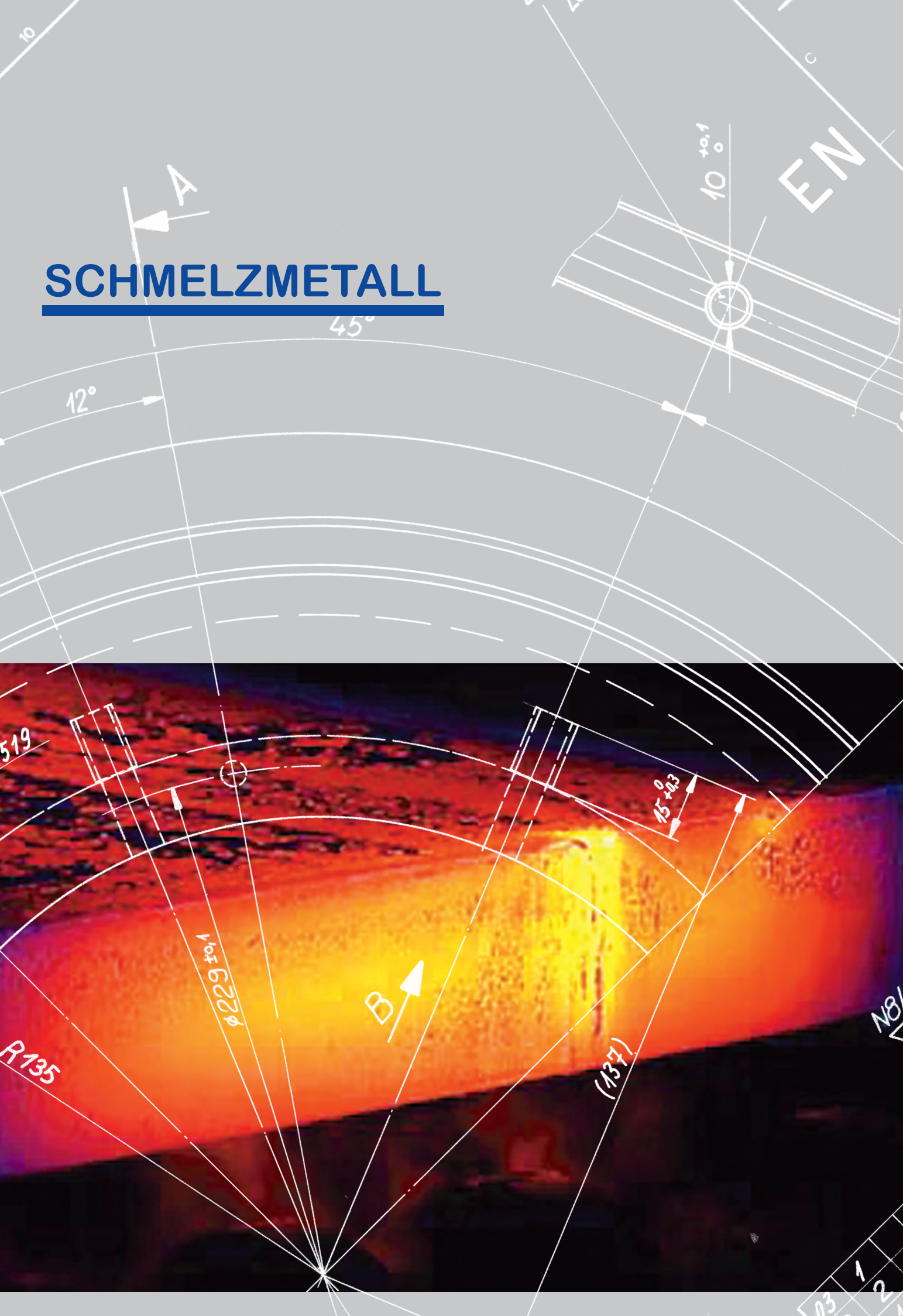


SCHMELZMETALL



Copper alloys directly from the manufacturer offer many advantages:

