

BY680

Semi-Synthetic Cutting Fluid

High-Lubricity Semi-Synthetic Fluid for Medium to Heavy Duty



BY680 is a high-lubricity semi-synthetic cutting fluid for medium- to heavy-duty machining of aluminum alloys and stainless steels. It delivers biological stability, tapping performance and foam control for demanding CNC operations.

Sump life can exceed 2 years



Performance & Applications



- 01 High lubricity for medium-heavy duty
- 02 Stable against biological growth and odor
- 03 Strong tapping performance on aluminum
- 04 Siloxane-based foam control

Materials

2-, 5-, 6- and 7-series aluminum alloys; die-cast, extruded and non-standard aluminum; 200- and 300-series stainless steels.

Operations

CNC · Turning · Drilling · Boring · Reaming · Milling · Tapping



Technical Data

pH

8.6-9.1

Four-ball PB value

720 N

10%

Four-ball PD value

1760 N

10%

Product standard: GB/T 6144

Property	Value / Result
Appearance	Yellow transparent liquid
Physical stability	No sediment, separation or crystallization
Density	$0.97 \pm 0.2 \text{ g/cm}^3$
Viscosity at 40°C	67-70 mPa·s
pH	8.6-9.1
Four-ball PB value	720 N at 10%
Four-ball PD value	1760 N at 10%
Tapping torque value TTT	125 at 10%
Aluminum corrosion test	6061/6063/7075/ADC12: 5%, 55°C, 8 h, no discoloration
Rust test	45# steel single sheet: 5%, 72 h, no rust Stacked sheets: 5%, 8 h, no rust
Copper corrosion test	1A at 5%, 55°C, 8 h



Dilution & Use

Working fluid

Refractometer reading

7-18

Duty	Working-fluid reading	Mixing ratio Concentrate : water	Daily top-up
Medium Duty	8-12	1:10 - 1:6	Reading 5-7
Heavy Duty	12-18	1:6 - 1:4	Reading 7-10

Mixing & Start-Up

- 01 Clean the reservoir and piping before charging fresh fluid.
- 02 Prepare the dilution in a clean container at the operating concentration.
- 03 Fill the reservoir, circulate thoroughly and verify the refractometer reading.
- 04 For top-up, add water and the corresponding amount of concentrate.

Maintain the working fluid at a refractometer reading of 7-18. Readings below 7 can promote bacterial growth and fluid deterioration; readings above 18 can increase skin irritation.



Fluid Change & System Care

01 Drain used fluid

Use a transfer pump or wet vacuum to drain used fluid into a dedicated container.

02 Clean the system

Remove sludge, waste oil and contamination. Rinse or wipe the reservoir where practical.

03 Sanitize

For spoiled or odorous fluid, use a compatible biocide and follow its mixing and dosing instructions.

04 Circulate and recover

Circulate the cleaning fluid through the machine and piping for about 5 minutes, then recover it. Handle recovered fluid according to the biocide instructions.

05 Charge fresh fluid

Prepare fresh fluid at the operating concentration, fill the cleaned reservoir and circulate thoroughly.

06 Maintain fluid quality

Remove chips and floating oil promptly. Control way-lube leakage and prevent foreign contamination.

**BY680**

Formulation & Storage

Composition

Base oil, rust inhibitor, emulsifier, lubricant, extreme-pressure additive, high-performance corrosion inhibitor, auxiliaries, biocide and deionized water. The formulation contains no nitrite ions, hexavalent chromium, sodium nitrite or phenol.



Operating Essentials

Gradual color darkening and settling of the macromolecular siloxane foam-control component during storage do not affect use. Do not mix with other oils.

18 L

Plastic pail

200 L

Steel drum

1 year

Shelf life

Store sealed in a cool, dry, ventilated place. Keep indoors; lay drums horizontally when stored outdoors.

Shutdown & Disposal

For shutdowns over 3 days, transfer the fluid to an operating machine, or dose a compatible biocide as instructed and circulate for 5-10 minutes. Circulate for 1-2 hours every 2-3 days. Collect used fluid separately for disposal by a licensed recycler.