



Hydraulic oil

Product description and application

HLP-D 46 ZF oils are produced using deeply refined, dewaxed and hydrorefined mineral oils obtained from crude oil processing. The oils contain a carefully selected set of enriching additives (zinc-free) with anti-corrosion, antioxidant,

lubricating and anti-foaming properties and contain a special set of detergent and dispersing additives.

HLP-D 46 ZF oils are used in highly-loaded force transmission systems, as well as hydraulic drive and control systems with the risk of moisture.

Characteristics

HLP-D 46 ZF oil technology provides:

- optimal protection of the surface of the lubricated elements,
- high anti-foam properties,
- good air release,
- extraordinary hydrolytic stability,
- high filterability,
- maintained cleanness of lubrication systems due to special detergent - dispersing properties thanks to which the oils dissolve most of the deposits of foreign contaminants in the hydraulic system and keep them in the oil up to the filtration on the bypass filter of the system,
- protection against wear and long life of lubricated parts.

Specifications and

Approvals

- ISO VG 15,22,32,46,68,100,150
- DIN 51524 HLPD
- DIN 51517-3 CLP
- Vickers
- Bosch-Rexroth
- Parker-Denison

Lisol Schmierstoffe



Technical Data Sheet

Typical parameters

due to continuous development of the product, they may change.

Requirements	Test methods	Unit	15	22	32	46	68	100	150
Kinematic viscosity at 40°C	PN-EN ISO 3104 ASTM D 445	mm²/s	15	22	32	46	68	100	150
Kinematic viscosity at 100°C	PN-EN ISO 3104 ASTM D 445	mm²/s	3.2 3.7	4.2 4.7	5.1 5.6	6.5 7.0	8.5 9.0	10.9 11.5	14.4 14.9
Viscosity index	PN ISO 2909 ASTM D 2270	-	≥105	≥102	≥100	≥100	≥100	≥96	≥95
Pour point	PN-ISO 3016 ASTM D 97	°C	≤-45	≤-36	≤-33	≤-30	≤-24	≤-22	≤-18
Flash point	EN ISO 2592 ASTM D 92	°C	≥180	≥200	≥215	≥220	≥230	≥250	≥260
Air release at 50°C	PN-ISO 9120 ASTM D 3427	min	≤2	≤3	≤4	≤6	≤10	≤15	≤8
Corrosion on Cu plate 100°C/3h	PN-EN ISO 2160 ASTM D 130		1	1	1	1	1	1	1
Anti-corrosion properties, steel pin, 12h	PN-ISO 7120 ATM D 665	-	no corrosion	no corrosion	no corrosion	no corrosion	no corrosion	no corrosion	no corrosion
FZG test A/8,3/90	DIN ISO 14635-1	-	≥12	≥12	≥12	≥12	≥12	≥12	≥12

Safety and Storage

All packages should be stored under a roof. If they are stored in the open air where they can be exposed to atmospheric conditions - rain, they should be placed in a horizontal position, so as to prevent ingress of water and prevent the destruction of marking, it is best to use canvas.

The product must not be stored in temperatures exceeding 60°C nor exposed to direct sunlight or in low temperatures below 0°C. The guaranteed shelf life of the product for use under storage conditions is 5 years.

Observe the general rules of health and safety at work and comply with the recommendations contained in the current edition of the Safety Data Sheet or the Product Information for which the Safety Data Sheet is not required.

Lisol Schmierstoffe and cooperating companies do not take responsibility for the consequences of improper product use or non-use of the precautions.

Data contained in this document does not constitute an offer within the meaning of the Act of 23 April 1964 - Civil Code.

Lisol Schmierstoffe assumes no responsibility for any consequences of the use of the information contained herein, in particular when deciding on trade and investment. All data contained herein are typical of those obtained with normal production batch, they may vary slightly due to characteristics of the production process, as well as due to continuous product development. The data here may be subject to change. Lisol Schmierstoffe is not responsible for the availability of the product.

Available packages

The above figures are typical of those obtained with normal production batch, they are not a technical specification, 20 l, 30 l, 205 l, 1000 l, bulk



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