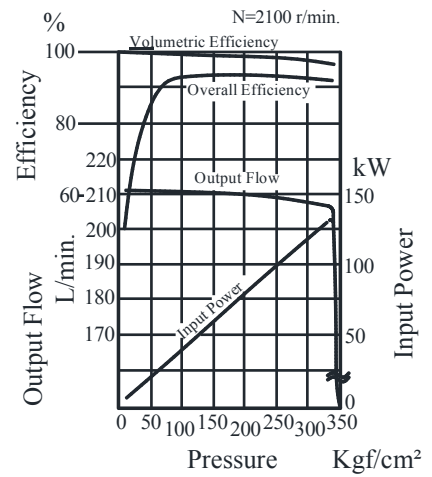
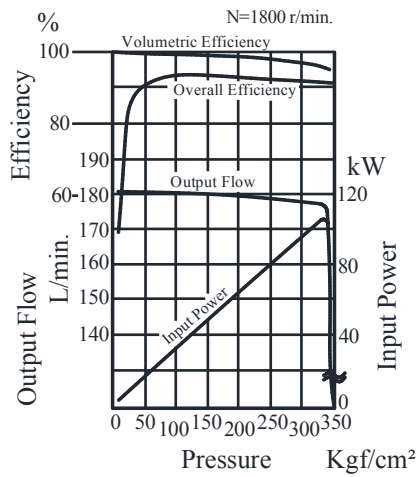
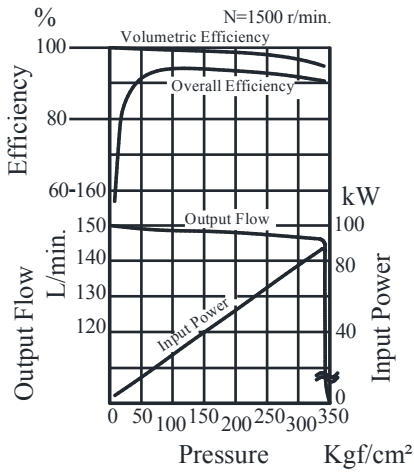


Typical Performance Characteristics of "A3HG100-01K" Oil Viscosity 32 cSt [ISO VG 32, 40°C]

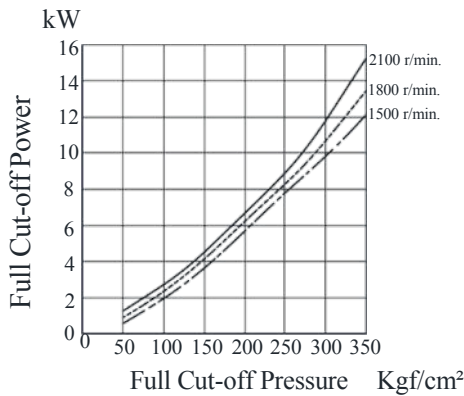
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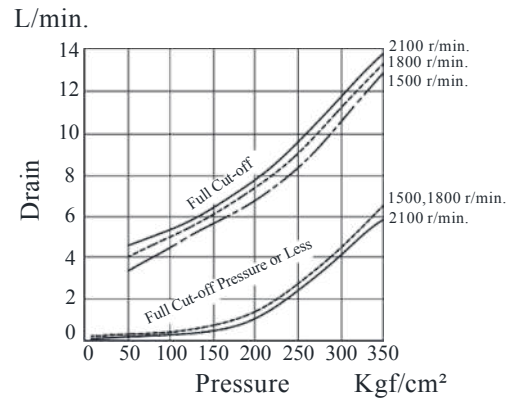
Performance Characteristic Curve



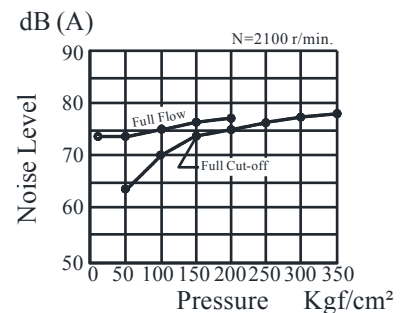
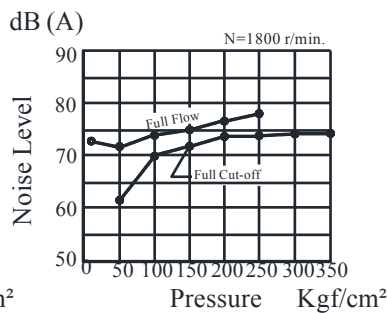
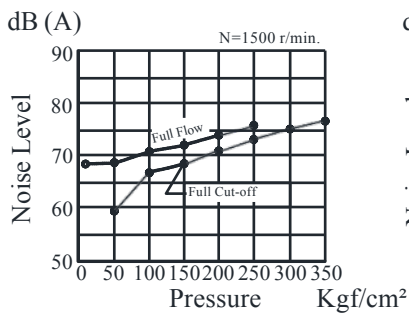
Full Cut-off Power



Drain

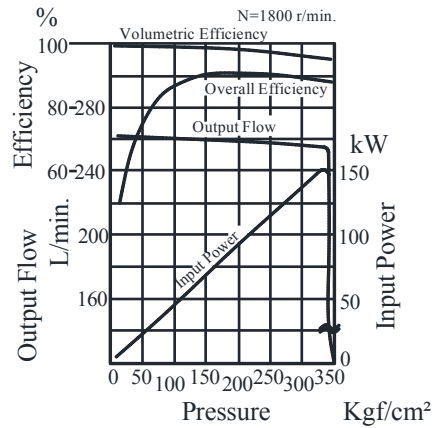
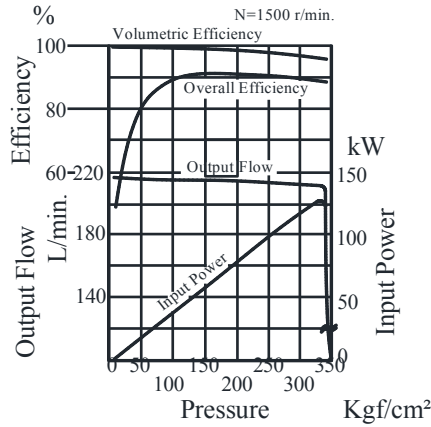


Noise Level (dB): [One meter(3.3 ft.) away from the back of the pump]

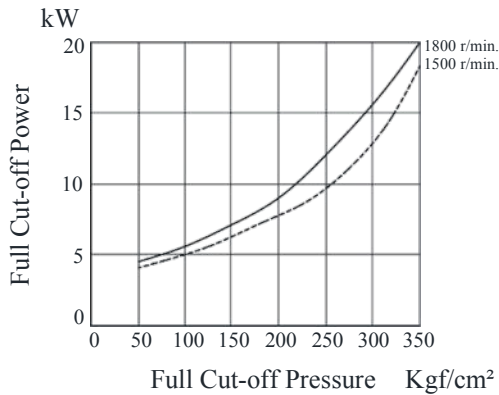


Typical Performance Characteristics of "A3HG145-01K" Oil Viscosity 32 cSt [ISO VG 32, 40°C]

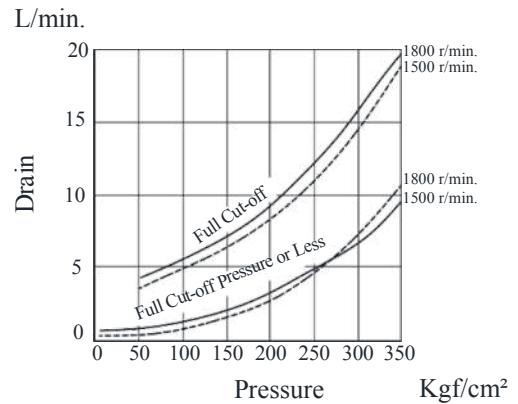
Performance Characteristic Curve



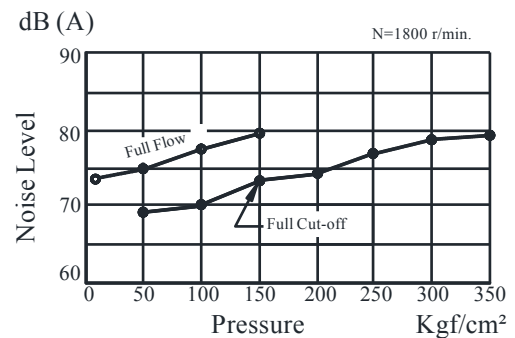
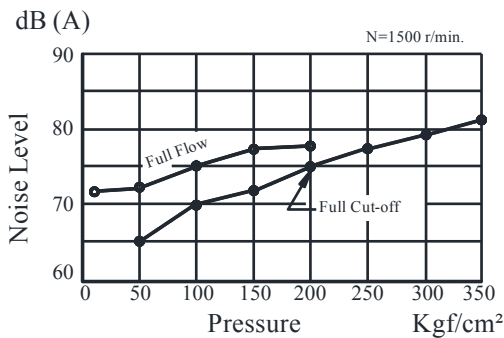
Full Cut-off Power



