



# CAT<sup>®</sup> HYDO ADVANCED 10/20/30 HYDRAULIC OIL

## 6,000 HOUR EXTENDED DRAIN INTERVALS

- Cat<sup>®</sup> HYDO™ Advanced 10, 20, and 30. This oil is a combination of premium additives and specially selected and controlled higher quality base oils designed to provide extended drain intervals and extra protection to hydraulic system components.
- Cat HYDO Advanced 10, 20, and 30 represents a significant performance breakthrough in hydraulic oil technology. This oil has been developed with an optimized formulation that has been subjected to severe qualification testing in the field and laboratory for thousands of hours. The result is the best product available for Cat machine hydraulic systems.
- Cat HYDO Advanced 30 is an oil specifically formulated for working in consistently hot climates with temperatures ranging above 40°C (104°F).



## Ambient Operating Temperature Range

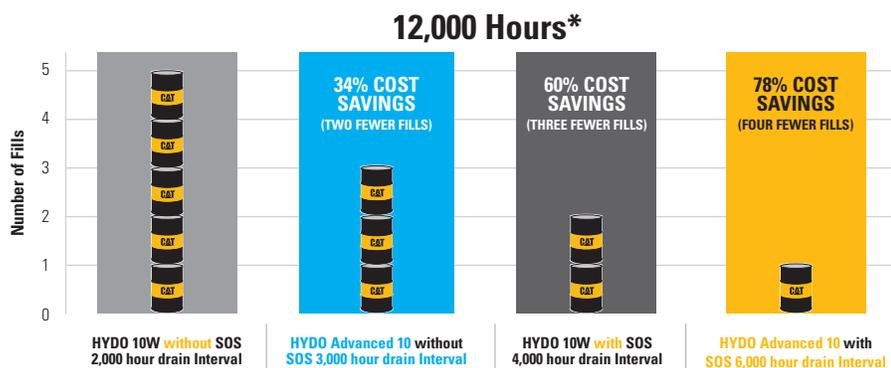
Viscosity	Celsius Temperature Range	Fahrenheit Temperature Range
HYDO Advanced 10	-20°C minimum to 40°C maximum	-4°F minimum to 104°F maximum
HYDO Advanced 20	-5°C minimum to 45°C maximum	23°F minimum to 113°F maximum
HYDO Advanced 30	10°C minimum to 50°C maximum	50°F minimum to 122°F maximum



# CAT HYDO ADVANCED 10/20/30

## FEATURES & BENEFITS

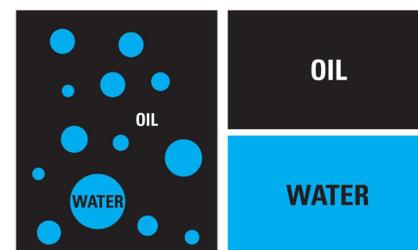
- **6,000 hour extended drain intervals** – up to triple the hours of Cat HYDO 10/20/30 when monitored with Cat Scheduled Oil Sampling (S•O•S<sup>SM</sup>) Services oil analysis program every 500 hours. Reduces owning and operating costs and increases uptime.
- **Enhanced, long-lasting anti-wear protection** – specially developed additives form a protective layer on the wear surfaces, reducing component wear in high-pressure piston, vane, and gear hydraulic pumps.
- **Holds water in dispersion** – contains emulsifiers specifically designed to encapsulate water for dispersion. Cat does not recommend oils that “separate,” “shed,” or “release” water. Separated water drawn through the hydraulic system can damage pumps and other components. If this water freezes, it can cause serious damage.
- **Backward compatibility** – the only hydraulic oil you need to stock for your maintenance operations. Preferred fill for Cat equipment.
- **Improved filtration properties** – special detergent dispersants keep components clean and improve transport of contaminants through the filters. Compatible with Cat Ultra High Efficiency filters.
- **Improved corrosion protection** – protects metal surfaces from rust. Better corrosion protection than most oils in the Cat line-up.
- **Faster air release** – rapid air separation reduces air release time, preventing cavitation. Cat HYDO Advanced 10 air release time of less than 4 minutes is far superior compared to Cat HYDO 10W at 7-10 minutes air release time (per ASTM D3427 testing).
- **Wide temperature range protection** – maintains consistent wear protection at both cold and hot temperatures. Designed to flow readily at cold temperature start up and maintain excellent wear protection at operating temperatures.
- **Improved oil stability** – 250% increase in oxidation stability per ASTM D943. Improved oil stability and wear protection make Cat HYDO Advanced last longer.



