

# Mobil DTE® 10M Series

Wide Temperature, Antiwear, Shear-Stable Hydraulic Oils

## Product Description

Mobil DTE 10M Series oils meet the demanding requirements of hydraulic systems which operate over a wide temperature range. These are highest quality fluids with controlled low-temperature flow properties and balanced antiwear protection for high-pressure vane and piston pumps. They provide long term keep-clean performance

for electro-hydraulic control systems, and are super-stabilized to provide improved filterability, demulsibility, multimetal compatibility and long service life.

The highly refined base oils in the Mobil DTE 10M Series were selected for optimum flow characteristics at subzero temperatures as well as long term stability in demanding systems. A Viscosity Index (VI) improver system with maximum resistance to shearing and viscosity loss

Typical Characteristics	11M	13M	15M	16M	18M	19M
Specific Gravity	0.871	0.877	0.875	0.879	0.887	0.892
Flash Point, °C (°F) min, ASTM D92-1	149 (300)	166 (331)	166 (331)	177 (351)	177 (351)	177 (351)
Pour Point, °C (°F) max	-54 (-65)	-51 (-60)	-45 (-49)	-42 (-44)	-34 (-29)	-34 (-29)
Viscosity						
cSt at 40°C	15	33	47	70	100	145
cSt at 100°C	3.9	6.5	8.1	10.1	12.8	16
SUS at 100°F	82	169	225	362	521	759
SUS at 210°F	39	48	53	61	71	87
cP at 0°F	520	1,370	2,540	5,360	15,340	26,000
cP at -20°F	2,580	5,110	8,980	22,300	No Data	No Data
ISO Viscosity Grade	15	32	46	68	100	150
Viscosity Index (VI) min	140	140	140	125	115	115
Rust Protection, ASTM D 665 A& B	Pass	Pass	Pass	Pass	Pass	Pass
Foam Test, ASTM D 892, I, II, III, ml	20/0	20/0	20/0	20/0	20/0	20/0
Emulsion Test, ASTM 1401 mins. to 37 ml water at 130°F	10	10	10	10	10	10
Dielectric Strength, ASTM D-887, KV	35	35	No Data	No Data	No Data	No Data
Color, ASTM D 1500	1	1.5	1.5	2	2.5	4



maintains system efficiency and minimizes internal pump leakage losses at high operating temperatures. The Mobil DTE 10M Series will clearly outperform fluids that attain higher VI's from the use of less shear stable additives.

Mobil DTE 10M Series oils provide outstanding antiwear protection in all of the standard industry tests, and are approved in the Denison HF-O, Vickers V-104C, Vickers 35VQ25, Sundstrand pumps and the Rexroth Axial Piston Pumps. This level of protection against wear and scuffing is demonstrated by an eleven-stage rating for Mobil DTE 18M in the FZG Gear Test.

## Applications

Mobil DTE 10M Series oils are Mobil's primary recommendation for hydraulic applications where low ambient temperatures or rapid changes from low to high temperatures are encountered. 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.

Mobil DTE 16M, 18M and 19M are suitable for Oil Flooded Rotary Screw Compressors compressing natural gas, field gathering gas, CO<sub>2</sub> and other process gasses used in the natural gas industry.

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.

## Performance Range

To aid in grade selection, the Performance Range Charts illustrate the wide temperature capability of 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 viscometrics required by the builder to adequately protect pump components and assure rated performance.

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

## Advantages

The Mobil DTE 10M Series offers the following advantages and benefits:

- Suitable for wide-temperature range conditions
- Superior low-temperature flow properties
- Outstanding keep-clean performance
- Stay-in-grade viscosity under high shear conditions
- Super stabilized antiwear and water tolerance
- Good demulsibility, filterability, and foam resistance
- Excellent multimetal compatibility and corrosion resistance

While the above guidelines based on viscometrics will adequately protect pump components, other limiting factors should be considered. For example, Vickers publishes a maximum temperature limit of 66°C (150°F) based on seal limitations. Sauer Sundstrand currently recommends a maximum reservoir temperature of 104°C (220°F).

## Health and Safety

Based on available toxicological information, these products produce no adverse effects on health when properly handled and used. No special precautions are suggested beyond attention to good personal hygiene, including laundering oil-soaked clothing and washing skin-contact areas with soap and water. Material Safety Data Sheets are available upon request from your Mobil lubricants sales office, or via the Internet on [www.mobil.com](http://www.mobil.com).

## Performance Range Minimum Start-up Temperature (°C/°F)

Mobil DTE	Vickers	Denison	Mannesmann Rexroth	Oilgear	Bosch	Sauer Sundstrand	Easton
11M	-35 (-31)	-40 (-40)	-35 (-31)	-25 (-13)	-35 (-31)	-40 (-40)	-40 (-40)
12M	-20 (-4)	-29 (-20)	-25 (-13)	-10 (-14)	-20 (-4)	-29 (-20)	-30 (-20)
13M	-15 (5)	-20 (-4)	-20 (-4)	-5 (23)	-15 (5)	-20 (-4)	-25 (-13)
15M	-10 (14)	-15 (5)	-12 (11)	-5 (23)	-10 (14)	-15 (5)	-20 (-4)
16M	0 (32)	-8 (18)	-5 (23)	10 (50)	0 (32)	-10 (14)	-10 (14)
18M	5 (41)	0 (32)	5 (41)	15 (59)	5 (41)	0 (32)	-5 (23)
19M	10 (50)	5 (41)	10 (50)	20 (68)	10 (50)	5 (41)	0 (32)

## Maximum Operating Temperature (°C/°F) Based on Viscometrics

Mobil DTE	Vickers	Denison	Mannesmann Rexroth	Oilgear	Bosch	Sauer Sundstrand	Easton
11M	40 (104)	50 (122)	70 (158)	40 (104)	30 (86)	70 (158)	50 (122)
12M	55 (131)	65 (149)	85 (185)	55 (131)	40 (104)	85 (185)	65 (149)
13M	65 (149)	75 (167)	100 (212)	65 (149)	55 (131)	100 (212)	75 (167)
15M	80 (176)	90 (194)	115 (239)	80 (176)	65 (149)	115 (239)	90 (194)
16M	90 (194)	100 (212)	125 (257)	90 (194)	70 (158)	125 (257)	100 (212)
18M	100 (212)	110 (230)	135 (275)	100 (212)	80 (176)	135 (275)	100 (230)
19M	110 (230)	120 (248)	147 (297)	110 (230)	90 (194)	147 (297)	120 (248)

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