ELF MOTO 4 XT TECH

ELF MOTO 4 XT TECH is a specific **100% synthetic** motorcycle lubricant, a new design for **4-stroke motorcycles**. Its properties are based on a top technical profile and the latest international specifications. ELF MOTO 4 XT TECH incorporates a **high safety margin** for the engine, transmission and immersed clutch which offering high-endurance performances.

USE

Motorcycle application

The ELF MOTO 4 XT TECH formula is particularly suitable for all **4-stroke motorcycles** under demanding mechanical conditions.

Recommendation

ELF MOTO 4 XT TECH is appropriate for all uses in **urban traffic**, for **rural trips** et and journeys at high speed on the **motorway**.

Suggestions for use

ELF MOTO 4 XT TECH is totally compatible with **catalytic converters**. The **oil change intervals** recommended by the manufacturers and the minimum **viscosity** requirements must be complied with. This lubricant is compatible with **unleaded fuels**.

SPECIFICATIONS

100% synthetic
High-endurance-performances

ELF MOTO 4 XT TECH has been designed on the basis of **totally synthetic basic oils**, active regarding engine cleanliness. Lubrication adapted to various loads maintains high endurance performance while providing a safety margin for the engine and its surrounding equipment.

10W-50 Viscosity

ELF MOTO 4 XT TECH is a multigrade oil. Viscosity is adapted to **temperature variations** in metallurgy between -25°C (cold start) and +330°C (at piston rings).

JASO MA
Anti-clutch slippage

The innovative formulation corresponds to the **JASO MA** (*Japanese Automobile Standards Association*) specification for immersed clutch 4-stroke motorcycles. The adaptation of the friction factor to mechanical demands avoids slip and wear of clutch disks.

API SG

ELF MOTO 4 XT TECH is in conformity with the **API SG** (*American Petroleum Institute*) levels required by international motorcycle manufacturers.

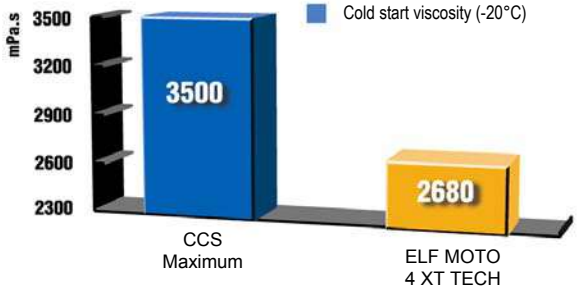
Lubricant fluidity at low temperature

Cold starts demand specific reactivity of the lubricant. The abrasive piston-liner metal-on-metal contact and contacts in the bearings must be transformed into hydrodynamic lubrication. Optimum fluidity at low temperature guarantees that the lubricant can be pumped better and that the oil pressure rises quickly.

Test Cold Cranking Simulator
ASTM D 5293

The 100% synthetic formulation of ELF MOTO 4 XT TECH ensures that pumping capability and fluidity are very good at low temperature (2680 mPa.s, see graph). This optimum behavior ensures suction and discharge by the oil pump through the lubricating circuit.

Cold Cranking Simulator results



Exchange of calories and high temperature stability

Calorie exchange occurs on contact between the lubricant and the metal parts. Because the oil is cooler than the metal, it tends to heat whereas the metal is cooled. Excess calories are evacuated through the sump which has a large contact surface with the air.
An oil that is not stable at high temperatures becomes degraded. Its combustion can cause **deposit to form** in the combustion chamber, on the pistons and on the valves. Fouling leads to lesser sealing, compression and combustion anomalies.

