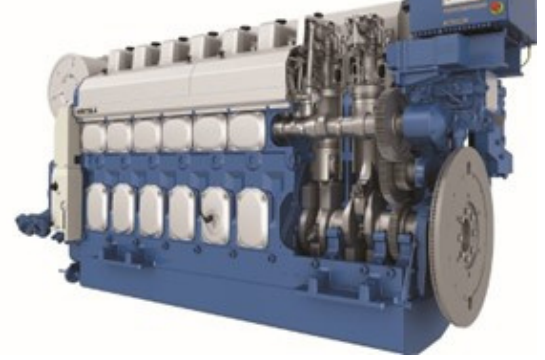


TECHNICAL SPECIFICATION

ALPHA OPTIMA TRUNK PISTON OILS

Description And Specifications :

- 4-Stroke single-fuel diesel engines
- 4-Stroke dual-fuel diesel engines
- Stern bearings and pipes
- Reduction gears



Recommendations And Specifications :

- THE ALPHA ENERGY range of marine piston oils is suitable for four-stroke high and medium speed diesel engines on both land and sea. The range is compatible with all major fuels including high and low sulfur fuel oil (HSFO and LSFO), liquefied natural gas, distillate, marine diesel oil and gas oil.

SPREAD SHEET :

OPTIMA TRUNK PISTON OILS	TEST METHODS	312 SAE 30	315 SAE 30	320 SAE 30	330 SAE 30	412 SAE 40	415 SAE 40	420 SAE 40	430 SAE 40	440 SAE 40
Density Kg/m3 15°C - 20°C	D 1298	0.889	0.891	0.894	0.898	0.896	0.897	0.900	0.910	0.910
Flash point °C	D 92	>220	>220	>220	>220	>220	>220	>220	>220	>220
Pour point °C	D 97	-18	-18	-18	-18	-18	-18	-18	-18	-18
Viscosity mm ² /s 100°C	D 445	11	11	11	11	16	16	16	16	16
Viscosity @40	D 7042	93	93	93	93	140	140	140	140	140
VISCOSITY INDEX	D 2270	>98	>98	>98	>98	>98	>98	>98	>98	>98
TBN, MG KOH/G	D 2896	12	15	20	30	12	15	20	30	40
FOAM	D 892	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0

AT ALPHA ENERGY PETROLEUM INDUSTRIES, WE FOCUS ON CREATING ADVANCED LUBRICANTS AND LUBRICANT COMPOUNDS THAT ENHANCE MACHINE EFFICIENCY AND EXTEND SERVICE LIFE.