Piston Pumps

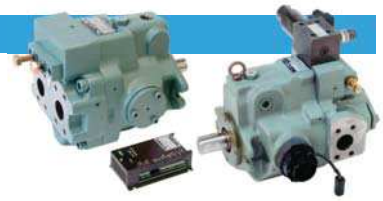
ARL1 Series Piston Pumps

The ARL1 series piston pumps are compact, low noise, and high efficiency pressure compensator type piston pumps based on the proven technology and reliability of Yuken's "A series/AR series" piston pumps. These pumps cover the small displacement range from 6.2 to 16.3 cm^3 /rev.

AR Series Variable Displacement Piston Pumps

These AR series pumps have been developed on the basis of the same design concept as A series pumps which are renowned for high efficiency and low noise level.
The size of the pump is more compact. The noise level has also been reduced.

A Series Variable Displacement Piston Pumps



The A series variable displacement piston pumps are high efficiency swash plate type piston pumps developed using Yuken's unique technology to meet customers' needs for energy efficient and low noise solutions. These pumps support a wide variety of displacement sizes and control types and are widely used in various hydraulic systems.

A3H Series Variable Displacement Piston Pumps

These A3H Series variable displacement piston pump offer high pressure, high efficiency, high speed and low noise features. This pump series has been developed using Yuken's unique design concept and cumulative technologies.
They are suitable for use with construction machinery and various industrial machinery ranging from presses to injection moulding machines.

A3HG Series Variable Displacement Piston Pumps

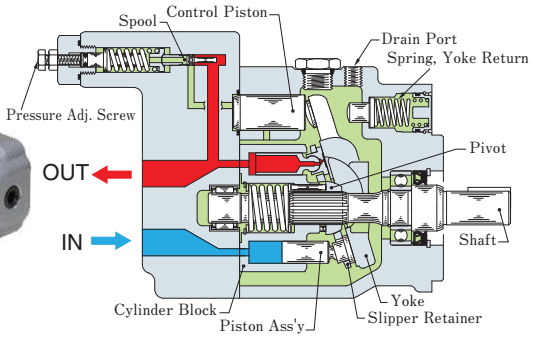
A3HG series pumps are high pressure variable displacement piston pumps based on our highly reputable "A3H" series pumps and meeting international standards (ISO and SAE). They have a rated pressure of 31.5 MPa and a maximum operating pressure of 35 MPa.
These pumps meet JIS standards as well as ISO standards common in Europe and SAE standards in North America to ensure interchangeability with pumps available on the global market.

A7H Series Variable Displacement Piston Pumps

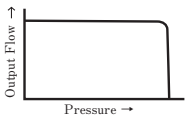
The A7H series variable displacement piston pumps offer a displacement of 180, 270 cm^3/rev with a rated pressure of 35 MPa and a maximum pressure of 40 MPa, supporting high pressure / high flow applications. The non-drive side of these pumps can be connected to an additional pump with SAE connection to provide a combined pump.

Pump Type		Maximum Operating Pressure MPa	Geometric Displacement cm^3/rev (1 · 2 · 5 · 10 · 20 · 50 · 100 · 200 · 300)
"ARL1" Series Piston Pumps		7	ARL1-6 / ARL1-8 / ARL1-12 / ARL1-16
"AR" Series Variable Displacement Piston Pumps		16	AR16 / AR22
"A" Series Variable Displacement Piston Pumps	Single Pumps	21	A10 / A16
		16	A22
		21	A37 / A45 / A56
		28	A70 / A90 / A100 / A145 / A220
	Double Pumps	28	A16 A22 A37 A56 / A16 A22 A37 A56 A70 A90 A145 (Inboard Pump (Driven End))
	Variable / Fixed Double Pumps	28	PV2R1 PV2R2 / A16 A22 A37 A56 A70 A90 A145 (Inboard Pump (Driven End))
"A3H" Series Variable Displacement Piston Pumps		35	A3H16 / A3H37 / A3H56 / A3H71 / A3H100 / A3H145 / A3H180
"A3HG" Series Variable Displacement Piston Pumps		35	A3HG16 / A3HG37 / A3HG56 / A3HG71 / A3HG100 / A3HG145 / A3HG180
"A7H" Series Variable Displacement Piston Pumps		40	A7H180 / A7H265

