



BECHEM Avantin  
Coolant Lubricants



**BECHEM**  
LUBRICATION  
TECHNOLOGY





# BECHEM Avantin

## A cool technology

BECHEM – Lubrication solutions for industry










As the oldest German manufacturer of industrial lubricants, BECHEM is one of the leading producers of high-quality special lubricants and metalworking fluids today.

BECHEM products stand out through innovative formulations in the most diverse industrial applications – in machining and forming for metalworking processes, in coating technology and as for-life lubricants in various technical components.





A strong network of distributors and several national and international production sites ensure that BECHEM products are readily available worldwide.

**Tomorrow's technologies. Today.**

### APPLICATIONS

- Grinding 
- Drilling 
- Milling 
- Honing 
- Turning 
- Broaching 
- Deep drilling 
- Automotive industry 
- Aviation industry 

### PROPERTIES

- High loads 
- Good rinsing performance 
- Low foaming 
- Extended tool life 

All indications and values correspond to latest knowledge and do not represent any product specification



# The right solution – BECHEM Avantin

BECHEM Avantin is a product series of water-miscible coolant lubricants that have ensured process reliability millions of times for decades. From the all-rounder for multi-metal applications and the expert on series processing in automotive production lines, to the specialist in broaching and deep drilling operations, BECHEM offers optimal and economical product solutions.

High-quality and globally available raw materials combined with the exceptional BECHEM development know-how form the basis for processing fluids that meet highest standards. The adjustment to the permanently changing process parameter guarantee the continuous development of our products. BECHEM Avantin is as complex as the field of metal cutting itself, and thus the ideal process support that meets most demanding standards.

BECHEM Avantin stays cool even when things get hot. Processes that involve high thermal loads are ideally supported by oxidation resistant, semi and fully synthetic product concepts. With minimal consumption, BECHEM Avantin impresses by excellent cooling, outstanding corrosion protection, and excellent removal of process materials.



Large bore piston manufacturing with BECHEM Avantin



BECHEM Avantin was developed to achieve optimal profitability for all metal-cutting machining processes

PRODUCT	Materials to be processed	Mineral oil ca. 1°C1	Amin-free	Boron-free	FAD-free	Lubrication performance	Process/Applications	Description	
Cast iron ↓	<b>BECHEM Avantin 400 FF</b> 	Cast iron, steel	0	-	•	•	•	Grinding, disc grinding, plain and surface grinding, roll grinding	Fully synthetic formulation, excellent coolant life due to special additive technology, excellent corrosion protection, low tendency to stick, excellent foaming properties
	<b>BECHEM Avantin 402</b> 	Cast iron, steel	0	-	•	-	••	General cutting and grinding operations	Fully synthetic formulation with excellent temporary corrosion protection, high performance, very low consumption
	<b>BECHEM Avantin 405</b> 	Cast iron, steel	0	-	•	•	••	General cutting operations, high-performance milling, thread rolling	Fully synthetic high-performance formulation, excellent temporary corrosion protection, very low consumption
	<b>Berucool 4000</b> 	Cast iron, steel	0	-	•	•	••	General grinding, grinding of carbide metals	Fully synthetic formulation, excellent corrosion protection, excellent foam behavior, low adhesion tendency, good skin tolerance
	<b>BECHEM Avantin 320 FF</b> 	Cast iron, steel	19	-	-	•	••	General cutting and grinding operations	Excellent corrosion protection, excellent dirt-bearing capacity, high emulsionstability, excellent filterability, good skin tolerance, for central and single lubrication systems
	<b>BECHEM Avantin 420</b> 	Cast iron, steel	20	-	•	•	••	General cutting and grinding operations	Semi-synthetic formulation with excellent dirt-bearing capacity, excellent corrosion protection, good foam control, good cleaning effect
	<b>BECHEM Avantin 360</b> 	Cast iron, steel	55	-	-	-	••	General cutting and grinding operations	Excellent corrosion protection, high emulsionstability, excellent wetting behaviour, good skin compatibility, for central and single lubrication systems
	<b>BECHEM Avantin 331 FF</b> 	Cast iron, steel, aluminum alloys	30	-	-	•	••	General machining and grinding operations, machine construction and tool making	Semi-synthetic formulation for universal use, very good flushing performance, good corrosion protection
	<b>BECHEM Avantin 341</b> 	Cast iron, steel, aluminum	30	-	-	-	••	General to demanding cutting operations	Semi-synthetic formulation with excellent flushing properties, good corrosion protection and optimized performance concept
	<b>BECHEM Avantin 441-10</b> 	Cast iron, steel, aluminum	38	-	•	•	••	Demanding cutting operations and grinding, machine construction and tool making	Semi-synthetic formulation with excellent flushing properties, optimized for soft water, good corrosion protection, high emulsionstability, excellent filterability, good skin tolerance
	<b>BECHEM Avantin 441-20</b> 	Cast iron, steel, aluminum	55	-	•	•	••	Demanding cutting operations and grinding, machine construction and tool making	Semi-synthetic formulation with excellent flushing properties, optimized for hard water, good corrosion protection, high emulsionstability, excellent filterability, good skin tolerance
	<b>BECHEM Avantin 4015</b> 	Cast iron, steel, aluminum	0	-	•	•	••	General to demanding cutting operations and grinding, thread milling	Fully synthetic formulation for universal, high-performance implementation, excellent flushing properties, excellent corrosion protection
	<b>BECHEM Avantin 3332</b> 	Cast iron, steel, aluminum	30	-	-	-	•••	General to demanding cutting operations	Semi-synthetic formulation with excellent flushing properties, good corrosion protection and optimized performance concept
<b>Berucool HM</b> 	Carbide	0	-	•	•	•	Grinding of carbide	Fully synthetic formulation for excellent surface qualities for carbide machining	

• = low ... ••••• = very high

# Systematic process reliability

Coolant lubricants from the BECHEM Avantin series lubricate points susceptible to wear. Simultaneously the process heat is dissipated away from the machining zone. Clean machines that are protected against corrosion are a matter of course.

