STATOIL

The Mereta series

Synthetic circulating and gearbox oils for industry

Contents

Introduction

The development of industrial transmissions has moved towards smaller units with higher loads, increased power output and higher operating temperatures. This puts high demands on reliability and performance in operation, and for optimisation of all components in the construction.

Through in-house development projects and in collaboration with manufacturers of gearboxes and other stakeholders, Statoil has continuously adapted and developed its range of transmission oils to meet market requirements. For many years, products based on mineral oils have dominated the market, but at present, the advantages of fully synthetic oils to manage stresses and strains are now obvious.

When operational reliability, extended oil change intervals and even energy savings are in focus, we strongly recommend the products in the Mereta series.

Product introduction and applications

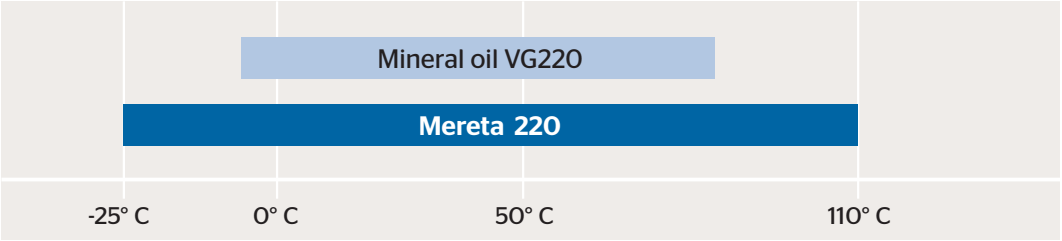
The Mereta product series has been specially developed and designed to exceed the established requirements for modern industrial gearbox oils. They are formulated on selected, fully synthetic base oils, as well as effective additives that provide exceptional protection of machine components. The products can also function as circulating oil or hydraulic oil in systems, even at extreme temperatures. The Mereta series is the optimal choice for extending oil change intervals and reducing energy consumption.

Properties and benefits

The properties of the Mereta product series differ considerably from conventional mineral oils. By means of the following technical data, we present the products' optimised performance and excellent opportunities for savings.

Temperature ranges

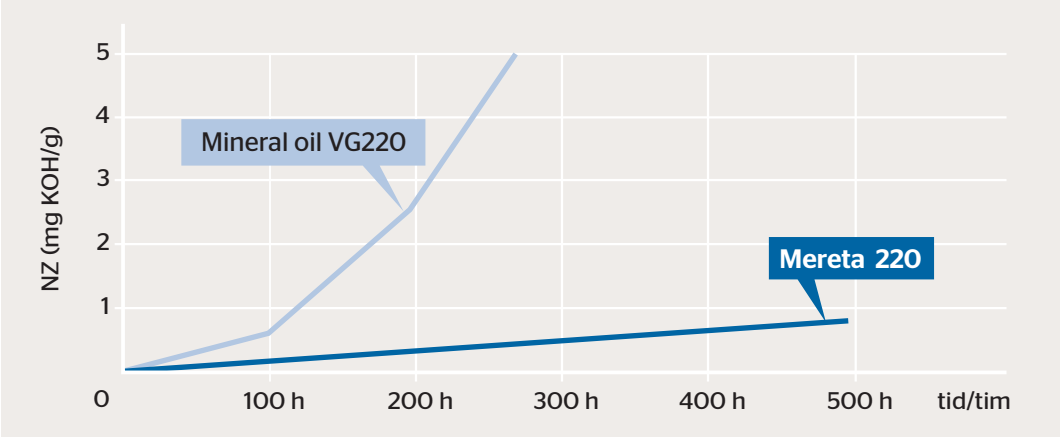
Mereta can be used in both outdoor and indoor climates, which reduces the number of products to stock. Mereta lubricates well at low temperatures, which reduces wear and energy consumption as well as extending the service life of bearings and gears. The oil is recommended for operating temperatures up to 110° C at continuous operation; even temporary temperature peaks of 180° C can be permitted. This can be compared to a mineral oil based product, where the oil is recommended for operating temperatures up to +80° C.



