



# FULL SYNTHETIC HEAVY DUTY DIESEL ENGINE OIL

## HEAVY DUTY ENGINE OIL

Volotec Full Synthetic Heavy Duty Diesel Engine Oil is designed to provide the highest levels of protection and performance from our most advanced technology and formulations.

### PROTECTION FOR TODAY'S ENGINE DESIGNS

As today's engines are evolving and heavy duty engine manufacturers are recommending thinner, lighter oils, Volotec has evolved right along with them. Only the most advanced engine oils meet the difficult challenges of effectively balancing durability, extending drain intervals and protecting emissions control devices.

### UNSURPASSED PROTECTION, EVEN IN THE LIGHTEST VISCOSITY

Volotec with FMX® Technology provides unsurpassed protection in every viscosity. Even our lowest viscosity oils protect better than thick oils of the past. FMX Technology creates a strong, durable and high-performing level of protection that controls friction and reduces metal-to-metal contact.

Our advanced oil technology actually improves oil properties over time, retaining viscosity, friction and anti-wear benefits, in spite of severe engine temperatures. Volotec also delivers greater horsepower and improved fuel economy.

### FULL SYNTHETIC HEAVY DUTY DIESEL ENGINE OIL

Volotec Full Synthetic Heavy Duty Diesel Engine Oil is specially engineered and formulated to provide:

#### PERFORMANCE

Unsurpassed protection for extended drain intervals.

Up to 1.6% improved fuel mileage.<sup>1</sup>

#### STRENGTH

Up to 53% better wear protection.

#### DURABILITY

Up to 83% better oxidation control.<sup>2</sup>

Up to 63% better deposit control.<sup>2</sup>

<sup>1</sup> Using HD 10W-30 CK-4, compared to Conventional HD 15W-40 CK-4 during on-highway long-haul service. Savings will vary on idle time and other driving conditions of your fleet or vehicle.

Compared to new limits of API CK-4 requirements.

### TYPICAL PROPERTIES

Viscosity Grade		Full Syn 5W-40 CK-4	Full Syn 0W-40 CK-4
Calcium, wt. %	ASTM D5185	0.082	0.105
Cold Cranking Simulator at (°C), cP	ASTM D5293	6535 (-30)	6530 (-30)
Color	ASTM D1500	2.5	3
Flash Point °C	ASTM D92	225	225
Flash Point °F	ASTM D92	437	437

Gravity, °API	ASTM D287	33.57	35.44
High Temperature / High Shear Vis at 150°C, cP	ASTM D5481	3.5	3.5
Magnesium, wt. %	ASTM D5185	0.116	0.1
Molybdenum, wt. %	ASTM D5185	0.007	0.0066
Nitrogen, wt. %	ASTM D4629	0.124	0.105
Noack Volatility, % loss	ASTM D6375	12	12
Phosphorus, wt. %	ASTM D5185	0.115	0.115
Pour Point °C (°F)	ASTM D5950	-45°C (-49°F)	-51°C (-60°F)
Pumping Viscosity at (°C), cP	ASTM D4684	24,113 (-35)	21,600 (-25)
Specific Gravity @ 60°F (15.6°C)	ASTM D4052	0.8572	0.8476
Sulfated Ash, wt. %	ASTM D874	0.99	0.99
Sulfur, wt. %	ASTM D4951	0.314	0.32
TBN, mgKOH/g	ASTM D2896	10	10
Viscosity @ 100°C cSt	ASTM D445	14.76	14.92
Viscosity @ 40°C cSt	ASTM D445	87.75	87.21
Viscosity Index	ASTM D2270	177	180
Zinc, wt. %	ASTM D5185	0.127	0.127

## INDUSTRY/OEM APPROVALS

Title	Full Syn 5W-40 CK-4	Full Syn 0W-40 CK-4
ACEA E9, E7, E4, E2	Meets Requirements	-
Allison C-4	Suitable for Use	-
API CI-4 Plus, CI-4, CH-4, CG-4, CF-2, CF	Meets Requirements	Recommended For
API CJ-4	Meets Requirements	Recommended For
API CK-4	Approved	Recommended For
API SJ, SH, SG, SF	Meets Requirements	-
API SL	Meets Requirements	Recommended For
API SM	Meets Requirements	Recommended For
API SN	Approved	Recommended For
CAT ECF-3, ECF-2, ECF-1-a	Meets Requirements	Recommended For
Chrysler/Fiat MS-10902	Meets Requirements	Recommended For
CID A-A-52306, MIL-PRF-2104G	Meets Requirements	-
Cummins 20086	Meets Requirements	Recommended For
Cummins CES 20081, 20077, 20076	Meets Requirements	Recommended For
Detroit Diesel 93K218, 93K215, 93K214	Meets Requirements	Recommended For
Detroit Diesel 93K222	Meets Requirements	Recommended For
Ford WSS-M2C171-E	Meets Requirements	Recommended For
Ford WSS-M2C171-F1	Approved	Recommended For
Global DHD-1	Meets Requirements	Recommended For
JASO DH-2	Meets Requirements	Recommended For
Mack EO-O Premium Plus, EO-N Premium Plus 03, EO-M Plus, and prior	Meets Requirements	Recommended For
Mack EOS-4.5	Meets Requirements	Meets Requirements
MAN 3275, 270	Meets Requirements	Recommended For
MAN 3575	Meets Requirements	Recommended For
MB 228.3, 228.31	Meets Requirements	Recommended For
MTU 2.1	Meets Requirements	Recommended For
MTU Type I, Type II	Meets Requirements	Recommended For
Renault RLD-4	Meets Requirements	Recommended For

Volvo VDS-4, 3, 2	Meets Requirements	Recommended For
Volvo VDS-4.5	Meets Requirements	Recommended For

Information accurate as of October 10, 2024