Complex processes require process fluids with outstanding performance, longterm stability, and long service life. For example, this applies to deep drilling processes in high-strength materials or to demanding forming operations. In this regard, BECHEM offers convincing advantages thanks to their broad worldwide experience.

When processing sensitive aluminum materials, BECHEM Avantin produces high-precision surfaces, e.g. in demanding internal machining processes of shock absorber tubes. In this regard, the suitable combination of the right coolant lubricant with the used high-performance tools is crucial for the result. BECHEM Avantin also ensures maximum efficiency and sustainability in the manufacturing of innovative transmission components. Just two examples for pioneering BECHEM technology.



Finely-dispersed BECHEM Avantin formulations enable minimal coolant lubricant discharge through excellent flow behavior

PRODUCT	Materials to be processed	Mineral oil ca. [C]	Amin-free	Boron-free	FAD-free	Lubrication performance	Process/Applications	Description	
Aluminum	<b>BECHEM Avantin 270</b> 🔧🔪🔩🔩🔩	Aluminum, steel, non-ferrous metals	70	•	•	•	•	Allround processing	Universal application at different metal material combinations
	<b>BECHEM Avantin 251</b> 🔧🔪🔩🔩🔩	Aluminum, steel	45	•	•	•	••	General cutting and grinding operations	Universal application also at higher water hardnesses
	<b>BECHEM Avantin 451</b> 🔧🔪🔩🔩🔩	Aluminum, cast iron, steel, titanium	45	-	•	•	•••	General to demanding cutting operations, machining of engine blocks and cylinder heads, gear boxes, pistons	Universal formulation with high performance potential for excellent surface qualities
	<b>BECHEM Avantin 361 I-N</b> 🔧🔪🔩🔩🔩	Aluminum, cast iron, steel	50	-	-	•	•••	General to demanding cutting operations, machining of motor blocks and cylinder heads	Universal formulation for excellent surface qualities, high emulsionstability, optimal rinsing performance
	<b>BECHEM Avantin 355</b> 🔧🔪🔩🔩🔩	Aluminum, high-alloy steel	45	-	-	•	••••	Highest cutting performance, Powertrain	Excellent surface qualities especially of aluminum alloys used in the automotive industry
	<b>BECHEM Avantin 455</b> 🔧🔪🔩🔩🔩	Aluminum, high-alloy steel	35	-	•	•	•••••	Demanding cutting operations	Excellent surface qualities especially of aluminum alloys used in automotive and aerospace industry
	<b>BECHEM Avantin 255</b> 🔧🔪🔩🔩🔩	Aluminum, high-alloy steel	42	•	•	-	•••••	Highest cutting performance, Powertrain	Universal, high-performance formulation for high and low water hardness
Steel	<b>BECHEM Avantin 408 M</b> 🔧🔪🔩🔩🔩	Steel, high-alloy steel, titanium	0	-	•	•	•••	High cutting performance	Fully synthetic high-performance formulation, good corrosion protection, excellent filterability, highest tool life, demulsified process oils
	<b>BECHEM Avantin 338</b> 🔧🔪🔩🔩🔩	High-alloy steel, nickel alloys	38	-	-	-	••••	Deep drilling, broaching, hydraulic cylinder machining, demanding forming operations	Semi-synthetic high-performance formulation for excellent surface qualities and extended tool life
	<b>BECHEM Avantin 438</b> 🔧🔪🔩🔩🔩	High-alloy steel, nickel alloys	28	-	•	•	••••	Deep drilling, broaching, hydraulic cylinder machining, demanding forming operations	Semi-synthetic high-performance formulation for excellent surface qualities and extended tool life
	<b>BECHEM Avantin 3309</b> 🔧🔪🔩🔩🔩	High-alloy steel, nickel alloys	0	-	-	-	•••••	Deep drilling, broaching, hydraulic cylinder machining, 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>BECHEM Avantin 4409</b> 🔧🔪🔩🔩🔩	High-alloy steel, nickel alloys	0	-	•	•	•••••	Deep drilling, broaching, hydraulic cylinder machining, demanding forming operations	Fully synthetic high-performance formulation, highest tool life, excellent surface qualities, can also be used as additive and for forming processes

• = low ... ••••• = very high

## Typical process chain in the metal-working industry



# Lubrication solutions for industry



**CARL BECHEM GMBH**

Weststr. 120 · 58089 Hagen · Germany · Phone +49 2331 935-0 · Fax +49 2331 935-1199 · [bechem@bechem.de](mailto:bechem@bechem.de) · [www.bechem.com](http://www.bechem.com)