oelheld®
innovative fluid technology

# AirForge®

## Forging lubricants

Human Technology
for man, environment
and machines
HUTEC

**Philipp and Martin Storr** • Managing Directors

# Your partner for cooling lubricants

oelheld is a medium-sized company, which has more than 130 years of tradition and experience. Since the foundation in 1887 by Carl Christian Held, oelheld has become an established specialist for lubricants. Partnerships, research, and human resources technology have grown as a valuable tradition of which we are proud of.

Numerous customers and machine manufacturers along with national and international universities have partnered with us to develop high quality lubricants. Through this cooperation we are able to focus intensively on meeting and adjusting to specific requirements on a wide range of different manufacturing processes. Our laboratories are equipped with state-of-the-art analytical equipment and numerous application testing systems that guarantee today's demanding requirements, and many of tomorrow's ever changing new standards.

**„Innovative product development, strengthened by continuous quality control and comprehensive customer service, is the key to the success of our products."**

# Human Technology

**Innovations for man, environment and machines**

Hutec is our main focus in the development and production of our products. It is also our mission statement in our use of resources and at oelheld always presence.

**What does this mean?**

- REACH requirements are fulfilled
- Skin reviews and approvals available for most products
- Low emission and aromatics free / low aromatic products
- Products free of heavy metal
- State-of-the-art production facilities
- Environmentally friendly production processes
- Products are tested for compatibility with machine components
- Sustainability in the selection of raw materials
- Environmentally friendly and resource-saving products

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# The right lubricants for the forging industry

Increasingly demanding and complex forging processes require new developments of release agents that reduce the number of forming steps in the process.

oelheld's AirForge products (glass coating) for the aerospace industry have been established in the international market for many years. Now, oelheld is increasingly penetrating the market of water-miscible forging lubricants, both in the hot and in the warm forging industry, e.g. in the automotive industry.

Whether with or without graphite, i.e. black or white, the outstanding properties of AirForge products meet the highest demands. We are also well positioned in the field of oil graphite products.

Tell us your requirements and optimize your manufacturing process with the right product of our AirForge series.

AirForge
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Glass-
Coating
*
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## Advantages

- Increased die life
- Clean engravings
- Superior release, cooling and discharge properties
- Reduced down-time
- Excellent wettability
- Perfect part quality
- Highly economical
- Environmentally friendly
- Skin friendly due to low pH value

## Industry sectors

- Aerospace
- Automotive
- Medical engineering
- Energy
- Tool manufacturing

# AirForge – Black Products

## AirForge 5200 – Water Graphite

- Water miscible, water graphite based, stable die lubricant
- Produced with extremely fine graphite
- Very easily mixed with water
- Forming a very homogeneous release film
- Excellent wettability
- Excellent release properties at a wide temperature range
- Suitable as pre-lube
- Skin-friendly due to very low pH value of the concentrate

**Material**
- Steel
- Steel alloys

## AirForge 5400 – Water Graphite

- Water miscible, water graphite based, die lubricant
- Easily water miscible
- Forms a grey release film on the surface
- Excellent wettability
- Ensures clean engravings as a result of minimal build-up
- Excellent release properties
- Skin-friendly due to very low pH value of the concentrate

**Material**
- Steel
- Steel alloys

## AirForge 7210 – Oil Graphite

- High-performance die lubricant containing mineral oil and graphite
- Lubricant for hot forming
- Excellent lubricating effect
- Superior material flow
- Ensures clean engravings due to minimal build-up
- Does not contain toxic substances
- Forms a very homogeneous release film on the surface

**Material**
- Steel
- Steel alloys

# AirForge – White Products

## AirForge 4028

- Synthetic, transparent die lubricant
- Very easily water miscible
- Pigment free
- Forms a white release film
- Can be used with automatic as well as manual spraying equipment
- Has excellent wetting properties of the die up to approx. 320 °C (608 °F)
- Ensures clean engravings due to minimal build-up
- Provides excellent discharge and release properties over a wide temperature range
- Ideally suited for complex warm and semi-warm forming

**Material**

- Steel
- Steel alloys

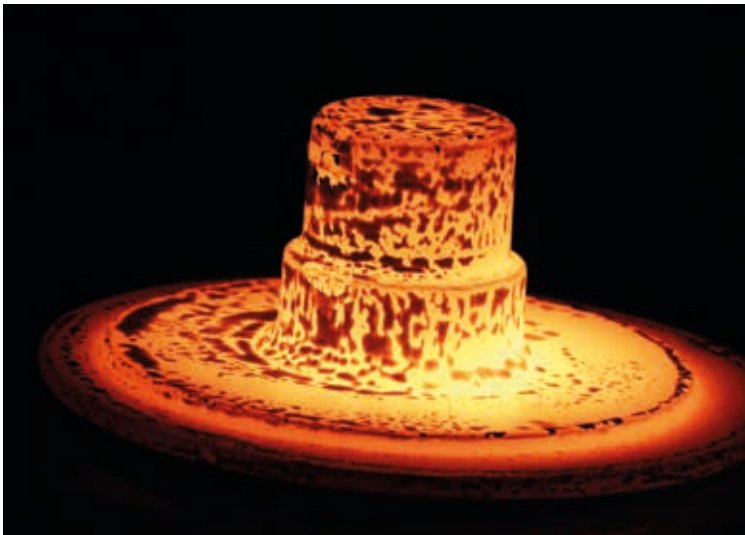
# Other Products

## AirForge 4500

- Modern fluid specially developed for high speed forging
- Fully synthetic, transparent die lubricant
- Very well miscible with water
- Results in a colorless solution in water
- Minimal foaming in a wide temperature range
- Suitable as a recirculation lubricant

