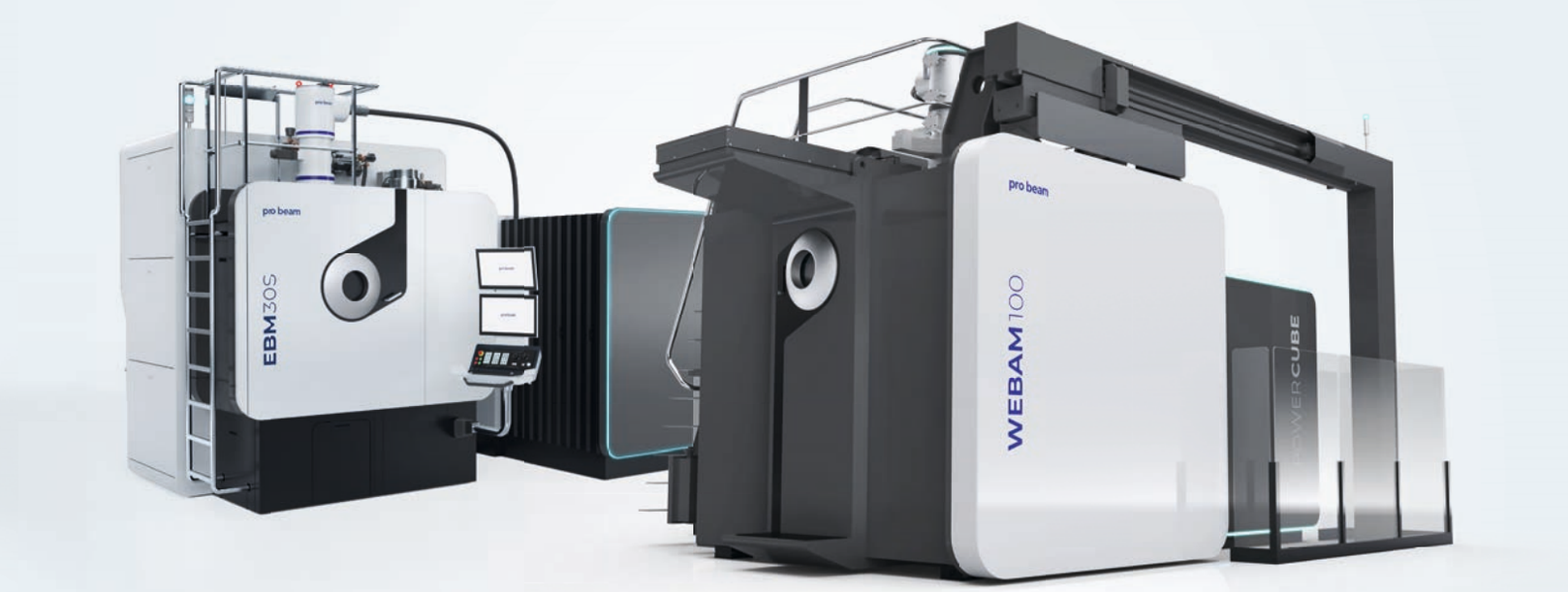
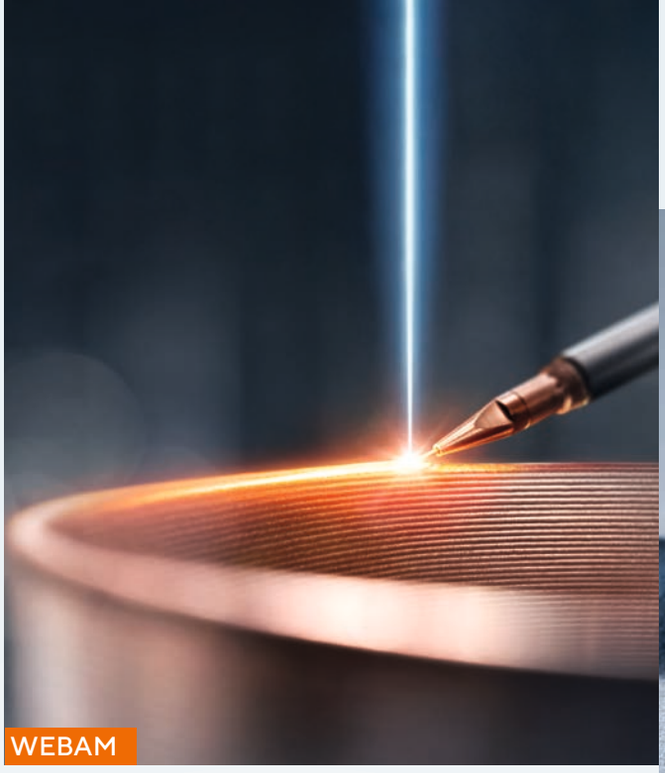
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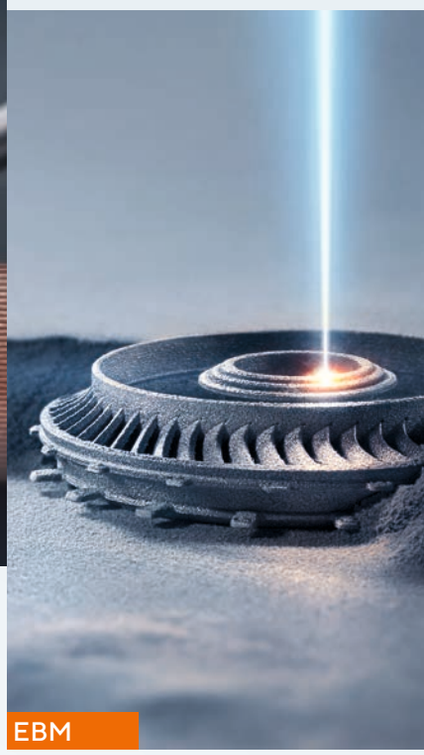
N°1
World-Leading
Electron Beam
Technology