"ARL1" Series Piston Pumps



Control Type

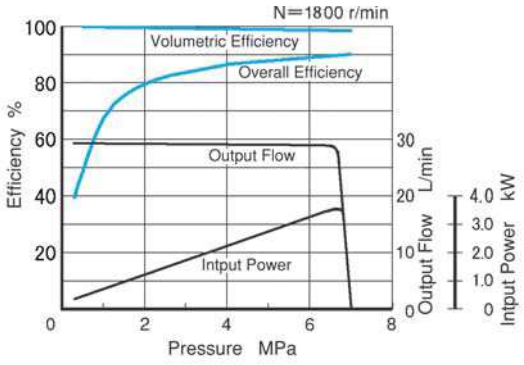
Control Type	Graphic Symbols
"01" Pressure Compensator Type	
	Performance Characteristics
	

Features

Compact size

The "ARL1" series piston pumps are designed to offer 44% reduction in weight and 50% reduction in capacity and significantly smaller in size and lighter in mass compared with the "AR" series piston pumps.

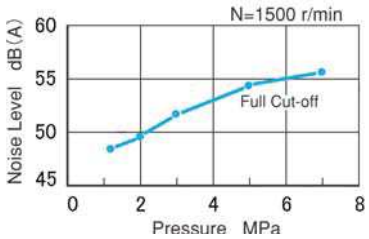
"**ARL1–16**" type performance characteristics



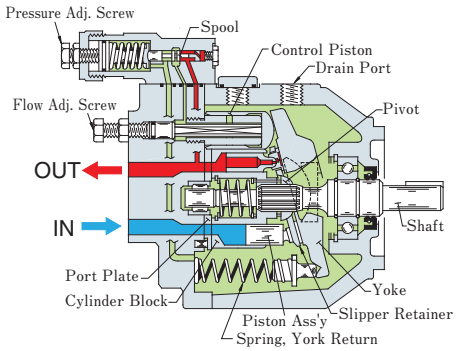
Low noise level

The noise level of the ARL1 pump is as low as 55dB(A) [at 7MPa full cut-off pressure and 1500r/min] measured one metre horizontally away from the pump head cover.

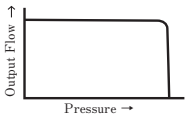
noise level characteristics



"AR" Series Variable Displacement Piston Pumps



Control Type

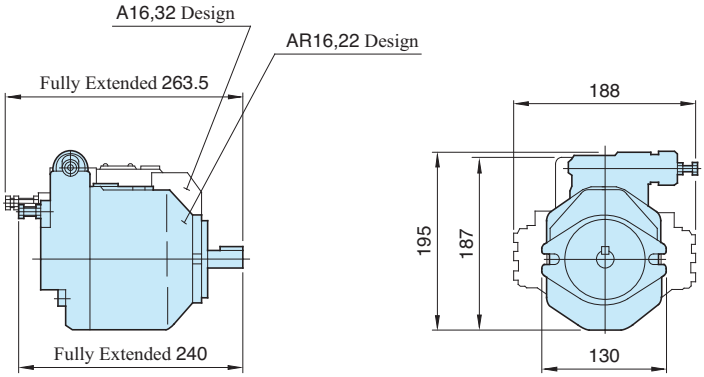
Control Type	Graphic Symbols
"01" Pressure Compensator Type	
	Performance Characteristics
	

Features

Smaller in Size

As indicated in the dimensional comparison presented below, the AR16 is smaller than the A16 (32 design).

[Comparison of "**AR16**" with "**A16**"]



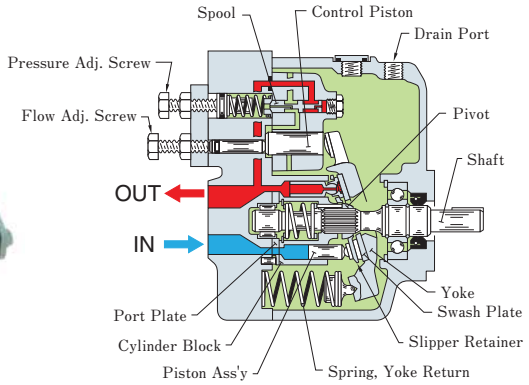
Low Noise

The noise level of AR16 has been reduced by 1-2 dB (A) at full flow and full cut-off compared with that of the excellent A16 quiet pump.

