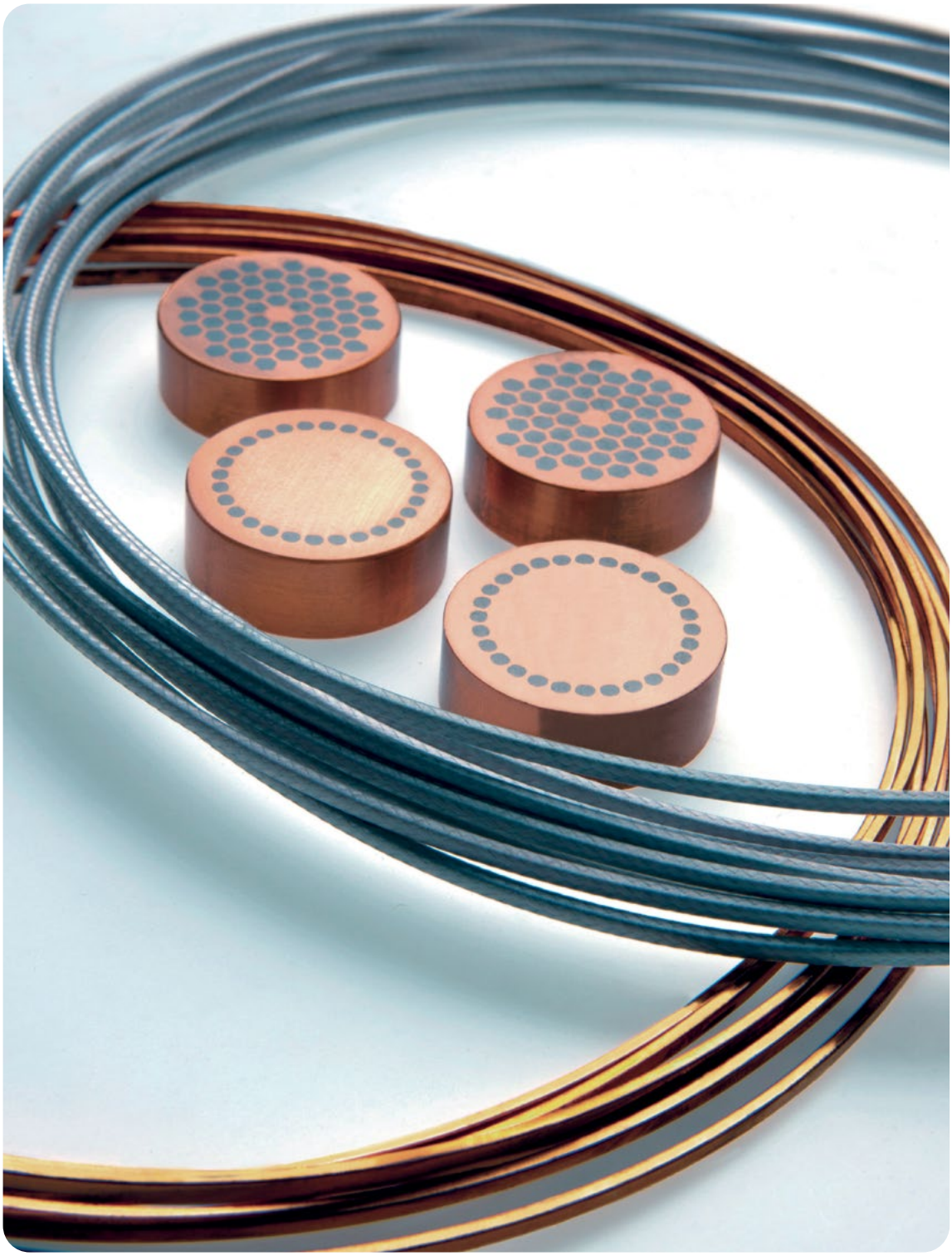