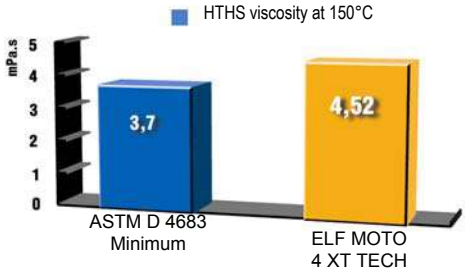
Oxidization test '1517'
144 hours at 170°C
Laboratory test

This test is representative of what happens in an oil sump when oxidization is catalyzed because of the fine metal particles suspended in it. ELF MOTO 4 XT TECH has successfully undergone very harsh oxidization tests representative of the behavior of oil in the sump. After 144 hours at 170°C with violent air inlet (10 l / h of air), the oil changed very little (viscosity at 100°C + 0.2%, TAN +1.2 points). ELF MOTO 4 XT TECH remains fluid and efficient. A competing oil was severely oxidized during this test, leading to total degradation with oil bulking.

Maintained lubrication and power conservation

Additives and base oils used in the ELF MOTO 4 XT TECH formula work on the forming of deposits to maintain hydrodynamic lubrication and preserve the original power of the engine.

ASTM D 4683 results



HTHS viscosity test
ASTM D 4683
150°C

The HTHS (high temperature, high shear) viscosity of ELF MOTO 4 XT TECH means that users get ideal performance under extreme pressure conditions. The chosen viscosity guarantees engine protection because of the anti-wear capability (thickness of the oil film) even under the most severe demands in terms of speed and load. This lubricant has been proven during **fleet testing**. Sporting users have confirmed that the **oil pressure is maintained and that power is conserved**.

Anti-wear and extreme pressure capability

The molecular structure of the lubricant must **resist extreme pressures** in the transmission. Selected polymers resist shearing while extreme pressure (EP) additives prevent welding during highly loaded metal-on-metal contact.

FZG ASTM D 5182 test

ELF MOTO 4 XT TECH has an outstanding anti-friction capability: bearing damage is in excess of 13 (maximum possible level) during gear wear testing FZG ASTM D 5182.

Smooth gear changing

A protective coat, thanks to specific additives, improves gear changing capability, **reducing mechanical noise in the transmission** and protecting metal parts in contact.

Anti-clutch slippage

The base oils, because of their molecular structures, maintain a consistent film of oil between the clutch disks. The adaptation of the friction coefficient to mechanical demands prevents **clutch disk slip and wear**.

T 904 JASO test
SAE 2 machine
1000 cycles

Since April 1999, the JASO MA specification requires lubricants compatible with immersed clutches. Clutch slip and premature disk wear are tested by friction factors tailored to the mechanical set-up.

ELF MOTO 4 XT TECH exceeds the value required by JASO MA.

Product positoning

The ELF MOTO 4 XT TECH product is a **top-end product**. Other physical-chemical performance capabilities and other product profiles are offered in the ELF motorcycle range.

ELF MOTO 4 XT TECH PROFILES	REFERENCE
Anti-clutch slippage power	✻✻✻✻
Wear-seizing safety margin	✻✻✻✻
Engine power efficiency	✻✻✻
Extreme pressure properties	✻✻✻✻
Base oil lubrication	✻✻✻✻
Selected additivation	✻✻✻
Anti-oxidant, -corrosion, -rust power	✻✻✻
Dispersion, detergence	✻✻✻
Resistance to thermal shock	✻✻✻✻
Catalytic converter compatibility	✻✻✻✻

Scale graded from ✻ to ✻✻✻✻

CHARACTERISTICS

PHYSICAL-CHEMICAL PROPERTIES	ELF MOTO 4 XT TECH
Density at 15°C (ASTM 1298)	0.8481 g/cm^3
OC flash point (ASTM D 92)	244 °C
Kinematic viscosity at 40°C (ASTM D 445)	121.3 mm^2/s
Kinematic viscosity at 100°C (ASTM D 445)	17.6 mm^2/s
Viscosity index (ASTM D 2270)	160
Sulfated ash content (ASTM D 878)	0.87 % weight
Pour point (ASTM D97)	-42 °C
AFAQ ISO 9001 CERTIFICATION number 1993/900c	

The characteristics in this table are averages given for information only.