"A" Series Variable Displacement Piston Pumps

"01" Control Type

"04E" Control Type

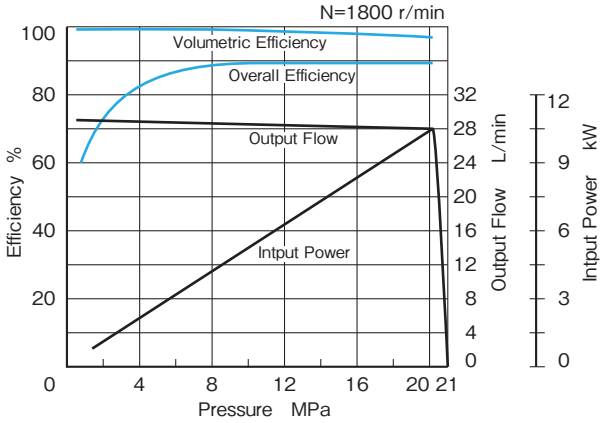


"01" Control Type

Features

High efficiency

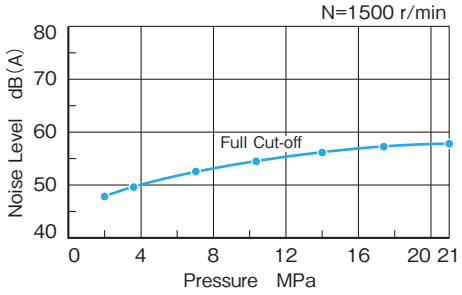
"A16" type performance characteristics



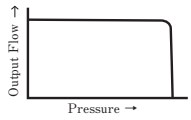
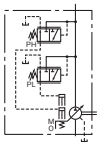
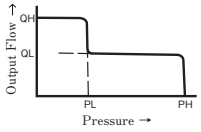
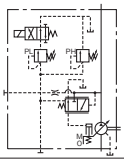
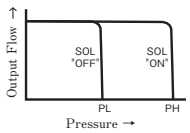
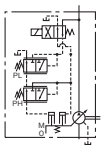
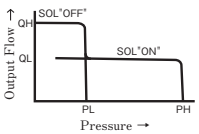
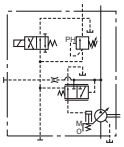
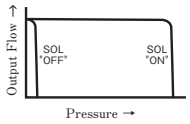
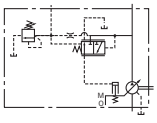
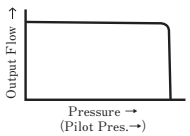
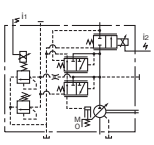
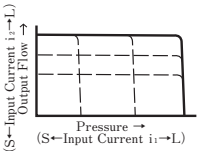
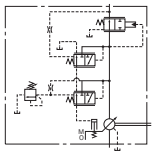
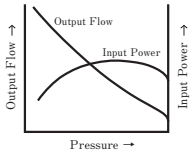
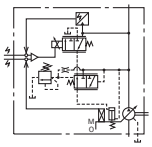
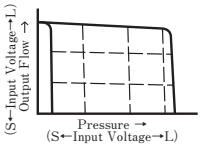
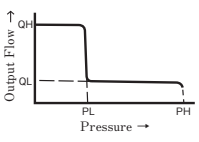
Low noise level

The noise level of the A16 pump is as low as 57.3dB(A) [at 21MPa full cut-off pressure and 1500r/min] measured one metre horizontally away from the pump head cover.