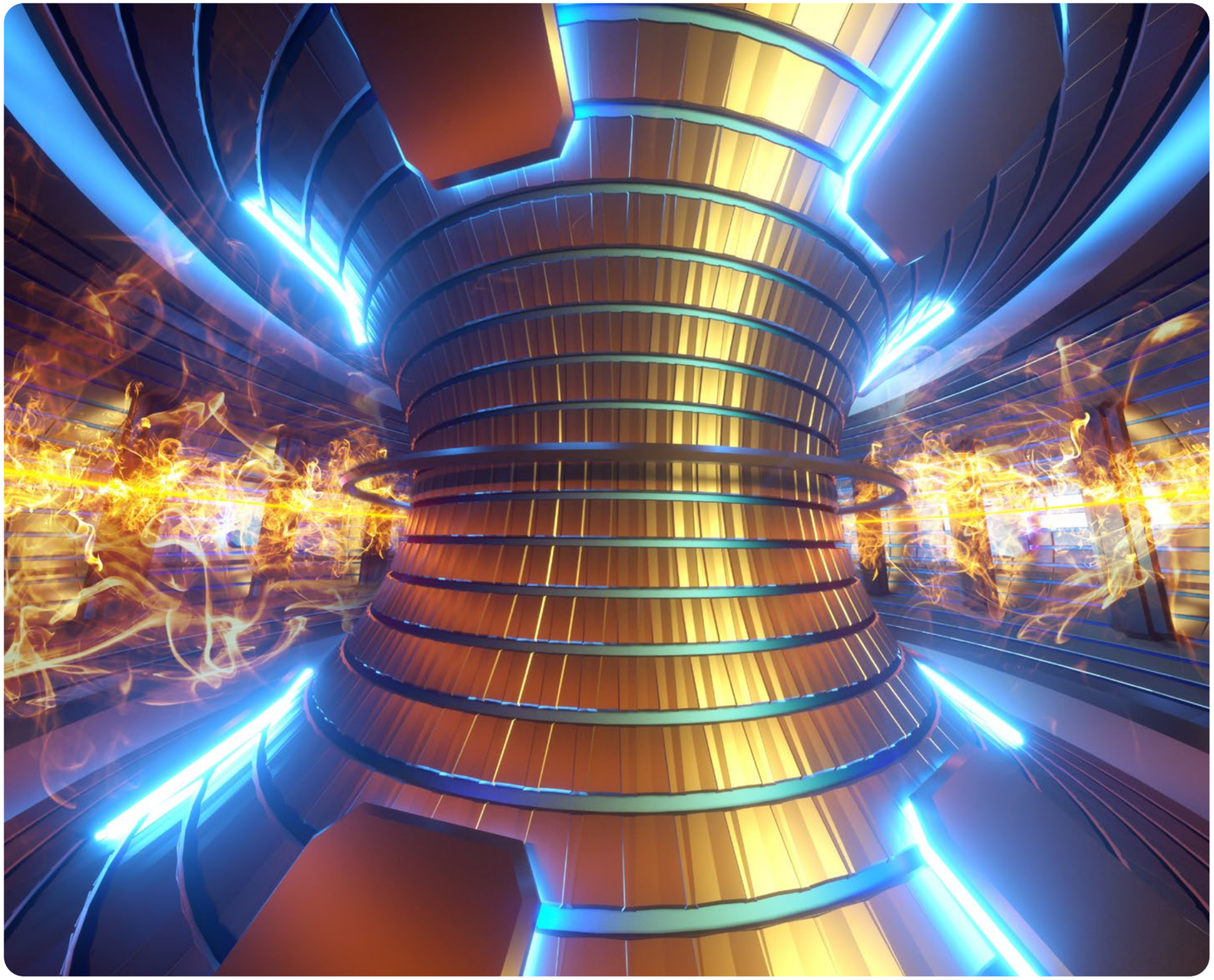


