

BONNOC M

ENERGY-SAVING INDUSTRIAL GEAR OILS

The performance and automatization of industrial machinery of every type have been increasing steadily with the goals of saving energy and reducing costs. In this context, gears are among the most vital parts of such machinery and play a major role in maintaining high levels of productivity.

BONNOC M gear oil prevents loss or damage to gear surfaces even when subjected to the tough conditions of large steel-making equipment. By reducing friction, BONNOC M provides the energy savings that are so important for today's gear oils.

● ADVANTAGES OF USING BONNOC M

BONNOC M can be used with super, bevel helical, double helical, worm, rack, pinion, and all other types of gears.

1. Energy Savings

As a result of BONNOC M's extreme pressure additives and superior friction modifiers (FMs), its lubricating film provides excellent friction reduction and makes possible energy savings of several percent. The reduced power expenses mean improved productivity and lower production costs.

2. Longer Gear Life

The superior additives in BONNOC M make possible tough lubricating films on the gear surface that resist shocks and heavy loads and prevent wear and sticking. The longer gear life provided by BONNOC M means reduced maintenance costs.

3. Usable for Long Periods

BONNOC M has excellent heat and oxidation stability, so with proper care and maintenance (preventing foreign matter from entering the oil, etc.), it will provide stable, long-term performance.

4. Superior Rust and Corrosion Prevention

The superior anti-rust and anticorrosion agent in BONNOC M protect gear equipment and oil circulation systems from both rust and corrosion.

5. Other Properties

BONNOC M's superior moisture separation

and antifoaming properties make it very easy to maintain.

● EXAMPLE OF ENERGY SAVINGS

The following table shows what happened when an SP gear oil was replaced with BONNOC M. The 8.3% reduction in electrical consumption proved that BONNOC M is an excellent energy-saving gear oil.

Equipment	Pulper
Power requirements	110 kW
Gears	Spiral bevel
Previously used oil	SP gear oil
Amount of fill oil	220 liters
Energy savings	8.3%
Cost reduction (electricity)	¥2,400,000/year (approx. US\$18,500/year)*

* The cost of 1 kWh of electricity was ¥30, or about US\$0.23. The currency conversion was calculated at US\$1 = ¥130.

● GRADES

Since BONNOC M is available in seven viscosity grades ranging from ISO 68 to ISO 680 it can meet many different lubrication conditions.

● APPLICATIONS

BONNOC M can be used for the lubrication of enclosed gears in a wide range of industrial machinery, including forges and other steel-making machinery, paper mills, construction machinery, mining equipment, chemical equipment, and cargo-handling machinery.

● CONTAINERS

200-liter drums and 20-liter cans.

● TYPICAL TEST DATA FOR BONNOC M

Type of BONNOC M (ISO VG)	68	100	150	220	320	460	680
Color (ASTM)	L2.0	L2.0	L2.5	L3.0	L3.0	L3.0	D8.0
Density g/cm ³	0.884	0.893	0.897	0.897	0.900	0.902	0.913
Kinematic viscosity (40°C) mm ² /s	68.5	102	154	228	328	456	694
(100°C) mm ² /s	9.1	11.3	14.7	19.4	24.5	30.4	39.9
Viscosity index	109	97	95	95	96	96	96
Flash point (COC) °C	220	240	244	242	244	244	254
Pour point °C	-25	-22.5	-20	-17.5	-15	-12.5	-12.5
Acid number mgKOH/g	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Copper strip corrosion (100°C, 3h)	1	1	1	1	1	1	1
Timken passing load kg	20	20	23	25	25	25	25



Handling Precautions

▼ Follow these precautions when handling this product.

Composition :	Base Oil, Additives
Precautionary pictograms:	Not applicable
Signal word:	Not applicable
Hazard Statement:	Not applicable
Precautionary Statements:	<ul style="list-style-type: none"> • Do not handle until all safety precautions have been read and understood. • Wear protective gloves/protective clothing/eye protection/face protection. • Do not allow the eyes to become exposed to the product. Do not swallow the product. • Wash hands thoroughly after handling. • Do not eat, drink or smoke when using this product.
Response	<ul style="list-style-type: none"> • IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. • IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. • If the eyes are exposed to the product: Rinse the eyes with plenty of running water and immediately contact a physician. • IF ON SKIN: Wash with plenty of soap and water.
Storage	<ul style="list-style-type: none"> • The product must be stored in a cool, well-ventilated location where it will not be exposed to direct sunlight. • Containers that have been opened must be tightly sealed.
Disposal	<ul style="list-style-type: none"> • Dispose of contents/container in accordance with local/regional/national/international regulations. • If there are any doubts about proper methods of handling the product, contact the point of purchase before proceeding with usage.