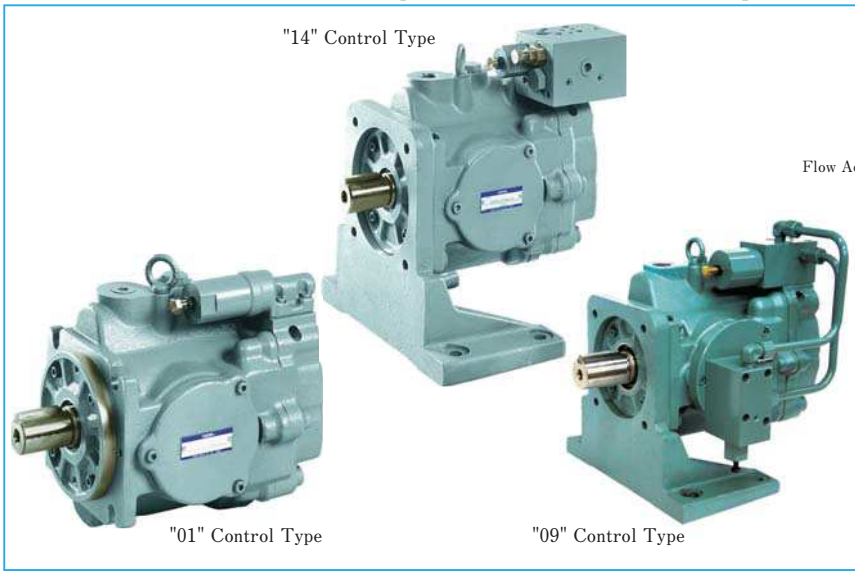
"A16" type noise level characteristics

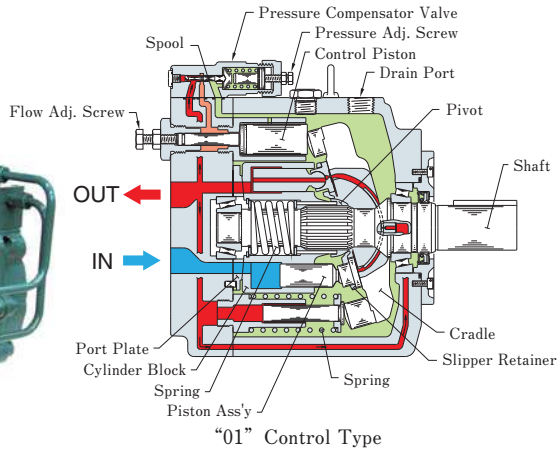


Control Type

Control Type	Graphic Symbols	Performance Characteristics	Control Type	Graphic Symbols	Performance Characteristics
"01" Pressure Compensator Type			"05" Two-Pressure Two – Flow Control Type by System Pres.		
"02" Solenoid – two Pressure Control Type			"06" Two-Pressure Two – Flow Control Type with Solenoid Valve		
"03" Pressure Compensator with Unloading Type			"07" Pilot Pressure Control Type Pressure Compensator		
"04" Proportional Electro – Hydraulic Load Sensing Type			"09" Constant Power Control Type		
"04E" Electro – Hydraulic Proportional Pressure & Flow Control Type			"00-Z500" Simple Two-Pressure Two – Flow Control Type		
"04EH" Electro – Hydraulic Proportional Pressure & Flow Control Type (OBE Type)					

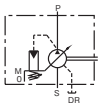
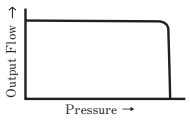
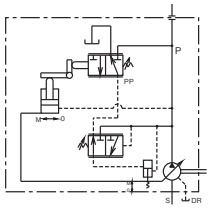
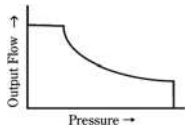
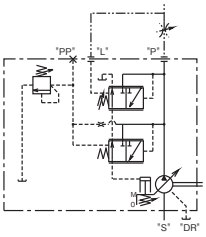
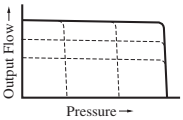
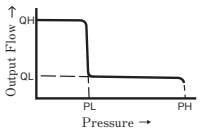
"A3H" Series Variable Displacement Piston Pumps





"01" Control Type

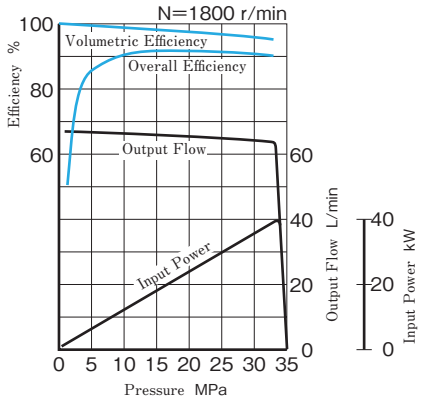
Control Type

Control Type	Graphic Symbols	Performance Characteristics
"01" Pressure Compensator Type		
"09" Constant Power (Torque) Control Type		
"14" Load Sensing Type		
"55" Simple Two-Pressure Two – Flow Control Type		

Features

High efficiency

"A3H37" type performance characteristics.



