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HYDRAULIC

DESCRIPTION

The HYDRAULIC series of oils are anti-wear (AW) hydraulic oils. They are blended from quality paraffinic mineral oil for its stability and high natural Viscosity Index (VI), which gives these oils their ability to maintain their viscosity over a relatively wide range of temperatures.

The performance of hydraulic oil is defined in three ways:

- The oil's ability to protect hydraulic pumps and motors from wear damage, particularly at the high operating pressures often used in modern hydraulic systems.
- The oil's ability to resist deterioration, particularly oxidation, which is caused by the effect of air on the oil, and thermal degradation, which is caused by the effect of heat.
- The oil's ability to resist the harmful effects of water contamination, which can hydrolyze additives, accelerate oxidation, promote sludge formation and cause filters to plug.

Hall-Chem Mfg Inc. HYDRAULIC oils are suitable for use with all types of hydraulic pumps and motors, even at pressures as high as 5,000 psi (350 Bar). They are NOT recommended for use with those pumps that contain silver-plated parts.

Hall-Chem Mfg Inc. Hydraulic oils meet or exceed these and other manufacturers requirements and test standards:

Denison HF-0 APPROVED (grades 32, 46 and 68)
Cincinnati-Milacron P-68, P-69, P-70 (grades 32, 68 and 46 respectively)
Dana Corp. Racine model 'S' 1000-hour variable volume vane pump wear test
Vickers M-2950-S and I-286-S (includes 35VQ25 vane pump test)
ASTM D-2882 (includes Vickers V-104C vane pump test)
Bosch Rexroth Corp.
DIN 51524 part 2 (HLP oils)
Sundstrand
Linde
CGSB 3-GP-36Mb – grades 22, 32, 68 and 100 (Canadian Government and Military standard)

CUSTOMER BENEFITS

- Excellent corrosion and wear protection for long pump life
- Excellent foam resistance for efficient pump operation
- Excellent water tolerance where contamination is unavoidable
- Outstanding oxidation resistance for long service life <3000 hours

TYPICAL TESTS

| | | | | |
|---|--------|--------|-------|------|
| GRADE | 22 | 32 | 46 | 68 |
| VISCOSITY (D-445) cSt @ 40°C | 22 | 31.7 | 46.9 | 67.6 |
| cSt @ 100°C | 4.3 | 5.8 | 6.8 | 8.6 |
| VISCOSITY INDEX (D-2270) | 97 | 128 | 96 | 98 |
| POUR POINT (°C) (D-97) | -30 | -28 | -24 | -17 |
| FLASH POINT (°C) (D-92) | 207 | 221 | 224 | 227 |
| USEFUL OPERATING TEMPERATURE RANGE* (°C) | -17/55 | -12/64 | -6/75 | 1/84 |
| RUST PREVENTION (D-665A and B) | PASS | PASS | PASS | PASS |

* **USEFUL OPERATING TEMPERATURE RANGE** assumes:

- A maximum cold oil viscosity of 900 cSt (750 cP) for cavitation protection under full load and speed: Pumps can generally be started, under NO LOAD conditions, at temperatures up to 20°C lower than quoted here but the system must be allowed to warm up until the minimum Useful Operating Temperature is reached before the system is put to work.
- A minimum hot oil viscosity of 13 cSt to provide adequate wear protection under full operating conditions.

NOTE that once a particular grade has been chosen, Optimum Efficiency can be achieved at an operating temperature that is generally about 20°C cooler than the Maximum Operating Temperature allowed for that grade.

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The choice is simple