

Cat[®] HYDO[™] Advanced 10



6,000 Hour Extended Drain Intervals

Caterpillar is introducing a new hydraulic oil to the fluid product line, Cat[®] HYDO[™] Advanced 10. This new 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 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. Result is the best product available for Cat machine hydraulic systems.



Cat® HYDO Advanced 10

HYDO Advanced 10
HYDO 10W

HYDO Advanced 10
after 2,000 hours

HYDO 10W
after 1,000 hours



Oil at start Oil after field test

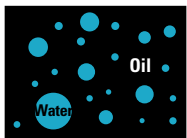
Improved Oil Stability

250% increase in oxidation stability per ASTM D943. Improved oil stability and wear protection make Cat Hydo Advanced last longer.

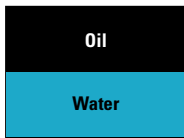


Destructive Pump Test

Cat HYDO Advanced 10 is the best product for Cat machine hydraulic systems. Tested side-by-side under severe wear application conditions, simulated with Cat's proprietary destructive piston pump test, Cat HYDO Advanced 10 clearly out-performed HYDO 10W. Proof of performance? Significantly less visible wear. With Cat HYDO Advanced 10, the piston pump is in excellent condition after 200 hours. The piston pump with HYDO 10 failed after 178 hours.



Cat HYDO



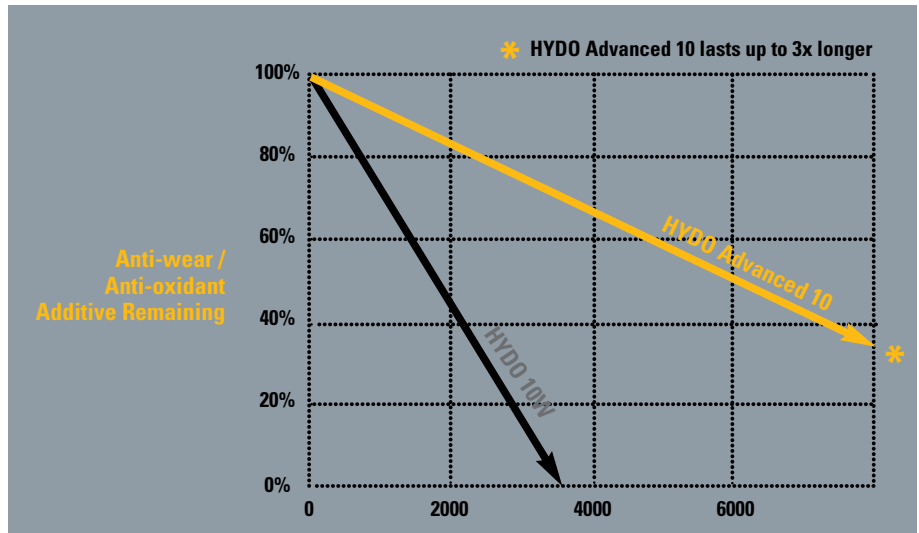
Industrial Hydraulic Oil

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 – 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 whose specifications indicate that they “separate,” “shed” or “release” water.

Features & Benefits

- **6,000 hour extended drain intervals** – up to triple the hours of Cat® HYDO 10W when monitored with Caterpillar® S•O•SSM Services oil analysis program every 500 hours. Reduces owning and operating costs and increases uptime.
- **Enhances, 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 disperse water. 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 maintains 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.



Longer Lasting Protection

After 2,000 hours of severe field testing in excavators, Cat HYDO Advanced showed clear performance improvements over Cat HYDO 10W, with 80% of HYDO Advanced's anti-wear/anti-oxidant additive remaining compared to 40% for HYDO 10W. At 4,000 hours, HYDO Advanced still showed more than 60% remaining, while HYDO 10W's additive was completely depleted.

