

Hydraulic Fluids

Hydraulic Fluids

Use petroleum base oils such as anti-wear type hydraulic oils or R & O (Rust and Oxidation inhibitor) type hydraulic oils equivalent to ISO VG-32 or 46. The recommended viscosity range is from 20 to 400 mm²/s (98 to 1800 SSU) and temperature range is from 0 to 60°C (32 to 140°F), both of which have to be satisfied for the use of the above hydraulic oils.

Control of Contamination

Due caution must be paid to maintaining control over contamination of the operating oil which can otherwise lead to breakdowns and shorten the life of the unit. Please maintain the degree of contamination within NAS Grade 10. The suction port must be equipped with at least a 100 µm (150 mesh) reservoir type filter and the return line must have a line filter of under 10 µm.

Instructions

Mounting

When installing the pump the filling port should be positioned upwards.

Alignment of Shaft

Employ a flexible coupling whenever possible, and avoid any stress from bending or thrust. Maximum permissible misalignment is less than 0.1 mm (.0039 inches) TIR and maximum permissible misangular is less than 0.2°.

Suction Pressure

Permissible suction pressure at suction port of the pump is between -16.7 and +50 kPa (5 in.Hg Vacuum and 7 PSIG). In case of the speed is over 1800 r/min, adjust the pressure 0 to +50 kPa (0 to 7 PSIG). For piping to the suction port, use the pipes of the same diameter as that of the specified pipe flange to be used. Make sure that the height of the pump suction port is within one metre (3.3ft.) from the oil level in the reservoir.

Hints on Piping

When using steel pipes for the suction or discharge ports, excessive load from the piping to the pump generates excessive noise. Whenever there is fear of excessive load, please use rubber hoses.

Suction Piping

In case the pump is installed above the oil level, the suction piping and suction line filter should be located lower than the pump position to prevent air in the suction line.

Drain Piping

Install drain piping according to the chart and ensure that pressure within the pump housing should be maintained at a normal pressure of less than 0.1 MPa (15 PSI) and surge pressure of less than 0.5 MPa (70 PSI). Length of piping should be less than 1 m (3.3 ft.), and the pipe end should be submerged in oil.

[Recommended Drain Piping Size]

Model	Fitting Size		Inside Dia. of Pipe
	Japnese Std. "JIS" & European Design Std.	N.American Design Std.	
A3H16 A3H37	1/2 [Inside Dia. 12 mm (.47 in.) or more]	SAE #10	12 mm (.47 in.) or more
A3H56 A3H180	3/4 [Inside Dia. 16 mm (.63 in.) or more]	SAE #12	19 mm (.75 in.) or more

Safety Valve

When delivery line is blocked suddenly, surge pressure is occurred so a safety valve should be set in the circuit to eliminate any damage on equipment and piping.

Bleeding Air

It may be necessary to bleed air from pump case and outlet line to remove causes of vibration.

Starting

Before first starting, fill pump case with clean operating oil via the fill port. In order to avoid air blockage when first starting, adjust the control valves so that the discharged oil from the pump is returned direct to the tank or the actuator moves in a free load.

[Volume of Pre-fill Oil Required]

Model	Volume cm ³ (in. ³)
A3H16	400 (24.4)
A3H37	700 (42.7)
A3H56	900 (54.9)
A3H71	1300 (79.3)
A3H100	1700 (104)
A3H145	2400 (146)
A3H180	3200 (195)

