

Press-Release

Coolant-through-spindle application effective and efficient with „minimum-quantity-lubrication“



Common flood-coolant application in chip-generating operations including a new minimum-quantity-lubrication (MQL) method is getting attention for economic reasons and also for environmental factors.

MQL cooling in chip-generating processes (drilling, milling, saw cutting and tapping) uses a small amount of lubricant/coolant (less than 0.7oz (20ml) of lubricant/coolant per hour).

SUHNER's new Accu-Lube-Booster is a perfect system for internal coolant-through-tooling for its machining units, including the BEM 20, BEX 15 and BEX 35.

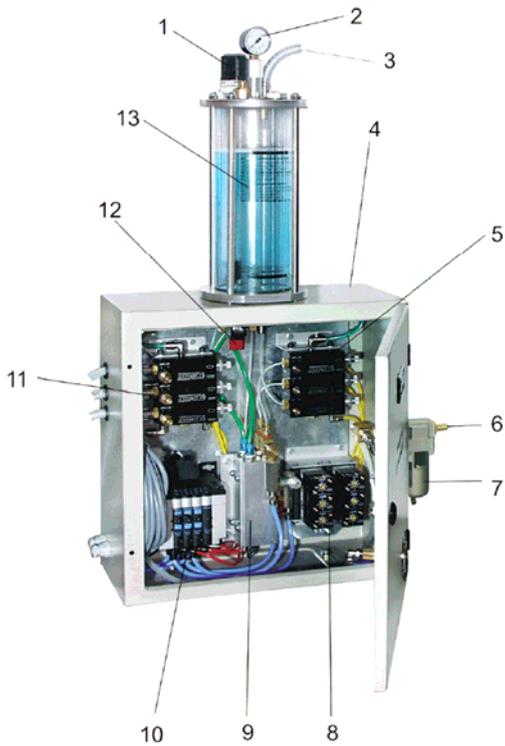
Why minimum quantity lubrication?

- In parts manufacturing, tooling-related cost is typically 7-17% of total cost when using traditional coolant emulsions. MQL significantly reduces this percentage.
- Reduction of friction yields higher productivity and increases efficiency in parts manufacturing.
- Increased tool life leads to shorter and less frequent machine stop time.
- Nearly-dry chips reduces cost of disposal or recycling.
- Savings in running/replacing the coolant pump system, the coolant itself, and in energy costs.

MQL technology is used today in many machine tools. The Accu-Lube-Booster-System designed for machining units is an ideal enhancement.

Basic Principle.

Suhner's „booster system“ uses an integrated frequency-generator controlling a precision metering pump. A predetermined amount of oil flows inside the pressurized booster chamber at 90psi (6 bar) and creates a lubricant mist. This lubricant-air mixture (Aerosol) is fed inside tubing to the coolant union at the machining unit. From here, it flows through the spindle and MQL clamping system of an HSK spindle and tool holder system finally ending at the tip of the cutting tool.



The picture above shows a compact unit for combined inside and outside lubrication.

Pos.	Component	Function
1	Level indicator	Control of of fluid level with Low level indicator
2	Pressure gage	Monitors pressure inside Lubricant mist chamber
3	Hose connection	Hose connection to coolant Channel
4	Metal enclosure	Protective enclosure for control components
5	3 pumps for inside lubrication	Convey coolant mist
6	Air pressure fitting	Air supply line intake
7	Air filter & dryer	Separate water and contaniments
8	Frequency generator	Generate air impulses to the metering pumps
9	Boost chamber	Lubricant/coolant becomes mist
10	Valve bank	Control of booster
11	3 pumps for outside lubrication	Convey coolant mist
12	2/2 position air valve	Control of metering unit
13	Coolant/lubricator container	Reservoir for the coolant/lubricator



Drilling of an 8 mm diameter hole in stainless steel 25mm deep using a carbide tool with coolant-through capability, an AccuLube-Booster and a BEX 15 machining unit

Discharged oil film reduces friction between the chips and the tool during machine processing. Most generated heat is absorbed and discharged with the chips.

While transporting aerosol mist from inside the machining spindle to the tool exit it is important to discharge the lubrication mist in a controlled way; otherwise desired lubrication effect of the tool will be reduced.

Boosters are adaptable and expandable for different and multiple applications.

Further information

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