

The background of the page features a close-up, artistic view of industrial metal components. A large, curved metal part with a brushed texture dominates the right side. In the foreground, a dark, polished metal piece is visible, and a roll of metal sheet is partially unrolled at the bottom left. The overall color palette is a mix of metallic grays and blues.

Brazing Solutions for the Tooling Industry

voestalpine Böhler Welding
www.voestalpine.com/welding

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ONE STEP AHEAD.



voestalpine Böhler Welding

Metallurgical Expertise for Best Welding Results

voestalpine Böhler Welding (formerly Böhler Welding Group) is a leading manufacturer and worldwide supplier of filler materials for industrial welding and brazing applications.

As a part of the voestalpine Group, Austria's largest steel manufacturer and one of the world's leading suppliers of specialized steel products, we are a part of a global network of metallurgy experts.

Our customers benefit from:

- Comprehensive welding and steel know-how under one roof
- Coordinated complete solutions comprised of steel and welding filler metals
- A partner offering maximum economic stability and technological expertise

Customer First

Absolute customer focus is our guiding principle. We see ourselves as a provider of solutions to challenging welding projects. We ensure that our customers get the right filler metals, use them correctly, and that all welding process parameters are adjusted for the best possible performance. We consider it as our responsibility to guarantee that we deliver to our customers, now and in the future, the best possible solutions. We also strive to develop new products, optimize existing products, and streamline processes so as to achieve very short turnaround times. We focus on technologically advanced industrial sectors and provide products that are geared to their specific requirements.

Three Competences – Three Brands

In our efforts to afford our customers the best possible support and promote development in line with specific targets, we have built our core competences within Joint Welding, Repair & Maintenance Welding and Soldering & Brazing.

This way we offer our customers the largest and most comprehensive product portfolio of filler materials within our three brands:

- Böhler Welding
- UTP Maintenance
- Fontargen Brazing



Join Expertise

Alloys and brazing technologies for special joint requirements

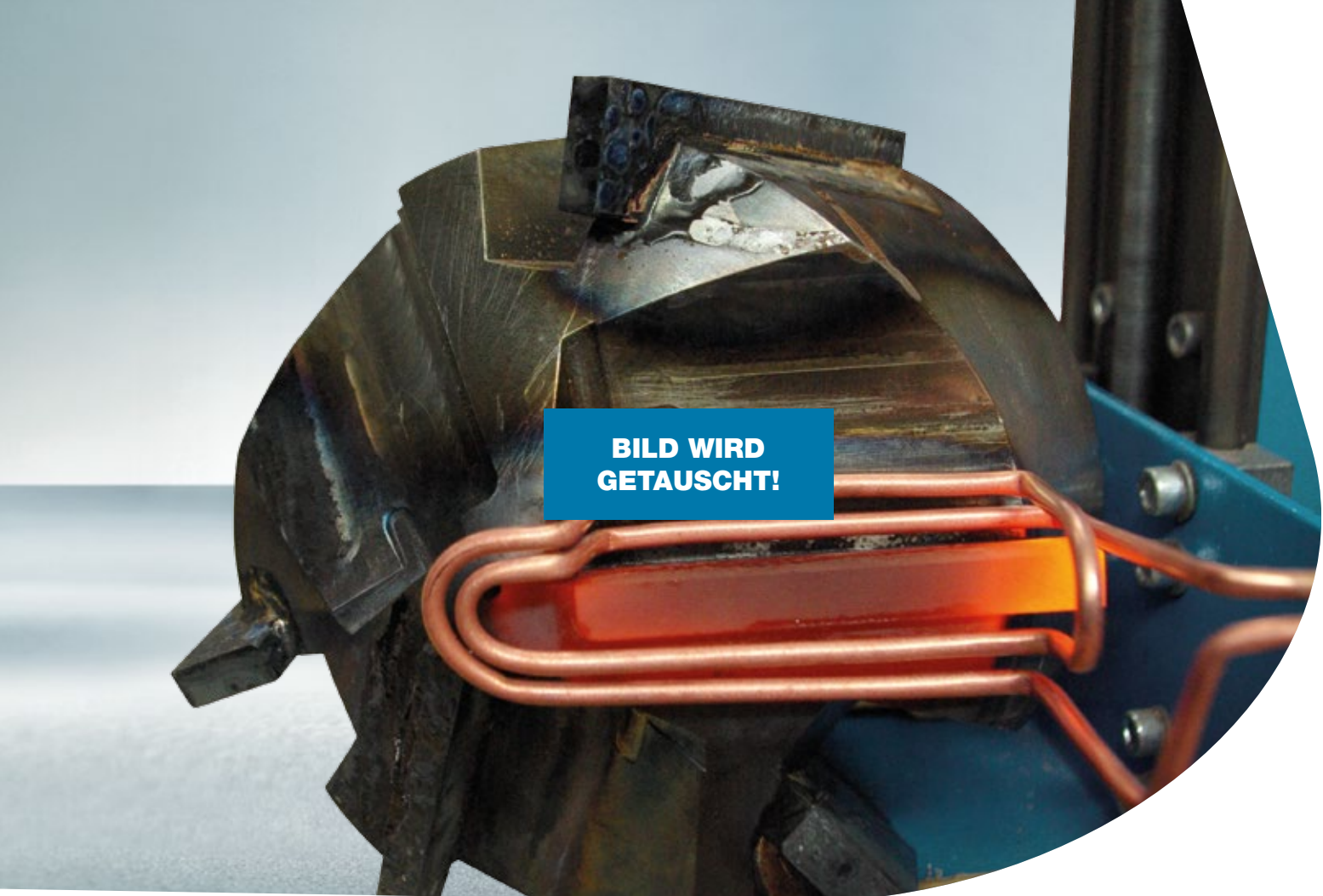
The ever-growing demand for raw materials in conjunction with a growing pace of global urbanization leads to a growing demand for brazed carbide and diamond tools for which voestalpine Böhler Welding offers the appropriate brazing solution. Typical applications include hard metal-steel combinations.