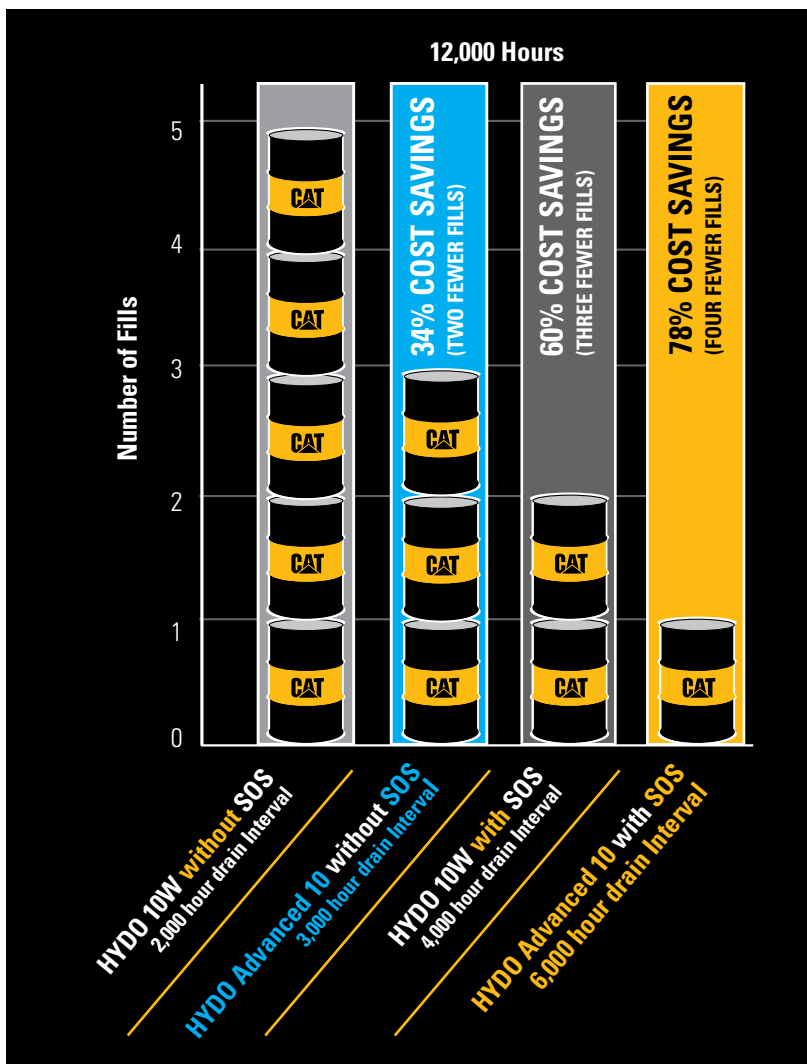
6,000 Hour Extended Drain Intervals

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

Hydraulic Oil	Standard	Extended ¹
Cat HYDO 10W	2,000 hours	4,000 hours
Cat HYDO Advanced 10	3,000 hours	6,000 hours

¹ Provided that the oil is:

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



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 Caterpillar S•O•SSM Services oil analysis program. Reduces owning and operating costs, oil disposal cost, and increases up-time.

English Volume	
Package Size	Part Number
Bulk Gallon – contact dealer	314-5168
Bulk Railcar – contact dealer	309-6929
55 Gallon	309-6930
5 Gallon	309-6931
1 Gallon container, 4 per package	309-6932

Metric Volume	
Package Size	Part Number
Bulk Liter – contact dealer	314-5169
15,000 Liter	309-6934
10,000 Liter	309-6935
2,000 Liter	309-6936
1,000 Liter	309-6937
208 Liter	309-6938
205 Liter	309-6939
200 Liter	209-6940
60 Liter	309-6941
20 Liter	309-6942
19 Liter	209-6943
18 Liter	309-6944
5 Liter	309-6945

Cat® HYDO Advanced 10

Cat HYDO Advanced 10 Typical Characteristics¹

Characteristics	HYDO Advanced 10	Typical Diesel Engine Oil API CF SAE 10W	Typical Premium Industrial Hydraulic Oil, HVLP or HV	HYDO Advanced 10 Advantages
SAE Viscosity Grade	10W	10W	Varies	Better wear protection, wider operating temperature range
Viscosity				
cSt @ 40°C (ASTM D445)	42	40	46	
cSt @ 100°C (ASTM D445)	6.7	6.3	8.0	
Viscosity Index (ASTM D2270)	114	105	146	
Viscosity after Shear ² (cSt, during use)	6.7	6.3	6.6	
FZG Gear Test DIN 51534, Fail Stage ³	12	12	11	
35VQ25 Vickers Total Wear Test	33 mg	40-90 mg	<90 mg	
4 Ball (40kg/30min/600rpm/93°C ASTM D4172)	0.37 mm	Varies	Varies	
Pour Point, °C (ASTM D97)	-39	-30	-36	
Pumping @ -30°C mPaS (ASTM D4684)	15,000	Varies	Varies	Corrosion protection
Zinc, % wt. (ASTM D4951) typical	0.090	Varies	<0.040	
Copper Strip Corrosion ⁴ (3 hr, ASTM D130)	1A @ 150°C	1 @ 100°C	1 @ 100°C	Longer drain interval; lower owning and operating costs
Rust Protection ⁵ (ASTM D665B)	Pass	Varies	Varies	
Oxidation stability, hours (ASTM D943)	>5,000	2,000 hours	2,000 hours	Filter bypass, filter plugging, contamination control
Long Drain Interval, confirmed by field testing	Yes	No	No	
Filterability, Wet, E DIN ISO 13357-1	Pass	Fail	Pass	Better air release reduces cavitation damage
Air Release @ 50°C (ASTM D3427)	4 minutes	7-10 minutes	7-13 minutes	
Foam Test ⁶		Varies	Varies	Accurate contamination Control
Seq. 1 ml. (ASTM D892)	0/0			
Seq. 2 ml. (ASTM D892)	5/0			
Seq. 3 ml. (ASTM D892)	0/0			
Cleanliness	No interference with optical particle counters	Interferes with optical particle counters	Varies	Sludge control and water damage prevention
Ability to keep water in emulsion	Yes	Yes	No	

1 The values shown are typical values and should not be used as quality control parameters to either accept or reject product. Specifications are subject to change without notice.

2 Oils that contain viscosity modifier additives will become thinner during use in this machine. This will reduce protection level.

3 Higher is typically better, but too much active antiwear additives may lead to reduced component life.

4 1A is better than 1B, 1A at 150° C is better than 1A at 100° C.

5 May be difficult to pass with 10W engine oils.

6 New oil, as received, with 0.1% water by volume added.

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