The Mereta products' high viscosity index means that they function superbly, even at low temperatures.

Service life, water and air separation

With Mereta, extended oil change intervals can be achieved due to lower operating temperatures by means of unbeatable thermal properties and greatly improved oxidation stability. Mereta lasts 3 – 4 times longer than conventional mineral oils. Depending on the ambient conditions, oil change intervals can be extended further and maintenance costs reduced. Mereta has very rapid air and water separation, which reduces the risk of cavitation as well as corrosion and provides problem-free operation with minimum maintenance.



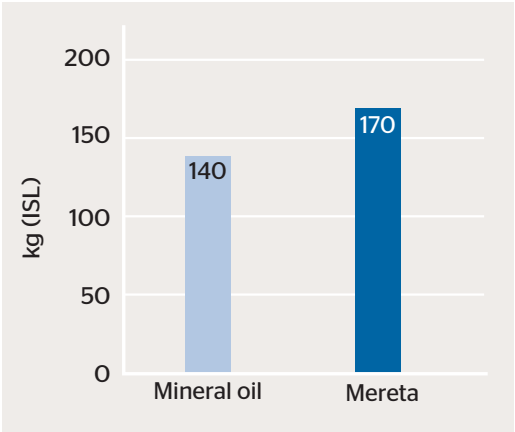
IP 280 is a test carried out to demonstrate the oil's resistance to oxidation. The diagram shows Mereta's unbeatable resistance to aging compared with a mineral-oil based gear oil with viscosity grade 220

Wear protection properties

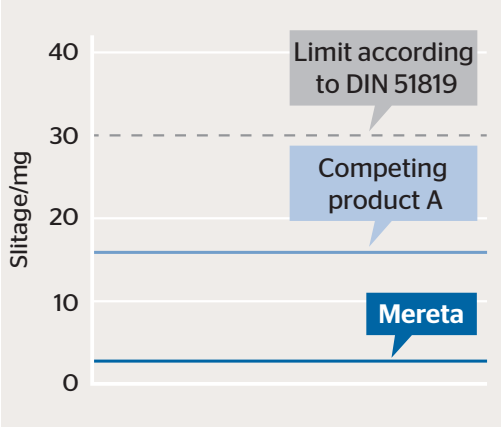
The Mereta series is formulated with specially selected additives to give exceptionally good protection against wear. Mereta withstands higher loads than conventional mineral oil in 4-ball ISL (Initial Seizure Load) tests according to ISO 20623.

FE 8 is a roller bearing test that measures wear according to DIN 51819. We let Mereta work at a load of 100 kN, instead of 80 kN, i.e. 25% higher load. The results are very good, since there was only 2 mg wear on the rollers, despite the higher load. Assessment in the test report: “Extremely good protection against wear”.

4-ball ISL according to ISO 20623



FE8 roller bearing test according to DIN 51819



Oils that fulfil the specification DIN 51517 - 3CLP <30 mg wear.

Example of pitting damage in the case of inadequate lubrication.

Energy saving

Mereta has approx. 35% lower friction coefficient compared to mineral oils, which results in energy savings.

