MOTUL TEKMA MEGA-X 10W-40 LS EP

Heavy Duty Diesel Engine Oil
Technosynthese®
Low SAPS – Extended Protection

TYPE OF USE

TEKMA MEGA-X 10W-40 LS EP is a semi-synthetic, low-SAPS engine oil designed for modern heavy-duty diesel engines with EGR system (Exhaust Gas Re-circulation) and/or SCR (Selective Catalytic Reduction) system and with or without DPF (Diesel Particulate Filter). It meets Euro VI, TIER 5, and Stage V emissions standards and helps to protect emission control systems while providing long-lasting engine protection.

TEKMA MEGA-X 10W-40 LS EP is designed for fleets with mixed-generation engines, it serves as a versatile, single-lubricant solution for various heavy-duty applications such as trucks, buses, construction, and agricultural machinery. It ensures optimal oil pressure, a stable lubricating film, and reduced oil consumption, even under extreme operating conditions.

PERFORMANCES

ACEA E7-24 oils are Super High Performance Diesel (SHPD) lubricants providing effective control with respect to piston cleanliness and bore polishing. It is recommended for highly-rated diesel engines running under severe conditions e.g. extended drain intervals.
It is suitable for engines without particulate filters and most engines equipped with EGR.

ACEA E8-24 oils are low SAPS Ultra High Performance Diesel (UHPD) lubricants designed for use in severe duty, long drain applications. ACEA recommends their use in vehicles fitted with aftertreatment systems for the reduction of particulate matter (DPFs) and oxides of nitrogen (EGR and/or SCR), in combination with low sulfur diesel fuel.

ACEA E11-24 oils are mid SAPS Super High Performance (SHPD) lubricants for use in mid drain applications. **ACEA E11** represents an advancement over ACEA E7. Oils conforming to this specification are suitable for use in vehicles fitted with advanced exhaust aftertreatment systems for the reduction of particulate matter (DPFs) and the oxides of nitrogen (EGR and/or SCR) in combination with low sulfur diesel fuel.

API CK-4 oils are for use in high-speed four-stroke cycle diesel engines designed to meet 2017 model year on-highway and Tier 4 non-road exhaust emission standards, as well as for previous model year diesel engines.
These oils are formulated for use in all applications with diesel fuels ranging in sulfur content up to 500 ppm. However, the use of these oils with greater than 15 ppm sulfur fuel may impact exhaust after-treatment system durability and/or oil drain

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interval. **API CK-4** oils are especially effective at sustaining emission control system durability where particulate filters and other advanced after-treatment systems are used.

Oils meeting **API SN** are designed to provide improved performance across a wide range of areas including high temperature deposit protection for pistons and improved protection against the formation of engine sludge.
Oils that satisfy **API** Service Category **SN** are superior in performance to those meeting API SM and earlier and can effectively lubricate engines calling for those Service Categories.

Cummins CES 20077 focus on wear protection, soot handling, and extended oil drain intervals. This standard aligns with the API CH-4 category and the ACEA E5 classification.

Cummins CES 20081 is a HD diesel engine oil specification based on API CJ-4 and ECEA E9. It is designed to meet the lubrication requirements of modern low-emission Cummins engines, particularly those equipped with Exhaust Gas Recirculation (EGR), Diesel Particulate Filters (DPF), and Selective Catalytic Reduction (SCR) systems.

Cummins CES 20086 is a low SAPS engine lubricant specification designed for use in high performance medium- and heavy-duty diesel engines. This specification can be used in applications where Exhaust Gas Recirculation and advanced aftertreatment systems such as Diesel Particulate Filters are fitted and ultra-low sulfur diesel is available.
Cummins engines that require this lubricant specification would typically align with Stage IIIB, IV and V European off-highway emissions standards and the Tier 4 Final North American emissions standard.

Cummins CES 20092 is a specialized engine oil specification developed for Cummins mobile natural gas engines, including those powered by Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG). Introduced in 2018, this specification was designed to enhance engine protection and performance, particularly in modern natural gas engines that operate under higher temperatures and extended oil drain intervals.
Cummins CES 20092 supersedes earlier Cummins oil specifications for natural gas engines, such as CES 20085 and CES 20074.

Cummins launched the **CES 20100** specification for the heavy-duty diesel markets in China and India. It supports extended oil drain intervals for non-EGR diesel engines with exhaust aftertreatment devices and is recommended for Cummins NS6 engine platforms, including Z14, X13, X12, L9, and B6.7.This specification is based on CES 20086 and can be used where CES 20086 is recommended.

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DAF's **PSQL 2.1 E-LD** is an engine oil standard developed to optimize the performance and efficiency of their latest commercial vehicles. The "LD" suffix stands for Long Drain, indicating that oils meeting this specification are formulated for extended service intervals, thereby reducing maintenance frequency and operational costs.
The use of **PSQL 2.1 E-LD** with the new PACCAR MX-11 and MX-13 engines delivers unprecedented vehicle efficiency and demonstrably lower fuel consumption. Additionally, these oils are compatible with a wide range of vehicles, including older models, and are suitable for both diesel and gas applications.

