

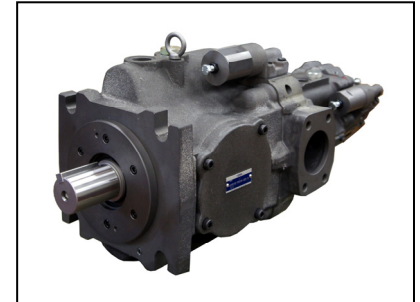


A3HG Series High Pressure Variable Displacement Piston Pumps Release of New Series

“A3HG” series pumps are high pressure variable displacement piston pumps based on our highly reputable “A3H” series pumps and meeting international standards (ISO and SAE). They have a rated pressure of 31.5 MPa and a maximum operating pressure of 35 MPa. While inheriting the high performance of the conventional A3H series, A3HG series pumps feature higher rated pressure design (28 MPa → 31.5 MPa).

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 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.

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 (31.5 MPa). 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.

■ Model Number Designation

A3HG16	-F	R	01	K	K	-E1	D	-10													
Series Number	Mounting	Direction of Rotation	Control Type	Pres. Adj. Range MPa	Shaft Extension	Port/Flange Type	Number of Pump Mtg. Bolts	Design Number													
A3HG16 (16.3 cm ³ /rev)	F: Flange Mtg.	[Viewed from Shaft End] R: Clockwise	01: Pressure Compensator Type	K: 5 - 35	K: Keyed Shaft	<table border="1"> <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">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	10
Code			Flange				Port/Flange Thread														
E1			ISO	Metric																	
U1			SAE	Unified																	
U2				BSPF/Metric																	
J1				Rc/Metric																	
A3HG37 (37.1 cm ³ /rev)			07: Pilot Pressure Control Type Pressure Compensator	N/A for the control types 07 and 14	SP: Splined Shaft		D: 4														
A3HG56 (56.3 cm ³ /rev)																					
A3HG71 (70.7 cm ³ /rev)																					
A3HG100 (100.5 cm ³ /rev)																					
A3HG145 (145.2 cm ³ /rev)																					
A3HG180 (180.7 cm ³ /rev)			14: Load Sensing Control Type																		

■ Specifications

Model Numbers		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 MPa		31.5						
Max. Operating Pressure MPa		35.0						
Shaft Speed Range r/min	Max.	3600	2700	2500	2300	2100	1800	1800
	Min.	600						
Suction Pressure		-16.7 - 50 kPa at 600 - 1800 r/min, 0 - 50 kPa 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.

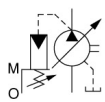
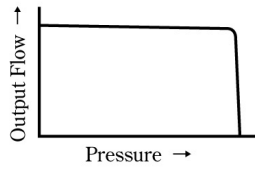
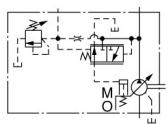
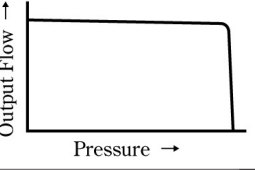
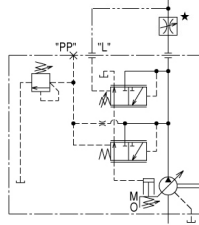
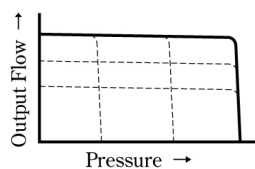
■ Application

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

■ Product Release

April 2013

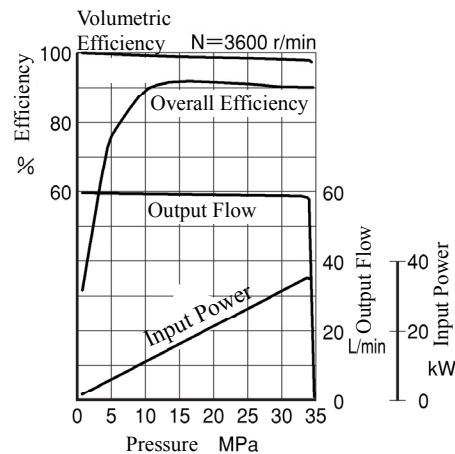
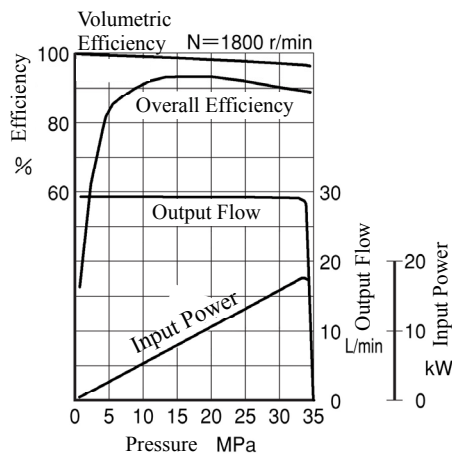
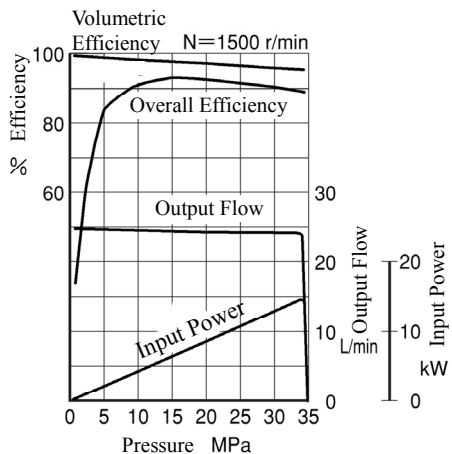
■ Control Type

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 the set pressure is maintained. ● 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."

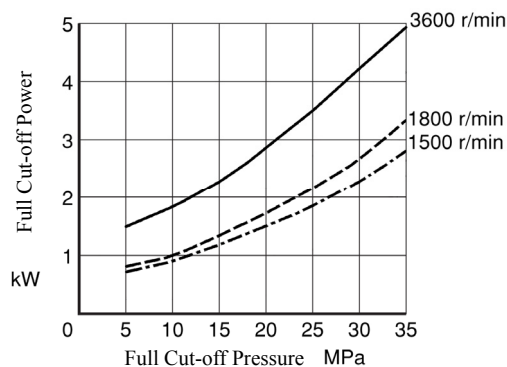
Characteristics of A3HG16-01K*

Typical Performance Characteristics at Viscosity 32 mm²/s (ISO VG 32 Oils, 40 °C)

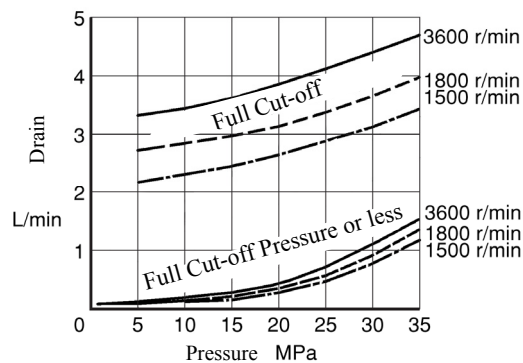
Performance Characteristic Curve



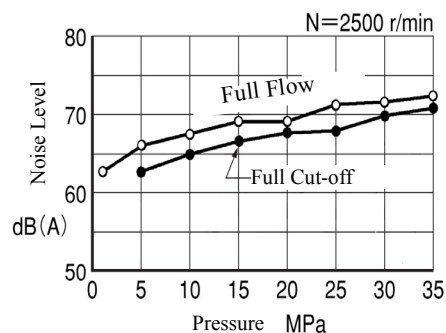
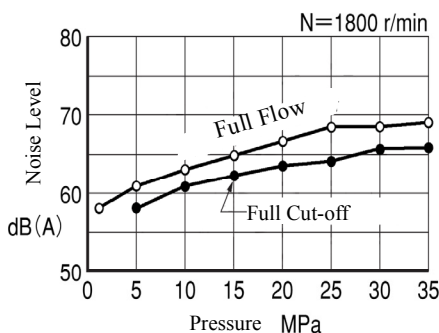
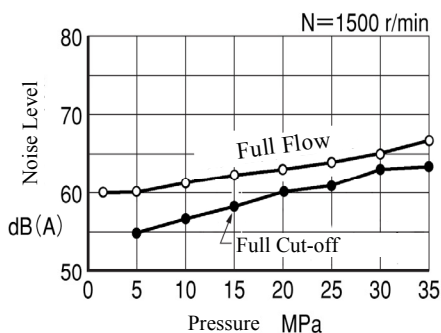
Full Cut-off Power