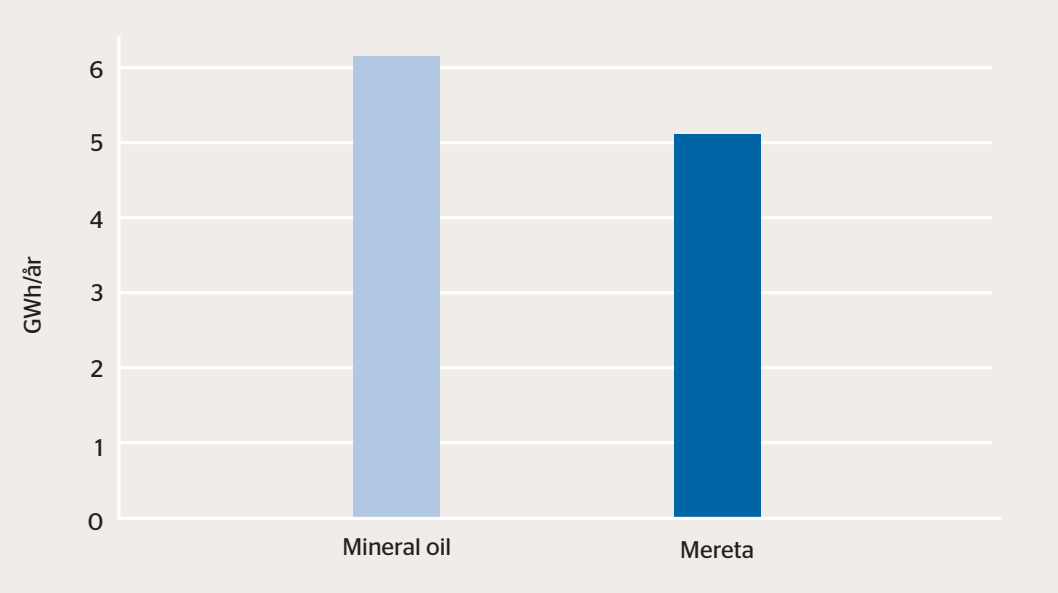
γ –EHD friction coefficient

Lubricant	at 20° C
Mineral oil	0.046
Mereta	0.030

$$\tau_L = \tau_0 + \gamma p$$

When changing oil from mineral oil to Mereta, in a heavily loaded gear, an energy saving of 15.6% was measured. This is equivalent to approx. 950,000 kwh/year in continuous operation. At an electricity price of 0.50 SEK/kWh, this is equivalent to a saving of SEK 475,000 per year*.

Energy consumption in the gear



* The customer example, in this case, shows a significant saving. This varies from case to case.

Summary

The Mereta series has many advantages and, with optimised performance, the products fulfil the most important requirements from our customers regarding operational reliability and reduced risk of downtime.

Compared to conventional, mineral oil-based, gearbox oils, the lower friction coefficient provides the possibility for reduced energy consumption. A saving that, together with extended oil change intervals, makes Mereta the primary product of choice. We work closely with our customers, and Statoil's representatives and application engineers are continuously focusing on creating added value through responsible lubrication solutions for people, machinery and the environment.

Please contact us and we will be pleased to tell you more about Mereta and how the operation of your gearbox can be improved.

Standards and tests

Classified as DIN 51517-CLP
Classified as ISO-L-CKD, ISO-L-CKE and ISO-L- PAD according to ISO 6743.
Friction properties in SKF's roller bearing rig = 0.0272.
Filterability factor > 100 in accordance with Cetop.
Seal Compatibility Index 5-6% according to IP 278.
Flender BA 7300 table A. Alfa Laval group D