Drain



Noise Level (dB): [One meter(3.3 ft.) away from the back of the pump]

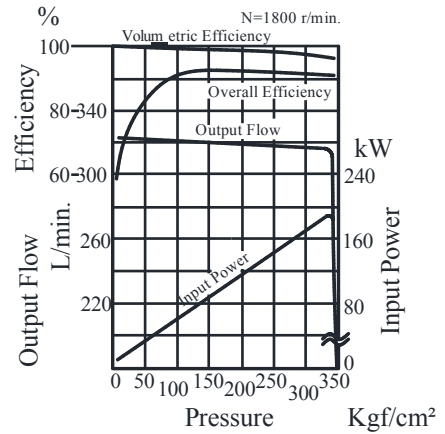
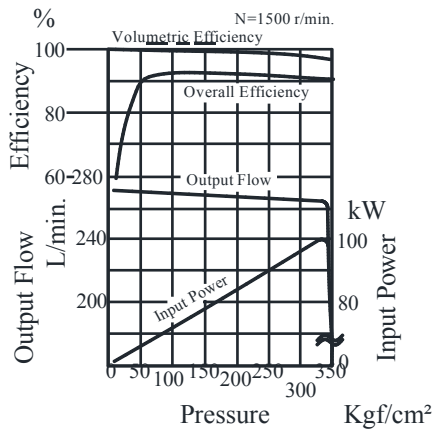


Typical Performance Characteristics of "A3HG180-01K" Oil Viscosity 32 cSt [ISO VG 32, 40°C]

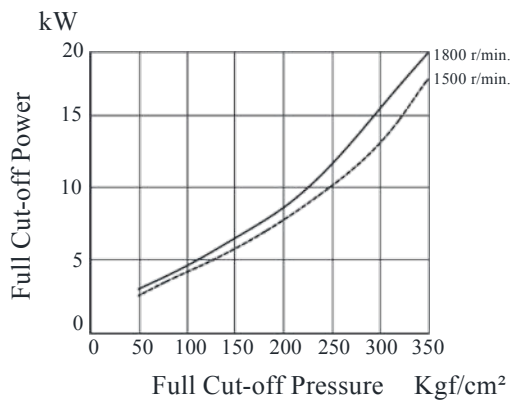
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"A3HG" Series High Pressure Variable Displacement Piston Pumps

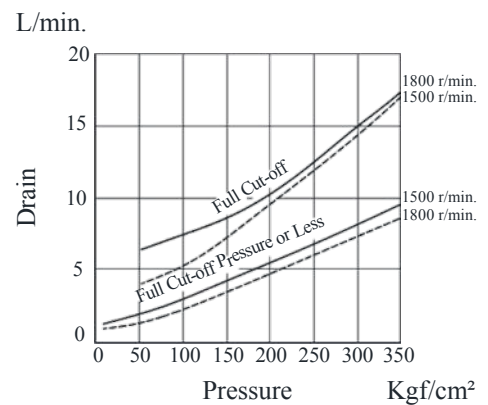
Performance Characteristic Curve



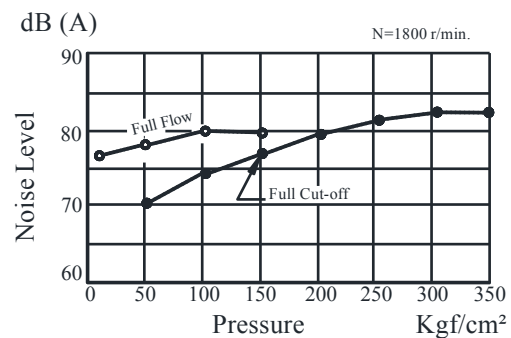
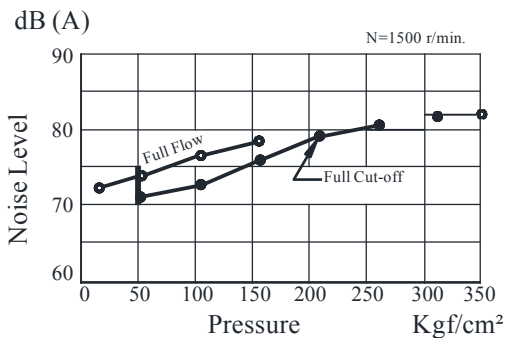
Full Cut-off Power



Drain

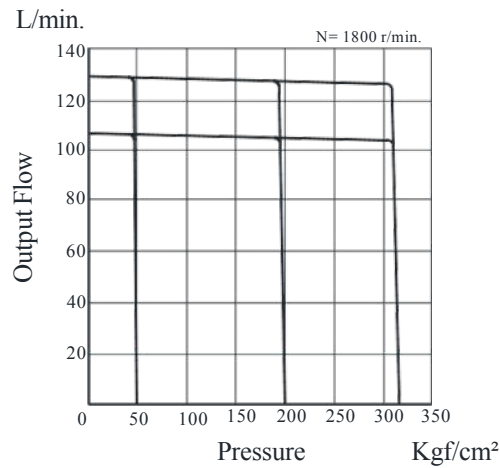


Noise Level (dB): [One metre away from the back of the pump]



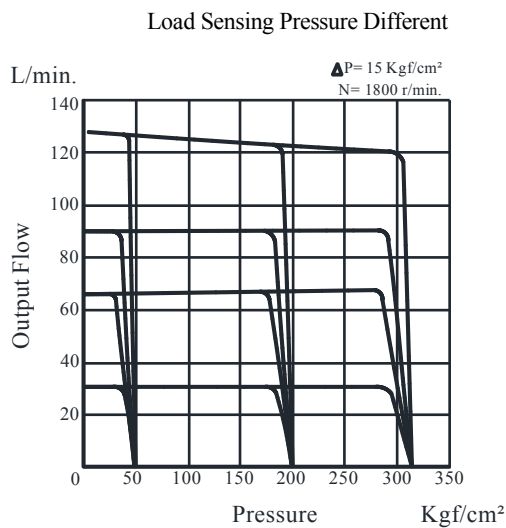
Typical Performance Characteristics of “A3HG71-FR07※” Oil Viscosity 32 cSt [ISO VG 32, 40°C]

■ Performance Vs. Output Flow

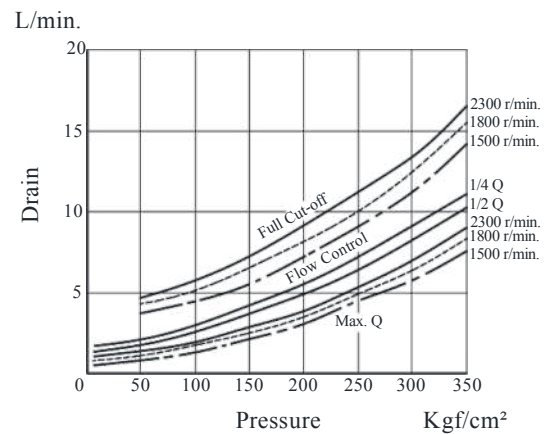


Typical Performance Characteristics of “A3HG71-FR14※” Oil Viscosity 32 cSt [ISO VG 32, 40°C]

