



## Hydraulic AW/D

Phillips 66® Hydraulic Oil AW/D is a high-quality anti-wear hydraulic oil developed for use in industrial and mobile hydraulic systems where component cleanliness is critical. It is formulated with a dispersant/detergent additive to help keep the hydraulic system clean and free of deposits.

Hydraulic Oil AW/D is formulated to provide excellent wear protection for hydraulic pumps and motors, to protect hydraulic system components against rust and corrosion, and to maintain excellent hydraulic system cleanliness. It has good oxidation resistance and thermal stability at high temperatures to minimize deposit formation and provide long service life. It has high dispersancy-detergency to keep close-tolerance servo valves clean and freely operating for maximum system efficiency, and is resistant to excessive foam buildup that can cause poor or sluggish hydraulic system response.

Hydraulic Oil AW/D is recommended for use in all types of high-pressure, high-speed hydraulic pumps. However, it should **not** be used in hydraulic systems where good water separation is required, since the dispersant/detergent additive will emulsify water and hold it in suspension.

## Applications

- Hydraulic systems on industrial, mobile and marine equipment
- Automated machine tools
- Hydraulic elevators, hoists, presses and floor jacks
- Marine cargo winches and steering systems
- Mobile construction equipment
- Service station lifts
- Air tools and other pneumatic equipment lubricated through air line lubricators

Hydraulic Oil AW/D meets the requirements (except demulsibility) of the following industry and OEM specifications:

- DIN 51524 Part 2, Anti-wear Hydraulic Oils, Type HLP
- Eaton-Vickers I-286-S, M-2950-S
- German Steel Industry SEB 181222
- ISO 11158:1997, Family H (Hydraulic Systems), Type HM
- Parker Hannifin (Denison) HF-0, HF-1, HF-2
- U.S. Steel 127

**Anti-wear  
Hydraulic Oil  
with Dispersant/  
Detergent  
Additive**

KEEPING THE  
WORLD  
RUNNING  
SMOOTHLY. 



## Features/Benefits

- High dispersancy-detergency for excellent system cleanliness
- Excellent wear protection for hydraulic pumps and motors
- Good oxidation resistance and thermal stability
- Protects against rust and corrosion
- Good foam resistance

## Hydraulic AW/D

Typical Properties			
ISO Grade	32	46	68
Specific Gravity @ 60°F	0.860	0.865	0.867
Density, lbs/gal @ 60°F	7.16	7.20	7.22
Color, ASTM D1500	0.5	L 1.0	L 1.0
Flash Point (COC), °C (°F)	223 (433)	247 (477)	257 (495)
Pour Point, °C (°F)	-45 (-49)	-42 (-44)	-36 (-33)
Viscosity			
cSt @ 40°C	32.0	46.0	68.0
cSt @ 100°C	6.1	7.6	9.8
SUS @ 100°F	150	214	315
SUS @ 210°F	46.2	51.1	58.6
Viscosity Index	141	132	126
Acid Number, ASTM D974, mg KOH/g	0.42	0.42	0.42
Copper Corrosion, ASTM D130	1a	1a	1a
Foam Test, ASTM D892	Pass	Pass	Pass
FZG Scuffing Test, ASTM D5182, Failure Load Stage	11	11	11
Oxidation Stability, TOST, ASTM D943-04a, hours	>4,500	>4,500	>4,500
Rust Test, ASTM D665 A&B	Pass	Pass	Pass
Zinc, wt %	0.047	0.047	0.047

## Health & Safety Information

For recommendations on safe handling and use of this product, please refer to the Safety Data Sheet via <http://www.phillips66.com/EN/products/Pages/MSDS.aspx>.