Drain



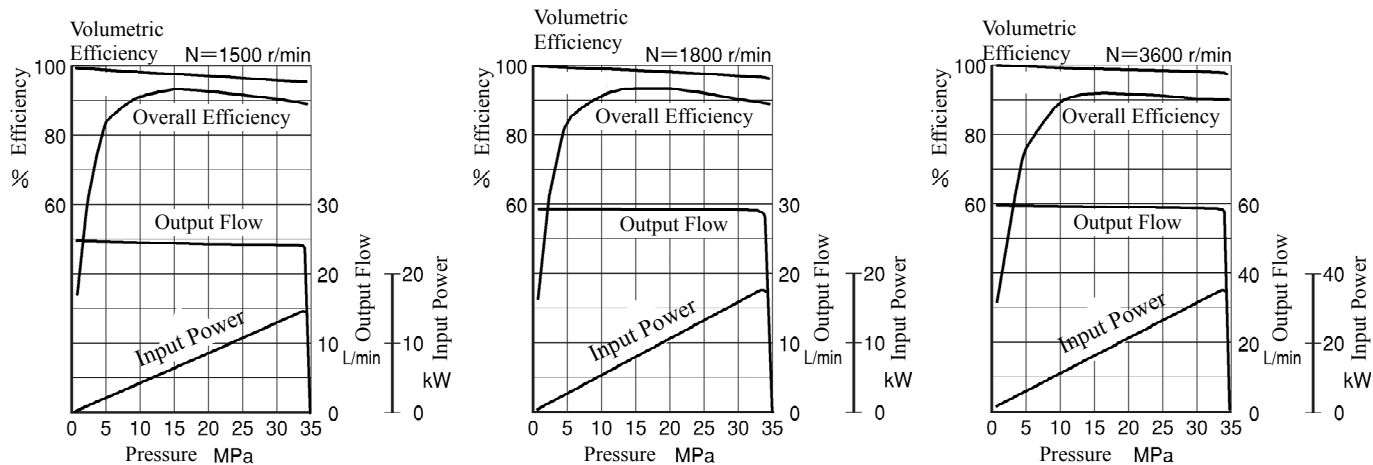
Noise Level [1 m (3.3 ft.) away from the back of the pump]



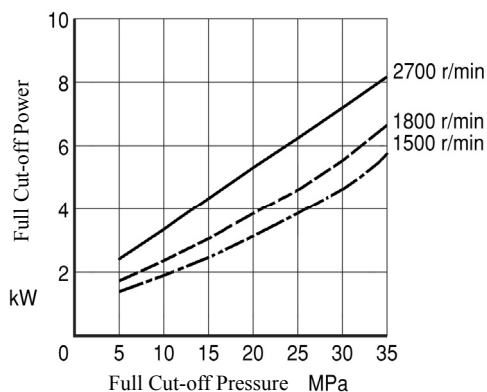
Characteristics of A3HG37-01K*

Typical Performance Characteristics at Viscosity 32 mm²/s (ISO VG 32 Oils, 40 °C)

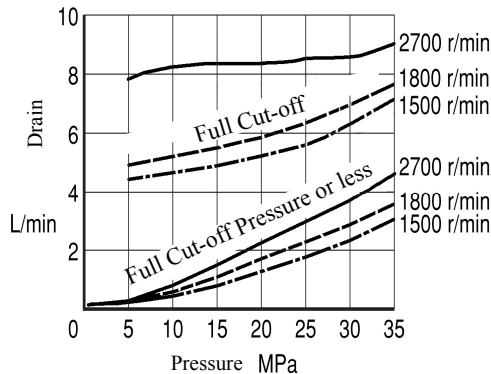
Performance Characteristic Curve



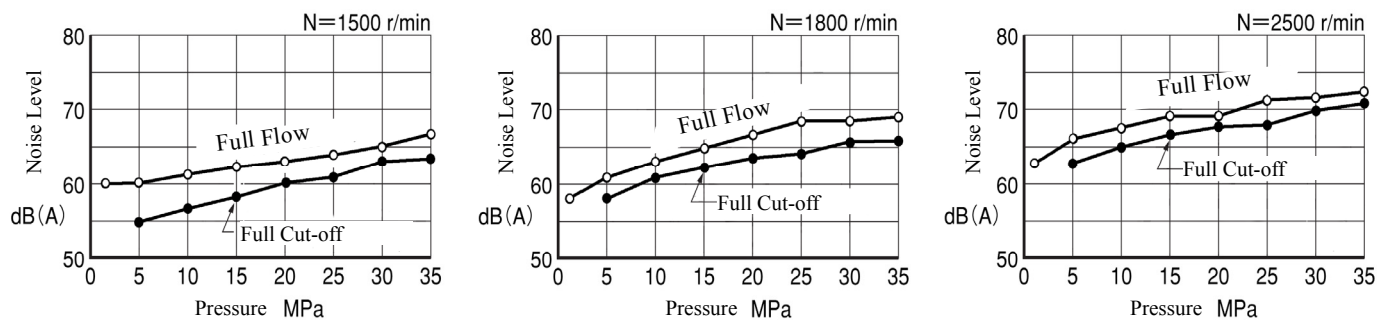
Full Cut-off Power



Drain



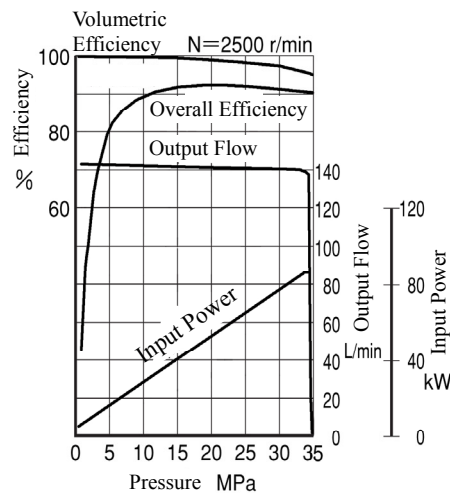
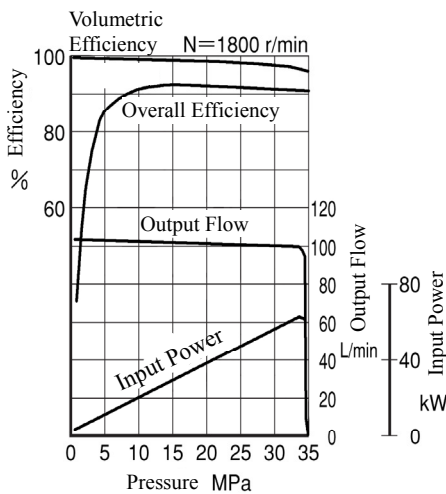
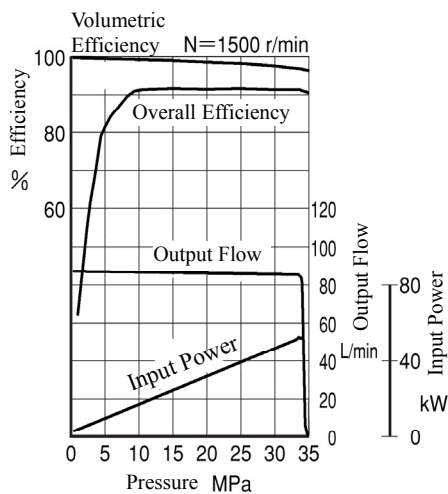
Noise Level [1 m (3.3 ft.) away from the back of the pump]



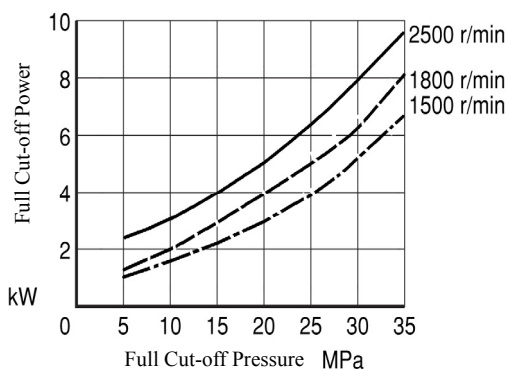
Characteristics of A3HG56-01K*

Typical Performance Characteristics at Viscosity 32 mm²/s (ISO VG 32 Oils, 40 °C)