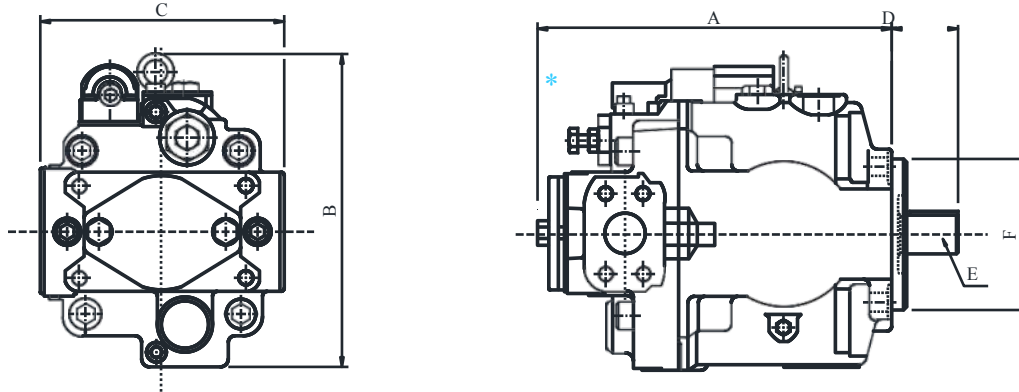
■ Pressure Vs. Output Flow



■ Drain



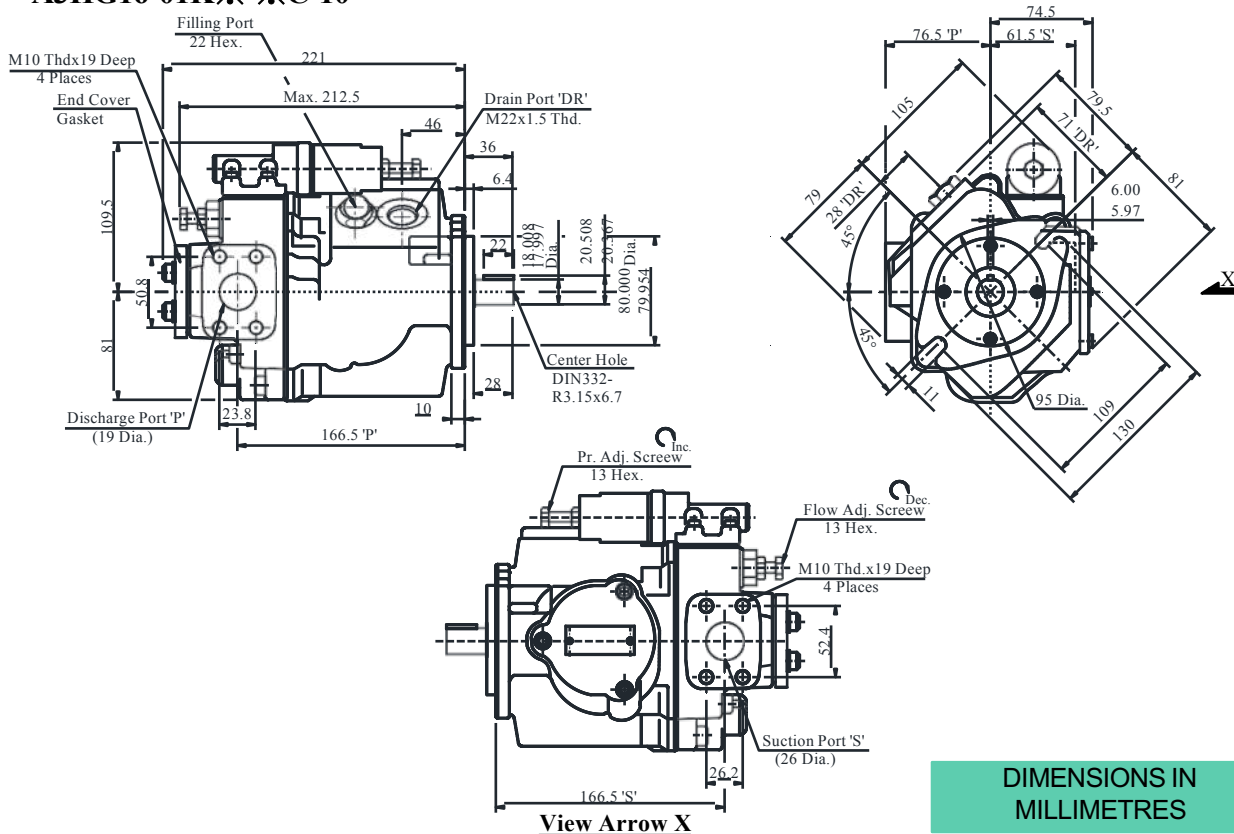
Installation Drawing/Mounting Dimensions (Control Type 01)



Model Numbers	No. of Mtg. Bolts.	A	B	C	Shaft Extension					
					ISO Ver.			SAE Ver.		
					D : Key/Sp	E : Key/Sp	F	D : Key/Sp	E : Key/Sp	F
A3HG16	2 Bolts	221	160.5	184	36/38	Ø18/11T-16/32	Ø80	41/38	Ø19.05/11T16/3 2 11T-16/32	Ø82.55
A3HG37	2 Bolts	273	210.5	174	52/46	Ø25/15T-16/32	Ø100	46/46	Ø25.4/15T-16/32	Ø101.6
	4 Bolts	258.5	210.5	170	60/56	Ø32/14T-12/24	Ø125	56/56	Ø31.75/14T-12/24	Ø127
A3HG56	2 Bolts	300	242.5	176	52/46	Ø25/15T-16/32	Ø100	46/46	Ø25.4/15T-16/32	Ø101.6
	4 Bolts	275	242.5	176	60/56	Ø32/14T-12/24	Ø125	56/56	Ø31.75/14T-12/24	Ø127
A3HG71	4 Bolts	296.5	264.5	204	60/56	Ø32/14T-12/24	Ø160	56/56	Ø31.75/14T-12/24	Ø127
A3HG100	4 Bolts	322	281.5	225	80/62	Ø40/17T-12/24	Ø180	62/62	Ø38.1/17T-12/24	Ø152.4
A3HG145	4 Bolts	345.5	301.5	246	92/75	Ø45/13T-8/16	Ø180	75/75	Ø44.45/13T-8/16	Ø152.4
A3HG180	4 Bolts	384.5	328	258	92/75	Ø45/13T-8/16	Ø180	75/75	Ø44.45/13T-8/16	Ø152.4

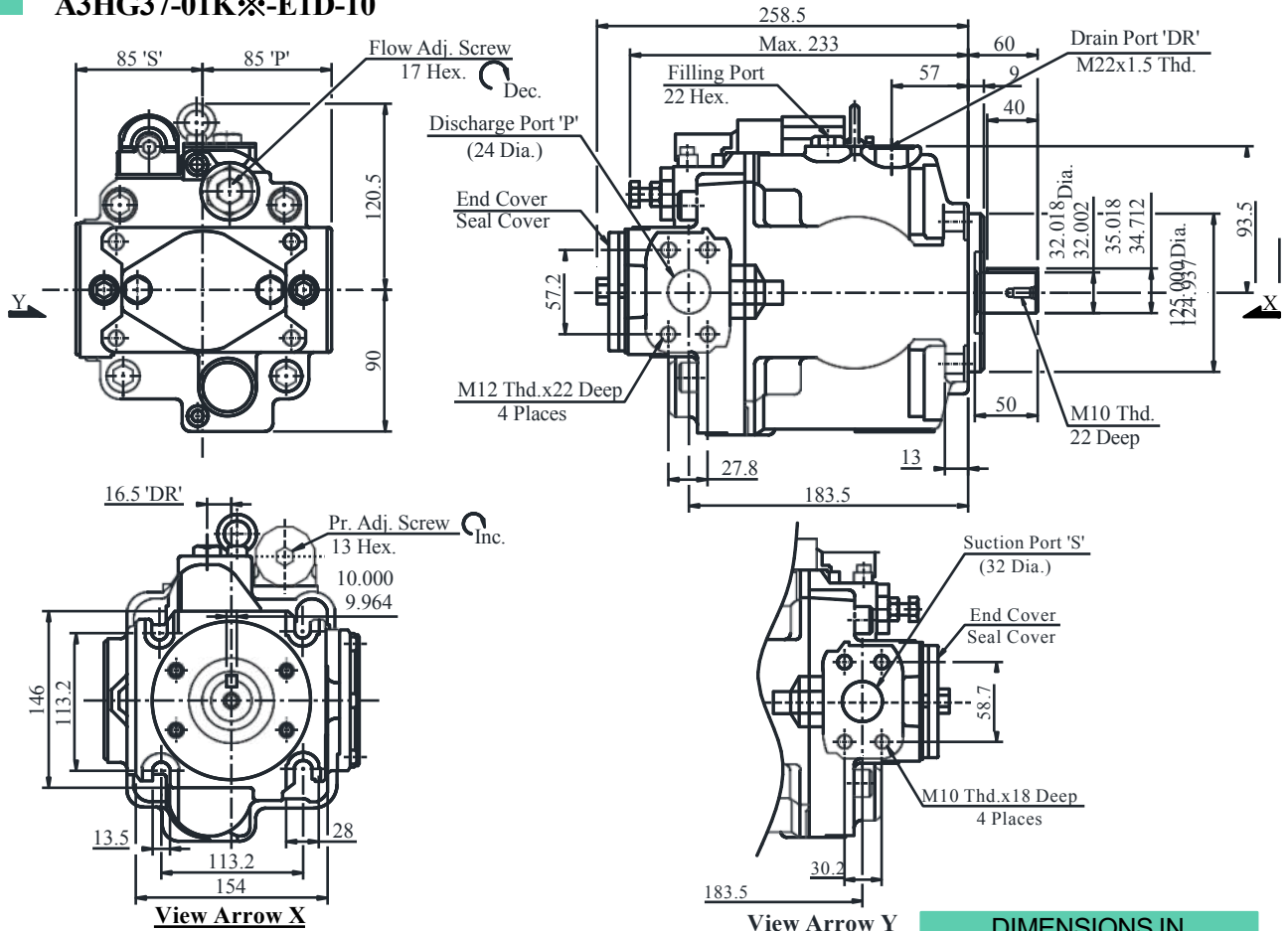
• An adapter flange may be required for pump connection on the non-drive side. Consult CNIP for Details.