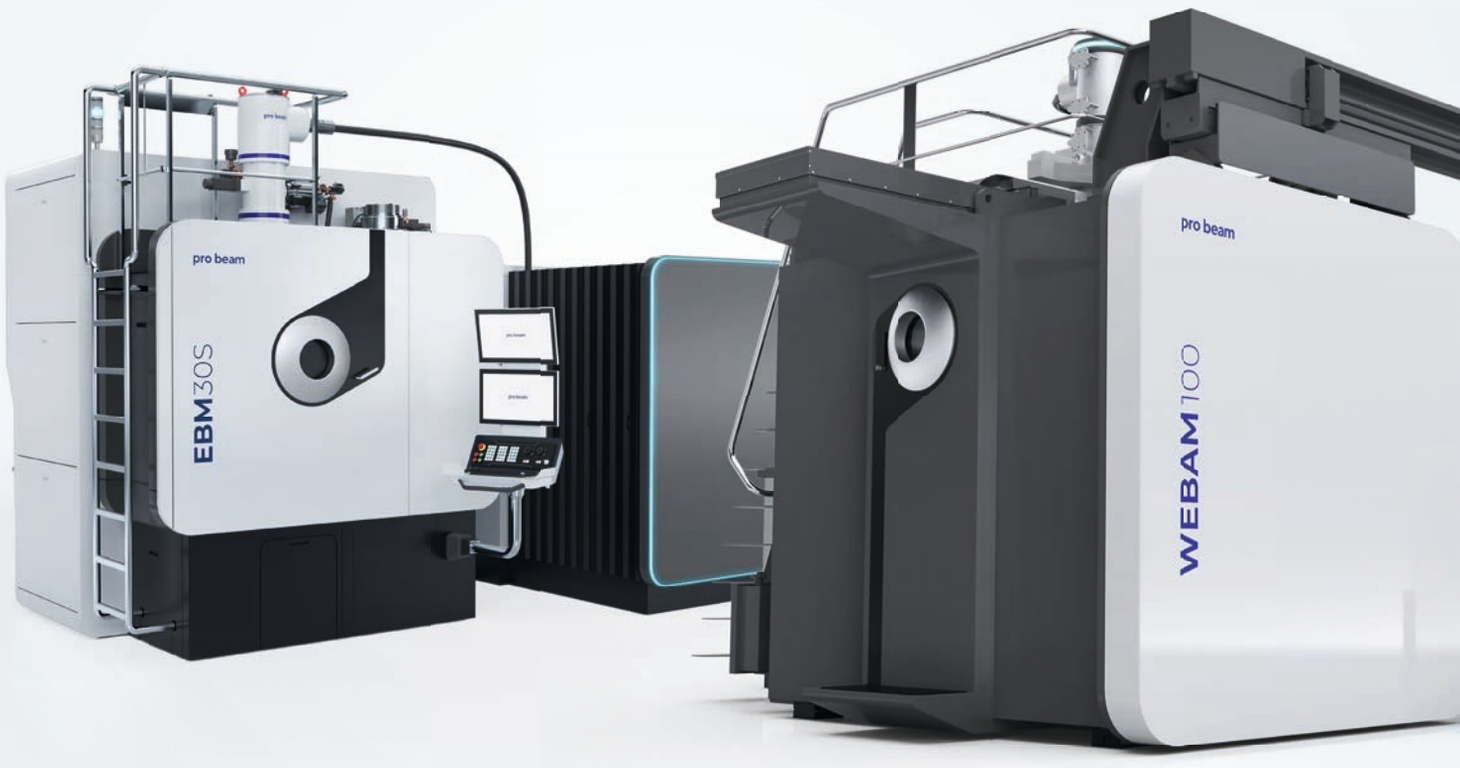
# Electron Beam Technology for Additive Manufacturing