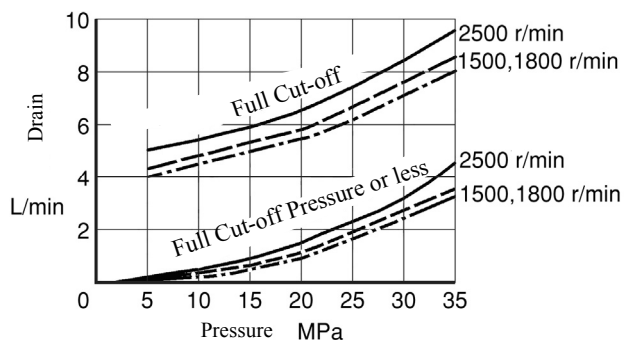
Performance Characteristic Curve



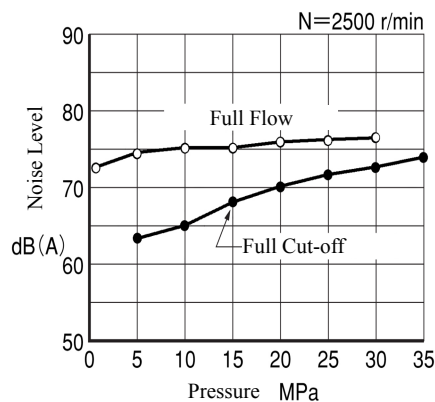
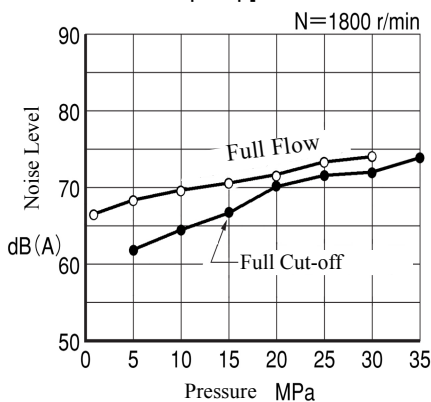
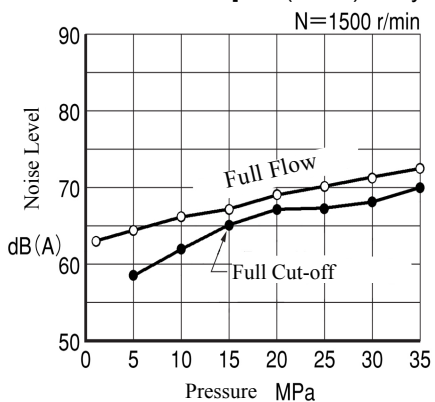
Full Cut-off Power



Drain



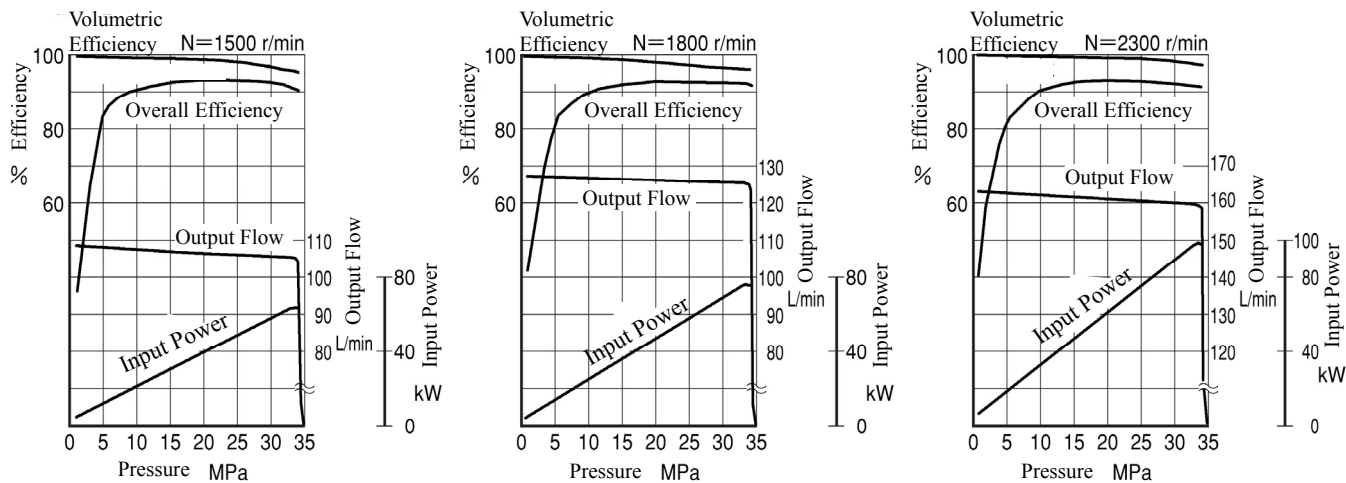
Noise Level [1 m (3.3 ft.) away from the back of the pump]



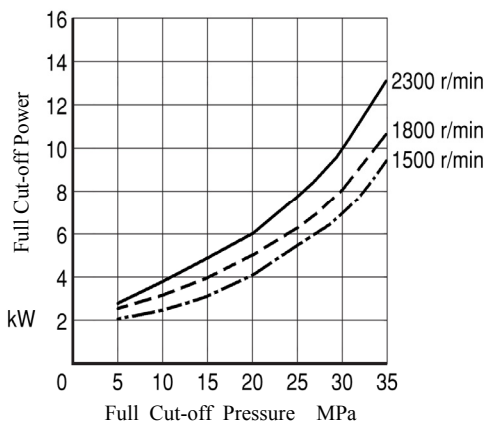
Characteristics of A3HG71-01K*

Typical Performance Characteristics at Viscosity 32 mm²/s (ISO VG 32 Oils, 40 °C)

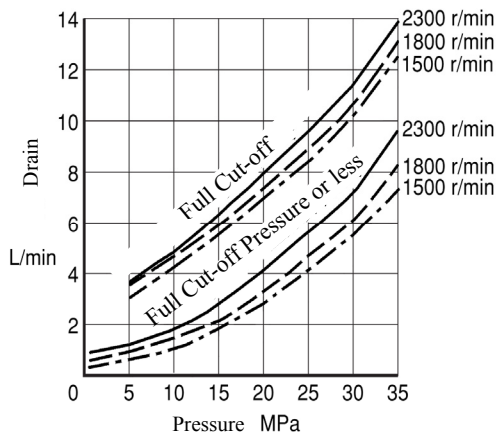
Performance Characteristic Curve



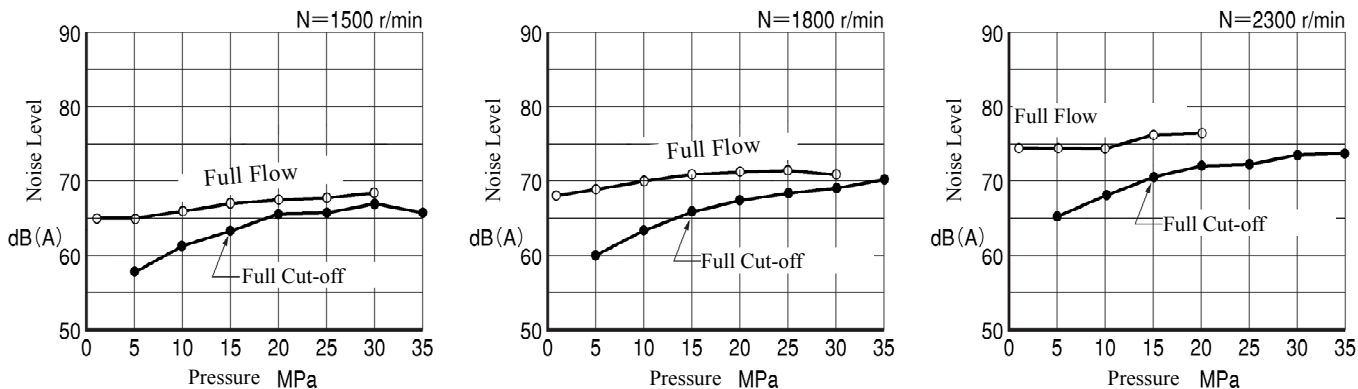
Full Cut-off Power



Drain



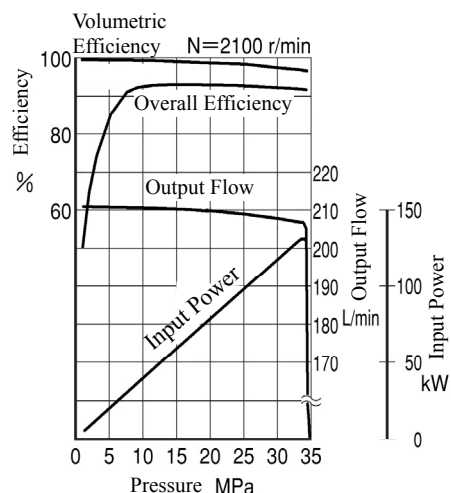
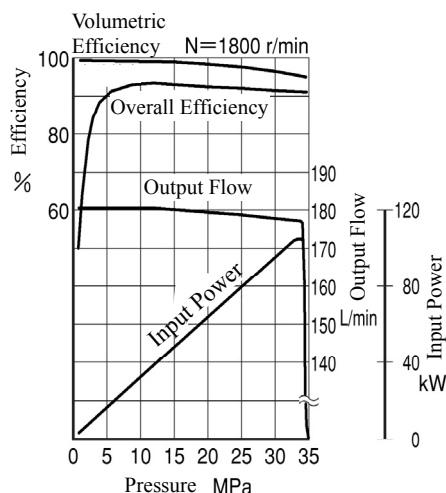
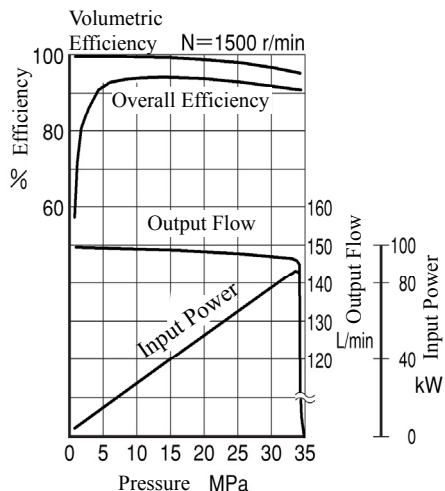
Noise Level [1 m (3.3 ft.) away from the back of the pump]