A3HG16-01K※-※C-10



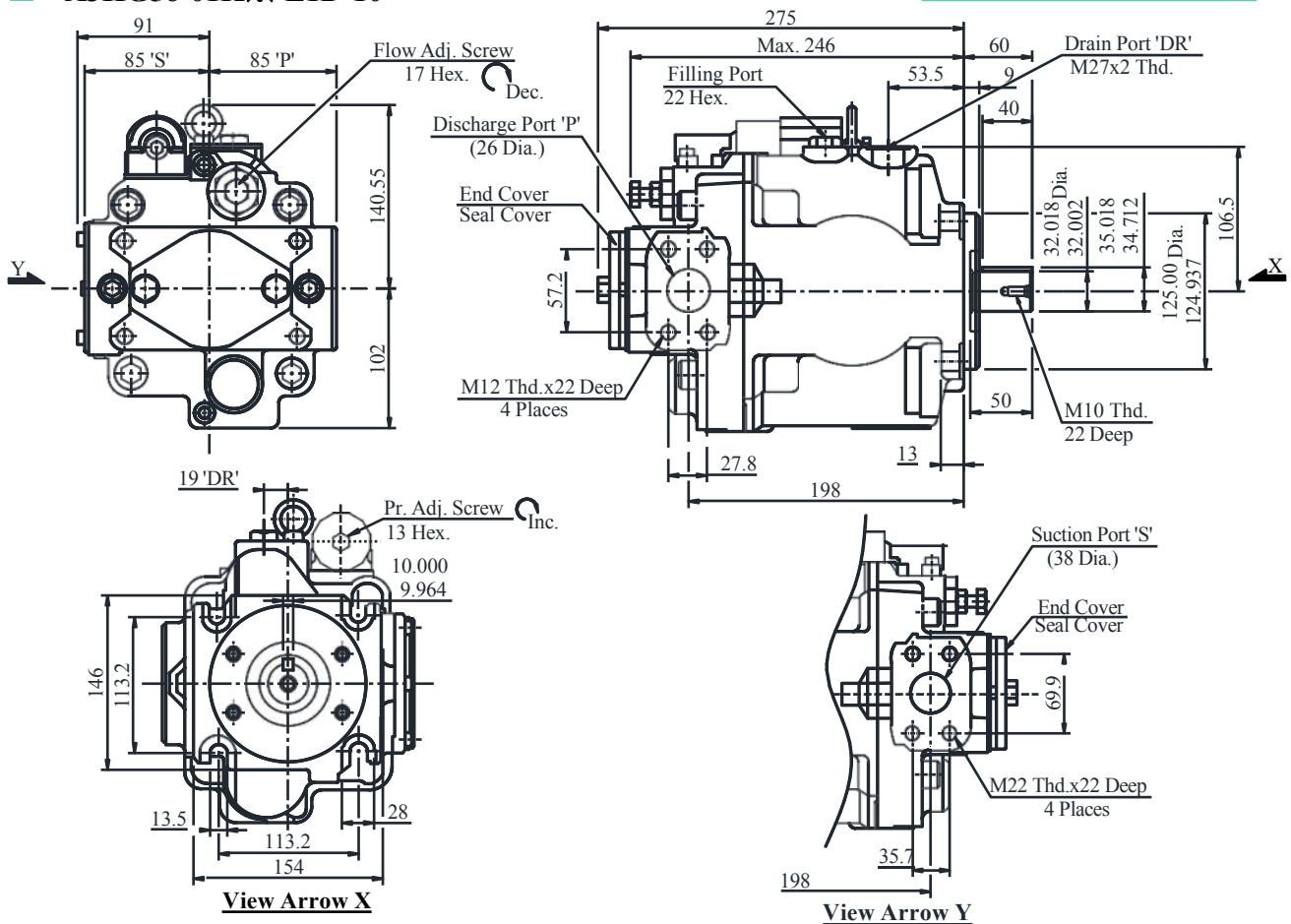
**DIMENSIONS IN
MILLIMETRES**

A3HG37-01K※-E1D-10

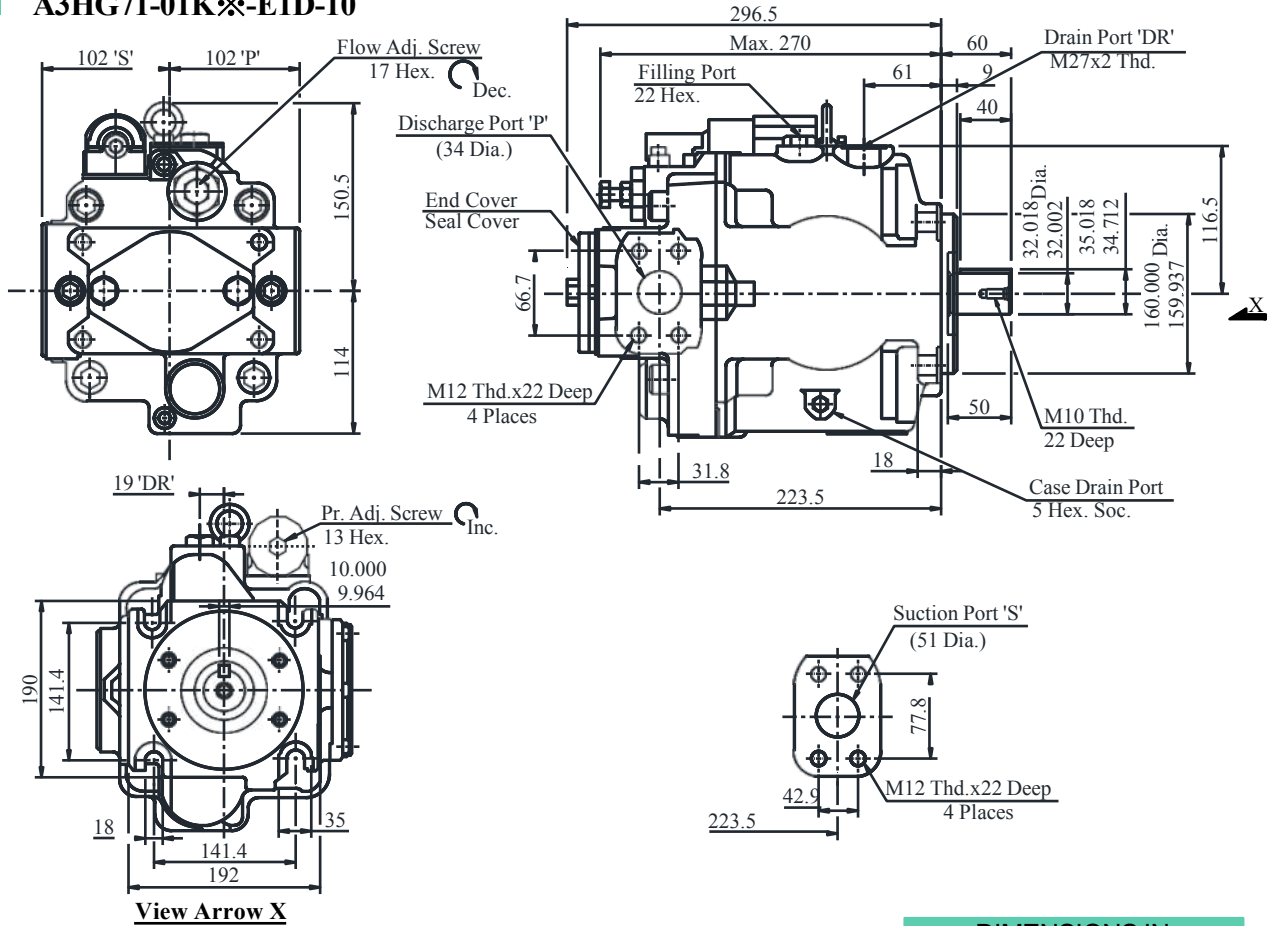


DIMENSIONS IN MILLIMETRES