- high quality
- shortened delivery time
- competitive prices

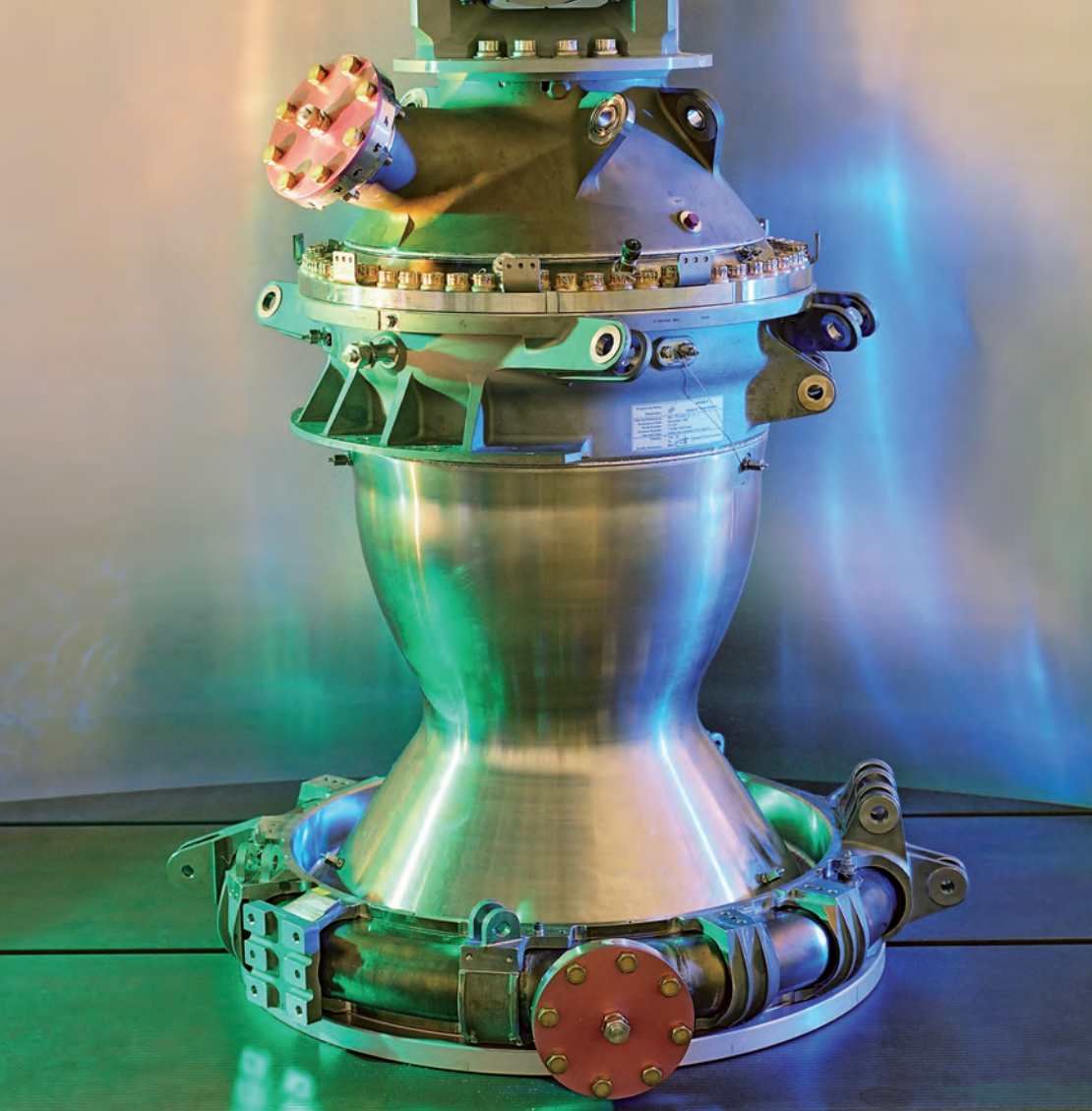


Launch of an Ariane 5 from Kourou space center.
SCHMELZMETALL has been leading in the development and manufacture of the alloy used exclusively in the Ariane 5 thrust chamber since 1996. (Picture: EADS)



Our high quality standards are reflected in our teamwork and internal group management. SCHMELZMETALL uses an integrated management system based on the EN ISO 9001-2000 standard. All of SCHMELZMETALL's subsidiaries are EN ISO 9001-2000 certified.





Thrust chamber of an Ariane 5

Our expertise, experience, and training are the foundation of our work today and position us for continued success in the future

Founded in 1959 SCHMELZMETALL AG has developed into a world leader in innovative production of precipitation hardened copper alloys.

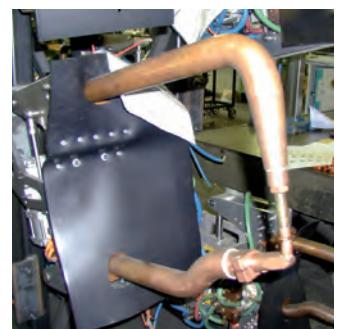
Today SCHMELZMETALL group is a leading manufacturer of high performance alloys. SCHMELZMETALL is represented worldwide by its own subsidiaries and partners.

