

SHELL TURBO OILS T

HIGH QUALITY INDUSTRIAL STEAM AND GAS TURBINE OIL

DESIGNED TO MEET CHALLENGES

Shell Turbo Oils T have long been regarded as the industry standard turbine oil. Building on this reputation, Shell Turbo Oils T have been developed to meet the demands of the most modern non-geared steam turbine systems and light duty gas turbines. Shell Turbo Oils T are formulated from high quality hydrotreated base oils and a combination of zinc-free additives that provide excellent oxidative stability, protection against rust and corrosion, low foaming and excellent demulsibility.

PERFORMANCE FEATURES

STRONG CONTROL OF OXIDATION

- n The use of inherently oxidatively stable base oils together with an effective inhibitor package provides high resistance to oxidative degradation. The result is extended oil life, minimising the formation of aggressive corrosive acids, deposits and sludge, helping to reduce your operating costs.

HIGH RESISTANCE TO FOAMING AND RAPID AIR RELEASE

- n The oils are formulated with a non-silicone anti-foam additive, which generally controls foam formation. This feature coupled with fast air-release from the lubricant reduces the possibility of problems such as pump cavitation, excessive wear and premature oil oxidation, helping to give you increased system reliability.

POSITIVE WATER-SHEDDING PROPERTIES

- n Robust demulsibility control such that excess water, common-place in steam turbines, can be drained easily from the lubrication system, minimising corrosion and premature wear and lowering the risk of unplanned maintenance.

EXCELLENT RUST AND CORROSION PROTECTION

- n Helps prevent the formation of rust and guards against onset of corrosion ensuring protection for equipment following exposure to humidity or water during operation and during shut-downs, minimising maintenance.

RESISTANT TO REACTION WITH AMMONIA

- n The use of highly refined base oils and specific additives, resistant to attack by ammonia, minimises the possibility of damaging oil soluble/insoluble ammonia compounds being formed in the lubricant. Shell Turbo Oils T mitigate the formation of these deposits, which could impair the reliable operation of bearings and seal oil systems.

APPLICATIONS

Shell Turbo Oils T are available in ISO grades 32, 46, 68 and 100 suited for application in the following areas:

- n Non-geared industrial steam turbines.
- n Non-geared light duty gas turbines.
- n Water turbine lubrication.
- n Compressor applications.
- n Numerous applications where strong control over rust and oxidation is required.

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

MEETS OR EXCEEDS SPECIFICATIONS OF:

- n General Electric: GEK 28143b – Type I (ISO 32), GEK 28143b – Type II (ISO 46), 46506E
- n Siemens-Westinghouse: 21T0591 and PD-55125Z3
- n DIN: 51515 part 1 and 2
- n ISO: 8068
- n Solar: ES 9-224W, Class II
- n GEC: Alstom NBA P50001
- n JIS: K2213 Type 2
- n BS: 489-1999
- n ASTM: D 4304, Type I
- n Siemens/Mannesmann Demag: 800037 98.

APPROVED BY OEM AGAINST:

- n Siemens Power Generator: TLV 9013 04 and TLV 9013 05
- n Alstom Power Turbo-Systems: HTGD 90-117
- n Man Turbo: SP 079984 D0000 E99
- n Cincinnati Approvals: P-38 Turbo T32; P-55 Turbo T46; P-54 Turbo T68.

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	32	46	68	100
Kinematic Viscosity @ 40°C mm ² /s (ASTM D 445)	32	46	68	100
@ 100°C mm ² /s	5.2	6.6	8.5	11.1
Colour	L0.5	L0.5	L0.5	<1.0
Flash Point °C (COC)	>215	220	240	250
Pour Point °C	<-12	<-12	-9	<-9
Total Acid Number mg KOH/g	0.05	0.05	0.05	0.05
Foaming ml/ml (ASTM D 892)				
Sequence I	30/Nil	30/Nil	30/Nil	30/Nil
Sequence II	20/Nil	20/Nil	20/Nil	20/Nil
Sequence III	30/Nil	30/Nil	30/Nil	30/Nil
Air Release min.	2	4	6	10
Water Demulsibility min.	15	15	20	20
Steam Demulsibility secs.	150	153	183	210
Copper Corrosion 100°C/3hrs	1b	1b	1b	1b
Rust Control after water washing	Pass	Pass	Pass	Pass
FZG, Fail Load Stage	6	7	7	7
Oxidation Control Tests				
a) TOST life modified hr	>10,000	>1,000	>1,000	>10,000
b) TOST 1,000hr sludge mg	30	3	3	30
c) RPVOT min.	>950	>90	>80	>700