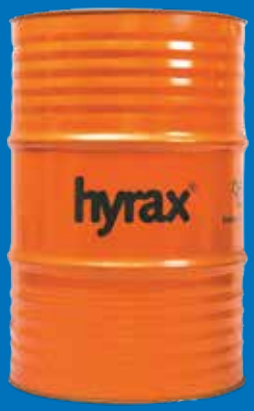
Marine & Large Engines Oils

hyrax® SAMUDRA RF SERIES



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Low to moderate sulfur content

Excellent detergent and dispersant additive system

Outstanding thermal and oxidation stability for longer oil life

Protection against corrosive and black sludge problems

Description

Hyrax Samudra RF series oils are premium quality cylinder and crankcase oils (20 TBN to 50 TBN) specially formulated for use in high output highly-rated medium speed trunk-piston marine diesel engines which are designed to operate on heavy residual fuel with sulfur content between 2.0% to 3.5% by weight operating under very severe working conditions.

Hyrax Samudra RF is specially formulated with high quality base oil and advanced detergent / dispersant additive technology to ensure excellent engine cleanliness, excellent high temperature oxidation and thermal stability, and exceptionally high level of wear and corrosion protection even on engine burning very high sulphur fuels.

Applications

Hyrax Samudra RF series oils are highly recommended for the lubrication of medium speed trunk piston engine burning high sulphur residual fuels in which excellent engine cleanliness is required by system and engine operational condition in order to overcome the “black sludge” and its associated problems. Selection of oil grade depends on the level of sulphur present in the residual fuel as follows:

- **RF20 series** - recommended for engine burning light residual fuel with sulphur content between 1.5% to 2.0% weight
- **RF30 series** - recommended for engine burning light to heavy residual fuel with sulphur content between 2.0% to 2.5% weight
- **RF40 series** - recommended for engine fitted with anti-polishing ring burning heavy residual fuel with sulphur content up to 3.0% weight
- **RF50 series** - recommended for engine fitted with anti-polishing ring burning heavy residual fuel with sulphur content up to 3.5% weight

Benefits

- High alkalinity (20 TBN to 50 TBN) level with very good TBN retention characteristics to ensure excellent protection in neutralizing strong acids formation from burning high sulphur fuel to minimize oil degradation and prevent ring, cylinder and bearing corrosion
- Provides exceptional engine cleanliness – special detergency/dispersancy additive system effectively controlling “black sludge”, lacquer, varnish and other common deposits formation on critical engine parts to significantly reduce maintenance cost

Typical Characteristics

		RF20		RF30		RF40		RF50	
Properties	**Method**	**320**	**420**	**330**	**430**	**340**	**440**	**350**	**450**
SAE Grade	SAE J 300	30	40	30	40	30	40	30	40
Density at 15°C, Kg/L	ASTM D4052	0.899	0.905	0.909	0.912	0.909	0.916	0.909	0.916
Flash Point, °C	ASTM D92	>240	>242	>240	>242	>240	>250	>240	>250
Viscosity at 40°C, cSt	ASTM D445	97.0	144.0	98.0	145.0	101.0	144.0	100.0	142.0
Viscosity at 100°C, cSt	ASTM D445	11.2	14.7	11.3	14.7	11.5	14.7	11.4	14.7
Viscosity Index	ASTM D2270	101	101	101	104	100	101	100	103
TBN, mgKOH/g	ASTM D2896	20	20	32	32	42	42	51	51

Performance

- API CF
- Wartsila
- MAN Diesel
- Caterpillar Micro Oxidation Test Perfomance
- Heavy Fuel Caterpillar 1M-PC