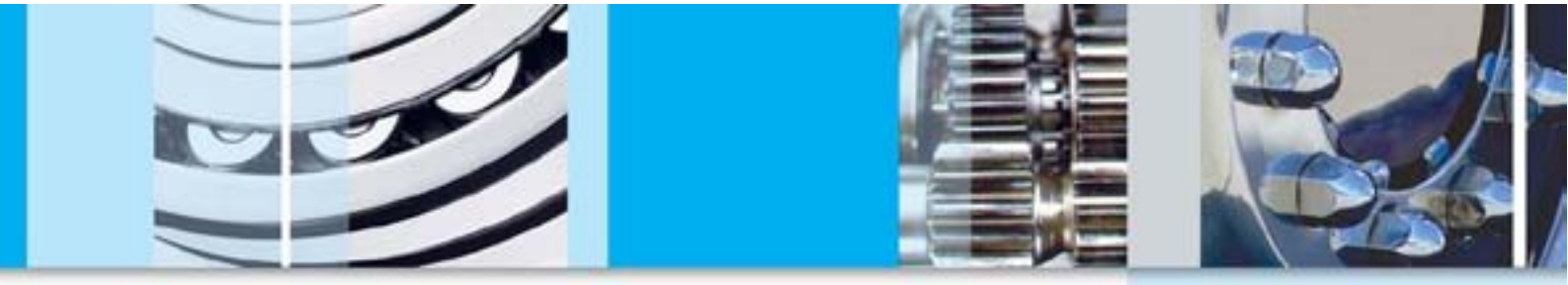
GST® EP

Premium Performance Industrial Anti-Wear Type Steam and Gas Turbine Oil

Product Data Sheet



Customer benefits

Protects reduction gear sets

Anti-wear additive system forms a protective chemical film on loaded gear tooth surfaces to assist in reducing wear and scuffing

Excellent service life

Premium base stocks and inhibitor system provide outstanding long-term oxidation stability to resist oil breakdown

Potential maintenance and downtime savings

Premium base oils and oxidation inhibitor system resist the formation of harmful deposits in high temperature bearings and other hot areas of the turbine. The rust inhibitor protects system components against corrosion. Good water separability ensures rapid settling of water accumulated from steam condensate or leakage from salt water cooling.

Potential inventory savings

Non-silicone foam inhibitor allows rapid release of entrained air while minimizing foam formation to enable reliable operation of sensitive hydraulic control devices. The multipurpose nature of the formulation allows it to be used in a wide range of industrial applications, potentially simplifying oil inventories and reducing the possibility of using the wrong lubricant.

Applications

- Stationary industrial gas and steam turbines
- Stationary industrial gas turbines with reduction gear sets
- Industrial gas turbines in severe service
- Hydraulic turbines
- Rotating machinery in gas and steam combined-cycle cogeneration units
- Bath and circulating systems supplying moderately loaded gear sets, low pressure hydraulic systems, vacuum pumps, rolling element bearings, machine tools, conveyors, and electric motors
- Air compressors, turbo-blowers and centrifugal pumps requiring a rust and oxidation inhibited, antiwear oil

Product features:

• **GST® EP** is a premium performance, anti-wear type turbine oil formulated from premium base oils, an ashless anti-wear additive system, rust and oxidation and foam inhibitors.

• **GST® EP** is designed primarily for use in industrial gas and steam turbines including those with reduction gear sets.