Compact size

A3H series are compact in size because output / mass ratio is large.

Specifications

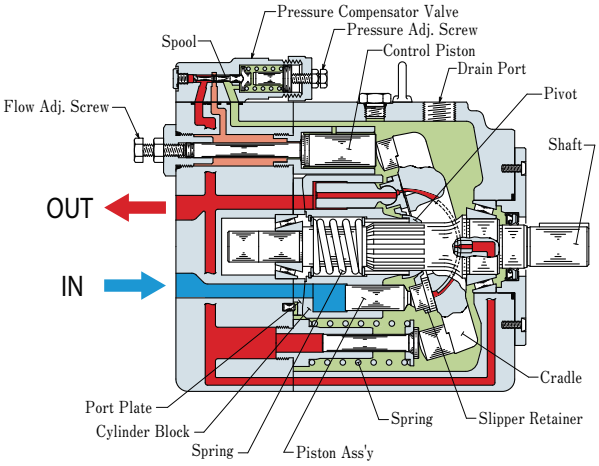
Model Numbers	Geometric Displacement cm^3 / rev	Minimum Adj. Flow cm^3 / rev	Operating Pres. MPa		Shaft Speed Range r/min		Mass kg (01 Control type)	
			Rated	Intermittent	Max.	Min.	Flange Mtg.	Foot Mtg.
A3H16—※R※KK(1)	16.3	8	28	35	3600	600	14.5	23.4
A3H37—※R※KK	37.1	16			2700	600	19.5	27.0
A3H56—※R※KK	56.3	35			2500	600	25.7	33.2
A3H71—※R※KK	70.7	45			2300	600	35.0	42.5
A3H100—※R※KK	100.5	63			2100	600	44.6	72.6
A3H145—※R※KK	145.2	95			1800	600	60.0	88.0
A3H180—※R※KK	180.7	125			1800	600	70.4	98.4

(1) The "A3H16" model does not support the "09" control type.

"A3HG" Series Variable Displacement Piston Pumps

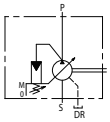
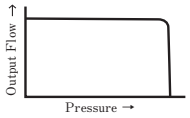
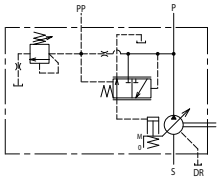
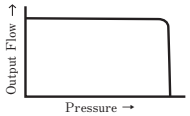
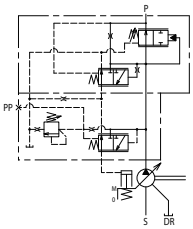
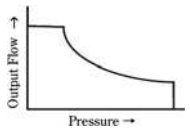
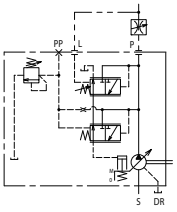
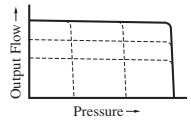
"01" Control Type

"09V" Control Type



"01" Control Type

Control Type

Control Type	Graphic Symbols	Performance Characteristics
"01" Pressure Compensator Type		
"07" Pilot Pressure Control Type Pressure Compensator		
"09V" Constant Power (Torque) Control Type With External Pilot		
"14" Load Sensing Type		

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.

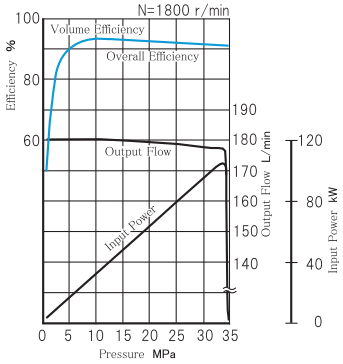
Wide displacement range and high volumetric efficiency

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.

