

Mobil DTE 10M Series

Antiwear Hydraulic Oils

Product Description

Mobil DTE 10M Series oils are extra high performance antiwear hydraulic oils engineered for wide temperature range applications. They exhibit optimum flow characteristics at sub-zero temperatures and are resistant to shearing and viscosity loss so that system efficiency is maintained and internal pump leakage is minimised at high operating temperatures and pressures. These high quality hydraulic oils with controlled low-temperature flow properties also provide maximised antiwear protection for high pressure vane, piston and gear pumps. They provide long oil/filter life and optimum equipment protection reducing both maintenance costs and product disposal costs. They were developed in conjunction with the major OEMs to meet the stringent requirements of severe hydraulic systems using high pressure, high output pumps as well as handling the critical requirements of other hydraulic system components such as close clearance servo-valves and electro-hydraulic control systems. Their multi-metal compatibility properties allow their use with system components employing various alloys in their designs. These oils are uniquely designed for all hydraulic applications found in the marine industry where exposure to a broad range of ambient and operating conditions are encountered.

The DTE 10M Series Oils are formulated with high quality base oils and a carefully balanced super-stabilised additive system that helps neutralise the formation of corrosive

materials. They are designed to work with systems operating under severe conditions where high levels of antiwear and film strength protection are needed, yet they are formulated to work where non-antiwear hydraulic oils are generally recommended.

A Viscosity Index (VI) improver system with maximum resistance to shearing and viscosity loss maintains system efficiency and minimises internal pump leakage losses at high operating temperatures. The Mobil DTE 10M Series will clearly outperform fluids that attain higher VIs from the use of less shear stable additives.

Features & Benefits

The Mobil DTE 10M Series hydraulic oils provide outstanding low and high temperature performance. Their excellent oxidation resistance allows extension of oil and filter change intervals while assuring clean systems. Their high level of antiwear properties and excellent film strength characteristics deliver exceptional equipment performance that not only results in fewer breakdowns, but helps improve production capacity. Their controlled demulsibility permits the oils to work well in systems contaminated with small amounts of water yet readily separate large amounts of water.

The Mobil DTE 10M Series offer the following key features and potential benefits:

Features	Advantages and Potential Benefits
Quality reserve	Assures long-term oil and equipment performance Maintains a high level of performance under extended severe service conditions
Exceptional antiwear protection	Reduces wear Protects systems using various metallurgy
High Viscosity Index	Wide temperature range performance Assures equipment protection at cold startup temperatures Protects system components at high operating temperatures
High shear stability	Stay-in-grade viscosity under high shear conditions
Outstanding oxidation stability	Provides long oil and equipment life Reduces sludge and deposit formation Extends filter life

continued

Features <i>(continued)</i>	Advantages and Potential Benefits
Desired keep-clean properties	Reduces critical valve sticking and sluggish system performance Eliminates system deposit and sludge formation Improves filterability and filter life
Excellent corrosion protection	Prevents internal hydraulic system corrosion Reduces negative effects of moisture in systems Provides corrosion protection of multi-metallurgy component designs
Very good multi-metal compatibility	Assures excellent performance of various components Reduces requirements for additional products
Meets a wide range of equipment requirements	One product can replace several Minimises inventory requirements Reduced potential for product misapplication
Excellent air separation characteristics	Reduces foaming and its negative effects
Good water separation	Protects systems where small quantities of moisture are present Readily separates larger quantities of water
Innovative keep-clean properties	Reduces system deposits and sludging Protect critical components such as servo-valves Improves system response and eliminates valve sticking Improves total system performance

Applications

Mobil DTE 10M Series oils are ExxonMobil's primary recommendation for hydraulic applications where low ambient temperatures or rapid changes from low to high temperatures are encountered, especially in marine applications. They are also recommended for industrial applications where exposure to low ambient temperatures is a key factor. They meet or exceed the requirements for all types of gear, vane, and piston pumps where the application requires a shear-stable antiwear hydraulic oil.

Selection of the appropriate grade within the Series is determined by the operating and design characteristics of the system, fluid temperatures under stabilized operating conditions, and the range of ambient temperatures that will be encountered. To aid in grade selection, the following Performance Range Charts illustrate the temperature capability of each viscosity grade in the Series. The minimum temperature is that at which flow will be adequate to circulate and warm the oil. The maximum temperature indicates the minimum viscosity required by the builder to adequately protect pump components and assure rated

performance. The Performance Range Charts address the core of pump manufacturer's guidelines. Some pump models such as the Vickers In-Line Piston Series require special considerations.