Our HOVADUR® alloys stand for the highest quality at the most competitive price/performance ratio.

Based on over four decades worth of first hand expertise in vacuum system copper alloy production we guarantee the highest level of consistency and quality.

The proven capacity to process our product into semi finished and finished parts as well as the ability to apply our knowledge of alloy metallurgy serve as a unique advantage for our customers:

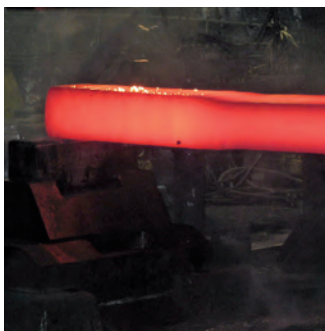
High performance alloys that possess precise properties for meeting specific individual requirements.



(on top)
Electrical conducting elements for air cooled turbo generators

(below)
Robotic welding arms used in the manufacture of automobiles

Pure metals and master alloys



(on top)
One of the vacuum furnaces
of the Schmelzmetall Group

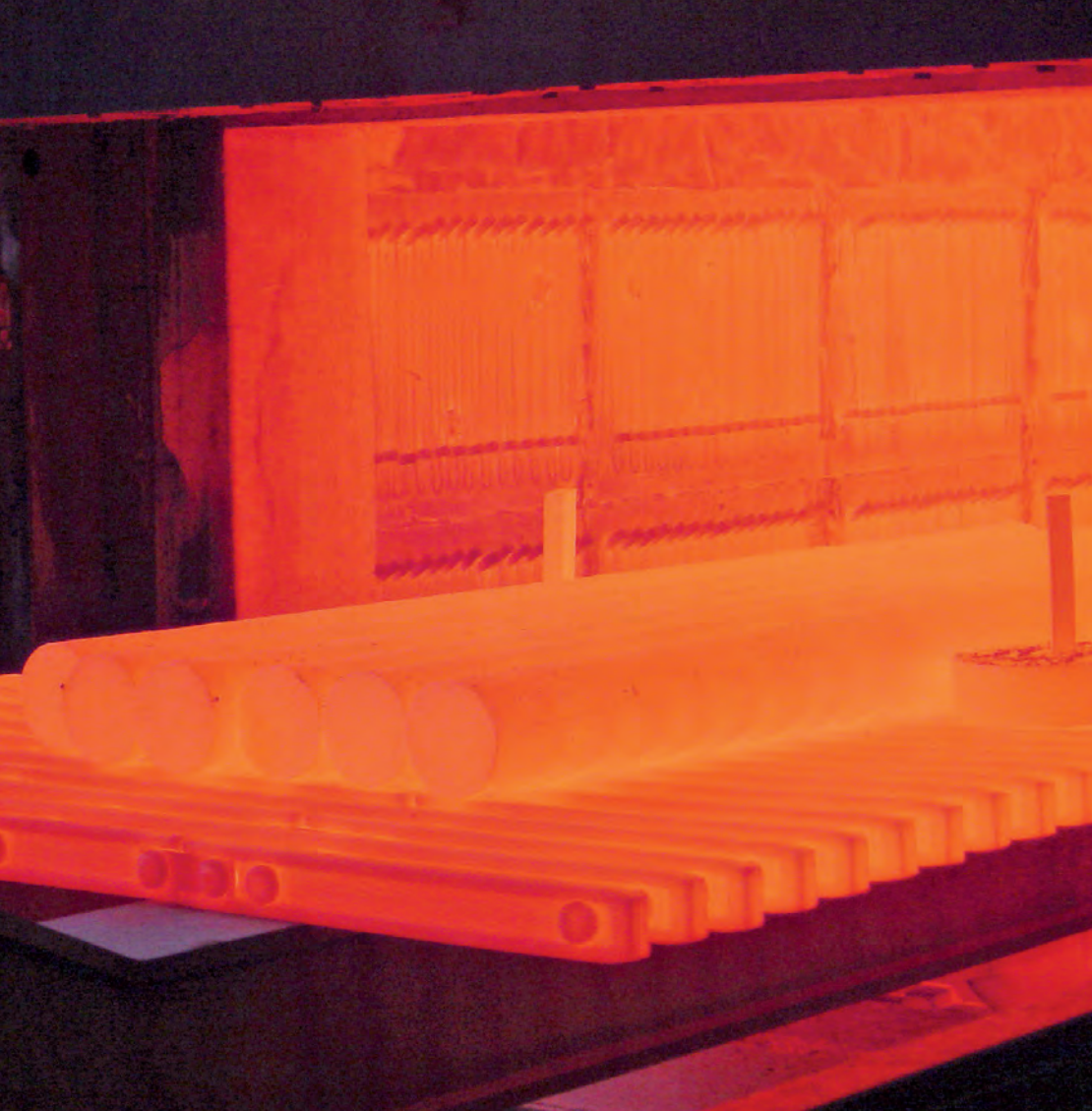
(below)
Processing through forging, extruding,
drawing etc. is done by selected
partner companies

