



SHELL TURBO® OILS T

Premium quality turbine and general purpose R&O inhibited circulating oils

Product Description

Shell Turbo® Oils T are premium quality lubricating oils designed to provide excellent lubrication of steam turbines and many other industrial applications. These oils are made from severely hydroprocessed (API Group II) base oils, which have been carefully selected to provide satisfactory viscosity/temperature characteristics, low foaming tendencies and good water separation properties. In addition, they contain proven additives to protect equipment against rusting and to resist oxidation for long service life. **Shell Turbo Oils T** are available in four ISO viscosity grades from 32 to 100. Grade nomenclature conforms to the ASTM/ISO viscosity system.

Turbine Applications

Shell Turbo® Oils T have a long and successful record of providing dependable turbine lubrication with excellent performance. Shell Turbo® Oils T meet the requirements of major turbine builders including GE, Siemens, Westinghouse, ABB Alstom, Elliot and Demag Delaval Steam Turbines. The appropriate grade of Shell Turbo® Oil T used in a given application should be in accordance with the viscosity recommendation of the equipment manufacturer. General recommendations for the various kinds of turbines are:

	Viscosity cSt at 40°C	Lubricant
Steam Turbines:		
• Direct Drive – ring oiled w/water cooling	54-75	Turbo Oil T 68
• Direct Drive – forced feed	30-38	Turbo Oil T 32
• Gear Drive – forced feed	54-75	Turbo Oil T 68
Hydroelectric Turbines:		
• Large Vertical Machines	54-75	Turbo Oil T 68
• Small Vertical Machines	30-38	Turbo Oil T 32
• Horizontal Machines	30-38	Turbo Oil T 32

General Applications

- a wide range of lubrication applications
- general purpose plant lubrication
- non-anti-wear hydraulic and circulating oil systems
- non-EP gear oils

Shell Turbo® Oils T meet the American Standards Institute (ANSI)/American Gear Manufacturers Association (AGMA) 9005-D94 requirements for R&O oils. Standards for machine tool lubrication established by the STLE include a classification for Hydraulic Fluid and General Purpose Lubricants.

Shell Turbo® Oils T for Hydraulic Fluid and General Purpose Lubricants

STLE Standard No.	STLE Identifying No.	Recommended Shell Lubricant
ASLE 64-1	H-150	Turbo Oil T 32
ASLE 64-2	H-215	Turbo Oil T 46
ASLE 64-3	H-315	Turbo Oil T 68

Features/Benefits

- excellent oxidation stability
- non-corrosive to metals
- fast separation of water and good de-aeration properties

Approvals

- Alstom Power HTGD 90 117 and NBA P50001
- Siemens TLV 9013 04
- Cincinnati Lamb; P-38, P-55 and P-54

Meets or Exceeds Requirements

- General Electric GEK 28143A
- General Electric GEK 46506
- General Electric GEK 32568F
- Siemens/Mannesmann Demag 800 037 98
- Man Turbo SP 079984 D0000 E99
- Westinghouse 21 T0591
- Solar Turbines ES 9-224U
- ISO 8068
- ASTM D 4304, Type I (non-EP)
- DIN 51515 Part 1
- JIS K-2213 Type 2
- BS 489-1999

Typical Properties of Shell Turbo® Oils T

	Test Method	ISO Viscosity Grade			
		32	46	68	100
Product Code		65602	65603	65605	65558
Gravity, °API	D 1298	32.2	31.8	31.4	30.7
Color	D 1500	1.0	1.0	1.0	1.5
Flash Point, COC, °F	D 92	420	430	440	450
Pour Point, °F	D 97	-20	-10	-10	+10
Viscosity:					
@ 40°C, cSt	D 445	32	46	68	100
@ 100°C, cSt	D 445	5.45	6.90	8.95	11.5
Viscosity Index	D 2270	105	105	105	102
Acid Number, mg KOH/g	D 974	0.05	0.05	0.05	0.05
Cu Corrosion, 3 hrs @ 212°F	D 130	1b	1b	1b	1b
Rust Test	D 665B	Pass	Pass	Pass	Pass
Demulsibility, separation time, minutes	D 1401	15	15	20	20
Modified Turbine Oil Stability Test*, hrs	Mod D 943	11,000	11,000+	11,000+	-----
RBOT, minutes	D 2272	1100+	1100+	1100+	1100+

Test allowed to run past usual end point of 10,000 hours until acid number of 2.0 mg KOH/g reached.

Handling & Safety Information

For information on the safe handling and use of this product, refer to its Material Safety Data Sheet <http://www.shell-lubricants.com/msds/>. If you are a Shell Distributor, please call **1+800-468-6457** for all of your service needs. All other customers, please call **1+800-840-5737** for all of your service needs. Information is also available on the World Wide Web: <http://www.shell-lubricants.com/>.