Typical key properties

GST® EP					
ISO Grade		32	46	68	100
Product Code		560876	560877	560878	560879
	Test Method ASTM				
Air Release @ 50°C, mins	D3427	2.1	2.3	3.6	5.0
Flash Point, COC, °C	D92	222	224	245	262
FZG, Fail Load Stage	DIN51354	>12	>12	>12	>12
Oxidation Stability,					
TOST Life, hrs to 2.0 Acid No.	D943	10,000+	10,000+	10,000+	10,000+
RPVOT, mins to 25 psi pressure drop	D2272	1,700	1,400	1,400	1,400
Pour Point, °C	D97	-30	-30	-30	-30
Viscosity,					
mm²/s @ 40°C	D445	32	46	68	100
mm²/s @ 100°C	D445	5.4	6.8	8.8	11.4
Viscosity Index	D2270	102	102	102	100

1603

Performance standards

Approvals

- Alstom HTGD 90117W (ISO 32, 46)
- Siemens TLV 9013 04, TLV 9013 05 for turbosets with and without gearboxes (ISO 32, 46)
- MAN Diesel & Turbo 10000494596 rev 2, if FZG requirements of FZG>10 exist on the part of the gearbox manufacturer or MAN Diesel & Turbo systems engineering (ISO 32, 46, 68)
- Ansaldo Energia Turbine Oil Specification TGO2-0171-E00000/B (ISO 32, 46)

Meets Requirements of:

- British Standard BS 489
- ASTM D4304 Type II
- German Standard DIN 51515 Part 1; German Standard DIN 51515 Part 2 (ISO 32, 46)
- ISO 8068 L-TGF & L-TGSE (ISO 32, 46, 68)
- ISO 8068 L-TSE & L-TGE (ISO 32, 46, 68); ISO 8068 L-TSA & L-TGA (ISO 32, 46, 68);
- ISO 8068 AR, B (ISO 32)
- Chinese Specification GB1120-2011 L-TSA (Typ A) & L-TGA (ISO 32, 46, 68)
- Chinese Specification GB1120-2011 L-TSA (Typ B) (ISO 32, 46, 68, 100)
- Chinese Specification GB1120-2011 L-TSE (Typ A) & L-TGE (ISO 32, 46, 68)
- Chinese Specification GB1120-2011 L-TGSB & L-TGSE (ISO 32, 46, 68)

ENVIRONMENT, HEALTH and SAFETY

Information is available on this product in the Material Safety Data Sheet (MSDS) and Customer Safety Guide. Customers are encouraged to review this information, follow precautions and comply with laws and regulations concerning product use and disposal.

To obtain a MSDS for this product, visit: www.chevronlubricants.com.

Performance standards (Cont.)

- JIS K2213 Type 2 (ISO 32, 46, 68)
- General Electric GEK 28143B (ISO 32, 46, 68); General Electric GEK 101941A, 27070, 32568j, 46506D & E (ISO 32)
- Siemens MAT 812101, 812106, 812108 (ISO 32); MAT 812102, 812109 (ISO 46)
- Solar Turbines ES 9-224 Class II (ISO 32, 46)
- Alstom HTGD 90117 (ISO 68); GEC Alstom NBA P50001 A & P50003 A (ISO 32, 46)
- Cincinnati Machine (MAG) P-38 (ISO 32); P-55 (ISO 46); P54 (ISO 68)

Service Considerations

Premium quality turbine oils must be capable of lubricating and cooling bearings while protecting the system against rust, corrosion and harmful deposits. Since turbine equipment is normally used in key applications, the reliability of the rotating machinery and its lubricant is critical.

Periodic monitoring of the oil in service is recommended to assure satisfactory performance of the turbine. The principal reasons for monitoring are two-fold: firstly, to determine the condition of the used oil and secondly, to disclose environmental or operational problems within the equipment. The oil should be visually inspected by the operator at frequent intervals for contaminants and/or appearance changes. Refer to ASTM D4378 for guidance on sampling and testing frequency. Samples should be taken from the discharge side of the oil pump while the system is circulating.

During service, effective purification of the lubricating oil is recommended for the removal of contaminants such as water and solids.

Care should be taken to ensure against top-up and/or contamination from other products, as this could reduce the performance characteristics of GST EP.

Not intended for use in aviation-derivative gas turbines

Must not be used in breathing air compressors.

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