



## **Energol IC-HFX Range**

Medium speed trunk piston diesel engine lubricants

### **Description**

Energol IC-HFX is a range of premium-grade trunk piston engine lubricants formulated with selected high quality base oils and a unique additive system to provide superior performance in highly rated marine diesel engines operating under severe conditions. It is especially suitable for those with low oil consumption, small sump capacity and for engines operating with extended overhaul intervals.

### **Application**

The IC-HFX product range is recommended for the lubrication of most trunk piston engines operating under the most severe conditions and fuels of varying quality. It is especially suitable for engines exposed to fuel contamination, for engines needing protection against under-crown fouling/crown burning, and for engines operating with extended overhaul intervals. The IC-HFX product range has been formulated to give excellent cleanliness in the cooler parts of the engine and to resist the build-up of deposits on engine crankcase walls, camboxes and rocker boxes. It is also suitable for the lubrication of most reduction gears used with medium-speed engines, and for certain stern tube applications. The IC-HFX range comprises products with Base Number (BN) ranging from 20 to 50, ensuring that any combination of engine type, fuel type, load condition and oil consumption rate are accommodated. As environmental legislation develops and leads to more variable fuel sulphur levels, the range of BN available allows optimisation according to the ships operational requirements and OEM recommendations.

### **Approval**

Energol IC-HFX is fully approved by the major trunk piston engine manufacturers including MAN B&W, Wärtsilä, Caterpillar Motoren (MaK), Pielstick and Rolls-Royce Bergen.

The use of a 50 BN crankcase oil in heavy fuel burning engines is recommended by Wärtsilä Diesel for extending oil change intervals beyond those achieved with 30 ~ 40 BN oils. It is also suitable for other low oil consumption engines where the engine manufacturer permits use of oils of 50 BN or higher.

## Main Performance Features

- Detergency/dispersancy to ensure an excellent level of engine cleanliness and minimum piston deposits. Outstanding piston ring belt and piston under-crown cleanliness has been proven in service.
- Superior piston ring pack condition with reduced propensity to blow-by, and improved oil control.
- High level of gear lubrication performance, as rated in the FZG test.
- Low rates of piston and cylinder liner wear.
- High thermal and oxidation stability to prolong service life. Good in-service oil analysis trend, with excellent BN retention, and a high level of alkalinity to neutralise the acidic products of combustion, all helping to achieve long oil drain intervals.
- Excellent water-rejection, and tolerant to water contamination with minimal additive depletion.
- Good anti-rust performance as tested against salt water in IP 135B.
- Good anti-foam performance.

## Typical Characteristics

Name	Method	Units	IC-HFX 203	IC-HFX 204	IC-HFX 303	IC-HFX 304	IC-HFX 404	IC-HFX 504
SAE Number			30	40	30	40	40	40
Viscosity, Kinematic 100°C	ASTM D445	mm <sup>2</sup> /s	11.5	14	11.5	14	14	14
Total Base Number, TBN	ASTM D2896	mg KOH/g	20	20	30	30	40	50
Density @ 15°C, Relative	ASTM D4052	g/ml	0.897	0.900	0.902	0.906	0.913	0.919
Flash Point, PMC	ASTM D93	°C	>200	>200	>200	>200	>200	>200
Pour Point	ASTM D97	°C	-6	-6	-6	-6	-6	-6

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

## Packaging and Storage

Supplied in bulk and drums of approximately 210 litres. Ensure drums are tightly re-sealed after use.

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.

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06 Jan 2012

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BP Marine, Technology Centre, Whitchurch Hill, Pangbourne, Reading RG8 7QR, United Kingdom

www.bpmarine.com

