

Four Seasons Hydraulic Fluid AW

Kendall® Four Seasons Hydraulic Fluid AW is a high-quality antiwear hydraulic oil developed for use in a wide variety of industrial and mobile hydraulic system applications. It meets the performance requirements of all major hydraulic pump manufacturers, and is recommended for use in all types of high-pressure, high-speed hydraulic pumps.

Four Seasons Hydraulic Fluid AW is formulated to provide excellent wear protection for hydraulic pumps and motors, and to protect hydraulic system components against rust and corrosion. It has excellent oxidation resistance and thermal stability at high temperatures to minimize deposit formation and provide long service life. It has excellent water-separating properties to minimize the formation of emulsions, and is resistant to excessive foam buildup that can cause poor or sluggish hydraulic system response.

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
- Chain drives
- Electric motor bearings
- Lightly to moderately loaded enclosed industrial gear drives that do not require a compounded or extreme-pressure (EP) gear oil

Four Seasons Hydraulic Fluid AW meets the requirements of the following industry and OEM specifications:

- Bosch Rexroth RE 90220, Type HLP
- DIN 51524 Part 2, Antiwear 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

**High-Quality
Antiwear
Hydraulic Oil**

CONTACT INFORMATION

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Features/Benefits

- Excellent wear protection for hydraulic pumps and motors
- Excellent oxidation resistance and thermal stability
- Protects against rust and corrosion
- Excellent water-separating properties
- Excellent filterability, even in the presence of a small amount of water
- Good foam resistance

Four Seasons Hydraulic Fluid AW

Typical Properties

ISO Grade	32	46	68	100
Specific Gravity @ 60°F	0.864	0.870	0.874	0.876
Density, lbs/gal @ 60°F	7.19	7.24	7.28	7.29
Color, ASTM D1500	0.5	0.5	1.0	1.0
Flash Point (COC), °C (°F)	216 (421)	227 (441)	238 (460)	252 (486)
Pour Point, °C (°F)	-37 (-35)	-37 (-35)	-33 (-27)	-32 (-26)
Viscosity,				
cSt @ 40°C	32.0	46.0	68.0	100
cSt @ 100°C	5.4	6.8	8.7	11.0
SUS @ 100°F	165	237	353	523
SUS @ 210°F	44.4	49.0	55.5	63.9
Viscosity Index	102	102	99	94
Acid Number, ASTM D974, mg KOH/g	0.38	0.38	0.38	0.38
Copper Corrosion, ASTM D130	1a	1a	1a	1a
Demulsibility, ASTM D1401, minutes to pass	10	10	10	10
Foam Test, ASTM D892	Pass	Pass	Pass	Pass
FZG Scuffing Test, ASTM D5182, Failure Load Stage	12	12	12	12
Oxidation Stability,				
TOST, ASTM D943-04a, hours	>5,000	>5,000	>5,000	>5,000
RPVOT, ASTM D2272, minutes	>270	>270	>270	>270
Rust Test, ASTM D665 A&B	Pass	Pass	Pass	Pass
Zinc, wt %	0.043	0.043	0.043	0.043

Health and Safety Information

For recommendations on safe handling and use of this product, please refer to the Material Safety Data Sheet via <http://w3apps.phillips66.com/NetMSDS>.

Typical properties are average values only and do not constitute a specification. Minor variations that do not affect product performance are to be expected during normal manufacture, and at different blending locations. Product formulations are subject to change without notification.

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