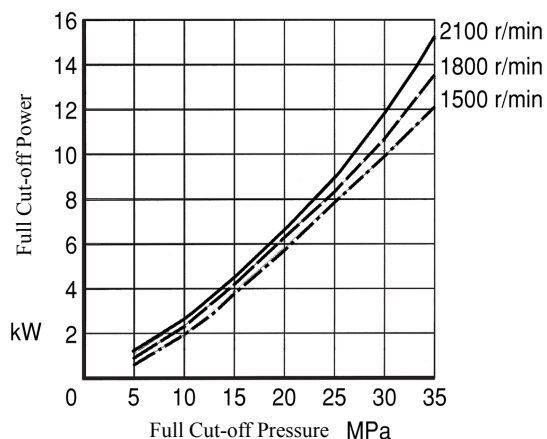
Characteristics of A3HG100-01K*

Typical Performance Characteristics at Viscosity 32 mm²/s (ISO VG 32 Oils, 40 °C)

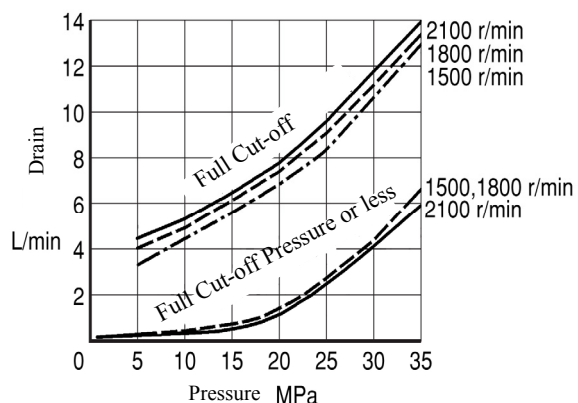
Performance Characteristic Curve



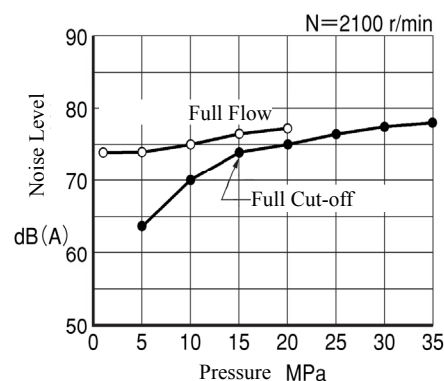
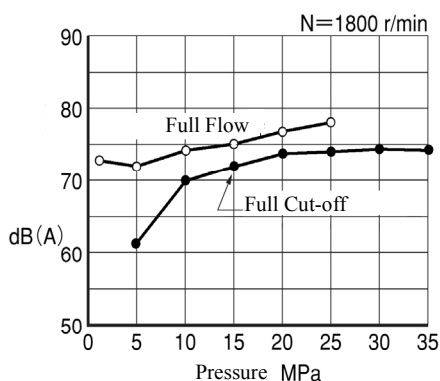
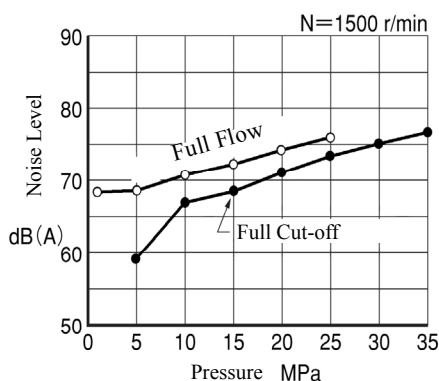
Full Cut-off Power



Drain



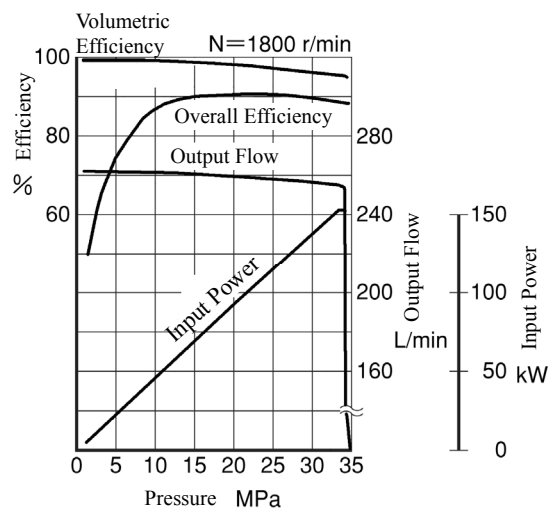
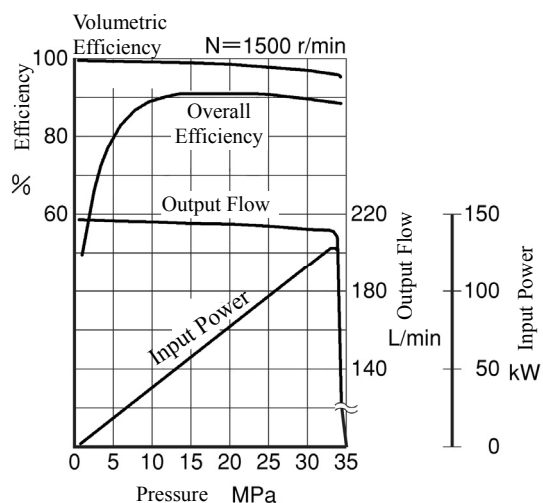
Noise Level [1 m (3.3 ft.) away from the back of the pump]



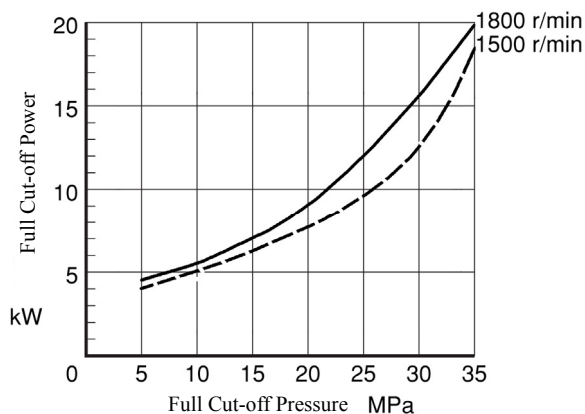
Characteristics of A3HG145-01K*

Typical Performance Characteristics at Viscosity 32 mm²/s (ISO VG 32 Oils, 40 °C)

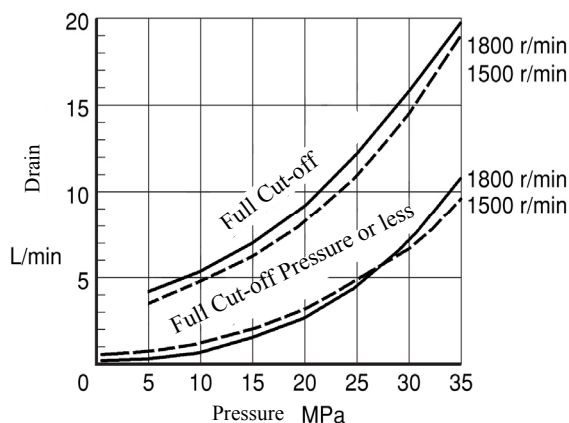
Performance Characteristic Curve



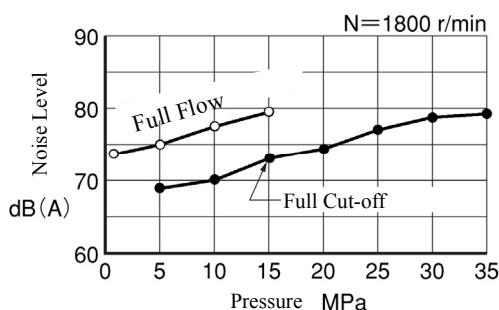
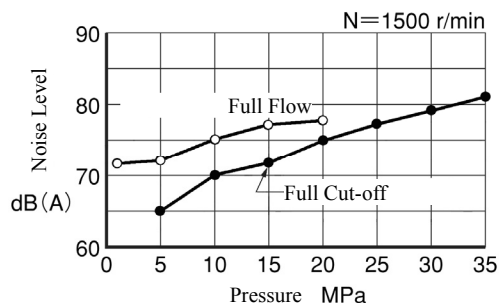
Full Cut-off Power