**Material**

- Steel
- Steel alloys



# AirForge – Glass Coating

## Advantages

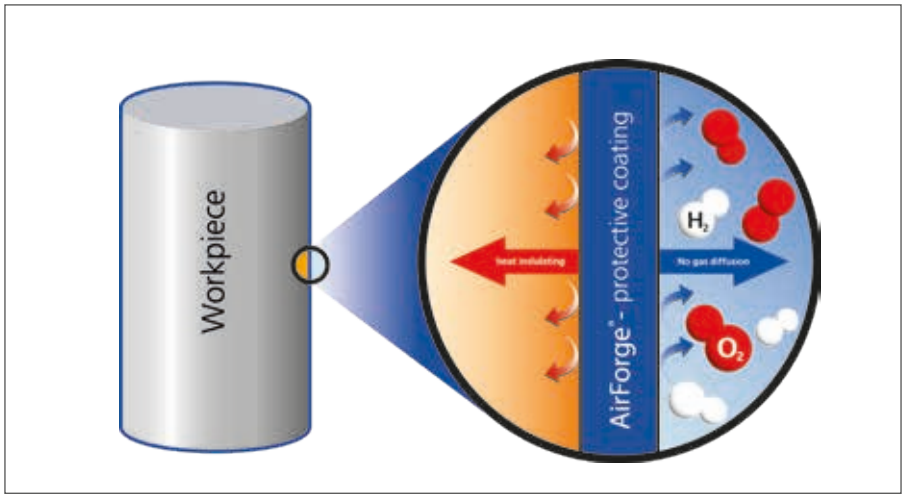
- Excellent reproduction accuracy
- Can be applied by immersing, brushing or airless spray system
- Good adhesion after drying
- Superior high temperature lubrication
- Forms a barrier against gas diffusion
- No chemical reaction with metal surfaces
- Very good release properties
- Good compatibility with usual die lubricants
- AirForge Glass-Coating is water based

# AirForge – Glass Coating

## Advantages

## Protective effect

It was our goal to develop a protective and lubricating glass coating layer for each specific forging temperature which would ensure an optimized material flow during the forging process for different materials such as titanium as well as nickel-based and steel alloys. The AirForge protective layer surrounds the workpiece and prevents hot gas corrosion and hydrogen diffusion. In addition, good thermal insulation properties ensure optimum material flow throughout the forging process.




## Health benefits

The AirForge Glass Coating product range has been developed in accordance with the latest EU directives and does not contain any hazardous substances such as lead, bismuth, chromium or organic solvents.

## High elasticity of the lubricating film

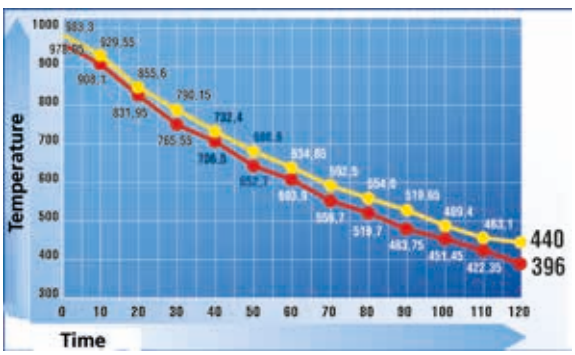
Thanks to the extraordinarily high elasticity of the lubricating film, AirForge Glass Coating guarantees optimal reproducibility, especially in particularly sensitive and inaccessible areas.

## Cooling under laboratory conditions

Very good thermal insulation ensuring a lower cooling rate and better material flow during forging process.

Workpiece damaged by hot gas corrosion

Workpiece protected by AirForge coating



# AirForge – Glass Coating

**Glass-based release agent for hot forming of titanium and special alloys**

## Product Overview

### AirForge 2472

- Color can be selected
- Melting point: 750 – 950 °C (1380 – 1740°F)

**Material**
- Titanium
- Titanium alloys

### AirForge 1983

- Color can be selected
- Melting point: 830 – 930 °C (1525 – 1705 °F)

**Material**
- Titanium
- Titanium alloys
- Nickel
- Nickel-based alloys

### AirForge 2596

- Color can be selected
- Melting point: 900 – 1100 °C (1650 – 2010 °F)

**Material**
- Titan
- Titanium alloys
- Nickel
- Nickel-based alloys

### AirForge 2371

- Color can be selected
- Melting point: 950 – 1150 °C (1740 – 2100 °F)

**Material**
- Titanium
- Titanium alloys
- Nickel
- Nickel-based alloys
- Special steel alloys

# Service analytics and technical advice for your all-round service

- We accompany you right from the start with our technical service on site and our service analysis.
- With us each customer has a direct technical service contact person, who provides advice and support.

