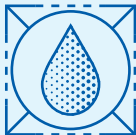




CITGO® Pacemaker® XL Ultra-32

OVERVIEW



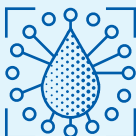
- A superior quality turbine lubricant formulated with synthetic base stocks and select additives for high temperature operations and long service life in steam and gas turbine applications.

FEATURES & BENEFITS



- Stability of synthetic base stock provides exceptionally long service life.
- Highly resistant to harmful sludge and varnish formation.
- Fully inhibited against thermal oxidation, rust and corrosion.
- Excellent water shedding properties.
- Non-silicone foam inhibitor combats foaming and air entrainment.

APPLICATIONS

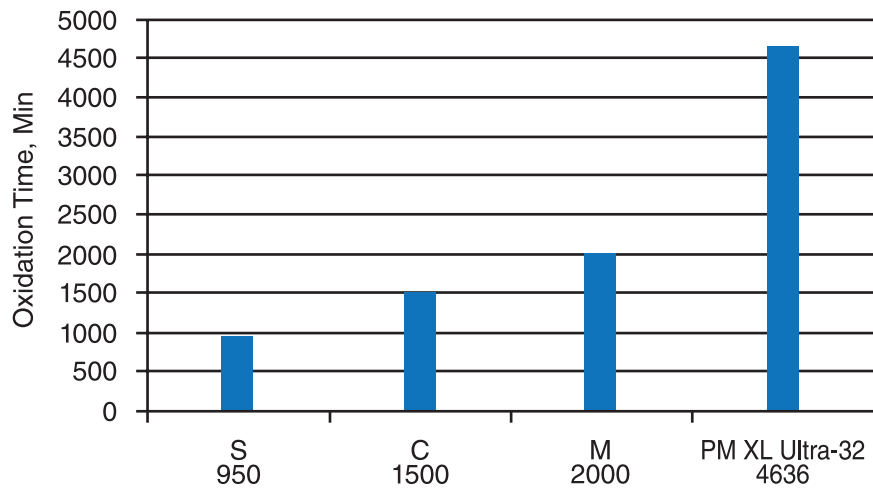


- Recommended for use in a wide range of steam and gas turbine generators and is widely used by electrical generating utility companies where an R&O (Rust and Oxidation Inhibited) type oil is specified.
- Recommended where high temperature resistance is required, such as marine turbines and reduction gears, hydraulic governor and control systems, and low pressure hydraulic systems operating at less than 1000 psi, and where exceptionally long service life is required or desired.
- Pacemaker XL Ultra-32 provides approximately 134% longer oxidation life when compared to a conventional turbine oil in ASTM D2272 RPVOT testing.

PROPERTIES



Pacemaker XL Ultra-32



Oxidation Stability, RPVOT, ASTM D2272

Competitive data from published product literature

- Under extreme and prolonged temperature, Pacemaker XL Ultra-32 provides higher thermal stability compared to conventional fluid in the presence of wide range of metals including steel and copper as shown in ASTM D2070 Thermal Stability test results.

Conventional Fluid – Copper Test Rod



Pacemaker XL Ultra-32 – Copper Test Rod



Conventional Fluid – Steel Test Rod



Pacemaker XL Ultra-32 – Steel Test Rod



Testing conducted at 150°C and 124 hours.

PROPERTIES

CITGO Pacemaker XL Ultra-32 is recommended for use where the following requirements are indicated:

- GE GEK 107395A, 27070, 28143B and 46506E
 - DIN 51515 Part 1 and II
 - Alstom HTGD 90 117 V0001Y (non-EP)
 - Chinese National Oil Standard GB 11120-2011, L-T SA and TGA
 - Solar ES 9-224 W
 - Siemens TLV 9013 04 (non-EP)
 - Siemens TLV 9013 05 (non-EP)
 - ASTM D4304 Type I and III
 - British Std. BS 489
 - ISO 8068 L-TSA and L-TGA
- Always consult equipment manufacturer for proper lubricant selection.

Typical Properties for CITGO Pacemaker XL Ultra-32:

ISO Viscosity Grade	32
Material Code	633794001
Gravity, ASTM D4052, °API	36.2
Color, ASTM D1500	L1.0
Flash Point, ASTM D92, °F (°C)	460 (238)
Pour Point, ASTM D97, °F (°C)	-38 (-39)
Viscosity:	
ASTM D445, cSt at 40°C	32
ASTM D445, cSt at 100°C	6.0
ASTM D2161, SUS at 100°F	165
SUS at 210°F	44
Viscosity Index , ASTM D2270	138
Water Separation time, ASTM D1401, minutes at 130°F	15
Oxidation Stability, ASTM D943 Mod., hrs	10,000+
Total Acid Number, ASTM D664, mgKOH/g	0.20
Rust Test, A, ASTM D665	Pass
Rust Test, B, ASTM D665	Pass
Foam Test, ASTM D892	Pass
RPVOT Oxidation in minutes, ASTM D2272	4,600

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