

## Hyspin AWH-M

High viscosity index anti-wear hydraulic oils

### Description

The Castrol Hyspin™ AWH-M hydraulic oils are a range of shear stable high viscosity index lubricants.

### Application

Hyspin AWH-M contains a shear stable additive system which helps maintain the viscosity characteristics of the product over a wide temperature range, even during prolonged use, and imparts a very low pour point which enables the product to be used in very cold environments. It exhibits very good corrosion and wear protection as well as good thermal and oxidative stability. In addition, Hyspin AWH-M is stable in the presence of water and separates water contamination rapidly upon standing.

Applications include:

Outdoor equipment which are likely to operate in wide temperature ranges, such as machinery subjected to cold start up conditions and high temperature continuous running. Examples include off-highway and marine applications.

Indoor manufacturing equipment that incorporates control systems requiring minimal viscosity change with temperature. Examples include precision machine tools.

The Hyspin AWH-M range is compatible with the most commonly used nitrile, silicone and fluorinated (e.g. Viton) seal materials

Hyspin AWH-M is classified as follows:

- DIN 51502 classification – HVLP
- ISO 6743/4 - Hydraulic Oils Type HV

Hyspin AWH-M grades meet the requirements (for appropriate viscosity grade) of:

- DIN 51524 Part 3
- Cincinnati Lamb (Milacron) P 68-69-70
- Denison (Parker Hannafin) HF-0
- US Steel 126 & 127
- Eaton (formerly Vickers) I-286-S & M-2950-S

### Advantages

Hyspin AWH-M has the following advantages when compared to conventional hydraulic oils (of the same class):-

- High viscosity index and low pour point enables the product to be used over a wide temperature range.
- Good shear stability which means no excessive loss in viscosity due to mechanical shearing.
- Provides excellent wear protection for hydraulic pumps, helping to reduce downtime caused by unscheduled maintenance.
- Excellent water separation and hydrolytic stability, measured by industry standard testing. This increases equipment reliability, helping to prolong the lubricant life and reduce downtime.
- Good filterability gives a cleaner system with less frequent filter changes.

## Typical Characteristics

Name	Method	Units	AWH-M 15	AWH-M 32	AWH-M 46	AWH-M 68	AWH-M 100	AWH-M 150
ISO Viscosity Grade	-	-	15	32	46	68	100	150
Density @ 15°C / 59°F	ISO 12185 / ASTM D4052	kg/m <sup>3</sup>	880	880	880	880	890	890
Kinematic Viscosity @ 40°C / 104°F	ISO 3104 / ASTM D445	mm <sup>2</sup> /s	15	32	46	68	100	150
Kinematic Viscosity @ 100°C / 212°F	ISO 3104 / ASTM D445	mm <sup>2</sup> /s	3.83	6.41	8.32	11.09	13.45	18.01
Viscosity Index	ISO 2909 / ASTM D2270	-	>150	>150	>150	>140	>130	>130
Pour Point	ISO 3016 / ASTM D97	°C/°F	<-51/ <60	-45/-49	-42/-44	-36/-33	-30/-22	-30/-22
Flash Point - open cup method	ISO 2592 / ASTM D92	°C/°F	205/401	210/411	215/419	226/440	226/440	232/450
Flash Point - closed cup method	ISO 2719 / ASTM D93	°C/°F	160/320	200/392	220/428	220/428	220/428	220/428
Foam Sequence I - tendency / stability	ISO 6247 / ASTM D892	ml/ml	20/0	20/0	20/0	20/0	20/0	20/0
Water Separation @ 54°C / 129°F (40/37/3)	ISO 6614 / ASTM D1401	min	5	10	15	15	-	-
Water Separation @ 82°C / 180°F (40/37/3)	ISO 6614 / ASTM D1401	min	-	-	-	-	20	20
Air Release @ 50°C / 122°F	ISO 9120 / ASTM D3427	min	4	4	8	8	12	24
FZG Gear Scuffing test - A/ 8.3/90	ISO 14635-1	Failure Load Stage	-	11	12	12	12	12
Rust test - distilled water (24 hrs)	ISO 7120 / ASTM D665A	-	Pass	Pass	Pass	Pass	Pass	Pass
Rust test - synthetic seawater (24 hrs)	ISO 7120 / ASTM D665B	-	Pass	Pass	Pass	Pass	Pass	Pass
Shear Stability - KRL test (4hrs)	DIN 51350-6	viscosity loss (%)	-	-	9.5	-	-	-

Subject to usual manufacturing tolerances.

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