Superconductors

Luvata's superconductors are trusted worldwide in technically demanding science, energy and healthcare applications.

LUVATA
Partnerships with a Promise



A highly specialized product

We have been a leading producer of superconducting wires and cables for over forty years. Healthcare is an important market for Luvata, and our superconductors can be found in many leading medical applications, including MRI imaging and proton beam therapy for cancer treatment. In every case, reliability and precision are essential, and the results can change people's lives forever.

Current trends in the market reflect society's focus on the environment and the green transition, and at Luvata we are well placed to help on the journey to a more sustainable future. Our superconductors are used in high energy physics, fusion energy development, levitating trains, power transmission, energy storage, and crystal pullers for production of mono crystalline silicon used in photovoltaic technologies. Nothing is more important than ensuring the future of the planet, and this will remain a key focus for us.

Working in partnership
We work closely with our customers to solve complex challenges and produce products that overcome existing and future challenges. As well as helping with medical breakthroughs and developing solutions to the environmental crisis, we design components for some of the world's most ground-breaking scientific projects. Our success is the result of manufacturing and delivering high-quality superconductors to exacting specifications, resulting in long-standing partnerships with customers around the world.

> *"At Luvata our focus is on producing technically demanding products, and nothing demonstrates this more clearly than our superconductors. It has always been a source of pride that our products contribute to people's health and well-being. We are now also proud that we are active in markets which contribute to the health and well-being of the planet. Fusion technology, renewable energy and high-tech science projects are making leaps forward in reducing emissions and creating a healthier environment, powered in part by our superconductors. We have a stated aim to benefit people, society and the Earth, and superconductors are helping this to become a reality."*

President & CEO
Pekka Kleemola

Driven by need, encouraged by results

Luvata is a recognized leader in the supply of superconducting wire for medical diagnostic systems, analytical instruments and special projects.

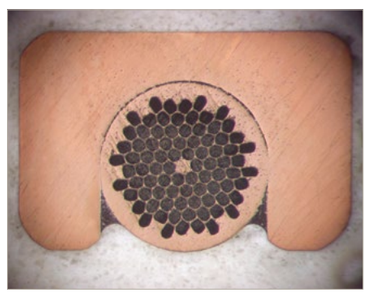
Industry-leading expertise
We are driven by the growing need for the latest magnetic resonance imaging (MRI) and proton beam therapy technologies which are constantly evolving, and by the growth in the crystal puller market for producing mono crystalline silicon.

Our superconductor wire design team works closely with customers to not only improve existing system performance but also to explore the potential for tomorrow's needs. We review new system requirements, make recommendations and develop cost efficient proposals that exceed performance across key metrics. Our early inclusion in the new design process allows customers to proceed with new system development both cost effectively and in a timely fashion.

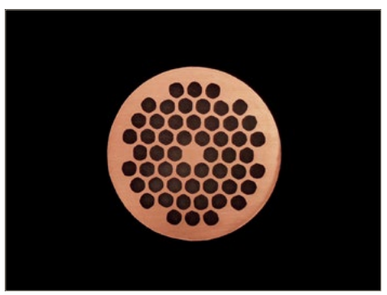
Consider utilizing the wealth of knowledge and experience that our Superconductor Design Team can bring to your product development process.

Superconducting wires and cables are used in:

- Magnetic Resonance Imaging (MRI)
- Particle accelerators such as the Large Hadron Collider (LHC)
- Synchrotrons to generate proton beams for cancer therapy
- Fusion energy development magnets
- Nuclear Magnetic Resonance (NMR)
- Scientific projects
- Silicon crystal growth magnets
- Lab and specialty magnets