Drain



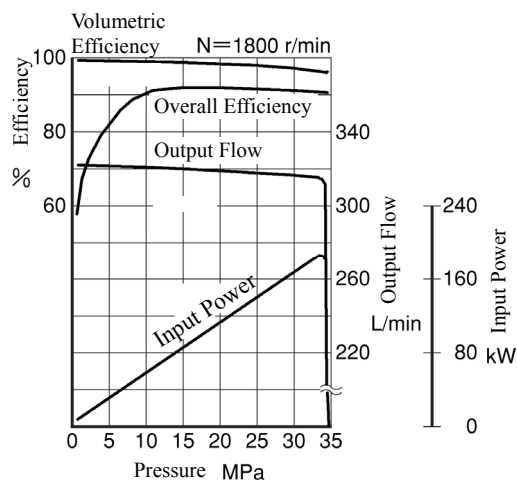
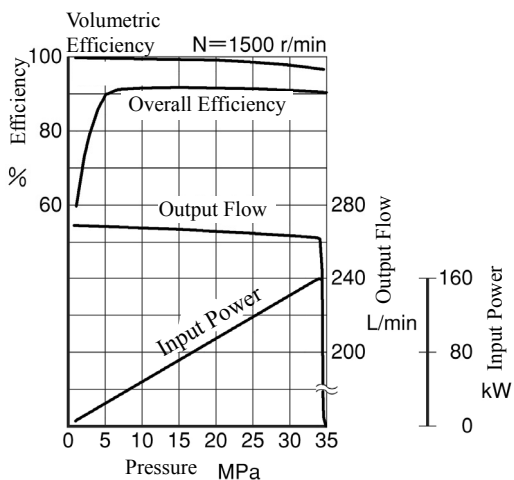
Noise Level [1 m (3.3 ft.) away from the back of the pump]



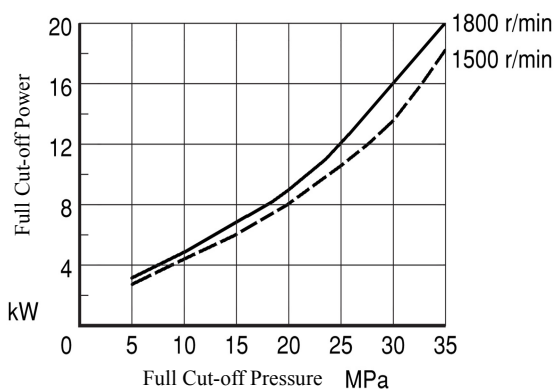
Characteristics of A3HG180-01K*

Typical Performance Characteristics at Viscosity 32 mm²/s (ISO VG 32 Oils, 40 °C)

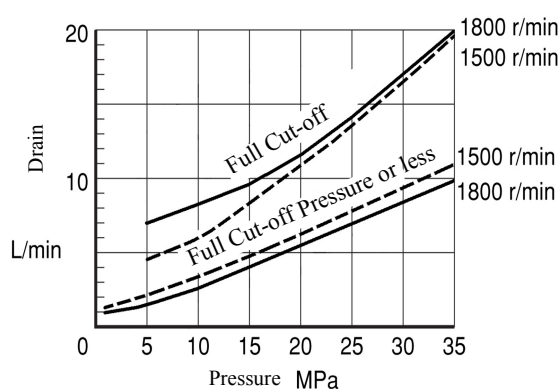
Performance Characteristic Curve



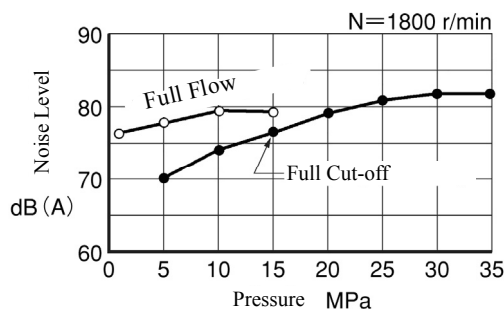
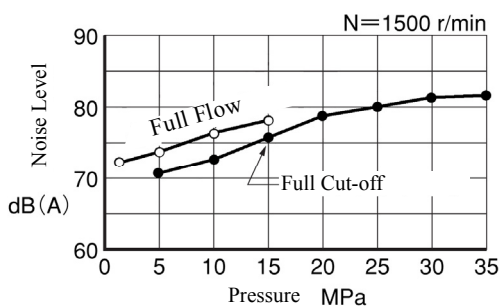
Full Cut-off Power



Drain



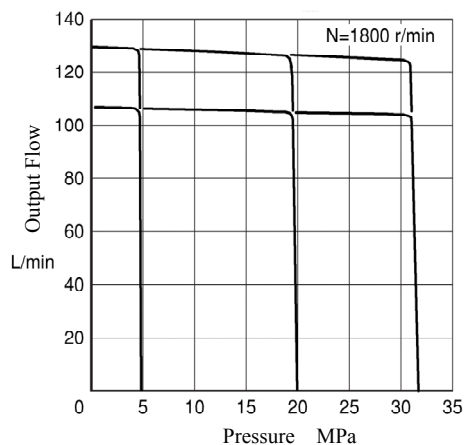
Noise Level [1 m (3.3 ft.) away from the back of the pump]



Characteristics of A3HG71-FR07*

Typical Performance Characteristics at Viscosity 32 mm²/s (ISO VG 32 Oils, 40 °C)

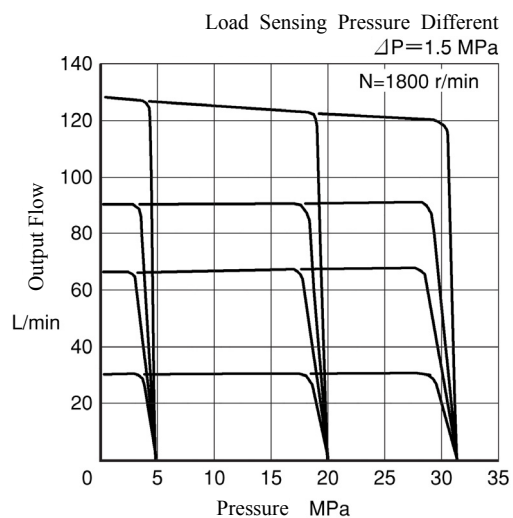
■ Pressure vs. Output Flow



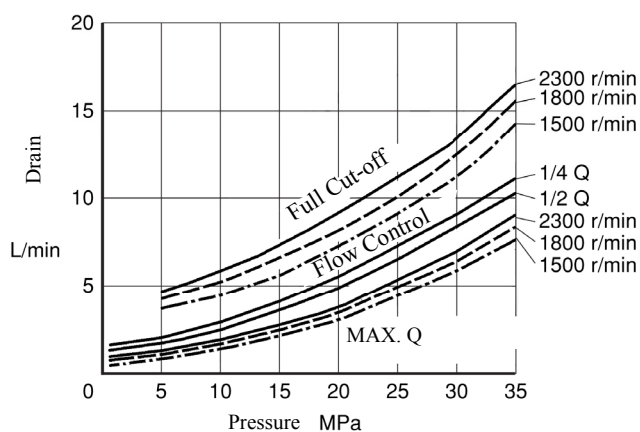
Characteristics of A3HG71-FR14*

Typical Performance Characteristics at Viscosity 32 mm²/s (ISO VG 32 Oils, 40 °C)