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Electron Beam Technology for Additive Manufacturing



# Advantages of Additive Manufacturing

- **Flexible production**
  From batch size 1 to series production
- **Oxidation-free process**
  No oxidation for consistently high-quality components
- **Material variety**
  Includes reactive metals like titanium and pure copper
- **Tool-free manufacturing**
  Faster delivery times without tool costs
- **Eliminates shielding gases**
  Lower production costs

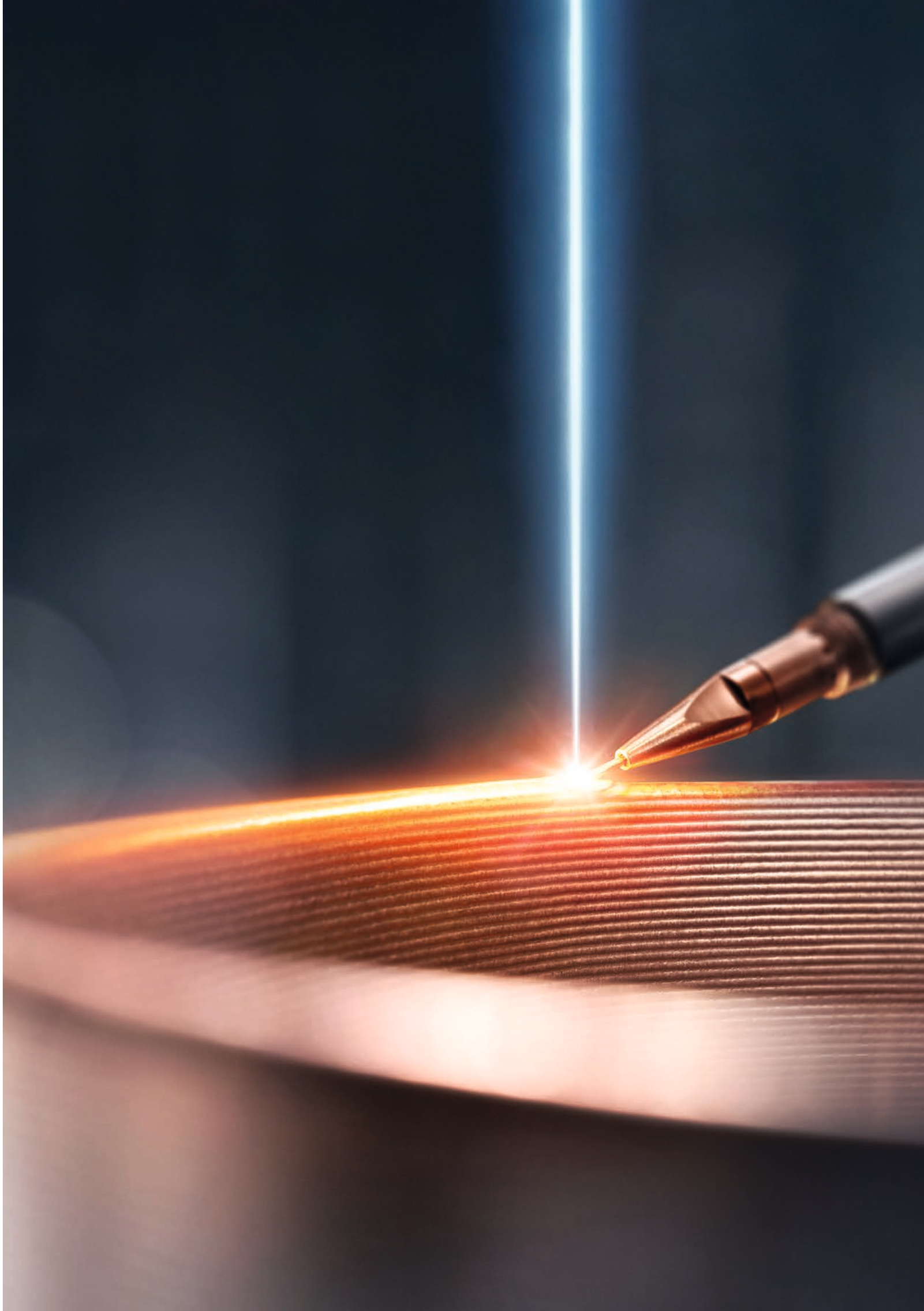


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WEBAM

# Wire Electron Beam Additive Manufacturing: Precision in Large Dimension

| | |
|---|---|
| // Affordable customization | Design adjustments are easy and cost-effective |
| // High rescource efficiency | Near net-shape geometries prior to machining |
| // Multi-material flexibility | Produce components with multiple materials |



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Electron Beam Technology for Additive Manufacturing

WEBAM

# Contract Manufacturing of Large Components

At pro beam we use our world leading electron beam technology to lift Additive Manufacturing to a new level, delivering cost-effective, customizable large metal components. Whether you need a single spare part or a full production run, our contract manufacturing is on your demand. In many industries, the availability of spare parts is a serious problem that leads to growing stockpiles and high costs.

Additive manufacturing offers a remedy with numerous solutions. At pro beam, we have focused on the manufacturing of large metal components made from demanding materials. Using an electron beam for additive manufacturing offers a reliable and efficient solution. The WEBAM process (Wire Electron Beam Additive Manufacturing) has many unique advantages.

**Materials for example**

**Titanium (Ti64)**
**Pure copper**
**Inconel 718**
**Steel**
**Tungsten**

Benefit from the advantages of our innovative WEBAM technology!

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EBM

# Electron Beam Melting: Maximum Powder Bed Productivity

| | |
|---|---|
| // **Robust process** | High electron beam power: up to 150 kV & 15 kW |
| // **High productivity** | Parallel preparation, printing and cooling |
| // **Reliability and testing** | Quality assurance through ELO® |
