

The use of proper hydraulic oil is mandatory to achieve maximum performance and machine life. Use a clean, high quality, anti-wear hydraulic oil with a viscosity index (VI) of 135 minimum. It should have a maximum viscosity of 500 cSt (2000 SSU) at startup (ambient temperature) and a minimum viscosity of 13 cSt (65 SSU) at the maximum oil temperature (generally 80°F above ambient). Using hydraulic oils that do not meet these criteria may cause poor operation and/or damage to the hydraulic components. The following table specifies the oil temperature at various viscosities. Temperature rise of the

hydraulic oil can vary from 30° F to about 80° F over the ambient temperature depending on the pressure setting, age of the pump, wind, etc. Exxon Univis N46 hydraulic oil is installed at our factory. The advantage of this oil is a wider temperature range, however, this oil should not be used for continuous operation below 20° F. For use in extremely cold ambient temperatures, we suggest Mobil DTE 11M, which can be used to -16° F. This oil should not be used for continuous operation above 100° F (oil temperature).

### Hydraulic Fluid Characteristic Chart

Fluid	SSU 100F	SSU 210F	V.I.	-20°F -29°C	-10°F -23°C	0°F -18°C	10°F -12°C	20°F -7°C	30°F -1°C	40°F 4°C	50°F 10°C	60°F 15°C	70°F 21°C	80°F 27°C	90°F 32°C	100°F 38°C	110°F 43°C	120°F 49°C	130°F 54°C	140°F 60°C	150°F 65°C	Range										
<b>Mobil</b>																																
DTE 11M	87	40	145	—————																				-27°F to 87°F -33°C to 30°C								
DTE 13M	165	48	140				—————																					5°F to 130°F -15°C to 54°C				
DTE 15M	225	53	140				—————																						5°F to 140°F -15°C to 60°C			
<b>Exxon</b>																																
Univis N32	177	49	164				—————																						5°F to 140°F -15°C to 60°C			
Univis N46	233	55	163					—————																						25°F to 142°F -4°C to 61°C		
Univis N68	376	68	160						—————																							34°F to 155°F 1°C to 68°C

**NOTE:** This chart is based on pump manufacturer recommendations of 65 to 2000 SSU Units. Temperatures shown are fluid temperatures not ambient temperatures.



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