Mobil DTE® 10M Series

Hydraulic Oils, Wide Temperature, Antiwear, Shear-Stable

Description

Mobil DTE 10M Series oils meet the demanding requirements of hydraulic systems, which operate over a wide temperature range. These are high quality fluids exhibit 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-stabilised 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 resistance to shearing and viscosity loss maintains system efficiency and minimises internal pump leakage losses at high operating temperatures. Fluids that attain higher VI's from the use of less shear stable additives will loose effectiveness in this performance area.

Mobil DTE 10M Series oils provide outstanding anti-wear protection in the standard industry tests, and are approved in the 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.

Application

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_2 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 stabilised 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 offer the following advantages and benefits:

- Suitable for wide-temperature range conditions
- Excellent 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

Typical Properties

Physical characteristics are listed in the table.
Those values not shown as minimum or maximum are typical, and may vary.

Mobil DTE	11M	12M	13M	15M	16M	18M	19M
Specific Gravity	0.871	0.871	0.877	0.875	0.879	0.887	0.892
Pour Point, °C (°F), max	-54 (-65)	-51 (-60)	-51 (-60)	-45 (-49)	-42 (-44)	-34 (-29)	-34 (-29)
Flash Point (COC), °C (°F), min	149 (300)	166 (331)	166 (331)	166 (331)	177 (351)	177 (351	177 (351)
Kinematic Viscosity							
cSt at 40°C	15	22	33	47	70	100	145
cSt at 100°C	3.9	4.9	6.5	8.1	10.1	12.8	16
SUS at 100°F	82	114	169	225	362	521	759
SUS at 210°F	39	43	48	53	61	71	87
cP at 0°F	520	1,000	1,370	2,540	5,360	15,340	26,000
cP at -20°F	2,580	4,000	5,110	8,980	22,300	No Data	No Data
ISO Viscosity Grade	15	22	32	46	68	100	150
Viscosity Index min	140	140	140	140	125	115	115
Rust Protection	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Foam Test, ASTM Seq.I, II, III, ml Tendency/Stability	20/0	20/0	20/0	20/0	20/0	20/0	20/0
Emulsion Test, minutes to 37ml water at 130°F	10	10	10	10	10	10	10
Dielectric Strength, KV	35	35	35	No Data	No Data	No Data	No Data
Color, ASTM	1	1.5	1.5	1.5	2	2.5	4

Minimum Start-up Temperature (°C/°F)

Mobil DTE	Vickers	Denison	Mannesmann Rexroth	Oilgear	Bosch	Sauer Sundstrand	Eaton
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	Eaton
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)

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).

Due to continual product research and development, the information contained herein is subject to changes without notification. Additional important health and safety information on this product can be found in the Material Safety Data Sheet, which is available online at www.imperialoil.ca/mobil or by contacting Lubricants and Petroleum Specialities, Technical Services, Technical Help Desk: 1-800-268-3183

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Precautions

Mobil DTE 10M Series are manufactured from high quality petroleum base stocks, carefully blended with selected additives. As with all petroleum products, good personal hygiene and careful handling should always be practiced. Avoid prolonged contact to skin, splashing into the eyes, ingestion or vapour inhalation. Please refer to our Imperial Oil Material Safety Data Sheet for further information.

Note: This product is not controlled under Canadian WHMIS legislation.

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