| // **Controllable material properties** | Impact on micro structure due to innovative spot melting |
| // **Open system for customization** | Adjustable parameters for tailored results |



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Electron Beam Technology for Additive Manufacturing

EBM

# EBM Machines for Industrial Series Production

In today's competitive environment, manufacturing solutions need to be faster, more flexible and more cost-effective than ever. The electron beam melting (EBM) of metal powders with pro beam's innovative machines is a highly stable and forward-looking approach that leverages many advantages of additive manufacturing for the industrial series production of complex high-performance components, such as turbine blades or other complex components for aerospace.

With pro beam's advanced EBM machines, you achieve unmatched productivity and quality through features like flexible batch sizes, oxidation-free processing, and reduced component costs. Our open system allows parameter customization. We offer compatibility with a wide range of alloys, ensuring fast and cost-effective production. Each component undergoes ELO® testing, all while eliminating the need for shielding gases, further lowering manufacturing costs.

Good to know:
With our innovative ELO® (Electron Optical Monitoring), we generate high-contrast images with each layer while the component is still under construction, which can be used for quality control.

Experience the advantages of our Powder Bed Technology!

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Technology

Transform your Production

# Take advantage of AM with pro beam!

From high quality single parts to high volume production. pro beam´s AM machines meet the highest standards of quality and cost efficiency. As a reliable industry partner, we are actively involved in numerous research projects and contribute our expertise to every innovation. **Contact us today to discover how pro beam can transform your production: +49 89 899 233-0**

## pro beam at a glance.

The pro beam Group is a global leader for electron beam technology. We provides solutions for electron beam welding and drilling, along with surface coating solutions. The portfolio is concluded by manufacturing processes and machines for the additive manufacturing of metal components.

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