A3HG56-01K※-E1D-10

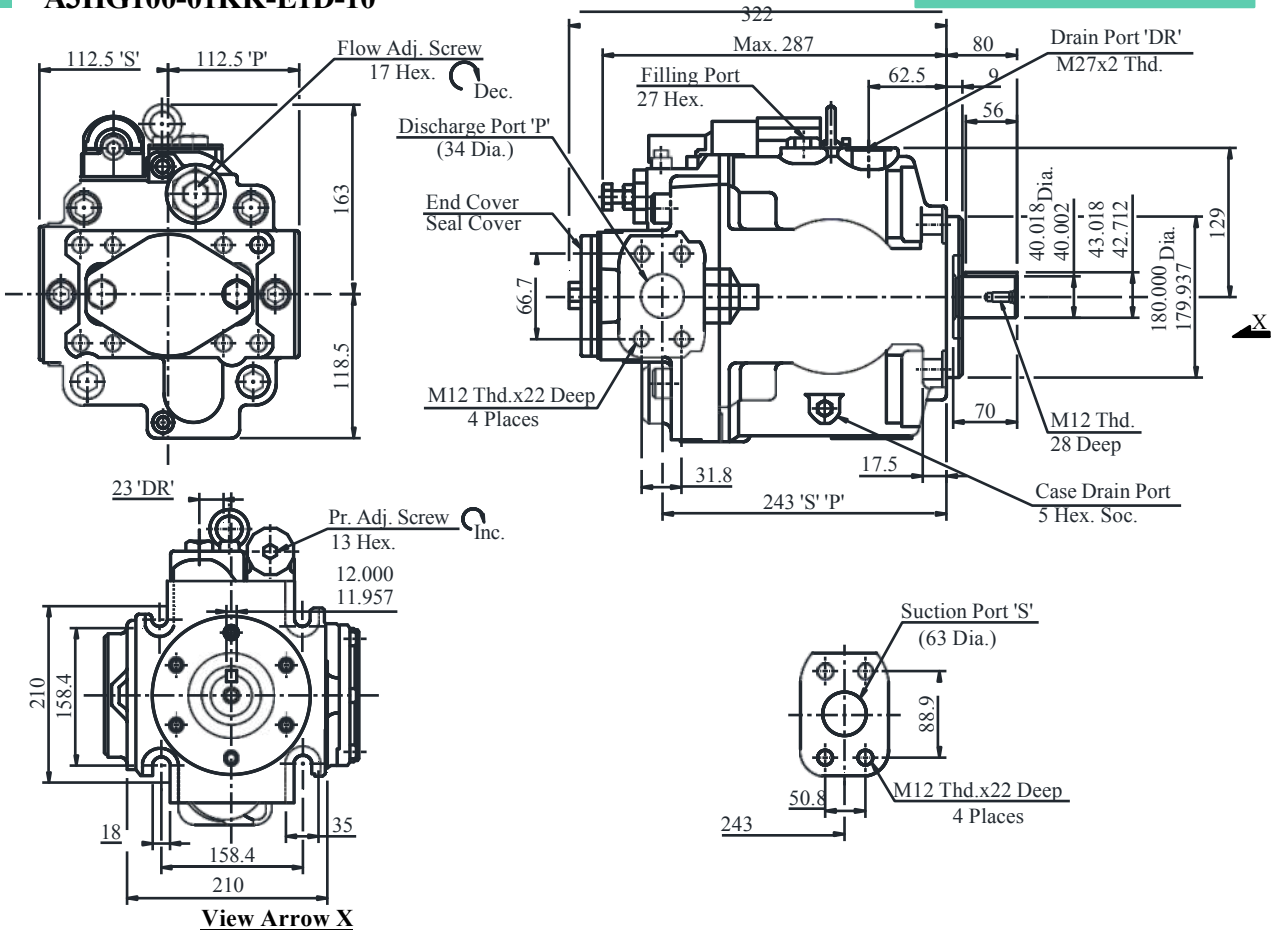


A3HG71-01K-E1D-10

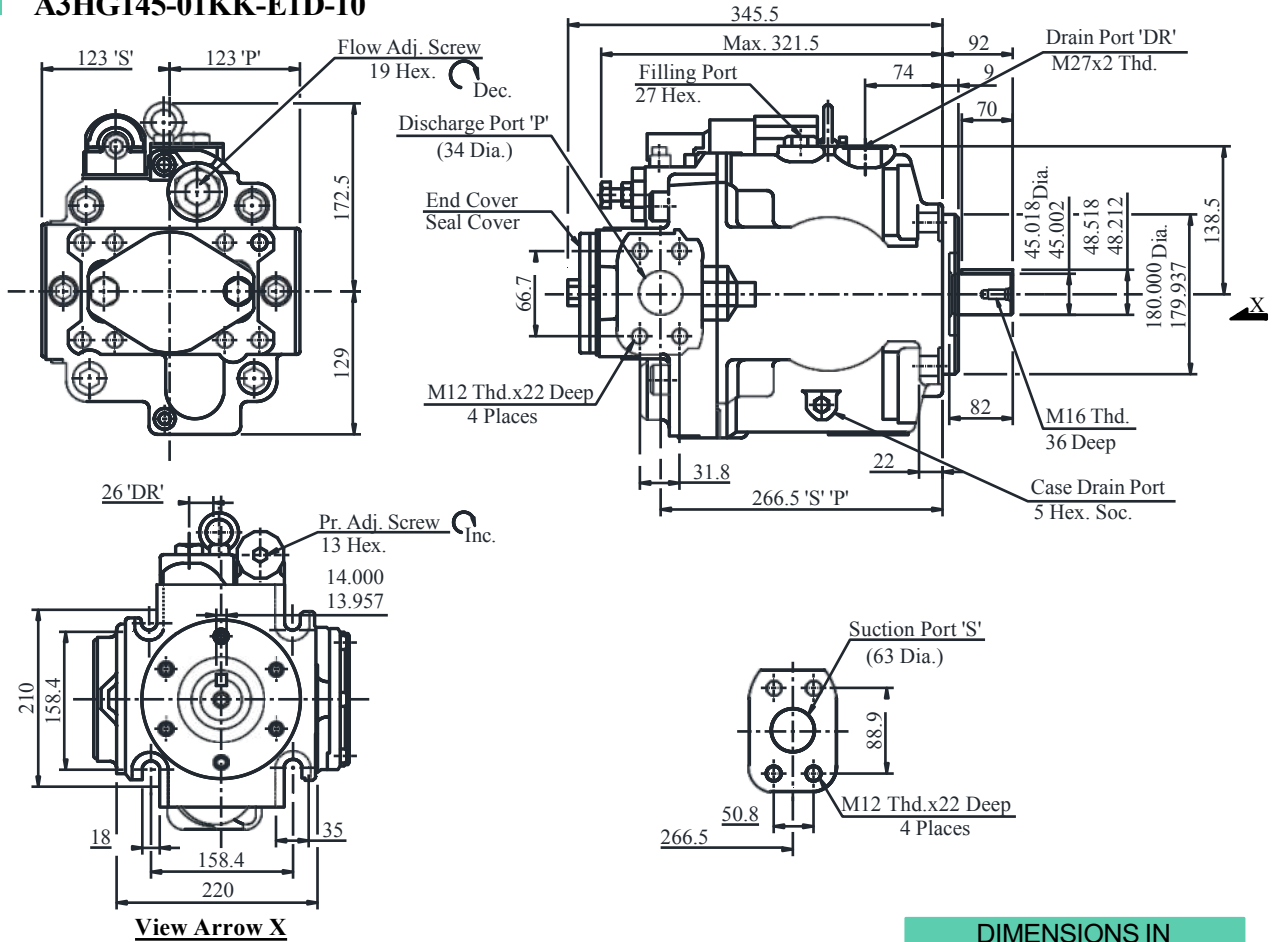


DIMENSIONS IN
MILLIMETRES

A3HG100-01KK-E1D-10

