PRODUCT BULLETIN

The Future of Energy, Resources and Materials
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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.

BONNOC M is the successor to the extreme pressure industrial gear oil Bonnoc SP, which has proven itself in many types of large production equipment. You'll want to try BONNOC M right away.

● 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 antirust 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 use 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		68	100	150	220	320	460	680
Density	g/cm^3	0.885	0.890	0.895	0.899	0.904	0.907	0.910
Kinematic viscosity (40°C)	mm^2/s	68.2	99.4	145	215	315	462	680
(100°C)	mm^2/s	9.23	11.2	14.5	18.6	24.0	30.6	39.3
Viscosity index		112	98	98	96	97	96	96
Total acid number	mgKOH/g	0.9	0.8	0.7	0.8	0.8	0.7	0.8
Pour point	°C	−30	−22.5	−22.5	−12.5	−12.5	−12.5	−12.5
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 the following precautions when handling this product.

- Read this product's Material Safety Data Sheet before using the product.
- Obey all applicable laws and regulations concerning the handling and disposal of this product, particularly laws and regulations related to fire safety, the treatment and disposal of waste and sewage, the prevention of water and ocean pollution, and workplace safety and hygiene.
  Please request the Material Safety Date Sheet where you purchased this product.