

# High-tech lubricants for deep drilling





BECHEM coolants and deep drilling oils are process fluids specially adapted to the high demands of deep drilling. They are formulated for gun drilling, drilling, boring, turning, burnishing and tube processing. They ensure optimal results even under the most difficult conditions, such as deep drilling of specialty materials that produce high temperatures.

## Coolants for deep drilling processes




Removing the associated heat that is produced during the heavy cutting processes is a critical aspect for the coolant. Water-miscible BECHEM coolants yield economic advantages during deep drilling by offering the highest performance ranges and eliminating the need for additional washing steps. The outstanding cooling effect of the BECHEM coolants prevents the production of thick smoke and excessive heating of the work piece even during the most difficult cutting processes. The BECHEM coolants have an additive package that achieves the same tool life for the guide pads and cutting tools as compared to deep drilling oils.

## Deep drilling oils

Deep drilling oils of the Berucut series also ensure optimal results even under the most difficult conditions and can withstand any challenge in serious production. Thanks to innovative additive components, demanding products can be reliably and economically processed to achieve excellent surfaces. The compatibility of BECHEM products with materials and processing systems is of fundamental importance and is an integral part of the research and development work for high-performance lubricants from the very start. BECHEM offers its customers an extensive range of application-related services in connection with selecting and using a coolant suitable for the respective process.

|                      | PRODUCT  | Materials to be processed   | Mineral oil ca. [%] | Lubrication performance | Processes   | Description  |
|----------------------|--|---|---------------------|-------------------------|---|--|
|                      |  |   |                     |                         |   |  |
| Contains mineral oil | <b>BECHEM Avantin 438</b><br>  | High alloyed steels, nickel-based alloys                          | 28                  | ◆◆◆◆                    | Deep drilling, broaching, cylinder tube processing, severe forming operations                             | Semi-synthetic high-performance formulation for excellent surface qualities and maximum tool life  |
|                      | <b>BECHEM Avantin 455</b><br>  | Aluminum, nonferrous metals, titanium, steel                      | 30                  | ◆◆◆◆                    | Demanding metal cutting operations, machining of engine blocks, cylinder heads, gearbox housings, pistons | Excellent surface qualities especially of aluminum alloys used in the automotive and aerospace industry  |
| Mineral oil-free     | <b>BECHEM Avantin 4409</b><br> | ADI-materials, high-tensile stainless steels, nickel-based alloys | 0                   | ◆◆◆◆◆                   | Deep drilling, broaching, cylinder tube processing, demanding forming operations                          | Fully synthetic high-performance formulation, highest tool life, excellent surface qualities, can also be used as additive and for forming processes   |
|                      | <b>Berufliud AS 1008</b><br>   | Steel, titanium, aluminum   | 0                   | ◆◆◆◆◆                   | Drilling, turning, milling, optical components, control and regulation technology                         | Fully synthetic high-performance formulation, optimal tool life, excellent cooling properties, excellent filterability, reduced aerosol formation, for individually and centrally supplied systems |

◆ = low ... ◆◆◆◆◆ = very high

|                    | PRODUCT  | Materials to be processed  | Kinematic viscosity [mm²/s] at 40 °C | Flashpoint [°C] | Machining           | Processes / examples of application                                    | Description   |
|--------------------|--|--|--------------------------------------|-----------------|---------------------|--|---|
|                    |  |  |                                      |                 |                     |  |   |
| Deep drilling oils | <b>Berucut TBO 315</b><br> | Steel, stainless steel   | 16                                   | 160             | medium              | Deep drilling (all methods), peeling, rolling, burnishing              | High performance additive package for excellent surfaces, highest cutting performance, avoids formation of built-up edges, excellent cooling properties, supports demanding machining processes where cross-bores are no problem, for steels with a tensile strength of up to 800 N/mm² |
|                    | <b>Berucut XC 4015</b><br> | Steel  | 15                                   | 187             | difficult           | Deep drilling (all methods), peeling, rolling, burnishing              | High-performance additive package for excellent surfaces, high performance in the cut, prevents build-up edges, strong cooling effect, supports demanding processing parameters, presence of cross-bores is not a problem   |
|                    | <b>Berucut XC 4122</b><br> | Aluminum, copper-based materials, nickel-based materials, stainless steel, steel | 23                                   | 185             | medium to difficult | Deep drilling, peeling, rolling, burnishing, broaching, thread milling | High-performance additive package for excellent surfaces, high performance in the cut, suitable for steels, aluminum and nickel base alloys with tensile strengths of up to 800 N/mm²   |

### APPLICATIONS



Drilling



Milling



Turning



Deep drilling



Sawing



Broaching

### PROPERTIES



Extended tool life



Good rinsing performance



Corrosion protection



Chlorine free



Low residue level

## Advantages of BECHEM high-performance coolants

### Coolants

- Extended tool lives
- Economical and efficient consumption
- Low foaming
- Good skin tolerance
- Biostable
- Chlorine-free
- Boron and FAD-free

### Deep drilling oils

- Excellent performance
- No foaming
- High flash point
- No skin irritation
- High safety for users
- Chlorine-free

