

## A mineral oil.

MARINE 12X 15W-40 is a latest-generation lubricant formulated from high-performance group III base oils, for naturally aspirated or turbocharged diesel marine engines, specially designed to meet EURO 5/ EURO 6 European standards on pollutant emissions.

Developed in our laboratories and in collaboration with the most demanding engine manufacturers, MARINE 12X features the most advanced technologies in terms of resistance to wear, deposit formation and oxidation.

## PERFORMANCES

### Standards:

ACEA E9-08  
API CJ-4/CH-4/CG-4

### Specifications:

**CUMMINS CES 20081\***  
CATERPILLAR ECF -3, 2, 1-a  
VOLVO VDS-4/ VDS-3 / VDS-2  
MAN M 3575

\* **Approved quality.** Use recommended under manufacturers' warranties

## ORGANISATIONS & MANUFACTURERS - Scope of application -

**ACEA E9-08:** for Euro 3/4/5/6 engines equipped with EGR, NOx treatment.

**ACEA E7-08:** for Euro 3/4/5/6 engines equipped with EGR, NOx treatment without DPF.

**API CJ-4:** Standard since 2007 with DPF exhaust gas purification system.

**CUMMINS CES 20081:** or Cummins engines with EGR requiring an API CJ-4 oil.

**CATERPILLAR ECF-3, 2, 1-a:** to meet the requirements of non-road vehicles, in Caterpillar engines produced in 2007 equipped with DPF.

**VOLVO VDS-4:** since 2009: for Volvo Euro 3/4/5 engines (ACEA E9) + extended oil change interval.

**MAN M 3575:** ACEA E9 + API CJ-4 for non-European engines.

## ADVANTAGES

- Lubricant subject to approval
- Better wear resistance
- Very high antioxidant properties
- Meets the new concepts of globalisation

## PROTECTION

MARINE 12X contains dispersants able to reduce deposits at low temperatures, and enabling good dispersion of insoluble components in the oil.

MARINE 12X enables easy starting thanks to its viscosity grade, with good cold lubrication, as well as good protection at high temperatures, without increasing oil consumption.

## EMISSIONS

EURO 5/ EURO 6 engines run at very high temperatures and pressures in order to improve combustion and efficiency, while consuming less lubricant in order to reduce exhaust gas emissions, with closed-loop crankcase ventilation.

The formulation tailored to these constraints gives MARINE 12 X a very high capacity to absorb large quantities of soot and particles resulting from fuel combustion and exhaust gas recirculation, without thickening, i.e. without abnormal engine wear, while keeping them very clean and preventing deposits in the turbos.

Characteristics	Standards	Units	Values
Density at 15°C	NFT 60-101	kg/l	873
Viscosity at 40°C	ASTM D445	mm <sup>2</sup> /s	116
Viscosity index	NF T 60-136	-	139
Pour point	ASTM D2602	m.Pa.s	< -30
CCS @-20°C	ASTM D5293	°C	< 7000

*The characteristics are given purely for information and are consistent with our current production standards. IGOL reserves the right to modify them, in order to pass on technical developments to its customers. Before using this product, you should consult the instructions for use and the environmental impact shown on the technical and safety data sheets. The information given above is based on the current state of our knowledge of the product in question. The product user should take all relevant precautions relating to its use. Under no circumstances may IGOL be held liable for damages resulting from misuse.*

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