



HYDRAULIC

The **Irving HYDRAULIC** series of oils are premium performance 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. All grades of **Irving HYDRAULIC** oils are fortified with additives to provide the best possible wear-protection and service life.

Features

Meets or exceeds the following industry performance specifications:

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

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

Hydraulic oil performance is defined in three ways:

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

Industry standard tests, many of them developed by the pump manufacturers themselves, have been used to show that **Irving HYDRAULIC** oils provide superior performance in all critical areas.

Irving HYDRAULIC oils are available dyed red or blue for easy identification. Please contact sales representative for list of dyed products.

Irving 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. For these applications, use **Irving D&E oils**.



Typical Performance Results

ISO GRADE	15	22	32	46	68	100	150	220
VISCOSITY (D-445) cSt @ 40°C cSt @ 100°C	15 3.5	22.1 4.5	31.4 5.4	45.8 6.7	66.3 8.6	99.9 11.6	150 14.7	219.7 19.1
VISCOSITY INDEX (D-2270)	112	119	107	98	100	104	96	98
BROOKFIELD VISCOSITY (D-2983) cP @ -30°C	6000	3100	—	—	—	—	—	—
POUR POINT (D-97) (C°)	-39	-37	-35	-31	-24	-21	-15	-11
FLASH POINT (D-92) (°C)	212	218	234	242	256	272	247	295
USEFUL OPERATING TEMPERATURE RANGE* (°C)	-23/46	-17/55	-12/64	-6/75	1/84	6/95	14/104	20/113
OXIDATION LIFE (D-943) (HRS.)	—	—	3300	—	3300	—	—	—
FZG LOAD STAGE (PASS)	—	—	11	—	11	—	—	—
ZINC CONTENT (%WT)	0.045 (ALL GRADES)							
AIR RELEASE (D-3427) (mins.)	—	2.18	3.1	—	3.7	—	—	—
RUST PREVENTION(D-665)	—	PASS	PASS	—	PASS	—	—	—
SLUDGE & CORROSION (D-4310) 1000Hrs. TAN (max. 2.0) SLUDGE (mg) (max. 200) COPPER (mg) (max. 50) IRON (mg) (max. 50)	— — — —	0.31 85.6 43.5 0.12	0.05 48 15 0.04	0.31 48 15 0.12	0.08 59 10 0.4	— 59 10 —	0.08 — — —	— — — —
DEMULSIBILITY (D-1401) (mins.)	—	—	—	15	25	—	—	—
DENISON FILTERABILITY (% wt) Dry filter time, secs. (max. 600) Ratio, Wet/Dry (max. 2.0)	— — —	— — —	140 1.7	— —	375 1.7	— —	— —	— —

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.

Available Package Sizes

	3.78L (1 US Gal)	20L (5.28 US Gal)	205L (54.2 US Gal)	210L (55.5 US Gal)	500L (12 US Gal)	1000L (264 US Gal)	1200L (317 US Gal)	Bulk
HYDRAULIC 15		X	X	X	X			X
HYDRAULIC 22		X	X	X	X			X
HYDRAULIC 22R	X	X		X				
HYDRAULIC 32		X	X	X	X	X		X
HYDRAULIC 32B		X		X	X			X
HYDRAULIC 32R		X	X	X	X			
HYDRAULIC 46		X	X	X	X	X	X	X
HYDRAULIC 68		X	X	X	X	X		X
HYDRAULIC 68R		X		X	X			X
HYDRAULIC 100		X	X	X	X	X		X
HYDRAULIC 220		X	X	X				

Check with sales representative or website for the latest product approvals.

