



TotalEnergies

Star Max Gen 6 FE 10W-30

KEY DATA



- ✓ CONSTRUCTION
- ✓ MINING & QUARRING
- ✓ EARTHMOVING
- ✓ GENSETS



SPECIFICATIONS AND APPROVALS

International Specifications:

ACEA E6, E7, E9
API CK-4/CJ-4/CI-4+/CI-4/CH-4
JASO DH-2 (In Process)

Engine Application

Manufacturers' approvals:

- ✓ CUMMINS CES 20086
- ✓ DETROIT DIESEL DFS 93K222
- ✓ DEUTZ DQC IV-18 LA
- ✓ MTU Category 3.1
- ✓ VOLVO VDS-4.5
- ✓ MACK EOS-4.5
- ✓ MAN M3775
- ✓ MB-Approval 228.51/228.52
- ✓ RENAULT VI RLD-3

Meets the requirements of:

- ✓ CATERPILLAR ECF-3 / ECF-2 / ECF-1-a
- ✓ DEUTZ TTCD 7.8/6.1 L6

Gearbox Application

API GL-4

Meets the requirements of:

- ✓ ZF TE-ML 07D
- ✓ CATERPILLAR TO-4 (SAE 10W, 30)
- ✓ CATERPILLAR SATO
- ✓ ALLISON TES 439
- ✓ ALLISON C-4
- ✓ KOMATSU Micro Clutch Test (JCMAS)

Recommended for:

- ✓ DANA, EATON,...

Hydraulic Application

Meets the requirements of:

- ✓ ISO VG 46 (After 100 working Hrs) - HV

Suitable for the following:

- ✓ JCMAS HK VG46L (Japanese OEMS)
- ✓ CATERPILLAR HYDO Advanced 10W, 20, 30
- ✓ KOMATSU HO-MVK / HO56-HE / HO46-HM
- ✓ CNH MAT 3509 – CASE MS 1230

APPLICATIONS

Star Max Gen 6 FE 10W-30 is recommended for the lubrication of Diesel engines of the latest generations, including the depolluted engines compliant to the US TIER 4 final or Euro Stage V emission standards, and below. It can also be used for small gasoline or gas engines and piston compressors.

Star Max Gen 6 FE 10W-30 applies in all hydraulic systems, high or low pressure, equipped or not with very high-performance filters

Star Max Gen 6 FE 10W-30 is suitable for the current generation or older gearboxes, manual or powershift. Star Max Gen 6 FE 10W-30 can be used in all seasons due to its high viscosity index:

- Very fluid at cold temperatures, for easy cold starting of organs with an effective and rapid filtration, even in winter season.
- Thick at high temperatures, to keep an optimal protection and a low oil consumption due to its non-conventional base oil components.

Star Max Gen 6 FE 10W-30

PERFORMANCES AND CUSTOMER BENEFITS

Allows to strongly decrease the number of lubricants needed for the maintenance of the whole machine park and avoids lubricant mistakes

- Meets and surpasses the highest quality levels required by the manufacturers for their engines (E6/CK-4), transmissions (GL-4/TO-4) and hydraulics systems (HK/HM/HV)
- Enables longer drain intervals up to the maximum allowed by the OEMs
- Self-adaptive, thanks to its patented principle the oil fits with the lubricated organ requirement
- Provides economies by reducing the fuel consumption
- Helps decreasing Carbon Dioxide (CO₂) emissions
- Its Low-SAPS chemistry is recommended for engines equipped with exhaust gas after-treatment systems, like DPF, SCR, catalyst....

PHYSICAL AND CHEMICAL CHARACTERISTICS*

TEST	UNIT	TEST METHOD	VALUE
Kinematic Viscosity at 40 °C	mm ² /s	ASTM D445	78.2
Kinematic Viscosity at 100 °C	mm ² /s	ASTM D445	11.8
Viscosity Index	-	ASTM D2270	145
Flash Point	°C	ASTM D97	224
Pour Point	°C	ASTM D97	-42
T.B.N	mg KOH/g	ASTM D2896	10.2
Sulphated Ash	% m/m	ASTM D875	0.97

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

RECOMMENDATIONS FOR USE

Before using the product, it is important to check the service manual of the vehicle: the drain is carried out according to the manufacturer's requirements. The product should not be stored at a temperature above 60 °C. Exposure to strong sunlight, extreme cold or high temperature variations must be avoided. All packages should be protected from bad weather conditions. The drums should be stored horizontally to avoid a possible contamination by water and the damage of the product label.

HEALTH, SAFETY AND THE ENVIRONMENT

Based on available information, this product does not cause adverse health effects when used in the intended application and the recommendations provided in the Safety Data Sheet (MSDS) are followed. It is accessible on request from your local dealer or on the website <https://ms-sds.totalenergies.com/TotalPullWebsite/en>. This product should not be used for applications other than those for which it is intended. If disposing of used product, take care to protect the environment and comply with local regulations.

Star XL

KEY DATA



Concentrated solution of additives specifically developed for the suppression of « stick and slip » and vibrations phenomenon which can sometimes occur in Earth Moving, Mining or Quarries machinery axles.

USES

- **Star XL** is used in Public-Works or Construction machinery axles when they generate some noise when turning or at the end of braking phases.
- **Star XL** is used together with Star Concept lubricants.
- **Star XL** should not be used in organs which require a CAT TO-4 level of performance lubricant, except when recommended by TotalEnergies Lubrifiants technical staff.

PROPORTIONINGS

The following proportion have to be respected :

For all noisy machinery axles (see exceptions) :

- Use **Star Trans** lubricant and add **Star XL** at around 3%. - Double the dosage if the noises don't disappear after 1 hour of use.

Exceptions :

VOLVO and KOMATSU wheel-loaders :

- Use **Star Max** lubricant and add **Star XL** at around 3%.

In all cases, refer to the Lubrication Chart given by TotalEnergies Lubrifiants.

APPLICATION

The product must be added preferably during the oil filling operation after the drain.

Proceed as follows :

- Fill the axle up to half of the capacity with the recommended lubricant
- Add **Star XL** additive directly in the axle filler plug.
- Finish the filling operation with the recommended lubricant
- It's advised to use the machine, at least a few minutes, immediately after the filling.

The above procedure has to be done at each drain operation. It's possible to put the additive, whenever needed, directly in a noisy axle. Follow the below instructions:

- Let the machine cool for one hour or, if not, be cautious when opening the filler plugs, because hot oil ejections can occur.
- Be sure that the inside oil level permits the insertion of **Star XL** without overflowing,
- otherwise, the equivalent additive quantity must be removed.

The machine must be used immediately after the insertion of **Star XL**.



TotalEnergies

Star XL

CUSTOMER BENEFITS

- Permits to maintain the rationalization advantage provided by the Star Concept for all machinery types, whatever the brand and the model, without going back to a supplementary new oil quality.
- Permits the used axle lubricant to meet the technical requirements of friction or chemistry imposed by the material manufacturer.
- Maintains the drain intervals recommended by the OEMs.

PHYSICAL AND CHEMICAL CHARACTERISTICS*

Star XL	UNIT	VALUE
Viscosity at 40°C	mm ² /s	61
Pour point	°C	- 15

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Star Max Gen 6 FE 10W-30 + 3% Star XL

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