We are FUCHS Lubricants

At FUCHS Lubricants, we see ourselves as a long-term business partner to our customers. We are problem solvers with knowledge of our customer’s operations, processes and the increasing commercial demands that are placed in a rapidly changing world.

Together with our customers, we identify new opportunities to streamline production and handling, which leads to increased profitability. In close collaboration, we combine our respective areas of expertise to achieve optimum results, which in some cases may call for bespoke solutions.

The right cutting fluid – equally important as the right tool

Choosing the right cutting fluid product for metalworking is an excellent example of how a minor detail can make a major difference. The right cutting fluid reduces the number of unplanned stoppages and increases the life of both the tool and the cutting fluid. It increases capacity utilisation, thereby reducing the cost per produced unit. With the right cutting fluid, the right checks and the right handling, you can even reduce one or more stages in the production process, which leads to further savings of both time and money.

Products that measure up in every respect

A cutting fluid has to perform well in all kinds of areas. It should affect the environment as little as possible throughout its life cycle, from product development to use and disposal. We focus on each link in the entire chain, to make products that measure up in every respect.

Our product programme contains the latest technology and is continuously being developed as customer requirements and legislation change. Stratus HC is our most advanced product series. It is based on synthetic base oil, thus contributing to greater productivity and less tool wear. The synthetic base oil minimises oil mist, and the extremely low aromatic content means an optimised working environment.

Our Application Guide gives you an overview of suitable combinations of cutting fluids, machining methods and materials.

Tips and advice

1. Appoint someone to be in charge of emulsion:
   - This person will check that there is the right concentration in the systems.
   - They will also keep a logbook of concentration and pH values.
   - Make sure you choose the right cutting fluid for your system.
2. Label all machines:
   - If you use different cutting fluids for different kinds of machining, label each machine with the type of cutting fluid used in that machine. This is very important for the next machine, which is why we refer to this in our Application Guide.
3. Try to minimise the number of dead spaces in the system, when the cutting fluid is not in use.
4. Check that the concentration is correct.
5. Even topping up of concentrate/water.
6. Check that the pH is correct.
   - If applicable, use a pH buffer or preservative – see Figure 1 below.
7. Keep the fluid as clean as possible.
8. Minimise leaks of cutting fluids and separators.
9. Continuous removal of dirt:
   - Minimise stoppages in the system. When the distance between the fluid points is large, there is a larger period of time where the system will need to be cleaned.
   - Circulate the fluid continually, or at the very least, every six months, to reduce the chances of premature failure.
10. Planned fluid changes:
    - Plan periods where you need fluids.
11. Always use a system cleaner when changing the fluid.
12. Use a社会效益 cleaner when changing the fluid.
13. To ensure a stable emulsion, the concentrate must always be added to the water, rather than the other way around.
14. Always clean cutting fluids before the temperature range of 20°C to 80°C, also in summer.

Products are based on a system cleaner. Fuch apparatus (which we refer to in the above text, point 6).

![Figure 1. Support dosage](image-url)
### Application guide for cutting oils

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<th>Technical characteristics</th>
<th>Type of machining</th>
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</table>

#### Technical characteristics

- **Viscosity 40°C**
- **Flash point**
- **Symbols**

#### Type of machining

- **Turning**
- **Grinding**
- **Tapping**
- **Reaming**
- **Drilling**
- **Cutting**

#### Materials

- **Cast Iron**
- **Stainless steel**
- **Hard metal alloy**
- **Aluminum**
- **Copper & Brass**

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How to choose the right cutting fluid?

One can generally base one's choice of lubricant on norms, specifications and quality labels from machine manufactures. However, when we look at the material's effect on the cutting fluid, cast iron and copper alloys form small metal particles during machining which can easily get stuck in misters and cause the machine dirty. There are therefore higher demands on the fluids cleaning properties when machining these materials.

Here are some tips on how to choose the right cutting fluid:

1. **Cast iron and copper alloys**: Use materials that can withstand high temperatures and provide good lubrication.
2. **Titanium and its alloys**: Use products that can handle high-speed machining and provide good cooling properties.
3. **Stainless steel**: Use cutting fluids that can withstand high temperatures and provide good lubrication.
4. **Aluminum**: Use cutting fluids that can handle the high temperatures and provide good cooling properties.
5. **Copper and brass**: Use cutting fluids that can handle high temperatures and provide good lubrication.

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<table>
<thead>
<tr>
<th>Material</th>
<th>High impact</th>
<th>Low impact</th>
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<tbody>
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<td>Cast iron</td>
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<tr>
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<tr>
<td>Titanium/Steel</td>
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Symbols:

- **+++** Special developed for
- **++** Recommended
- **+** Suitable
- **-** Not recommended