"**A3HG100**" type performance characteristics



Specifications

Model Numbers	Geometric Displacement cm^3 / rev	Minimum Adj. Flow cm^3 / rev	Operating Pres. MPa		Shaft Speed Range r/min		Mass kg (01 Control type Flange mounting)
			Rated	Intermittent	Max.	Min.	
A3HG16—※R※K※(1)	16.3	8	31.5	35	3600	600	17
A3HG37—※R※K※	37.1	16			2700	600	26.5
A3HG56—※R※K※	56.3	35			2500	600	32.5
A3HG71—※R※K※	70.7	45			2300	600	45
A3HG100—※R※K※	100.5	63			2100	600	56.5
A3HG145—※R※K※	145.2	95			1800	600	68.5
A3HG180—※R※K※	180.7	125			1800	600	88

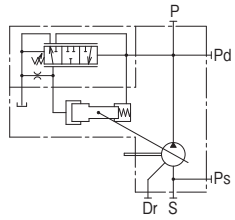
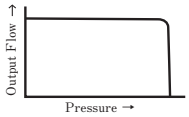
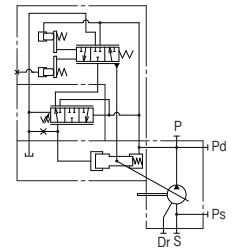
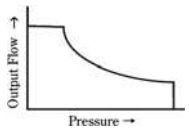
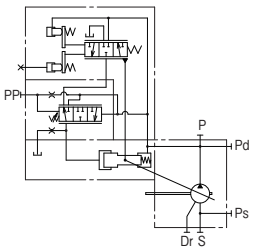
(1) The "A3HG16" model does not support the "09V" control type.

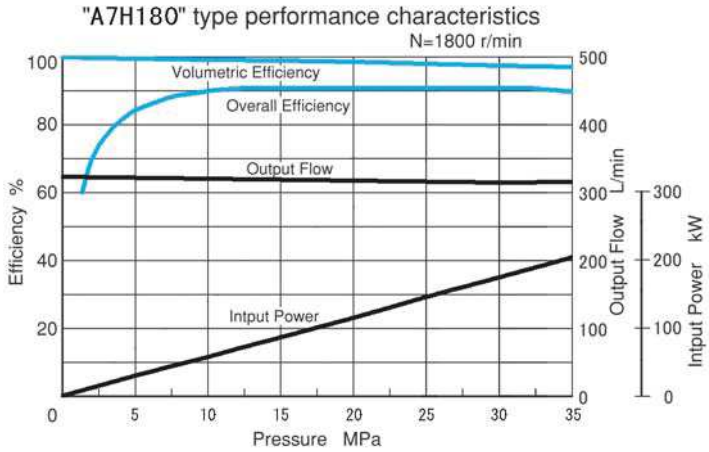
"A7H" Series Variable Displacement Piston Pumps

Features

- **High Pressure–Large Volume Displacement**
  Adding to current A3H series, 180, 270 cm^3/rev displacement with ratede pres. 35 MPa, Max. pres. 40 MPa pumps are now availavle.
- **Optional Through Drive**
  Optional through drive allow an auxiliary or outoboard pump (SAE Standard) to be directly mounted.
- **Fire–Resistant Fluids**
  Water–Glycols and Polyol Ester Type are applicable under certain condition.
- **High Efficiency**

Control Type

Control Type	Graphic Symbols	Performance Characteristics
"01" Pressure Compensator Type		
"09" Constant Power Control Type		
"09R" Constant Power Control Type with External Pilot		



Specifications

Series Numbers	Geometric Displacement cm^3/rev	Operating Pressure MPa		Shaft Speed Range r/min		Temperature Range ℃	Viscosity Range mm^2/s	Approx Mass kg	
		Rated	Intermittent	Rated	Max.			Flange Mtg.	Foot Mtg.
A7H180	180	35	40	1800	1900	–20 – +80	10–1000	150 "01" 154 "09"	220 "01" 224 "09"
A7H265	270	35	40	1200	1600			220 "01" 224 "09"	310 "01" 314 "09"

Specifications for Special Fluids

Type of Fluids	Series Number	Operating Pressure MPa		Shaft Speed Range r/min		Temperature Range ℃	Viscosity Range mm^2/s
		Rated	Intermittent	Rated	Max.		
Water–Glycols	M–A7H180	21	25	1800	1800	10–50	20–1000
	M–A7H265			1200	1200		
Polyol ester Type	P–A7H180	35	40	1800	1900	10–70	10–1000
	P–A7H265			1200	1600		