HOVADUR® high performance alloys: from raw metal to high quality finished product

Those HOVADUR® alloys manufactured by SCHMELZMETALL are smelted and casted in inductively heated vacuum furnaces. Thanks to this proprietary process, the alloys achieve the highest degree of purity, and acquire special technological properties. Our vacuum process also minimizes negative environmental impacts.

The basic materials for all alloys are pure metals such as copper, nickel, cobalt, and master alloys containing chromium, beryllium, zircon etc. The cast weight varies between 500 kg and 1500 kg. According to weight, the metal is cast in one or several moulds.

Our partner companies process the ingots into semi finished products through forging, rolling, extruding, and drawing.



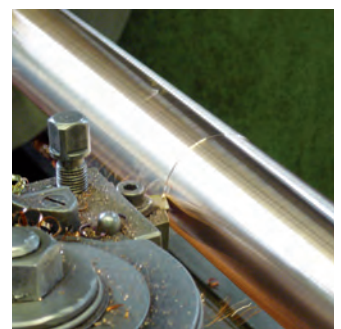
The alloys' specific properties are achieved through heat treatment

Our mastering of the production process creates customer satisfaction through high quality deliverables

The processing to semi finished products is followed by a heat treatment which is necessary to achieve the required properties such as hardness and high thermal and electrical conductivity.

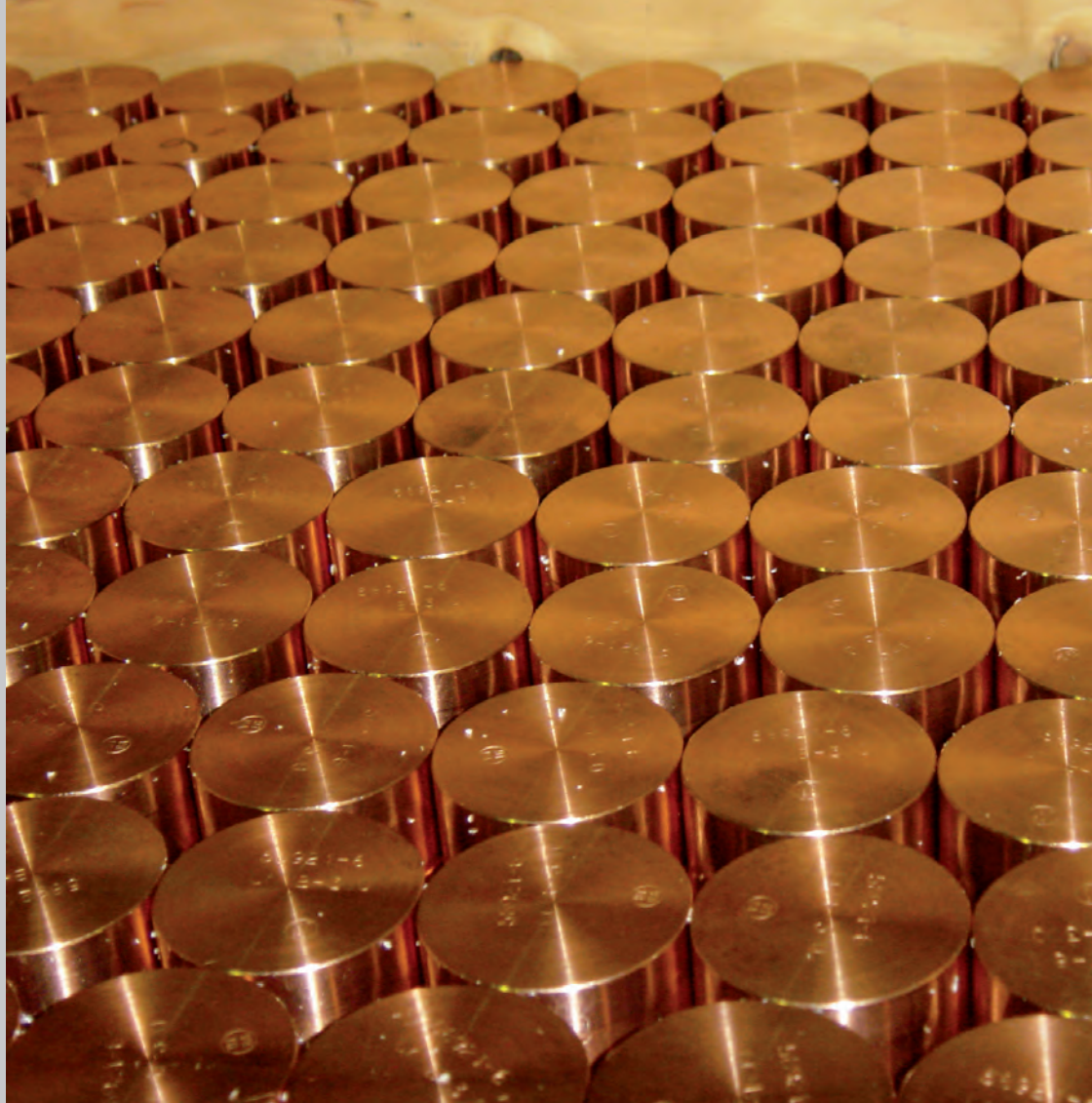
The heat treatment is executed in two steps starting with a short but intense solution heat treatment followed by a rapid quenching in water and ending with a precipitation hardening process.

