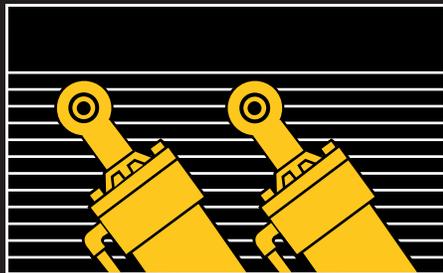


# Hydraulic Oil (HYDO)

For use in Caterpillar® hydraulic and hydrostatic systems

SAE 10W  
SAE 30  
(Other than  
North American  
part numbers)



Developed, tested and approved by Caterpillar, Cat Hydraulic Oil (HYDO) ensures optimum life and performance when used as recommended in Cat® hydraulic and hydrostatic systems.

## Recommended use

The preferred lubricant for Cat hydraulic systems is Caterpillar Hydraulic Oil (HYDO). We recommend this oil because its additive package provides optimum protection for components within Caterpillar hydraulic systems. Although more expensive than lower-performance competitive hydraulic oils, Cat HYDO ensures the best performance and longest life for hydraulic components. The hydraulic system of most new Cat machines is filled with Caterpillar HYDO before it leaves the factory.

We can help you determine the right oil for your Cat machines and engines. You can also refer to your “Operation and Maintenance Manual” or Service Publication SEBU6250 (Caterpillar Machine Fluid Recommendations). An electronic version of this service publication is available at [www.CAT.com](http://www.CAT.com). Simply choose these selections: Products/Parts and Service/Fluids/Machine Lubricant Recommendations.

## Typical Characteristics\*

SAE Crankcase Viscosity	10W	30
Color, ASTM (ASTM D1500)**	1	2
Gravity, API @ 16°C (ASTM D287)	29.5	27.1
Vickers Vane Pump Test (35VQ25)	Pass	Pass
Appearance (Visual)	Clear & Bright	Clear & Bright
Flash Point, °C (ASTM D92)	204	200
Pour Point, °C (ASTM D97)	-27	-21
Borderline Pump Temp., °C (ASTM D3829)	-20	N/A
Viscosity,		
cP @ -20°C (ASTM D5293)	3500	N/A
cST @ 40°C (ASTM D445)	37.0	110
cST @ 100°C (ASTM D445)	6.5	11.8
Viscosity Index (ASTM D567)	114	95
Foam,***		
Seq. I (ASTM D892)	25/0	25/0
Seq. II (ASTM D892)	50/0	50/0
Seq. III (ASTM D892)	25/0	50/0
Zinc, % wt. (ASTM D1549)	.09 min.	.09
Phosphorus, % wt. (ASTM D1091)	.082	.08

\* 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.

\*\* Oil used for factory fill has a red dye added for easier detection of leaks.

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

# Hydraulic Oil (HYDO)

## Acceptable substitutes

If Caterpillar Hydraulic Oil is not used, the following are acceptable alternatives.\*

- Cat Diesel Engine Oil
- Cat Transmission/Drive Train Oil
- Cat Transmission/Drive Train Oil: TDTO (TMS)
- Cat Multi-Purpose Tractor Oil: MTO
- Commercial Heavy Duty Diesel Engine Oil with a minimum zinc content of 900 ppm. (Heavy Duty Oils are identified by API classifications CD, CF-4, CG-4 or CH-4.)

Refer to “Caterpillar Machine Fluids Recommendations”, SEBU6250 for lubricant viscosity recommendations at various ambient temperatures.

For specific lubrication requirements in other OEM machines, consult your machine owner’s manual.

We can help you determine the right oil for your Cat machines and engines, or you can refer to your “Operation and Maintenance Manual” or Service Publication SEBU6250, (Caterpillar Machine Fluids Recommendations.)

\* However, HYDO should not be used in place of any of these other lubricants.

## Advanced formula for maximum performance and protection

Cat HYDO is formulated with a balanced additive system, including detergents, dispersants, rust inhibitors, anti-wear agents and defoamers. It offers maximum protection against mechanical wear, rusting and corrosive wear in Cat hydraulic and hydrostatic transmission systems. Cat HYDO is:

- Field proven for consistent performance
- Formulated with a high level of zinc additive (900 ppm min.) to minimize pump, motor and valve wear
- Formulated to disperse water properly
- Approved and tested by Cat engineers
- An integral part of Cat machine hydraulic and hydrostatic systems design
- Standard factory-fill oil

## A proven balance of additives

Cat HYDO contains:

- Anti-wear Agents — Zinc dithiophosphate at 900 ppm(min.) to lubricate while reducing friction, wear and scuffing.
- Emulsifiers — Disperse small amounts of water throughout the oil so water will not damage hydraulic system components.
- Defoamers and Air Release Agents — Prevent the formation of bubbles by reducing oil surface tension to quickly release air content to the atmosphere.
- Anti-oxidants — Prevent the formation of sludge and corrosive acids at high system temperatures and pressures.
- Detergents/Dispersants — Keep components free of deposits, breaking up contaminants and holding them in suspension.

## S-O-S<sup>SM</sup> Services for early detection

We recommend protecting your investment by using scheduled fluid analysis. Our S-O-S analysis program is the ultimate detection and diagnostic tool for your equipment, helping you address problems before they lead to major failures and costly unscheduled downtime.