Mobil DTE 10M Series may be used in the following applications:

- Hydraulic systems sensitive to deposit build-up such as sophisticated electro-hydraulic control systems, particularly where close clearance servo-valves are used
- Systems where cold startup and high operating temperatures are typical
- Where small amounts of water are unavoidable and this water could damage components
- In systems containing gears and bearings
- Systems requiring a high degree of load-carrying capability and antiwear protection
- Applications where thin oil-film corrosion protection is an asset such as systems where small amounts of water are unavoidable
- Machines employing a wide range of components using various metallurgy

Performance Ranges, Minimum and Maximum Temperatures, °C (°F)

	Vickers	Denison	Mannesmann Rexroth	Oilgear	Bosch	Sauer Sundstrand	Easton
Minimum Start Up							
Mobil DTE 11M	-35 (-31)	-40 (-40)	-35 (-31)	-25 (-13)	-35 (-31)	-40 (-40)	-40 (-40)
Mobil DTE 12M	-20 (-4)	-29 (-20)	-25 (-13)	-10 (-14)	-20 (-4)	-29 (-20)	-30 (-20)
Mobil DTE 13M	-15 (5)	-20 (-4)	-20 (-4)	-5 (23)	-15 (5)	-20 (-4)	-25 (-13)
Mobil DTE 15M	-10 (14)	-15 (5)	-12 (11)	-5 (23)	-10 (14)	-15 (5)	-20 (-4)
Mobil DTE 16M	0 (32)	-8 (18)	-5 (23)	10 (50)	0 (32)	-10 (14)	-1 (14)
Mobil DTE 18M	5 (41)	0 (32)	5 (41)	15 (59)	5 (41)	0 (32)	-5 (23)
Mobil DTE 19M	10 (50)	5 (41)	10 (50)	20 (68)	10 (50)	5 (41)	0 (32)
Maximum Operating							
Mobil DTE 11M	40 (104)	50 (122)	70 (158)	40 (104)	30 (86)	70 (158)	50 (122)
Mobil DTE 12M	55 (131)	65 (149)	85 (185)	55 (131)	40 (104)	85 (185)	65 (149)
Mobil DTE 13M	65 (149)	75 (167)	100 (212)	65 (149)	55 (131)	100 (212)	75 (167)
Mobil DTE 15M	80 (176)	90 (194)	115 (239)	80 (176)	65 (149)	115 (239)	90 (194)
Mobil DTE 16M	90 (194)	100 (212)	125 (257)	90 (194)	70 (158)	125 (257)	100 (212)
Mobil DTE 18M	100 (212)	110 (230)	135 (275)	100 (212)	80 (176)	135 (275)	100 (230)
Mobil DTE 19M	110 (230)	120 (248)	147 (297)	110 (230)	90 (194)	147 (297)	120 (248)

Specifications & Approvals

Mobil DTE 10M Series meet or exceed the following industry specifications:

Mobil DTE	11M	13M	15M	16M	18M	19M
FZG Gear Test, DIN 51534 — Fail Stage	—	11	11	11	11	11
Vickers I-286-S (Quality Level)		✓	✓	✓		
Vickers M-2950-S (Quality Level)		✓	✓	✓		

Mobil DTE 10M Series has the following builder approvals:

Mobil DTE	11M	13M	15M	16M	18M	19M
Denison HF-0			✓	✓		

Health & Safety

Based on available information, this product is not expected to produce adverse effects on health when used for the intended application, following the recommendations provided in the Material Safety Data Sheet (MSDS). MSDSs are available upon request through your sales contract office, or via the Internet on <http://www.exxonmobil.com>. This product should not be used for purposes other than its intended use. If disposing of used product, take care to protect the environment.

Typical Properties

Mobil DTE	11M	13M	15M	16M	18M	19M
ISO Viscosity Grade	15	32	46	68	100	150
Viscosity, ASTM D 445						
cSt @ 40°C	15	32	46	68	100	150
cSt @ 100°C	3.72	6.10	7.86	10.02	12.84	16.55
Viscosity Index, ASTM D 2270	140	141	141	131	124	118
Brookfield Viscosity @ -18°C, ASTM D 2983, cP	400	1300	2150	5800	14000	25000
Shear Stability, CEC L-14-A-93, %KV Loss	0.5	0.5	0.5	0.5	0.5	0.5
Density 15°C, ASTM D 4052, kg/L	0.859	0.874	0.879	0.884	0.888	0.895
Copper Strip Corrosion, ASTM D 130, 3 hrs @ 100°C	1B	1B	1B	1B	1B	1B
Rust Characteristics, ASTM D 665B	Pass	Pass	Pass	Pass	Pass	Pass
FZG Gear Test, DIN 51534, Fail Stage	—	11	11	11	11	11
Pour Point, °C, ASTM D 97	-42	-45	-42	-45	-37	-36
Flash Point, °C, ASTM D 92	188	210	216	218	228	268
Foam Sequence I, II, III, ASTM D 892, ml	20/0	20/0	20/0	20/0	20/0	20/0

Due to continual product research and development, the information contained herein is subject to change without notification. Typical properties may vary slightly.