The combination of service analytics and technical service in particular offers our customers added value and the security of receiving the appropriate service for the product.

Our service analytics offer a wide range of methods and state-of-the-art analytical instruments, which are used specifically for the requirements of our customers. With this know-how we can provide assistance in troubleshooting and optimize production processes. Employees in these areas take part in training courses and exchange knowledge with each other. This systematic transfer of knowledge ensures that know-how continues to grow and plays an important role in future product developments.

**Contact us to learn more about our role for future service!**

# Process optimization

**You want your machine to be more efficient?**

1

Contact oelheld

2

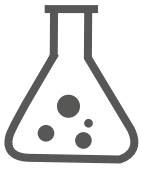
First analysis on site by an expert

3

Detailed consultation and proposal

4

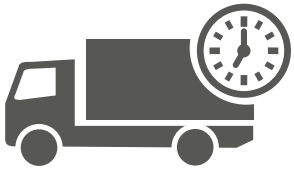
Testing phase (if applicable)

5 

Optimal laboratory analyses

6

Purchase of the lubricant

7 

Fast delivery

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Regular checks by your oelheld contact

9

Seminars

Quality
since 1887

# High-tech products for machines – worldwide!

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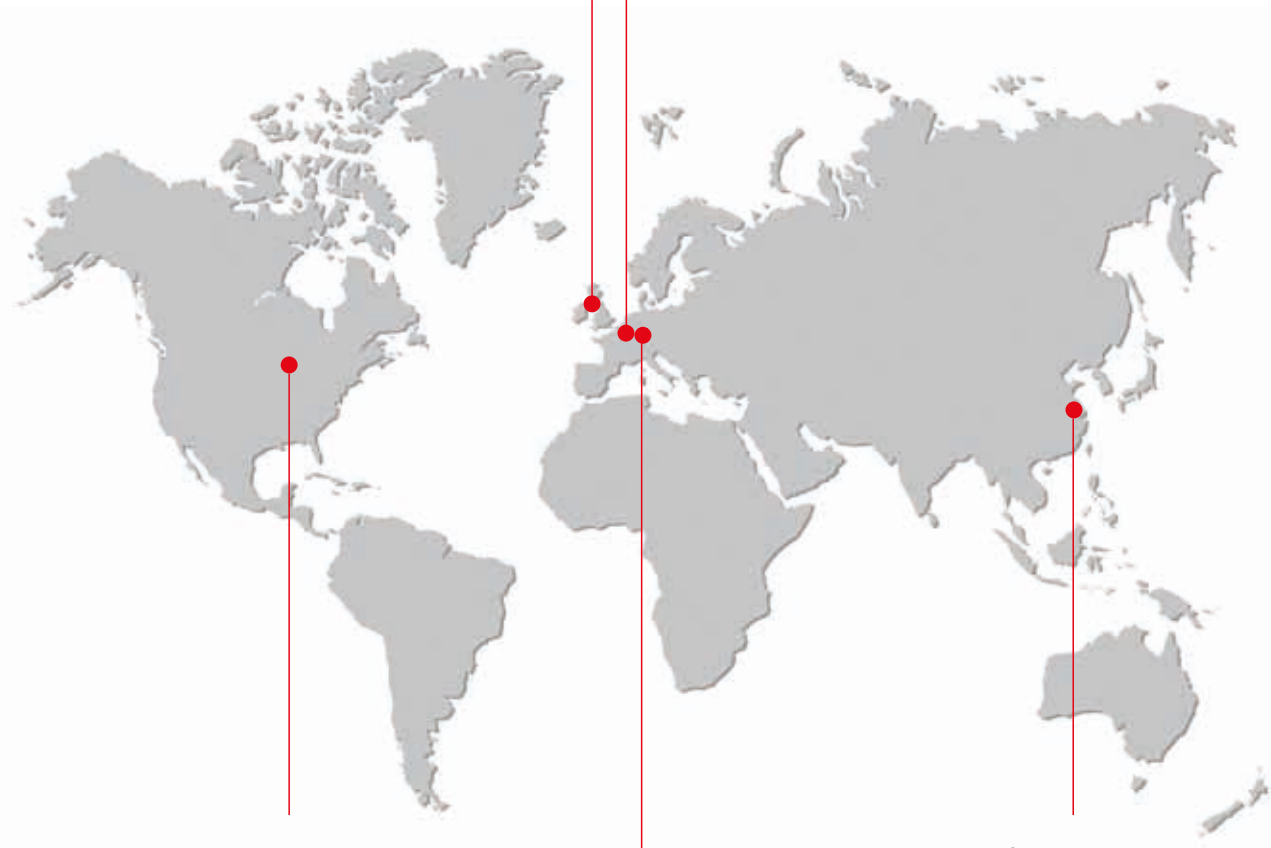

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