



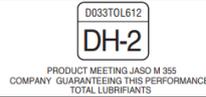
STAR MAX FE 10W-30



Very high performance lubricant specially developed for the lubrication of machinery used in **earthmoving, minings or quarries**, providing **substantial economies** by reducing the number of lubricants and the fuel consumption.

PERFORMANCE LEVELS

API CK-4/ CJ-4 / CI-4+ / CI-4 / CH-4 / SL
 ACEA E9 / E7 / A3/B4
 JASO DH-2



Engine application

Approved according to :

- ✓ CUMMINS CES 20086
- ✓ DEUTZ DQC III-10 LA
- ✓ MTU Category 2.1
- ✓ VOLVO VDS-4.5
- ✓ DETROIT DIESEL DFS 93K222
- ✓ MB Approval 228.31
- ✓ MAN M 3575
- ✓ MACK EOS 4.5
- ✓ RENAULT RLD-3

Conform to the OEM's specifications

- ✓ CATERPILLAR ECF-3 / ECF-2

Recommended for the TIER 4F engines :

- ✓ KOMATSU
- ✓ HITACHI
- ✓ PERKINS
- ✓ LIEBHERR
- ✓ CASE...

Gearbox application

API GL-4

Conforms to the specifications :

- ✓ ZF TE ML 07D
- ✓ CATERPILLAR TO-4 (SAE10W, 30)
- ✓ CATERPILLAR SATO
- ✓ ALLISON TES 439
- ✓ KOMATSU Clutch test
- ✓ ALLISON C4

Recommended for Gearboxes :

- ✓ DANA, KOMATSU, EATON...

Hydraulic system application

ISO VG 46 (after 100 working hrs) HV

Suitable in place of following products :

- ✓ JCMA HK VG46L (Japanese OEMs)
- ✓ CATERPILLAR HYDO Advanced 10W, 20 & 30
- ✓ KOMATSU HO-MVK / HO56-HE
- ✓ CNH MAT 3509 - CASE MS 1230

Recommended for LIEBHERR hydraulic systems

APPLICATIONS

TOTAL STAR MAX FE 10W-30 lubricates the Diesel engines of the last generation, notably the depolluted engines compliant to the US TIER4 final or (Euro Stage IV) standards, and below.

It can lubricate the small gasoline or gas engines and the piston-compressors.

TOTAL STAR MAX FE 10W-30 can be used in all hydraulic systems, high or low pressure, equipped with very high performance filters

TOTAL STAR MAX FE 10W-30 lubricates the oldest or current gearboxes, manual or powershift.

TOTAL STAR MAX FE 10W-30 can be used in all seasons due to its high viscosity index:

- Very fluid at cold temperature, with easy cold starting of organs with an effective and rapid filtration, even in winter season.
- Thick at high temperature, keep an optimal lubrication and a low oil consumption due to its no-conventional base oil components.

PERFORMANCES AND CUSTOMER BENEFITS

- Allows to strongly decrease the number of lubricants needed for the whole vehicle park maintenance and avoids all lubricant mistakes
- Reaches the highest quality levels required by the manufacturers for their engines (E9/CK-4), transmissions (GL-4/TO-4) and hydraulics systems (HK/HM/HV)
- Enable longer drain intervals up to the maximum allowed by the OEMs
- Self-adaptive, its patented formulation fits to the lubricated organ requirement
- Provides substantial economies by reducing the fuel consumption (CIFE process)
- Helps to decrease the exhaust Carbon Dioxide (CO2) production
- Its Low-SAPS chemistry is recommended for engines equipped with exhaust gas after-treatment systems, like DPF, SCR, catalysator....

PHYSICAL AND CHEMICAL CHARACTERISTICS*

TOTAL STAR MAX FE 10W-30		Method	Value
Kinematic Viscosity at 40 °C	mm ² /s	ASTM D445	76
Kinematic Viscosity at 100 °C	mm ² /s	ASTM D445	12.3
Viscosity Index	-	ASTM D2270	158
Pour Point	°C	ASTM D97	-42
T.B.N	mgKOH/g	ASTM D2896	11
Sulphated Ash	% m/m	ASTM D874	1.0
Zinc value	ppm		>1200

* The features mentioned above are average values obtained with some variability in production and do not constitute a specification.

TOTAL LUBRIFIANTS

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TOTAL STAR MAX FE 10W-30

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www.lubricants.total.com



This lubricant does not cause adverse health effects when used in the intended application.

A safety datasheet is accessible on request from your local dealer or on the website www.quickfds.com