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WORLD-LEADING
ELECTRON BEAM
TECHNOLOGY

TRANSFORM YOUR PRODUCTION

Take advantage of AM with pro-beam!

From high quality spare parts to high volume production, from custom implants to aerospace applications: 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.

pro-beam additive GmbH
Zeppelinstraße 26
82205 Gilching
Phone +49 89 899 233-0
Email info@pro-beam.com
pro-beam.com

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Electron Beam Technology for Additive Manufacturing

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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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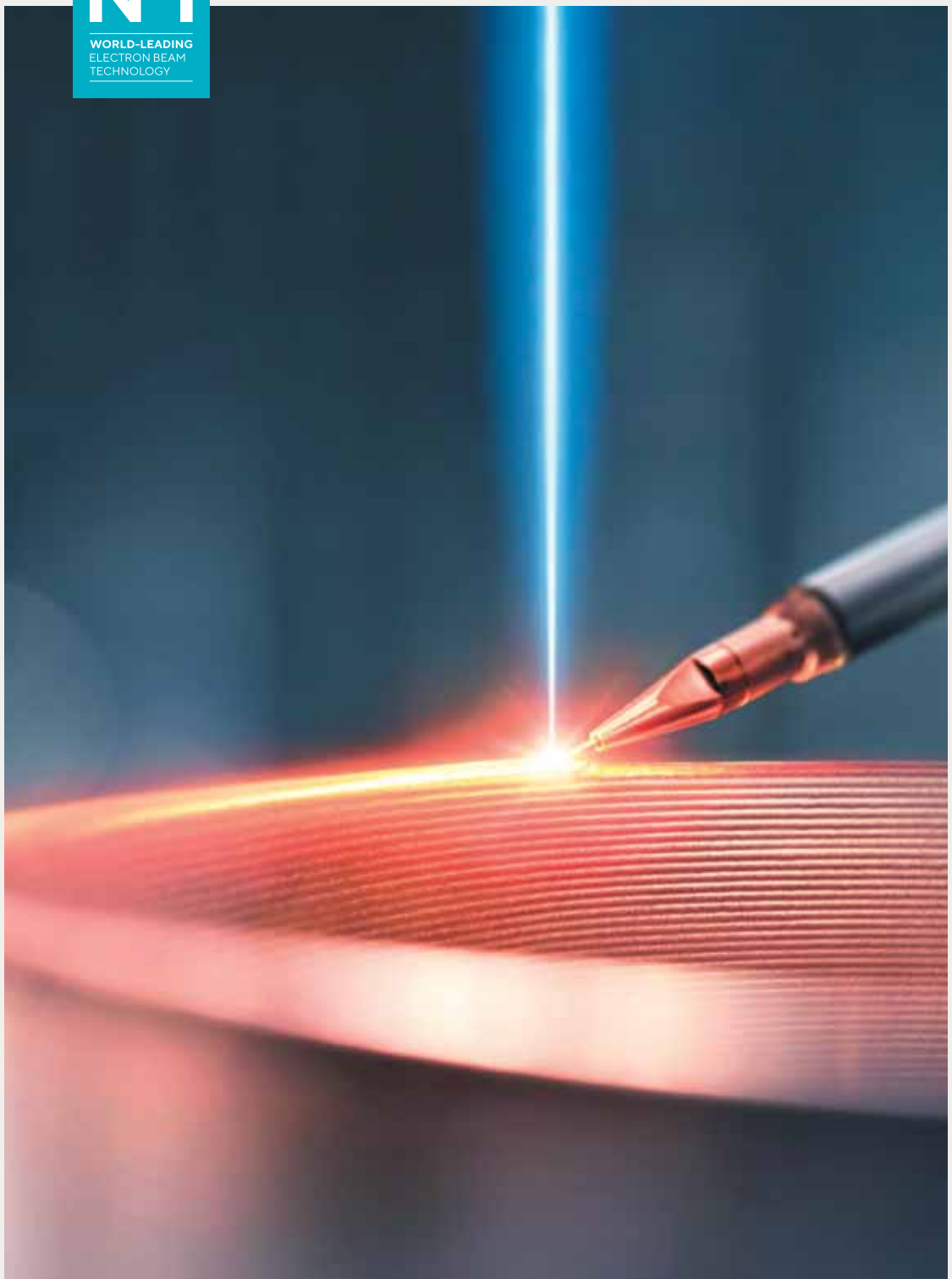

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Wire Electron Beam Additive Manufacturing: Precision in Large Dimension

ADVANTAGES OF WEBAM

› **Affordable customization**	Design adjustments are easy and cost-effective
› **Cost-efficiency**	Lower personnel costs due to automation
› **Casting-quality microstructure**	Achieves strength and consistency similar to cast steel
› **High resscource efficiency**	Near net-shape geometries prior to machining
› **Multi-material flexibility**	Produce components with multiple materials

WIRE ELECTRON BEAM ADDITIVE MANUFACTURING

Contract Manufacturing of Large Components

In many industries, the availability of spare parts is a serious problem that leads to growing stockpiles and high costs. 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.

Materials for example

Titanium (Ti64)

Pure copper

Inconel 71z

Steel

Tungsten

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.

Benefit from the advantages of our innovative WEBAM technology!

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Electron Beam Melting: Maximum Powder Bed Productivity

ADVANTAGES OF EBM

› **Versatile alloy compatibility**	Use of industry-standard metal powders
› **Open system for customization**	Adjustable parameters for tailored results
› **Reliability and testing**	Quality assurance through ELO®
› **High productivity**	High electron beam power: up to 150 kV & 15 kW
› **Controllable material properties**	Impact on micro structure due to innovative spot melting
› **Parallelization of process**	Parallel preparation, printing and cooling

ELECTRON BEAM MELTING

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 the many advantages of additive manufacturing for the industrial series production of complex high-performance components, such as patient-specific implants or complex rocket components.

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.

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.

Experience the advantages of our Powder Bed Technology!