After the heat treatment the semi finished products are tested for hardness and conductivity. We routinely apply non destructive test protocols such as ultrasonic and eddy current testing as part of our quality control.

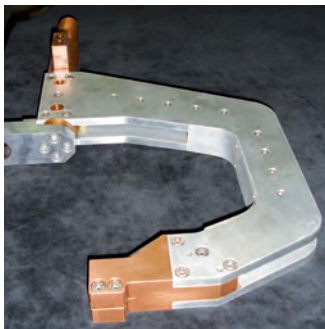
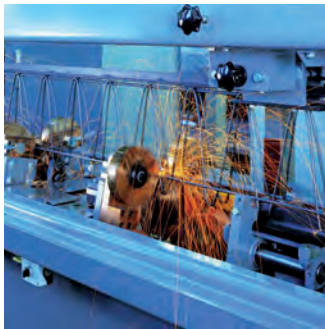


*(on top)
Final inspection before delivery is part of our formal quality system*

*(below)
Pre-machining or complete machining according to customer specification*



Blank electrodes



(on top)
Mesh welding for the construction industry

(below)
Welding tong arm for spot welding of profiled sheets in the automobile industry

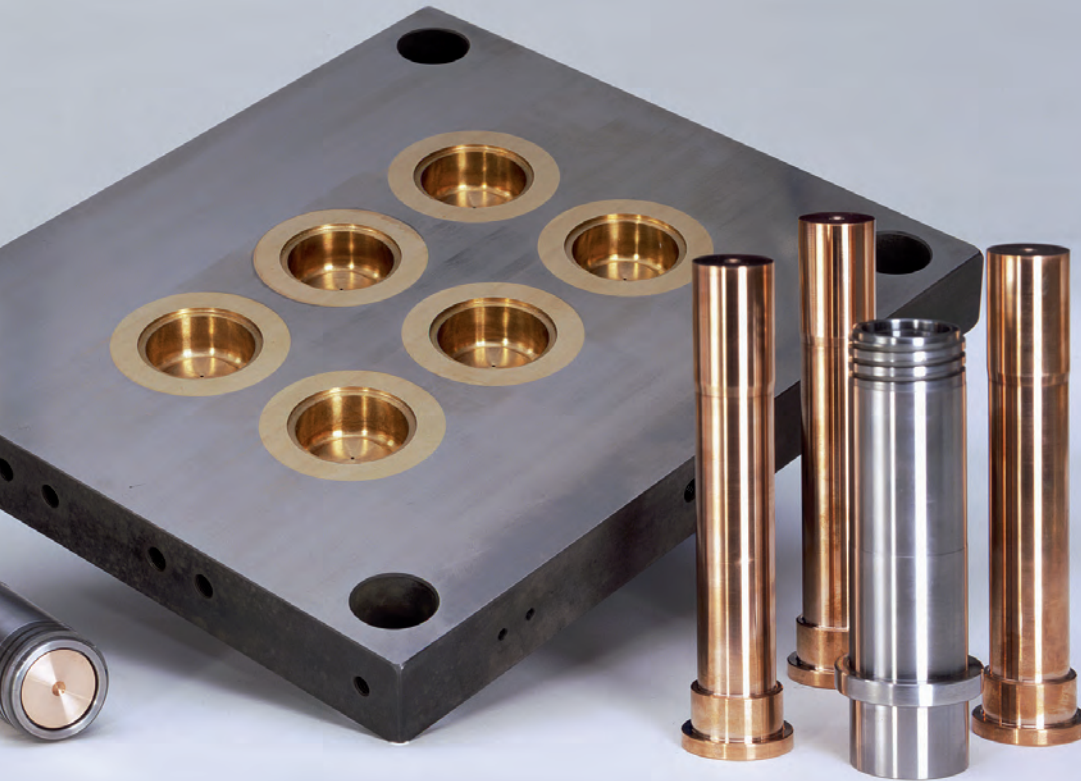
HOVADUR® high performance alloys from SCHMELZMETALL are used worldwide

