

WAY LUBRICANTS

Way lubricant is a fluid designed for lubrication of slideways of metalworking machine tools.

Way lubricants provide smooth motion of the plane sliding metal parts free from stick-slip problems.

Most of way lubricants are mineral oil based, however synthetic oil based way lubricants are also used in some applications. Biodegradable vegetable oil based way lubricants are used when environmental concern is important.

Way lubricants are used for lubrication in milling machines, lathes, planers, saw guides, grinders, jig borers. Some way lubricants may have dual usage: as a slideway fluid and as a hydraulic oil.

- ☐ **Benefits of way lubricants**
- ☐ **ISO Designation of way lubricants**
- ☐ **Properties of some way lubricants**

Benefits of way lubricants

- ☐ Uninterrupted sliding.

Coefficient of friction at static conditions is normally higher than the coefficient of friction at kinetic conditions. This difference causes stick of sliding parts when they start motion or move at low speeds.

Way lubricants prevent stick-slip and chatter of the carriage particularly at low speeds of the machine carriage. This is achieved by the use of special additives modifying boundary conditions of the sliding parts and reducing the static coefficient of friction.

- ☐ Low lubricant leakage.

Good wetting and adhesive properties of way lubricant reduce oil loss caused by dripping in vertical ways or by its squeezing out under heavy loads.

- ☐ Good lubrication under high pressures.

Extreme pressure (EP) additives in the way lubricants provide low coefficient of friction, good wear resistance and anti-score properties under heavy loads.

- ☐ Rust and corrosion and protection.

Corrosion inhibitors added to the way lubricants protect the machine parts.

- ☐ Resistant to water washout and emulsification by Cutting fluids (coolants).

Metalworking (cutting) fluids used in the machining cutting operations may contaminate the way lubricants and cause their emulsification. Way lubricants formulation impedes emulsification.

ISO Designation of way lubricants

International Standardization Organization (ISO) established a viscosity grading (VG) system for way lubricants. According to the system way lubricants are designated by the letters ISO followed by a number equal to the oil viscosity measured in centistokes at 40°C (104°F): ISO VG 32, ISO VG 68, ISO VG 100 etc.

The common viscosity range of way lubricants is 32 cSt to 220 cSt. Way lubricants with higher viscosity indexes are used for heavier operations and vertical guides.

Properties of some way lubricants

(Materials Data)

- ☐ Way lubricant ISO 32
- ☐ Way lubricant ISO 68
- ☐ Synthetic way lubricant ISO 100
- ☐ Way lubricant ISO 150
- ☐ Way lubricant ISO 220
- ☐ Biodegradable way lubricant ISO 220