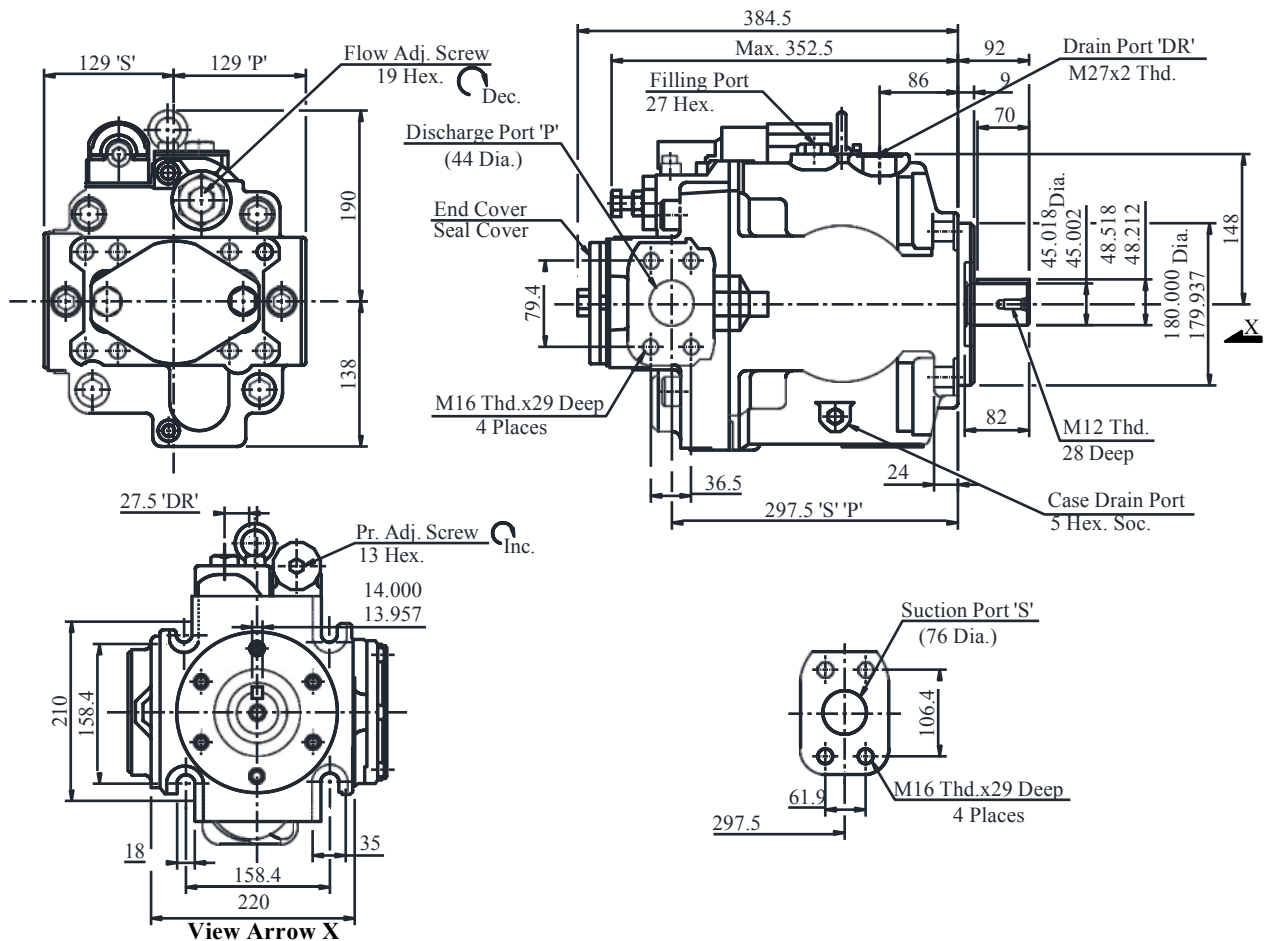


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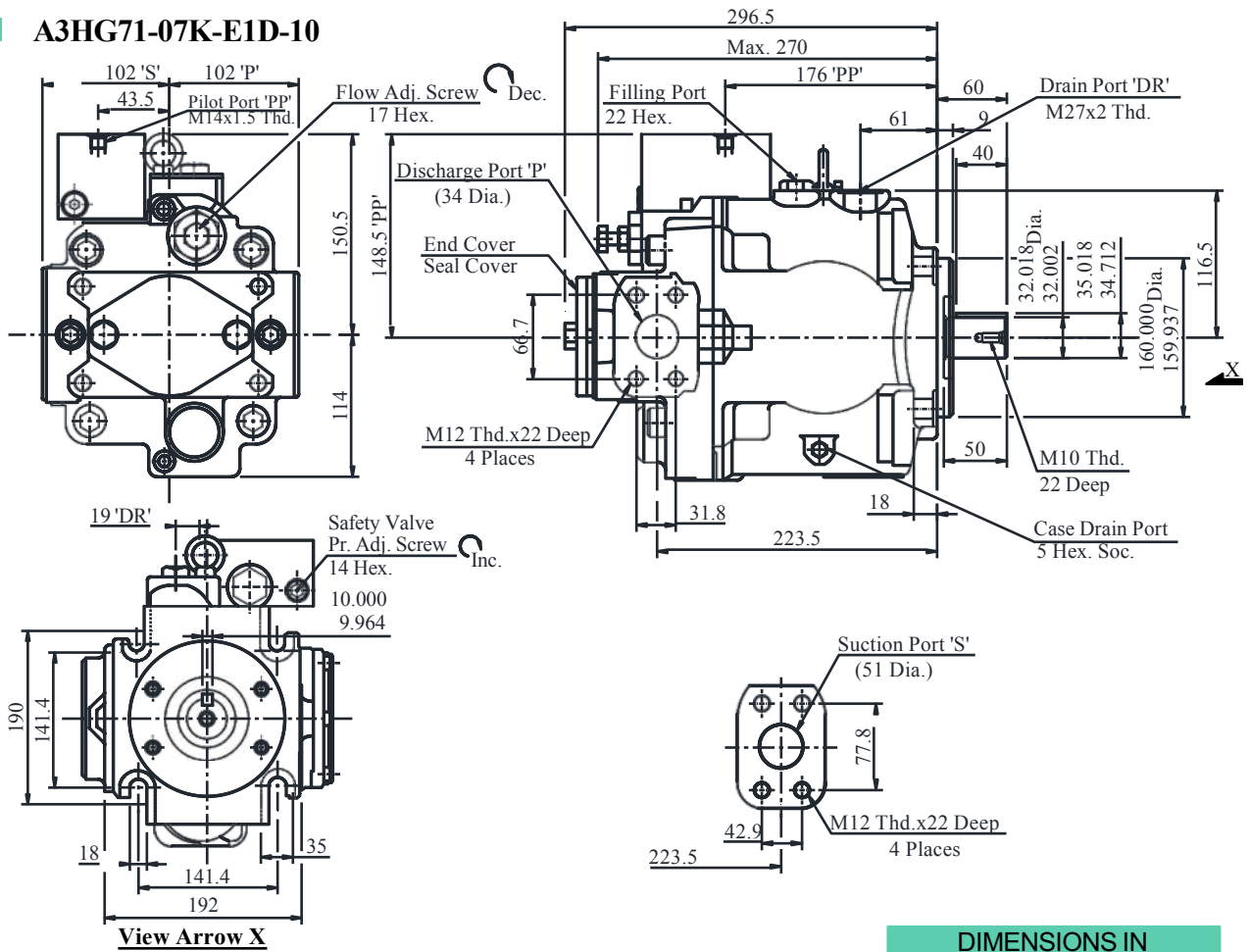
DIMENSIONS IN MILLIMETRES

