



Energol HLP-HM

High Performance Hydraulic Oil

Description; Description

A range of mineral oil-based hydraulic fluids conforming to the international classification ISO Type HM and offering a wide choice of viscosities.

The properties of their solvent-refined base oils are enhanced by full additive treatment to minimize corrosion, oxidation, foaming and machinery wear.

Applications; Applications

Energol HLP-HM oils are formulated for highly stressed hydraulic systems where high levels of anti-wear performance are needed and meet filtration requirements of almost every hydraulic system (down to 6 micron filters). They are also suitable for other duties in which lubricants of high oxidation stability and lubrication performance are required, such as in lightly loaded gears, in some variable speed units and in bearings. The HLP-HM range is fully compatible with the elastomers materials commonly used for static and dynamic seals, such as :

- . Nitril butyl (PERBUNAN* or BUNA N*)
- . Fluorinated (VITON*/TEFLON*)
- . Perfluorinated (KABREZ*) . Polyester (HYTREL*)
- . Polyurethane (ADIPRENE*) * trade marks

The Energol HLP-HM oils meet the performance requirements of DIN 51 524 Part 2 'Hydraulic Oils Type H-LP' and of ISO 6743/4 'Hydraulic Oils Type HM' (NF E 48-603 and NF E 60-203). They meet the specifications/requirements of many major manufacturers, namely :

- . Denison HF-0, HF-2
- . Vickers industrial machinery, meets form I-286-S (pump 35V.Q.25)
- . Rexnord-Racine vane pumps
- . Mannesman Rexroth Hydromatik piston pumps
- . Sigma-Rexroth gear pumps
- . Cincinnati Milacron (p. 68-69-70)
- . US Steel 136

Main Benefits; Main Benefits

- High degree of equipment protection
- Excellent performance in anti-wear protection, oxidation resistance and thermal stability

- Excellent de-aeration characteristics
- Compatibility with other mineral oils
- Good filterability

Storage; Storage

All packages should be stored under cover. Where outside storage is unavoidable drums should be laid horizontally to avoid the possible ingress of water and the obliteration ; All packages should be stored under cover. Where outside storage is unavoidable drums should be laid horizontally to avoid the possible ingress of water and the obliteration

of drum markings. Products should not be stored above 60°C, exposed to hot sun or freezing conditions.; of drum markings. Products should not be stored above 60°C, exposed to hot sun or freezing conditions.

Health, Safety and Environment; Health, Safety and Environment

Health, safety and environmental information is provided for this product in the Materials Safety Data Sheet. This gives details of potential hazards, precautions and First Aid measures, together with environmental effects and disposal of used products.; Health, safety and environmental information is provided for this product in the Materials Safety Data Sheet. This gives details of potential hazards, precautions and First Aid measures, together with environmental effects and disposal of used products.

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Typical Characteristics; Typical Characteristics

	Test Methods; Test Methods	Units; Units	Grade :; Grade :					
Density at 15 °C	ISO 3675, ASTM D1298	kg/m ³	10 861	22 875	32 876	46 879	68 882	100 886
Flash Point (COC)	ISO 2592 ASTM D92	°C	162	192	216	225	240	246
Viscosity KV @ 40 °C	ISO 3104, ASTM D445	mm ² /s	11	21	32	46	68	105
100 °C	ISO 2909, ASTM D2270	-	2.6	4.2	5.4	6.9	9.0	12
Viscosity Index	ISO 3016, ASTM D97	-	80	104	108	105	105	101
Pour Point	ISO 2049, ASTM D1500	°C	-45	-30	-30	-30	-30	-24
Colour	ASTM D664		0.5	1.0	1.0	1.5	L2.0	2.5
Neutralisation Value	ISO 7210, ASTM D665B	mgKOH/g	0.70	0.70	0.70	0.70	0.70	0.70
Corrosion-rust protection	ISO 2160, ASTM D130		pass	pass	pass	pass	pass	pass
Copper Corrosion 3h/100 °C	IP 278		1b	1b	1b	1b	1b	1b
Seal Compatibility Index 24 h at 100 °C	ASTM D892 IP 146		-	16	15	13	10	7
Foam Tendency/Stability :								
Sequence I : 24 °C		ml	10/0	5/0	5/0	10/0	10/0	20/0
Sequence II : 93 °C		ml	50/0	20/0	20/0	30/0	30/0	30/0
Sequence III : 24 °C after Sequence II		ml	60/0	5/0	5/0	10/0	10/0	10/0
FZG gear test : A/8.3/90 °C	IP 334, DIN 51 354	stage failure	-	-	11	12	12	12

The above figures are typical of those obtained with normal production tolerance and do not constitute a specification.; The above figures are typical of those obtained with normal production tolerance and do not constitute a specification.

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BP Lubricants and Special Products Limited
Witan Gate House Lubricants Helpline: 0845 - 6031080
500/600 Witan Gate Fax: 0845 - 6031070
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