**Do not use industrial hydraulic oils**

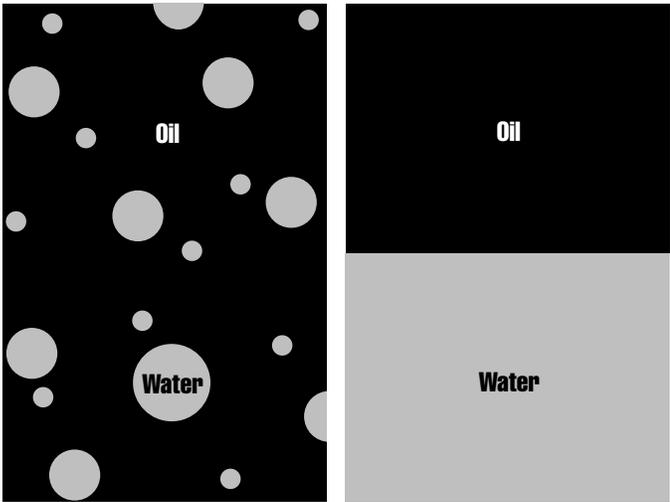
Industrial hydraulic oils may shorten hydraulic pump and component life because they typically omit or contain reduced levels of the additive agents listed in this publication. Industrial hydraulic oils are usually formulated to separate water from the oil, a desired characteristic for stationary hydraulic systems. However, in earthmoving equipment this separated water will cause pump and component damage if it is suddenly drawn through the system from the tank as the machine moves. Caterpillar HYDO is designed to disperse small amounts of water throughout the system, minimizing water damage to hydraulic components.

**Keep it clean**

Along with the use of proper hydraulic fluid, oil cleanliness is essential to achieving the full life of hydraulic system components. New hydraulic oil should be filtered when put into Caterpillar machines to achieve a cleanliness level of ISO 18/15 or higher. Hydraulic oil that has been removed during a repair process must be filtered to a minimum of ISO 18/15 before it is used to refill. Any used oil should be checked using S-O-S analysis before it is reused.

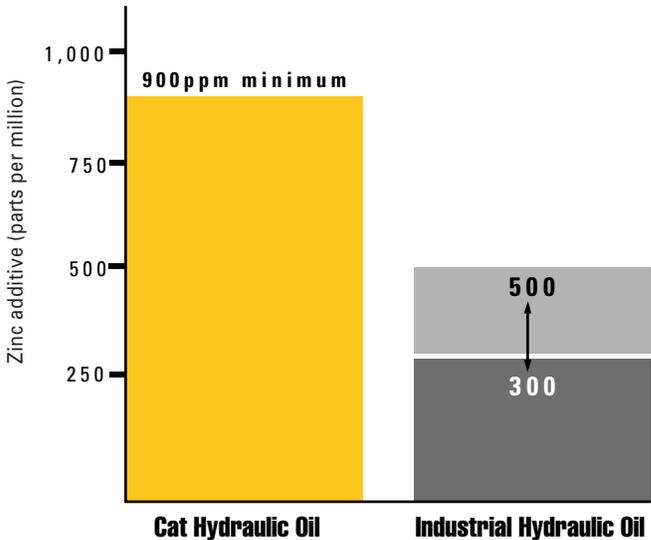
Cat HYDO

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.

**Hydraulic Oil Zinc Additive Levels**



A high level of zinc additives is essential for protecting pumps, motors and valves from excessive wear. Cat HYDO contains more than twice as much zinc as typical industrial hydraulic oil to maximize your hydraulic system's life and performance.

# Hydraulic Oil (HYDO)

## Use the best filters

Caterpillar fine-filtration hydraulic filters should be used after repairing or opening the hydraulic system and after each oil change. Do not operate with fine filtration filters for more than 100 hours as they will plug more readily than standard filters. We recommend using only Caterpillar hydraulic filters on Caterpillar machines because of their proven ability to trap and hold debris and their exceptional burst strength.

## Proper use for health and safety

According to toxicology information, Cat HYDO has little or no adverse effects if handled and used properly. No special precautions are suggested beyond attending to good personal hygiene and avoiding prolonged, repeated skin contact. For more information, refer to the Material Safety Data Sheet, located on the Caterpillar website at [www.cat.com/products/custserv/msds](http://www.cat.com/products/custserv/msds)

## Caterpillar HYDO Part Numbers

		<b>SAE 10W</b>	
<b>Part Numbers:</b>	Bulk (Litres)		
(Other than USA)	4	2P9063	7X7862
*Litre Containers	5	9X6171	
	18	9X2014	
	19	9X8533	
	20	9X7861	
	25	9X6172	
	50	9X6173	
	60	121-4044	
	200	9X8532	
	205	9X7860	
	208	9X6468	
	209	9X2013	
	1000	7X7613	
	1200	8C9926	

		<b>SAE 30**</b>	
<b>Part Numbers:</b>	Bulk (Litres)		
	4	—	—
	5	—	—
	18	100-7017	
	19	—	
	20	127-5454	
	25	—	
	50	—	
	60	—	
	200	112-6627	
	205	—	
	208	127-5453	
	209	100-7018	
	1000	—	
	1200	—	

\* Container sizes vary from country to country.

\*\* Not available in temperate zone countries.