Our products are highly recommended for a variety of industrial applications and are indispensable in many sectors of modern industry.

Resistance Welding

Excellent electrical conductivity combined with the specific alloy's maximum hardness produces optimal welding conditions and guarantees the electrodes' high resistance to wear.

Due to our proprietary processes our alloys are applied in a wide range of resistance welding techniques such as seam, spot, and cross-wire welding.



Injection mould for the production of plastic screw caps

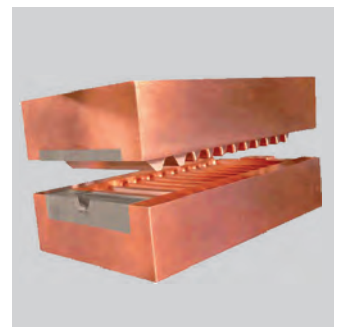
**Casting-Technology:
Light metal die casting and
mould casting**

HOVADUR® alloys are indispensable in foundry production due to their excellent thermal conductivity. SCHMELZMETALL's advanced manufacturing process provides greater resistance to fire cracking in all of its alloys and allows for the most efficient cooling cycle available.

Plastic injection moulds
SCHMELZMETALL's HOVADUR® alloys provide an up to ten fold increase in thermal conductivity against other mould materials. This ensures the customer shorter work cycles, higher quality, and longer lasting moulds.



*(on top)
Plungers for light metal cold chamber
die-casting machines*



*(below)
Venting blocks for light metal
die-casting moulds*



Circuit rotor ring for generator



*(on top)
Welding jaws for the welding
of truck axels*

*(below)
Electro-mechanical spring used
for high frequency applications*

Copper products:

Special alloys for demanding applications

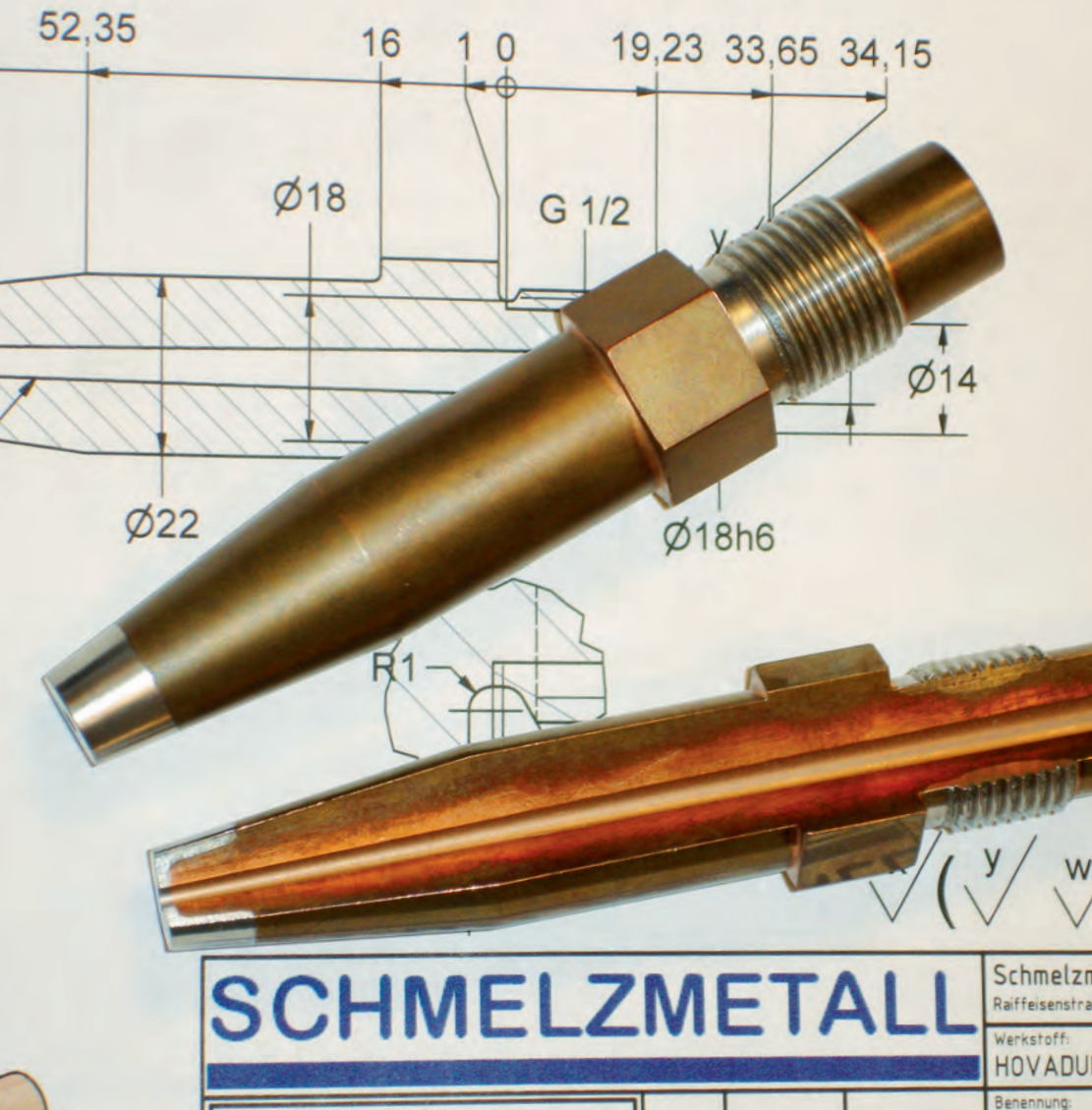
Electrical engineering

When it comes to reliability and safety our products are indispensable due to their unique physical and mechanical properties and our attention to quality control. Moreover, the specific combination of high electrical conductivity and excellent resistance to wear significantly reduce maintenance and repair cost of our customer's products.

Further applications:

Your requirements, our expertise

The unique properties of copper alloys present a wide variety of industrial applications. Copper alloys often prove to be most suitable to cope with technological challenges. Due to our expertise we are able to advise our customers how best to implement the right alloys to achieve the optimum solution.



SCHMELZMETALL

HOVATOP Injection nozzle for plastic industry

Manufacturing of finished parts – single source supplier Technical advice and engineering

Finished parts

One of SCHMELZMETALL's many strengths is our manufacturing of finished parts according to the customer's specific order. Due to our expertise in producing a wide variety of products we are able to offer competitive pricing across our inventory.

Two more advantages

of working with
SCHMELZMETALL:

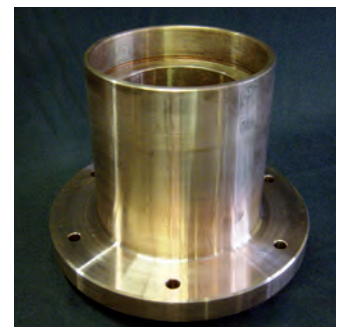
- NO hidden costs
- NO production risk

Engineering

Due to our comprehensive technological knowledge of alloys we are able to analyze the customer's needs, design a solution, and execute a finished product – consulting from conception to realization.



(on top)
Welding bar for steel industry



(below)
Wheel head flange – center piece
for radiator welding

Ingots



Forged bars and plates



Extruded or drawn bars and tubes



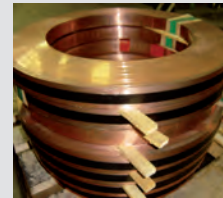
Forged or rolled rings and discs



Wires



Sheets and stripes



Types of products

Stock/Delivery Service

Semi finished products with standard dimensions are on stock and are ready for immediate delivery.

Our staff rapidly prepares and customizes all orders of sections and piece work for all HOVADUR® alloys.

You will find detailed information about availability of our standard products on our stock list. Up-to-date stock lists are available on our web site at:

www.schmelzmetall.com.

SCHMELZMETALL provides the same level of care and service for large and small orders.