■ Pressure vs. Output Flow



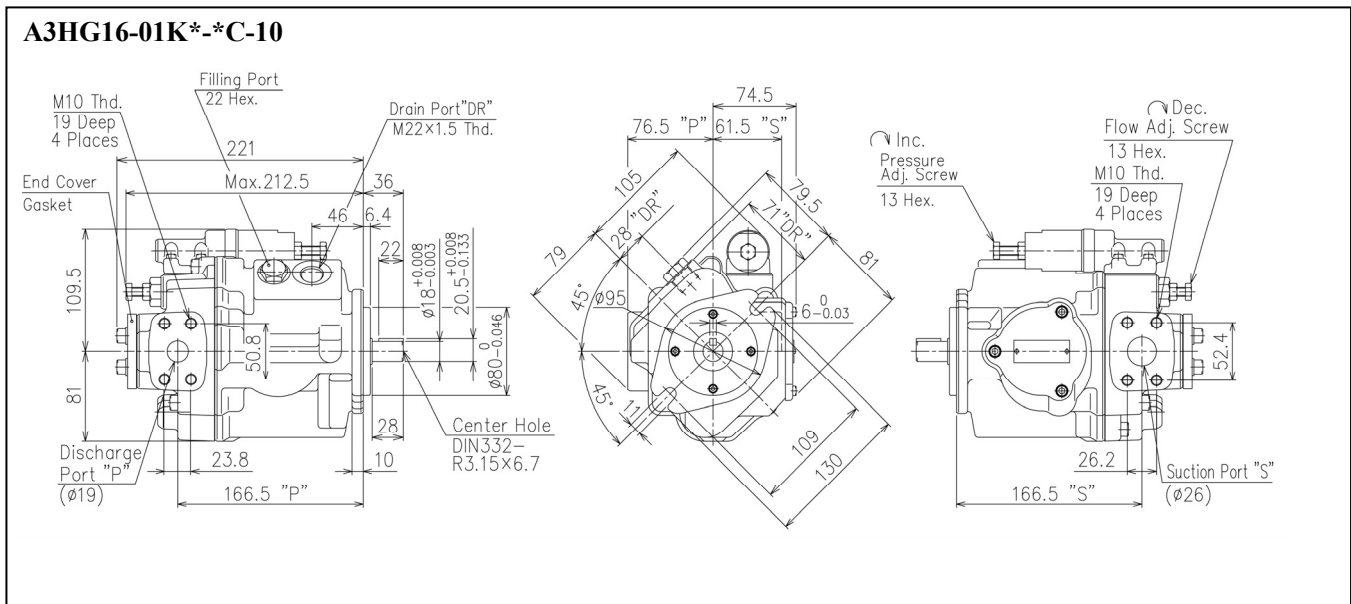
■ Drain



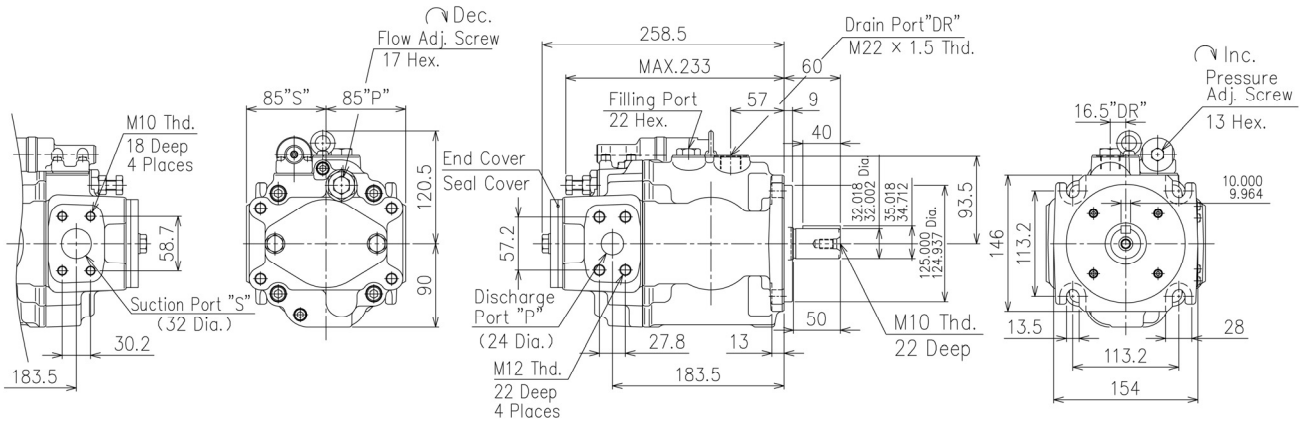
■ Installation Drawing/Mounting Dimensions (Control Type 01)

Model Numbers	Number 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	φ18/11T-16/32	φ80	41/38	φ19.05/11T16/32 11T-16/32	φ82.55
A3HG37	2 Bolts	273	210.5	174	52/46	φ25/15T-16/32	φ100	46/46	φ25.4/15T-16/32	φ101.6
	4 Bolts	258.5	210.5	170	60/56	φ32/14T-12/24	φ125	56/56	φ31.75/14T-12/24	φ127
A3HG56	2 Bolts	300	242.5	176	52/46	φ25/15T-16/32	φ100	46/46	φ25.4/15T-16/32	φ101.6
	4 Bolts	275	242.5	176	60/56	φ32/14T-12/24	φ125	56/56	φ31.75/14T-12/24	φ127
A3HG71	4 Bolts	296.5	264.5	204	60/56	φ32/14T-12/24	φ160	56/56	φ31.75/14T-12/24	φ127
A3HG100	4 Bolts	322	281.5	225	80/62	φ40/17T-12/24	φ180	62/62	φ38.1/17T-12/24	φ152.4
A3HG145	4 Bolts	345.5	301.5	246	92/75	φ45/13T-8/16	φ180	75/75	φ44.45/13T-8/16	φ152.4
A3HG180	4 Bolts	384.5	328	258	92/75	φ45/13T-8/16	φ180	75/75	φ44.45/13T-8/16	φ152.4

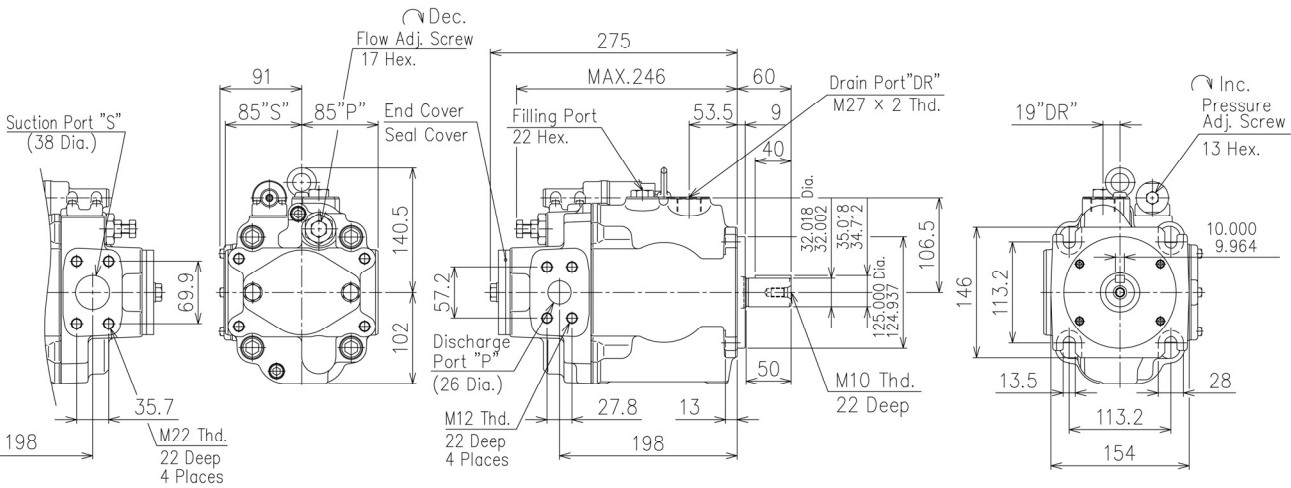
* An adapter flange may be required for pump connection on the non-drive side. Consult Yuken for details.