Daimler DTFR 15C100 (formerly MB 228.31) is a lower SAPS lubricant specification designed for use in high performance medium and heavy-duty diesel engines where a standard oil drain is suitable alongside the use of advanced aftertreatment systems such as Diesel Particulate Filters.

Daimler DTFR 15C110 (formerly MB 228.51) is a Top Tier low SAPS lubricant specification designed for use in medium and heavy-duty diesel engines where advanced aftertreatment systems such as Diesel Particulate Filters (DPFs) are fitted. This specification sets high requirements for cleanliness and wear protection, alongside the ability to prolong the life aftertreatment systems and is hence widely recommended in Daimler Euro VI vehicles.

DaimlerDTFR 15C120 (formerly MB 228.52) is a Top Tier low SAPS lubricant specification designed for use in select Euro VI / US Tier 4 engines used in buses and industrial/off road applications where advanced aftertreatment systems such as Diesel Particulate Filters (DPFs) are fitted.
Daimler DTFR 15C120 shares many common characteristics with DTFR 15C110. The major difference between the two specifications is that **DTFR 15C120** has a restriction on the level of calcium allowed in the lubricant and is designed for use in select applications/engines mentioned above.

Detroit Diesel DFS93K222 is a performance specification for heavy-duty diesel engine oils. It ensures proper lubrication and performance in modern Detroit Diesel engines, focusing on wear protection, oxidation resistance, deposit control, and compatibility with advanced aftertreatment systems.

Deutz DQC IV-18 LA is a lower SAPS lubricant specification designed for use in high performance diesel and gas engines, offering extended oil drain intervals. These engines may have closed crankcase ventilation, steel pistons (TTCD) and the need for extended oil drain intervals. Most commonly this lubricant specification is used in the latest off-highway equipment meeting Stage V European emissions and US Tier 4 Final where advanced aftertreatment systems such as Diesel Particulate Filters (DPFs) are fitted.

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The **MAN M 3477** specification is a performance standard for super high-performance diesel (SHPD) engine oils. Oils meeting this specification are typically low SAPS (Sulfated Ash, Phosphorus, and Sulfur) formulations, designed to provide exceptional protection and performance for modern diesel engines equipped with advanced emission control systems.

The **MAN 3775** specification ensures oils meet rigorous requirements for use in modern MAN engines, including excellent wear protection, deposit control, and compatibility with advanced aftertreatment systems like DPFs.

MTU Type 2.1 signifies a higher level of performance compared to their previous Type 2 specification, emphasizing enhanced wear protection, improved fuel economy, and optimized compatibility with advanced aftertreatment systems.

MTU Type 3.1-approved oils are suitable for use in MTU diesel engines, particularly those equipped with DPFs and operating under severe conditions. It's important to note that these oils are recommended for use with diesel fuels conforming to EN 590 standards, which specify a maximum sulfur content of 50 mg/kg.

Volvo VDS-4.5 is a lubricant specification designed for use in high performance medium and heavy-duty diesel engines where advanced aftertreatment systems such as Diesel Particulate Filters are fitted. Volvo trucks, buses and construction equipment that require this lubricant specification would typically align with Euro VI and Stage V emissions standards in Europe and EPA GHG 2016 and U.S. Tier 4 Final emissions standards in the USA.
Equals the **Mack EOS-4.5** and **Renault Trucks RLD-3** specification.

RECOMMENDATIONS

Can be mixed with synthetic or mineral oils.

Oil changes should be performed according to the manufacturer's recommendations. Consult your vehicle's owner's manual or contact a dealer for specific guidelines, as they vary.

We also recommend the use of an oil monitoring program to optimize oil change intervals and maximize equipment protection.

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PROPERTIES

Color	ASTM D1500	Amber
Viscosity grade	SAE J 300	10W-40
Density at 20°C (68°F)	ASTM D1298	0.863
Viscosity at 40°C (104°F)	ASTM D445	107.0 mm²/s
Viscosity at 100°C (212°F)	ASTM D445	15.3 mm²/s
Viscosity Index	ASTM D2270	151
Pour point	ASTM D97	-45.0 °C / -49.0 °F
TBN	ASTM D2896	10.2 mg KOH/g
Flash point	ASTM D92	226 °C / 439 °F

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STANDARDS	
ACEA	E7/E8/E11
API	CK-4/SN
CATERPILLAR	ECF-3
CUMMINS	CES 20086, CES 20092
DAF	PSQL 2.1 E-LD
DAIMLER	DTFR 15C100 (former MB 228.31), DTFR 15C110 (former MB 228.51), DTFR 15C120 (former MB 228.52)
DEUTZ	DQC IV-18 LA
JASO	DH-2
MACK	EOS-4.5
MAN	M3775
MTU	Type 2.1, Type 3.1
RENAULT TRUCKS	RLD-3
VOLVO	VDS-4.5
OEM PERFORMANCES	
CUMMINS	CES 20077, CES 20081, CES 20100
DETROIT DIESEL	DFS93K222
MAN	M3477

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