Europe is the focus market for brazing. As a competent partner for brazing applications voestalpine Böhler Welding serves customers in the tooling industry. The industry trends are taken into account in product selection and product development:

- pastes for brazing PCD; CVD and CBN machine tools and cutting tools
- Use of low silver and of no toxic fluxes
- use tri foils

Rely on a strong partner

voestalpine Böhler Welding is involved in many global R&D projects, in partnerships with tooling manufacturers too. We are proud to support a wide range of major players in the brazing industry. We provide both the technical support required to develop a technical process optimization with the customer as well as choosing the correct brazing consumable and supporting users in its optimal application.



**BILD WIRD
GETAUSCHT!**

Take advantage of technically proven
and customized products

Applications

We supply products for:

- Drill tools for mining
- Jig saws
- Milling cutters
- Cutting blades
- Gang saw blades

Product solutions

- Bare and coated silver rods
- Brazing foils
- Fluxes
- Brazing pastes

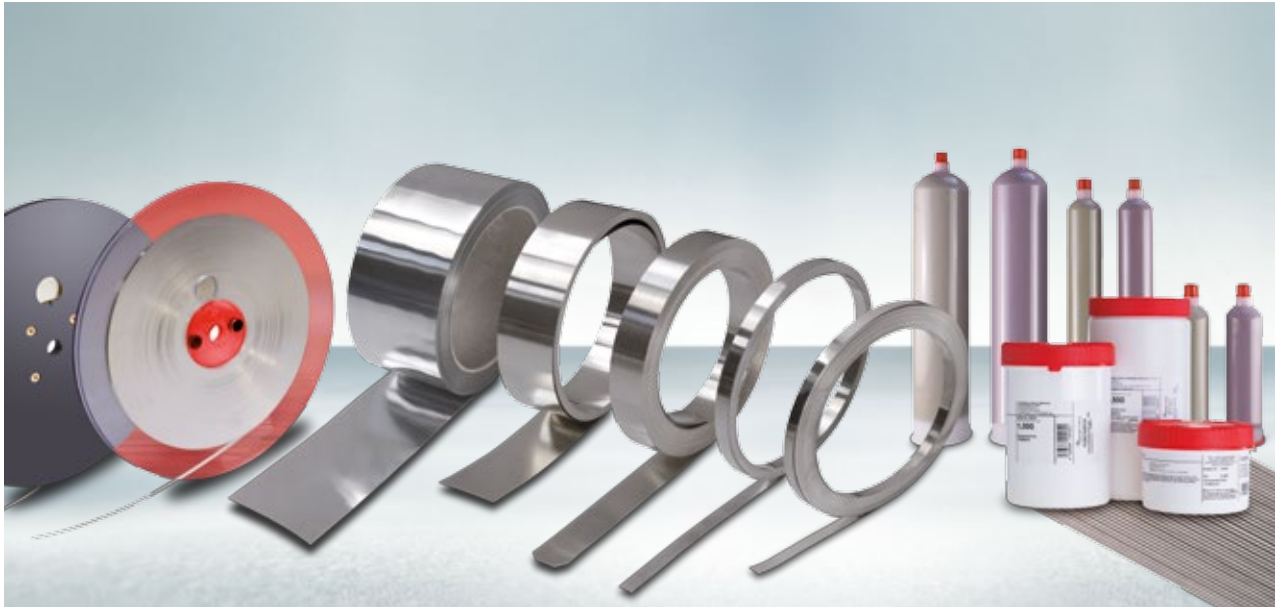
Services

We provide additional value by offering:

- Process optimization with the customer
- Support in solving brazing problems
- Training courses for the staff
- Expertise in brazing techniques
- Intensive customer support by our competent internal and external staff

Important benefits for customers

- Solution provider
- Global distribution and sales network
- Broad product range
- Fulfilling special demands
- Engineering support
- ISO 9001 / 14001 Approvals
- AEO Standard
- Just in time deliveries in all packing units
- Financial performance



| Chemical analysis (% W/W) | | | | | | | Brazing temp (°C)** | Characteristics |
|---------------------------|----|----|----|----|----|----|------------------------|-----------------|
| Ag | Cu | Zn | Sn | Mn | Ni | Si | | |

Foils

| | | | | | | | | | |
|-----------|----|---------|---------|-------|-----|-----|-------|------|--|
| A 200 L F | | > 99.9 | | | | | | 1120 | copper foil |
| A 205 F | | balance | | | 12 | 2 | | 990 | high strength, Good gap filling capability |
| A 210 F | | 55 | balance | < 0.2 | | | < 0.3 | 900 | Brass foil |
| A 324 F | 49 | 16 | 23 | | 7.5 | 4.5 | | 690 | good wetting capability, high strength |
| A 314 F | 55 | 21 | 22 | 2 | | | | 660 | low melting silver alloy |

Tri-Foil

| | | | | | | | | | |
|----------|----|------|---------|--|-----|-----|--|-----|-----------------------------------|
| A 312 F | 49 | 27.5 | 20.5 | | 2.5 | 0.5 | | 690 | Tri-foil with copper Middle-layer |
| A 338 FT | 38 | 26 | balance | | 7 | 3.5 | | 690 | Tri-foil with copper Middle-layer |

Pastes

| | | | | | | | | | |
|-------------|----|----|---------|-----|-----|------|-----|------|---|
| AP 21DL | | 97 | | | | 2.5 | | 1120 | high metal content, capable of bridging gaps of up to 0.2mm |
| AP 21ES-B2* | | 87 | | | 10 | 3 | | 1080 | good wetting capability, good flow characteristics |
| AP 211 | 1 | 59 | balance | 0.3 | 0.6 | 0.85 | 0.3 | 890 | good wetting capability, good flow characteristics |
| AP 314 | 56 | 22 | 17 | 5 | | | | 655 | low melting silver alloy |

Powder

| | | | | | | | | | |
|--------|--|----|--|--|----|---|--|------|--|
| HTL 17 | | 87 | | | 10 | 3 | | 1080 | High metal content, good wetting capability on hard metals |
|--------|--|----|--|--|----|---|--|------|--|

Rods

| | | | | | | | | | |
|-----------|----|----|----|--|-----|-----|--|-----|--|
| A/AF 324* | 49 | 16 | 23 | | 7.5 | 4.5 | | 690 | good wetting capability, high strength |
|-----------|----|----|----|--|-----|-----|--|-----|--|

Fluxes

| | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|-------------|---------------------------------|
| F 100 | - | - | - | - | - | - | - | up from 850 | white paste, non corrosive |
| F 300 HF Ultra | - | - | - | - | - | - | - | up to 850 | easy to spread paste, corrosive |

* AF-Flux coated rods; other qualities on demand

** Brazing temperature advice only for recommendation

voestalpine Böhler Welding

Böhler Welding know-how joins steel

Customers in over 120 countries join the expertise of voestalpine Böhler Welding (formerly the Böhler Welding Group). Focused on filler metals, voestalpine Böhler Welding offers extensive technical consultation and individual solutions for industrial welding and soldering applications. Customer proximity is guaranteed by 40 subsidiaries in 28 countries, with the support of 2,200 employees, and through more than 1,000 distribution partners worldwide.



Böhler Welding – More than 2,000 products for joint welding in all conventional arc welding processes are united in a product portfolio that is unique throughout the world. Creating lasting connections is the brand's philosophy in welding and between people.



UTP Maintenance – Decades of industry experience and application know-how in the areas of repair as well as wear and surface protection, combined with innovative and custom-tailored products, guarantee customers an increase in the productivity and protection of their components.



Fontargen Brazing – Through deep insight into processing methods and ways of application, Fontargen Brazing provides the best brazing and soldering solutions based on proven products with German technology. The expertise of this brand's application engineers has been formulated over many years of experience from countless application cases.

forwarded by:

Global Industry Segment Management
Tooling

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