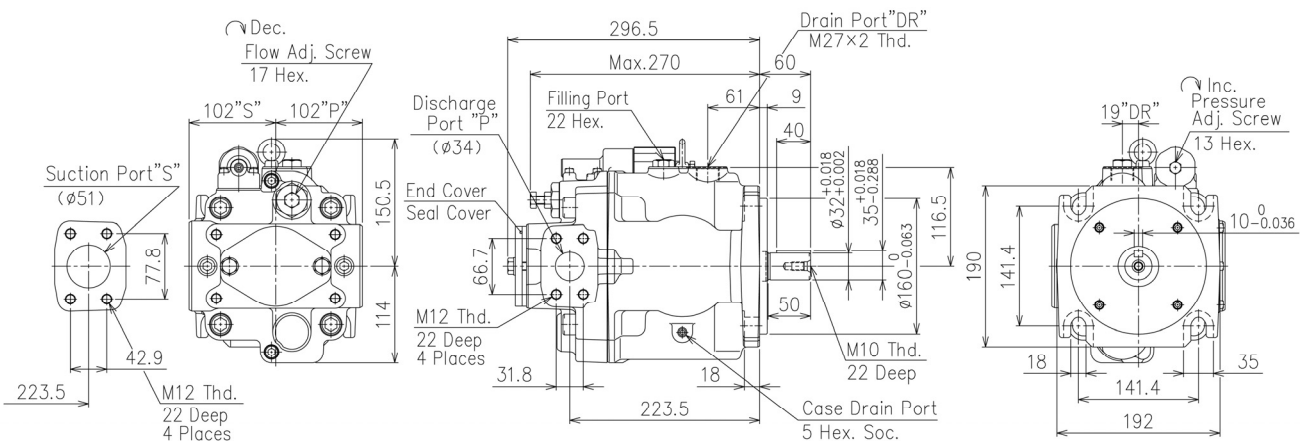
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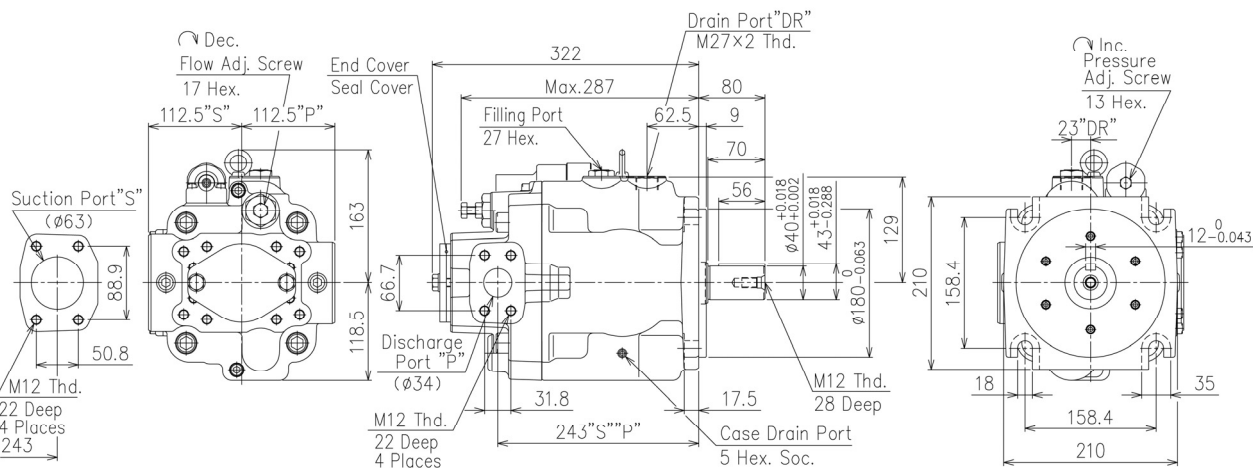
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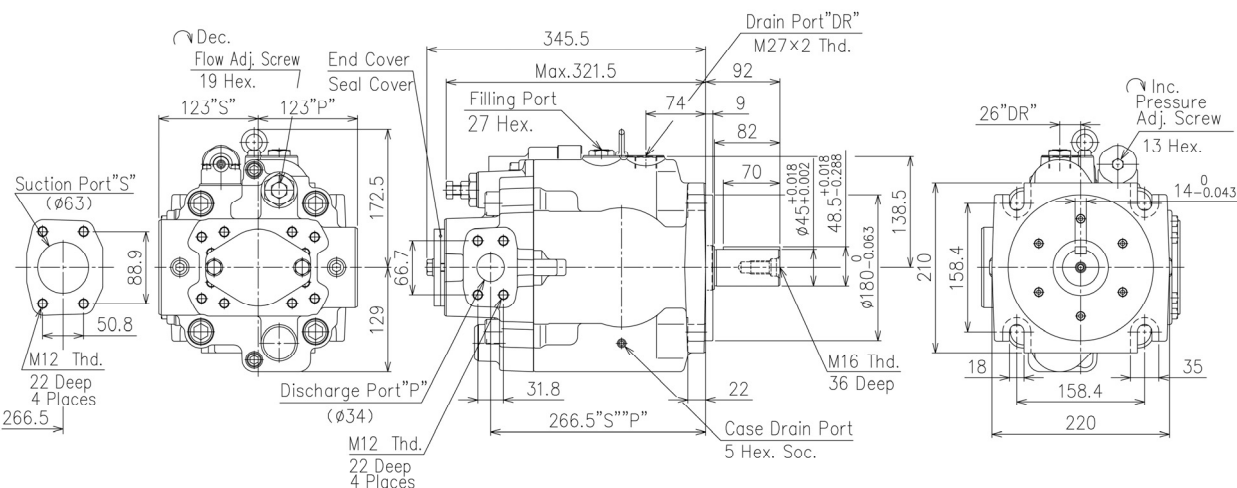
A3HG71-01K*-E1D-10



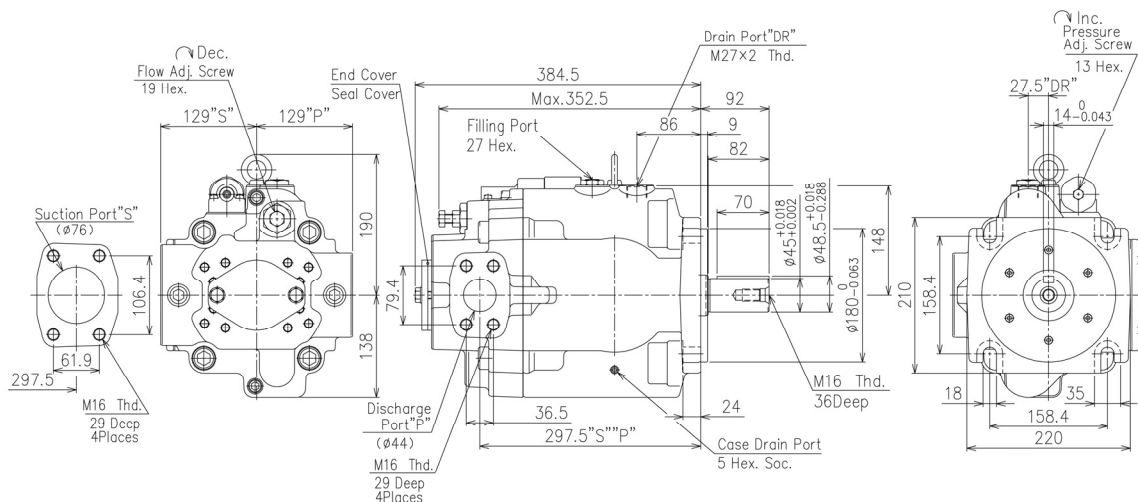
A3HG100-01KK-E1D-10



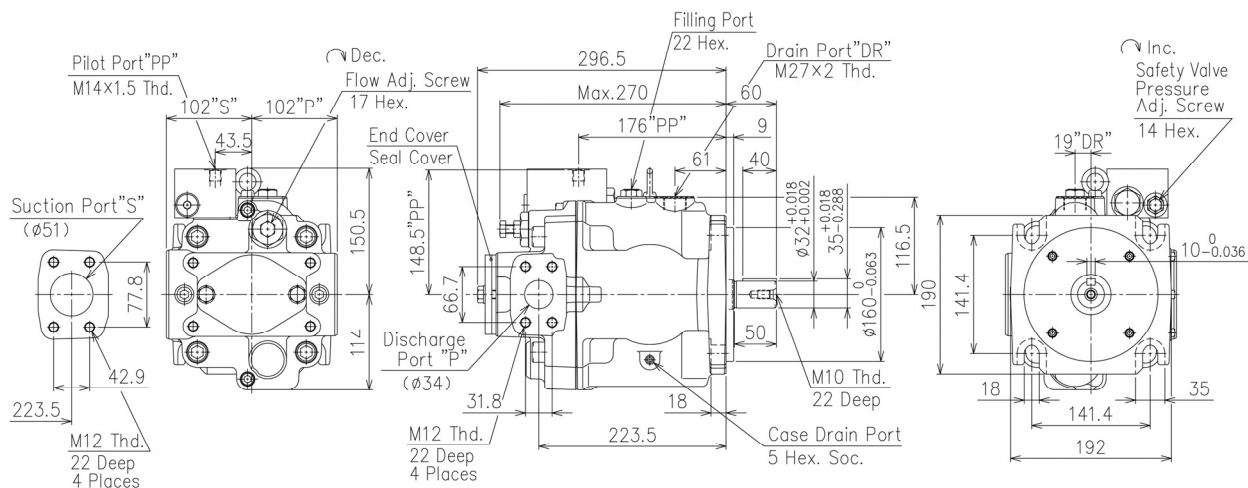
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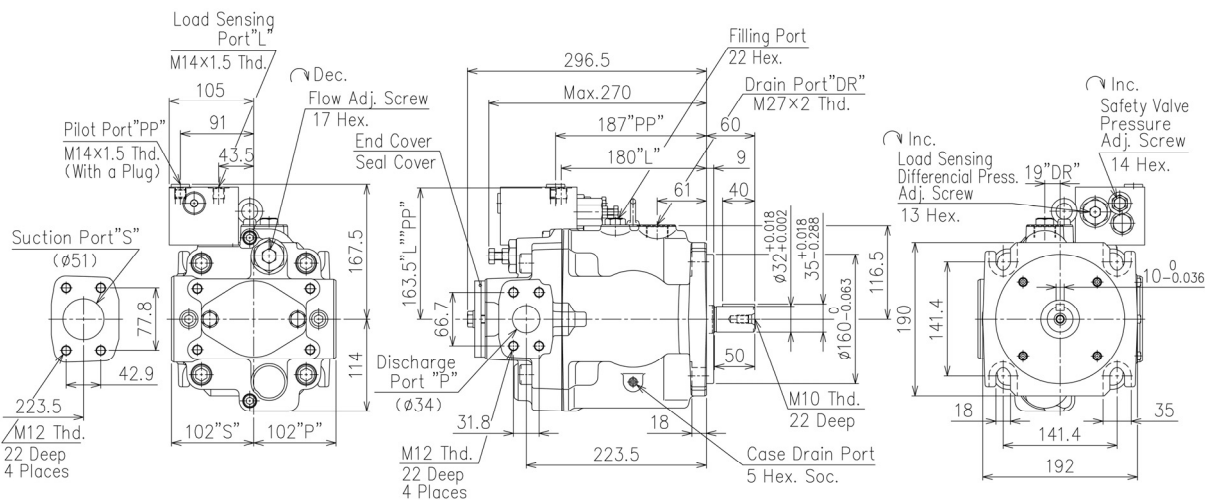
A3HG180-01KK-E1D-10