The sites of the SCHMELZMETALL group

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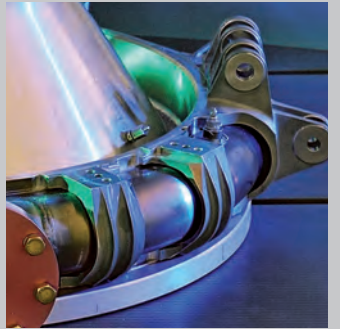
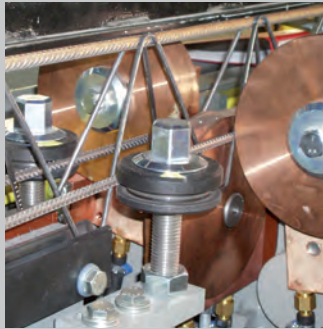
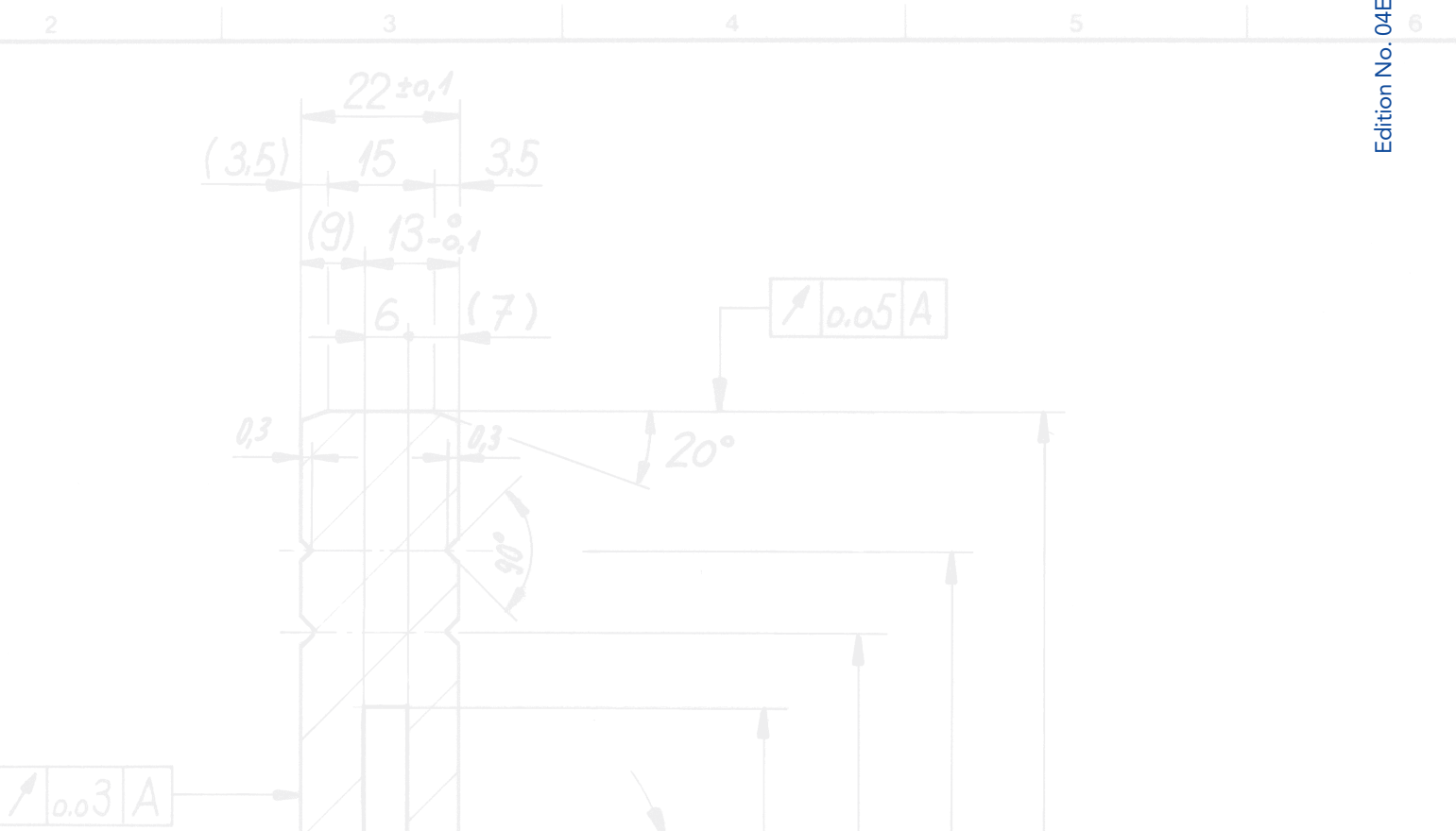
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info@schmelzmetall.com

Our production facilities
are located in Switzerland and
Hungary, our cutting and
service center is located in
Germany.





www.schmelzmetall.com

$\phi 207^{+0,05}_{+0,02}$

$\phi 244^{+0,05}_{+0,02}$

$\phi 298$

$\phi 330$

$\phi 355$

$\phi 380$