A3HG180-01KK-E1D-10



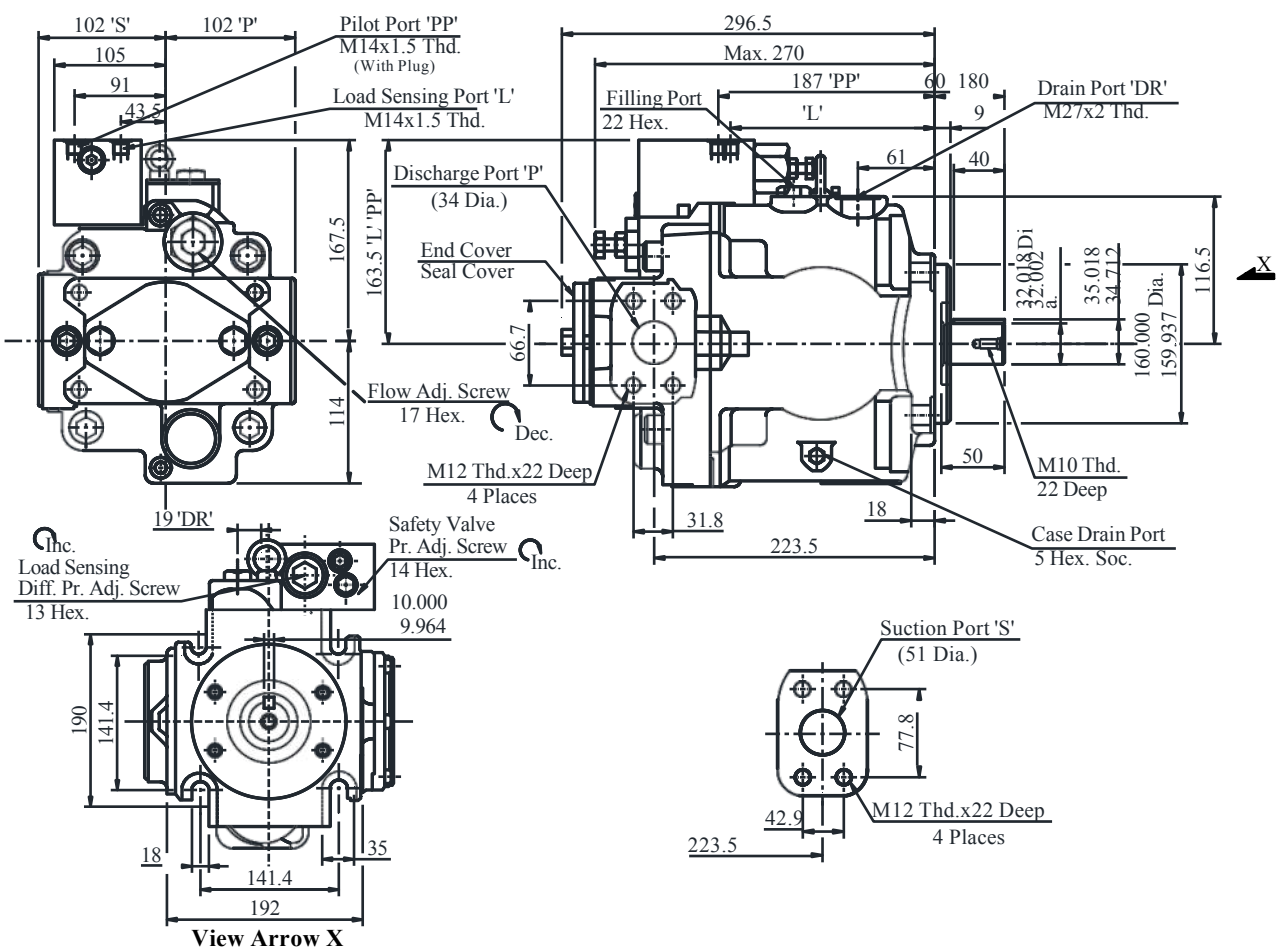
"A3HG" Series Variable Displacement Piston Pumps

A3HG71-07K-E1D-10



DIMENSIONS IN
MILLIMETRES

A3HG71-14K-E1D-10



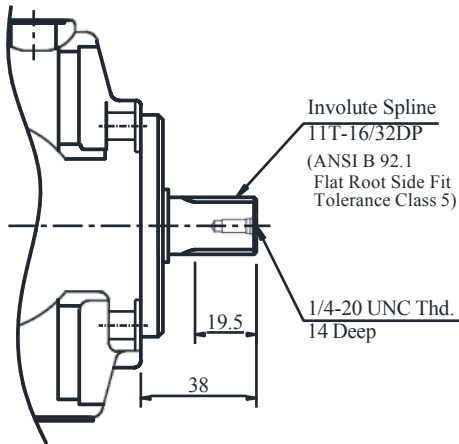
“A3HG” Series Variable Displacement Piston Pumps

Detailed View of Splined Shaft End

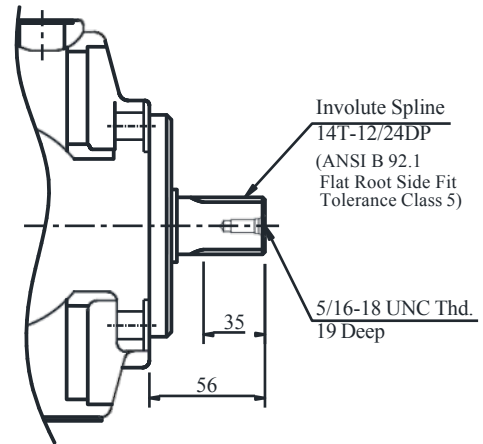
Model Number: A3HG*-~~*~~SP-~~*~~*-10

DIMENSIONS IN
MILLIMETRES

- A3HG16-FR~~*~~*SP-10

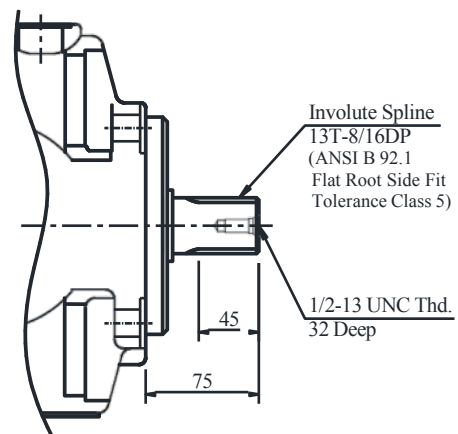
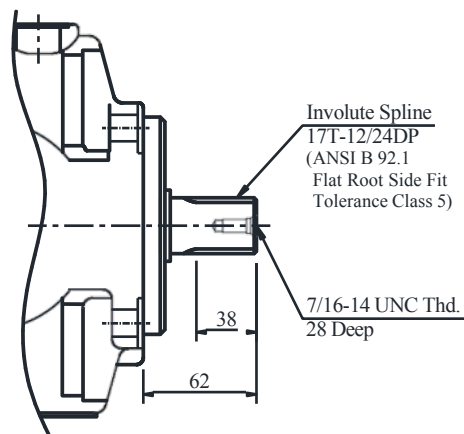


- A3HG37-FR~~*~~*SP-10
- A3HG56-FR~~*~~*SP-10
- A3HG71-FR~~*~~*SP-10



- A3HG100-FR~~*~~*SP-10
- A3HG145-FR~~*~~*SP-10

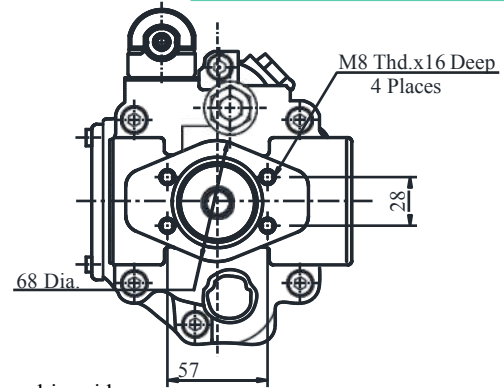
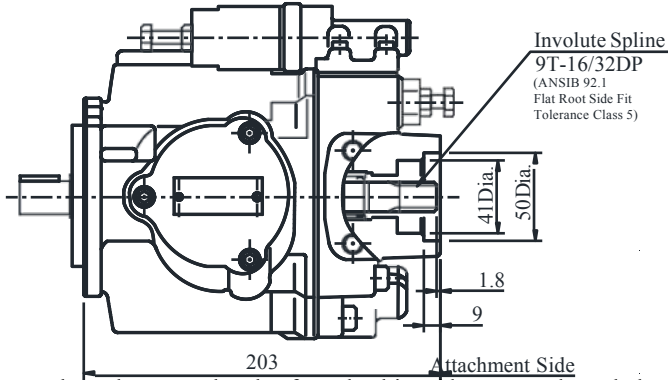
- A3HG180-FR~~*~~*SP-10