A3HG71-07K-E1D-10



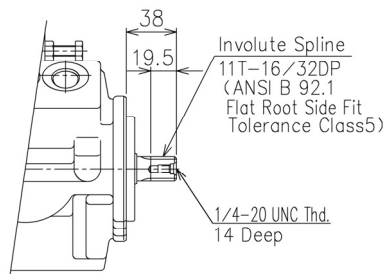
A3HG71-14K-E1D-10



■ Detailed View of Splined Shaft End

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

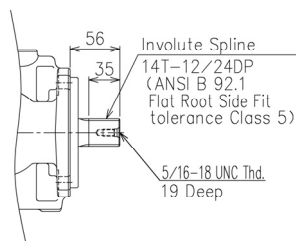
A3HG16-FR**SP-10



A3HG37-FR**SP-10

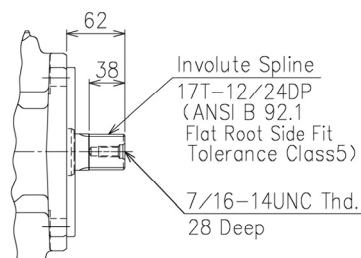
A3HG56-FR**SP-10

A3HG71-FR**SP-10

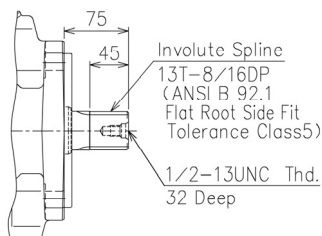


A3HG100-FR**SP-10

A3HG145-FR**SP-10

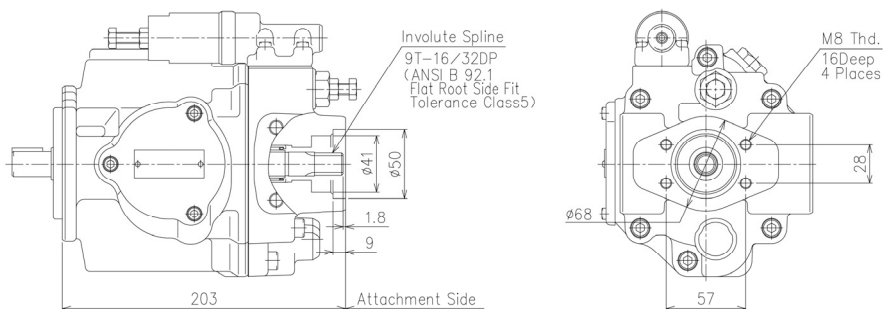


A3HG180-FR**SP-10



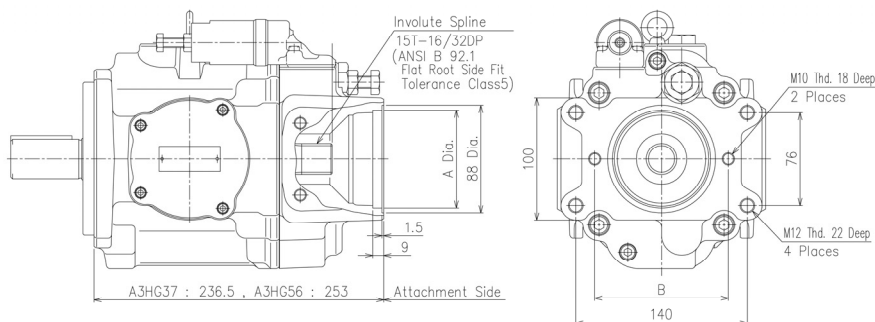
■ Non-drive Side Pump Connection

A3HG16-FR**-**-10



- ★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 Yuken for details.

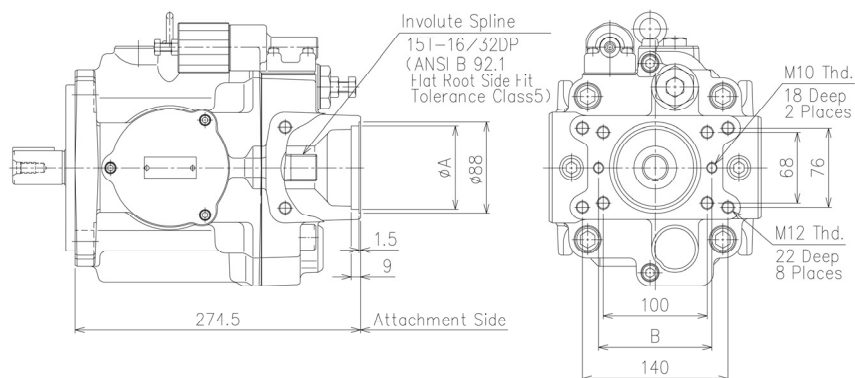
A3HG37-FR**-**-10, A3HG56-FR**-**-10



Model Numbers	A	B
A3HG ₅₆ ³⁷ -FR01*-E1D	80	109
A3HG ₅₆ ³⁷ -FR01*-U2D J1D	82.55	106

- ★1 Remove the end cover and seal cover 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 E1 (ISO 80, 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 Yuken for details.

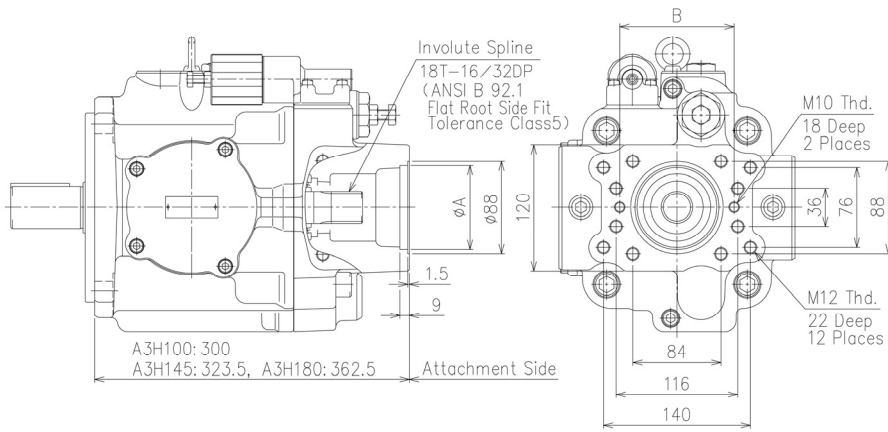
A3HG71-FR**-**-10



Model Numbers	A	B
A3HG71-FR01*-E1D	80	109
A3HG71-FR01*-U2D J1D	82.55	106

- ★1 Remove the end cover and seal cover 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 E1 (ISO 80, 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 Yuken for details.

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



Model Numbers	A	B
A3HG145-FR01*-E1D	80	109
A3HG145-FR01*-U2D U1D J1D	82.55	106

- ★1 Remove the end cover and seal cover 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 E1 (ISO 80, 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 Yuken for details.

- ★ For operation with the non-drive side pump, its operating torque and the total torque of the drive and non-drive side pumps may be limited. Consult Yuken for details.

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