

# MAK STEEL EP 100

## New generation high performance bearing oil

MAK Steel EP 100 is a premium quality heavy duty circulating oils designed for lubricating gears and bearings. It is formulated with high quality severely hydroprocessed mineral base oils and a high performance ashless additive system designed to provide outstanding antioxidant property, exceptional equipment protection and reliability under severe operating conditions. This specially designed oil meets the critical performance criteria of the Morgan Construction Company's high speed No-Twist Rod Mills (NTM), as well as the circulation oil requirements of Danieli rod mills. This product has very good wettability and high film strength providing extra rust protection and eliminating scuffing and scoring of the bearing. It has a superior water separating ability which is retained even at a high level of water ingress during extended use. MAK Steel EP 100 is compatible with the seal materials and paints normally specified for use with mineral oils.

### Applications:

MAK Steel EP 100, a mineral oil based product is recommended for use in Morgoil bearings in No Twist Rod Mills (NTM). It meets the demanding requirements of the lubrication of no-twist finishing mills to protect highly loaded bearings even when contaminated with cooling water. This oil also finds application in general purpose industrial circulating systems such as gear and bearing lubrication where an anti-wear lubricant with mild EP type oil is required.

### Performance/ Benefits:

**Excellent Extreme Pressure Property** – has excellent load carrying property, protects all machinery parts, e.g. bearings, gears from wear. Ensures lower maintenance cost and trouble free operation throughout the service life.

**Excellent Demulsibility** – excellent water separation characteristics for smooth, efficient operation. Superior demulsibility is maintained even at high level of water contamination. Maintains critical oil film between highly loaded parts.

**Outstanding Oxidation Stability** – outstanding resistance to the effects of oxidising agents. Resists sludge and deposit formation. Minimises filter choking due to oil ageing.

Ensures reliability, longer operating life and less maintenance.

**Excellent Thermal Stability** – provides resistance to thermal break-down and capability to work under varied operating temperatures to offer optimum life and performance. Offers longer oil life and extended drain period.

**Excellent EP Property** – provides excellent load bearing capability and helps reduce gear tooth and bearing wear. Extends the life and availability of the equipment

**Excellent Air Release Property** – helps minimize cavitation and other related damages to circulating pumps.

**Low Foaming Tendency** – helps maintaining continuous oil film between moving parts.

**Strong Rust & Corrosion Protection** – prevents rusting and corrosion. Fewer unscheduled stoppages and lower maintenance costs.

### Specification:

- Meets Morgan No-Twist Mill specification
- Meets Danieli specification for Film bear EP oils
- DIN 51517-2 – Type CL

### Dynamic Demulsibility:

MAK Steel EP 100 has been tested and certified by Clark Laboratories, LCC for Dynamic Demulsibility. The test results are as under:

Test	Morgan Dynamic Demulsibility Requirements for bearings	MAK Steel EP 100
Oil in Water (%)	1 (max)	0
Water in Oil (%)	10 (max)	3

### Approval:

MAK Steel EP 100 is approved by M/s. Newfield Engineers Pvt. Ltd. for their NTM block and gear box.

**Typical Physico-Chemical Data: MAK Steel EP 100**

Characteristics	Method	Value
Colour, Oil	Visual	Water white
Appearance, Oil	Visual	Clear
Kinematic Viscosity @40°C, cSt	ASTM D445	90
Kinematic Viscosity @100°C, cSt	ASTM D445	11.10
Viscosity Index	ASTM D2270	110
Copper Corrosion, 100°C, 3 hrs.	ASTM D130	1a
Pour Point, °C	ASTM D97	-24
Flash Point, COC, °C	ASTM D92	248
Rust Test, Procedure A & B	ASTM D665	Pass
FZG Gear test, Failure stage	DIN 51354	12
RPVOT, mins	ASTM D2722	750
Demulsibility at 82°C, minutes to 3ml	ASTM D1401	40-40-0 (10)
Demulsibility for Non-EP oils, (ml free water)	ASTM D2711	39
Air Entrainment @ 75°C (0.2 % air left ), mins	ASTM D3427	2.5
Foaming Characteristics, Stability, ml/ml Sequence I/ II/ III	ASTM D892	Nil

**Storage & Handling:**

The product should be stored inside. Keep it properly sealed to avoid contamination. Avoid freezing. Shelf life is 3 yrs. under protected storage conditions.

**Health & Safety:**

It is unlikely to be hazardous when properly used in recommended applications. Contamination of the coolant from other oils, greases, chemicals, dirty water etc. can occur during the use. It should be avoided. Regular monitoring of the in-use product is recommended.