

## Fluids for Mobile Hydraulic Tool Circuits:

The specification listed here will provide good all season operation if your circuit is of proper design and normal maintenance is performed. (Periodic filter change, draining of condensation, etc.)

## Recommended Fluids:

The fluids listed here work well over a wide temperature range at start-up, allow moisture to settle out, and resist biological growth likely in cool-operating hydraulic circuits. These fluids are recommended by Stanley Hydraulic Tools for use in their tools. Other fluids that meet or exceed the specifications of these fluids may also be used. Biodegradable fluids listed are compatible with all tool seals and hoses.

## SPECIFICATIONS

Item	U.S.A.	Metric
Viscosity (Fluid Thickness)	50° F 450 SSU Max.	10° C 95 Centistokes Max.
Viscosity (Fluid Thickness)	100° F 130-225 SSU	38° C 27-42 Centistokes
Viscosity (Fluid Thickness)	140° F 85 SSE Min.	60° C 16.5 Centistokes Min.
Pour Point (Min. for cold startup)	-10° F	23° C
Viscosity Index	(ASTM D2220)	140 Minimum
Demulsibility	(ASTM D1401)	30 Minutes Max.
Flash Point	(ASTM D92)	340° F Min.
Rust Inhibition	(ASTM D665 A&B)	Pass
Oxidation	(ASTM D943)	1000 Hours Min.
Pump Wear Test	(ASTM D2882)	60 mg Max.
Biodegradability	CEC-L-33-A94	>60%

## RECOMMENDED FLUIDS

Brand	Biodegradable	Description
CITGO	No	Hydurance All Temp
AMS Oil	No	HVH 32
Exxon Mobil	No	Univis HVI26*
Exxon Mobil	No	DTE 10 Excel
Shell	No	S2 V 32
Chevron	No	Rando HDZ 32
Conoco Phillips	No	Unax AW-WR-32
Clarion (CITGO)	Yes	Green Bio 32
Exxon Mobil	Yes	EAL 224H
Chevron	Yes	Clarity AW32
RSC Bio Solutions	Yes	Envirologic 132
Shell	Yes	Naturelle HF-E-32

\*Recommended for extreme cold weather operation

## System Requirements for Powering Hydraulic Tools

### Flow:

Hydraulic tools fall into four general categories of flow requirements:

Type I	5 gpm +/- 10% (19 lpm)
Type II	8 gpm +/- 10% (30 lpm)
Type III	12 gpm +/- 10% (45 lpm)
Type RR	10 gpm 9-10.5 (34-40 lpm)

### Pressure:

Hydraulic systems should be capable of providing the appropriate pressure and flow for the system types listed above when measured across the tool connections. Deviation from the nominal flow rates should be no more than plus or minus 10% at a system pressure of 2000 psi / 138 bar.

### Return Pressure:

The hydraulic systems should generate no more than 200 psi / 14 bar return pressure (back pressure) at the tool when operating at maximum flow for the tool type. **System conditions for this pressure are at maximum hydraulic fluid viscosity of 400 SUS (SSU) at minimum operating temperature.**

### Cooling:

The hydraulic systems should have sufficient heat rejection capacity to limit maximum oil temperature to 140 degrees F / 60 degrees C at the maximum expected ambient temperature. Recommended minimum cooling capacities to dissipate tool-generated heat are:

Type I	3 Horsepower (2.24 KW)
Type II / RR	5 Horsepower (3.73 KW)
Type III	7 Horsepower (5.22 KW)

When determining cooling capacity, the intended duty cycle and the system generated heat must both be considered.

### Filtration:

Systems should have 25 micron nominal filtration for the hydraulic fluid. Recommended filter element size is at least three times system rated flow to prevent filter bypass under low temperature start-up.

### Fluid:

Hydraulic systems should use hydraulic fluid that has a viscosity of 130 - 225 SSU at 100 degrees F / 38 degrees C. Hydraulic fluids of petroleum base with antiwear properties and high viscosity indexes over -140 will meet recommended hydraulic fluid requirements over a wide range of operating temperatures. They should be demulsifying type.