Handling advice

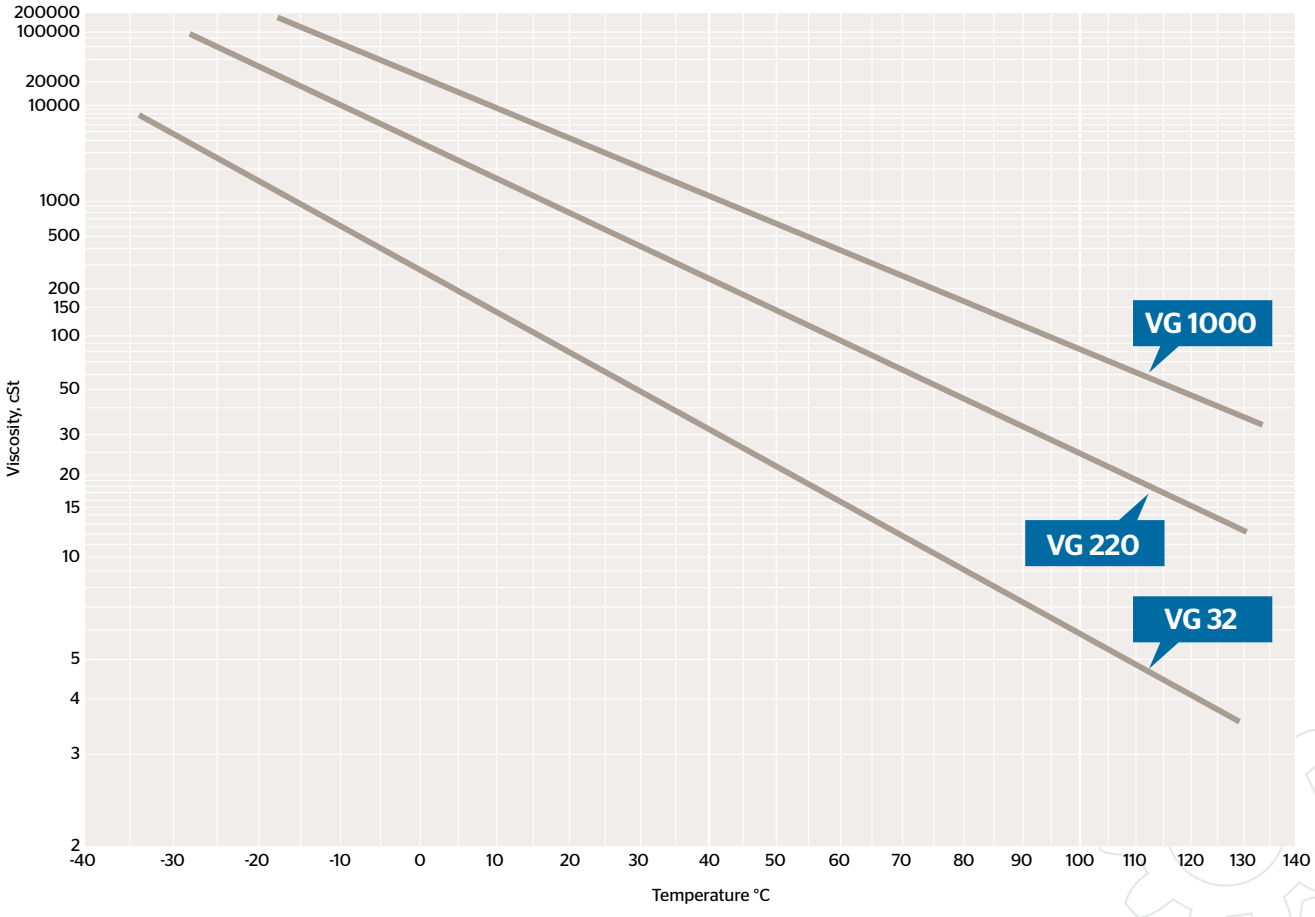
Avoid skin contact. In the event of contact with skin, wash with soap and water.
Dispose of used at a recycling station or equivalent.
Safety data sheet available from www.statoillubricants.com, or supplied on request.

Technical data

Mereta is available in viscosity grades from ISO VG 15 up to ISO VG 1000. This means that the right oil can be chosen within a very large area of application.

Properties	Unit	32	46	68	100	150	220	320	460	680	1000
Density at 15 °C	kg/m³	841	846	850	852	855	857	858	862	862	862
Viscosity at 40 °C	mm²/s	32	46	68	100	150	220	320	460	680	1000
Viscosity at 100 °C	mm²/s	6	7,6	11	14	19	25	34	45	62	87
Viscosity index		134	135	137	144	144	146	150	154	161	171
Flash point COC	°C	235	252	>245	>250	260	250	>250	>260	>260	>270
Pour point	°C	<-60	<-60	-57	-57	-57	-48	-42	-39	-36	-36
ISO VG		32	46	68	100	150	220	320	460	680	1000

Viscosity diagram



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Technical Advantages Mereta/Art 58 2013-01