### Less Hydraulic Oil Used = Cost Savings

The benefits add up. 6,000-hour extended drain intervals—up to triple the hours of Cat HYDO 10W when monitored with Cat S•O•S<sup>SM</sup> Services oil analysis program. Reduces owning and operating costs, oil disposal cost, and increases uptime.

\*Cost savings are based on an estimate of the recommended oil drains for HYDO and HYDO Advanced. With fewer oil fills, you save time and money.



Cat HYDO

Industrial Hydraulic Oil

**Typical industrial hydraulic oils separate water and oil, which can cause valve sticking or excessive wear on your hydraulic system. Cat HYDO disperses small amounts of water throughout the oil to ensure proper lubrication.**

### Emulsifiers

Emulsifiers are formulated to hold and disperse water so that it does not harm mobile hydraulic systems. Cat HYDO Advanced has emulsifiers, which are specifically designed to separate water as shown above. Separated water drawn through the system can damage pumps and other components. If this water freezes, it can cause even more serious damage. Avoid oils with specifications which indicate that they “separate,” “shed,” or “release” water.

# CAT HYDO ADVANCED 10/20/30

## 6,000 Hour Extended Drain Intervals

Caterpillar has increased the recommended oil drain interval for hydraulic systems using Cat HYDO Advanced 10 and Cat S•O•S<sup>SM</sup> Services oil analysis program.

Hydraulic Oil	Standard	Extended <sup>1</sup>
Cat HYDO 10W	2,000 hours	4,000 hours
Cat HYDO Advanced 10	3,000 hours	6,000 hours
Cat HYDO	2,000 hours	4,000 hours
Cat HYDO Advanced 20	3,000 hours	6,000 hours
Cat HYDO 30	2,000 hours	4,000 hours
Cat HYDO Advanced 30	3,000 hours	6,000 hours

<sup>1</sup>Provided that the oil is:

- Monitored with Cat S•O•S Services oil analysis program every 500 hours.
- Filter change interval is the same.
- Cat hydraulic filters are strongly recommended.

## Cat HYDO Advanced 10/20/30 Typical Characteristics

Characteristics	HYDO Adv 10	HYDO Adv 20	HYDO Adv 30
SAE Viscosity Grade	10	20	30
Viscosity cSt @ 40° (ASTM D445) (DIN EN ISO 3104)	42	68	90
Viscosity cSt @100° (ASTM D445) (DIN ISO 3104)	6.7	9	10.6
Viscosity < 750 mPas (ASTM D2983)- temperature, °C max	NA	NA	NA
Viscosity Index (ASTM 2270)	114	110	100
Viscosity after Shear	6.7	9	10.6
Specific Gravity (ASTM D1298)		NA	
FZG (ASTM D5182) (DIN ISO 14635-1)	12	12	
Vickers Vane Pump Test (35VQ25) (mass loss in mg) (DIN ISO 20763)	33	Pass	
Flash Point °C (ASTM D92) (DIN ISO 2592)	NA	NA	
Pour Point °C (ASTM D97) (DIN ISO 3016)	-39	-33	-24
Acid Number (ASTM D974/D664)- KOH mg/g max	NA	NA	
Brookfield Viscosity @-20°C (ASTM D2983) mPaS		<9000	13,600
Zinc %wt (ASTM D4951)	0.09	0.094	0.09
Copper Strip Corrosion (ASTM D130) (DIN EN ISO 2160)	1A @ 150°C	1A	1A @ 150°C
Rust Protection (ASTM D665 A/B) (DIN ISO 7120)	Pass	Pass	Pass
Oxidation Stability (ASTM D943)-time for KOH acid number of 2mg/kg/h (min)	>5000	>5000	>5000
Long Drain Intervals (confirmed by field testing)	Yes	Yes	Yes
Filterability, Wet, E (DIN ISO 13357-1 & 2)	Pass	Pass	Pass
Air Release @ 50°C (ASTM D3427) (DIN ISO 9120)	4	>9 min	
Foam Seq. 1 ml (ASTM D892) (ISO 6247:1998 + 1999)	0/0	0/0	0/0
Foam Seq. 2 ml (ASTM D892) (ISO 6247:1998 + 1999)	0/0	0/0	0/0
Foam Seq. 3 ml (ASTM D892) (ISO 6247:1998 + 1999)	0/0	0/0	0/0
Cleanliness (ISO 4406)	No interference with optical particle counters	No interference with optical particle counters	No interference with optical particle counters
Ability to keep water in emulsion	Yes	Yes	Yes

## CAT DEALERS DEFINE WORLD-CLASS PRODUCT SUPPORT.



We offer you the right parts and service solutions, when and where you need them.

The Cat dealer network of highly trained experts keeps your entire fleet up and running to maximize your equipment investment.



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