Non-Drive Side Pump Connection

• A3HG16-FR***-***-10

DIMENSIONS IN MILLIMETRES

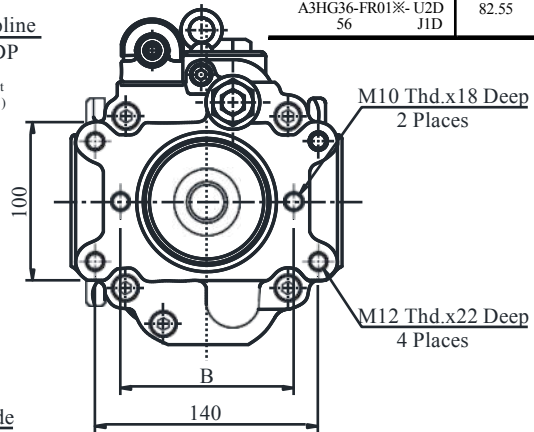
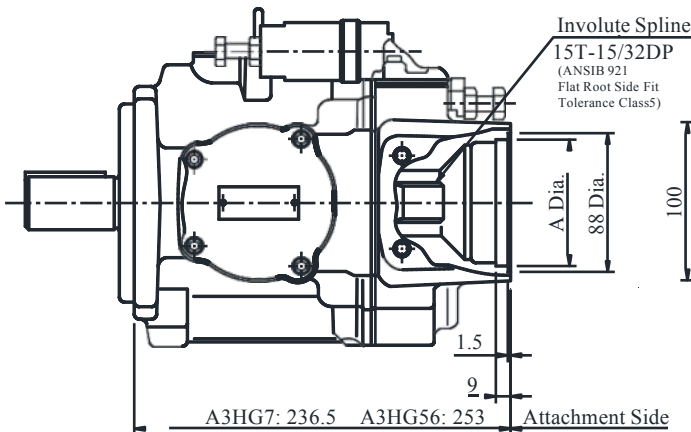


- ❑1 Remove the end cover and gasket from the drive side pump and attach the non-drive side pump. Carefully handle the removed gasket, since it is required to attach the non-drive side pump.
- ❑2 An adapter coupling (supplied separately) is necessary for non-drive side pump connection. Consult CNIP for details.

• A3HG37-FR***-***-10

• A3HG56-FR***-***-10

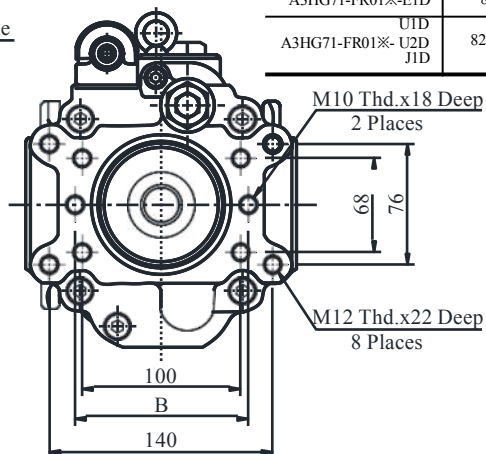
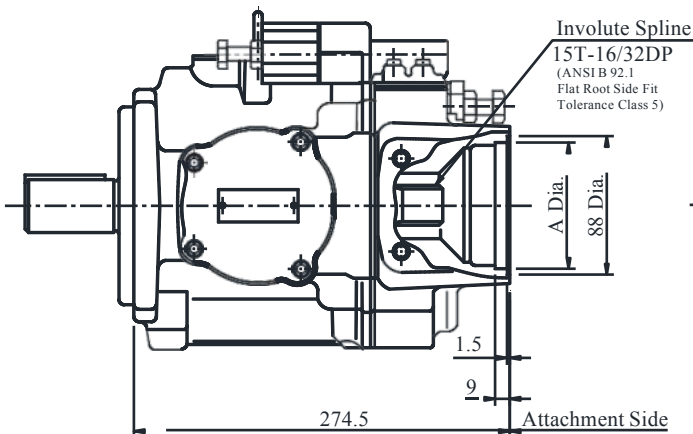
Model Numbers	A	B
A3HG36-FR01*-E1D 56	80	109
UID		
A3HG36-FR01*-U2D 56	82.55	106
JID		



- ❑1 Remove the end cover and gasket from the drive side pump and attach the non-drive side pump. Carefully handle the O-Ring on the seal cover, since it is required to attach the non drive side pump.
- ❑2 A Pump with the port flange type EI 9ISO80, 2-Bolt) or U1/U2/J1 (SAE Code A. 2-Bolt) can be directly mounted on the non-drive side.
- ❑3 For other port flange types, an adapter coupling (supplied separately) is necessary for non-drive side pump connection. Consult CNIP for details.

• A3HG71-FR***-***-10

Model Numbers	A	B
A3HG71-FR01*-E1D	80	109
UID		
A3HG71-FR01*-U2D JID	82.55	106



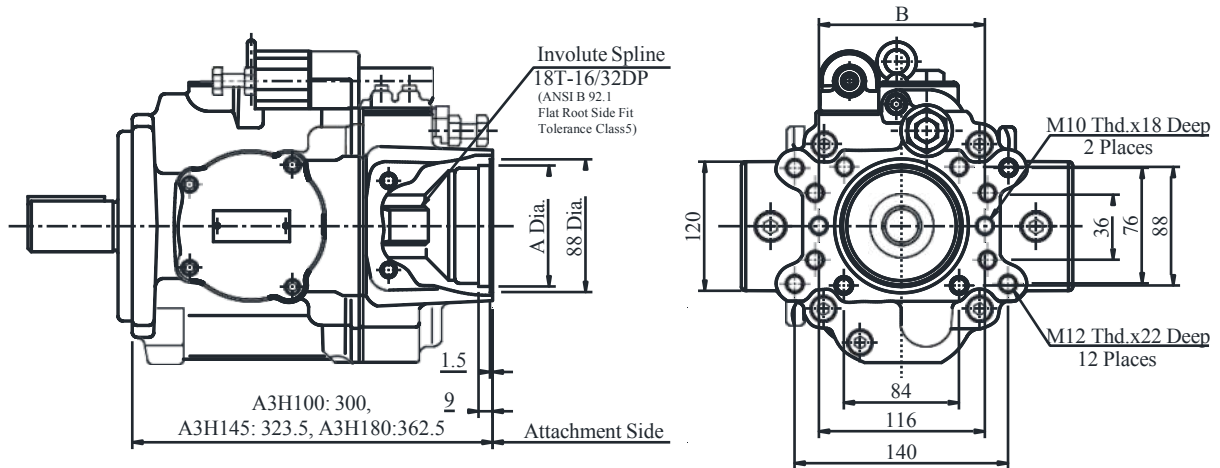
- ❑1 Remove the end cover and gasket from the drive side pump and attach the non-drive side pump. Carefully handle the O-Ring on the seal cover, since it is required to attach the non drive side pump.
- ❑2 A Pump with the port flange type EI 9ISO80, 2-Bolt) or U1/U2/J1 (SAE Code A. 2-Bolt) can be directly mounted on the non-drive side.
- ❑3 For other port flange types, an adapter coupling (supplied separately) is necessary for non-drive side pump connection. Consult CNIP for details.

PISTON PUMPS

- A3HG100-FR***-***-10
- A3HG145-FR***-***-10
- A3HG180-FR***-***-10

DIMENSIONS IN MILLIMETRES

Model Numbers	A	B
A3HG145-FR01*-E1D	80	109
A3HG145-FR01*-U2D UID	82.55	106
J1D		



- 1 Remove the end cover and gasket from the drive side pump and attach the non-drive side pump. Carefully handle the O-Ring on the seal cover, since it is required to attach the non drive side pump.
- 2 A Pump with the port flange type EI 9ISO80, 2-Bolt) or U1/U2/J1 (SAE Code A, 2-Bolt) can be directly mounted on the non-drive side.
- 3 For other port flange types, an adapter coupling (supplied separately) is necessary for non-drive side pump connection. Consult CNIP for details.