



Product Data

## Hyspin ZZ Range

Anti-wear Hydraulic Oil

### Description

The Castrol Hyspin® ZZ hydraulic oil range of lubricants are based on a carefully selected ashless (zinc free) additive system designed to meet and exceed the most exacting performance standards.

### Application

The Hyspin ZZ range are formulated for applications requiring anti-wear and superior oxidation performance and are particularly suitable for hydraulic systems using vane and piston pumps where elevated operating temperatures are encountered. They are formulated for use in severely stressed systems in which high levels of anti-wear performance and/or ultra fine filtration are required. They have been proven to be resistant to the effects of 'dieseling' in highly stressed systems such as plastic injection moulding and fatigue testing equipment where the application leads to rapid breakdown of more conventional products.

The range is fully compatible with elastomer materials commonly used for static and dynamic seals, such as nitrile, silicone and fluorinated (e.g. Viton) polymers.

Hyspin ZZ is classified as follows:

- DIN 51502 classification - HLP
- ISO 6743/4 - Hydraulic Oils Type HM

Hyspin ZZ (for appropriate viscosity grade) is approved by:

- Parker Hannifin (Denison) HF0, HF1 & HF2
- Eaton E-FDGN-TB002-E

Hyspin ZZ grades meet the requirements (for appropriate viscosity grade) of:

- DIN 51524 Part 2
- Fives Cincinnati P68, P69 & P70
- ASTM D6158 HM
- ISO 11158 HM
- US Steel 126
- GB 11118.1 L-HM (General and High Pressure)

### Advantages

- Good thermal and oxidative stability provides reliable performance and extended oil life in severe applications. Minimal deposit formation gives a cleaner system and reduced frequency of filter changes.
- Excellent anti-wear performance provides extended wear protection for hydraulic pumps. Reduced downtime due to unscheduled maintenance and savings from replacement part costs.
- Excellent filterability characteristic (including in the presence of water) enables cost savings to be made from increased filter life and reduced maintenance.
- Excellent water separation and hydrolytic stability means reduced down time through prolonged lubricant life and increased equipment reliability.

## Typical Characteristics

| Name                                      | Method                 | Units              | ZZ 46   | ZZ 68   |
|-------------------------------------------|------------------------|--------------------|---------|---------|
| ISO Viscosity Grade                       | -                      | -                  | 46      | 68      |
| Density @ 15°C / 59°F                     | ISO 12185 / ASTM D4052 | kg/m <sup>3</sup>  | 880     | 880     |
| Kinematic Viscosity @ 40°C / 104°F        | ISO 3104 / ASTM D445   | mm <sup>2</sup> /s | 46      | 68      |
| Kinematic Viscosity @ 100°C / 212°F       | ISO 3104 / ASTM D445   | mm <sup>2</sup> /s | 6.7     | 8.6     |
| Viscosity Index                           | ISO 2909 / ASTM D2270  | -                  | >95     | >95     |
| Pour Point                                | ISO 3016 / ASTM D97    | °C/°F              | -27/-17 | -24/-11 |
| Flash Point - open cup method             | ISO 2592 / ASTM D92    | °C/°F              | 215/419 | 225/437 |
| Flash Point - closed cup method           | ISO 2719 / ASTM D93    | °C/°F              | 200/392 | 220/428 |
| Foam Sequence I - tendency / stability    | ISO 6247 / ASTM D892   | ml/ml              | 20/0    | 20/0    |
| Water Separation @ 54°C / 129°F (40/37/3) | ISO 6614 / ASTM D1401  | min                | 15      | 15      |
| Water Separation @ 82°C / 180°F (40/37/3) | ISO 6614 / ASTM D1401  | min                | -       | -       |
| Air Release @ 50°C / 122°F                | ISO 9120 / ASTM D3427  | min                | 8       | 8       |
| FZG Gear Scuffing test - A/8.3/90         | ISO 14635-1            | Failure Load Stage | 12      | 12      |
| Rust test - distilled water (24 hrs)      | ISO 7120 / ASTM D665A  | -                  | Pass    | Pass    |
| Rust test - synthetic seawater (24 hrs)   | ISO 7120 / ASTM D665B  | -                  | Pass    | Pass    |
| Oxidation Stability - TOST                | ISO 4263-1 / ASTM D943 | hrs                | >2000   | >2000   |

Subject to usual manufacturing tolerances.

Hyspin ZZ Range

13 Dec 2019

Castrol, the Castrol logo and related marks are trademarks of Castrol Limited, used under licence.

This data sheet and the information it contains is believed to be accurate as of the date of printing. However, no warranty or representation, express or implied, is made as to its accuracy or completeness. Data provided is based on standard tests under laboratory conditions and is given as a guide only. Users are advised to ensure that they refer to the latest version of this data sheet. It is the responsibility of the user to evaluate and use products safely, to assess suitability for the intended application and to comply with all applicable laws and regulations. Safety Data Sheets are available for all our products and should be consulted for appropriate information regarding storage, safe handling, and disposal of the product. No responsibility is taken by either BP plc or its subsidiaries for any damage or injury resulting from abnormal use of the material, from any failure to adhere to recommendations, or from hazards inherent in the nature of the material. All products, services and information supplied are provided under our standard conditions of sale. You should consult our local representative if you require any further information.

Castrol Industrial, Technology Centre , Whitchurch Hill , Pangbourne , Reading , RG8 7QR , United Kingdom

<http://msdspds.castrol.com>