MRI wire-in-channel (WIC) conductor



MRI monolithic wire

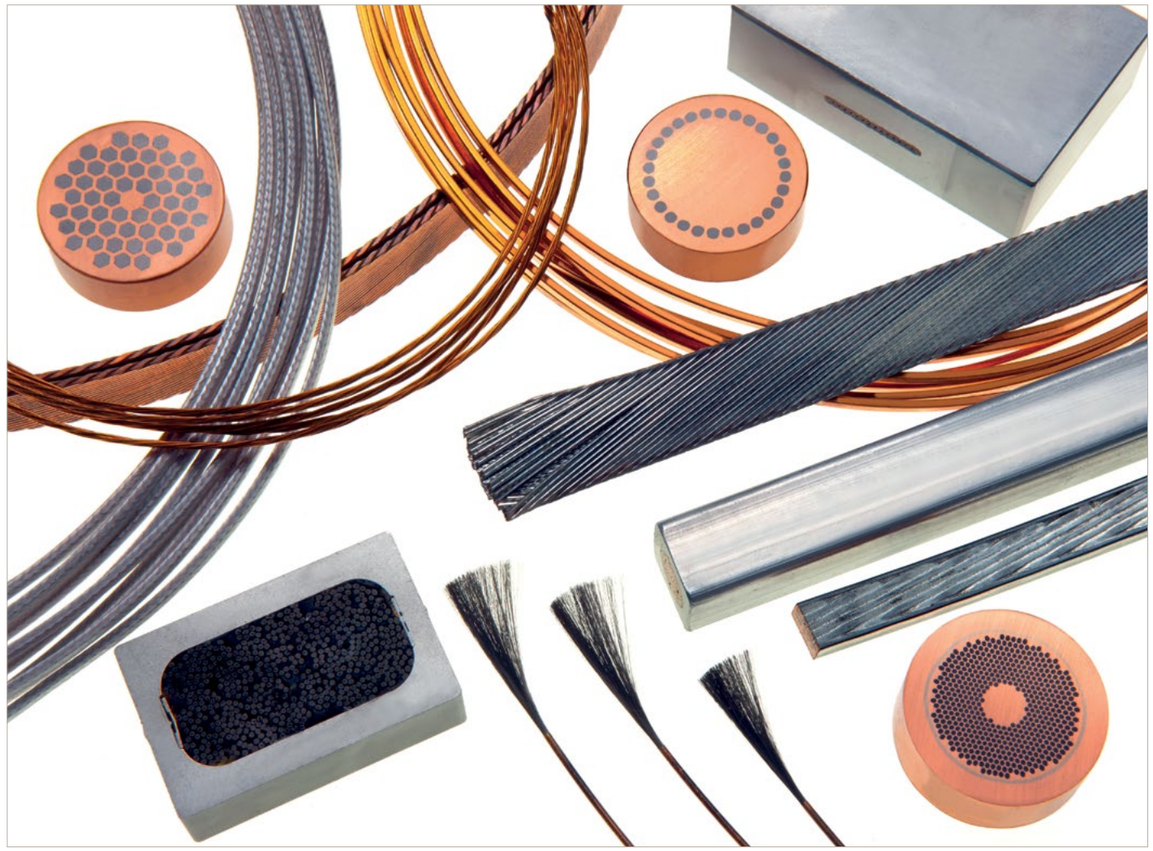
Scan QR code for more information

Global presence to better serve our customers worldwide

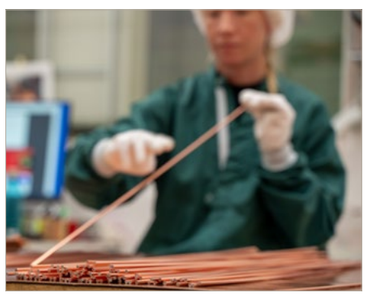
Luvata has a strong presence in Europe, the Americas and Asia, with dedicated superconductor manufacturing facilities in Pori Finland, Waterbury Connecticut in the USA and in Zhongshan China.

Our global presence has opened up many opportunities to build strategic partnerships with the industry's key players while laying the groundwork for sustainable growth.

It is an exciting time in the world of superconductors, as applications for their use extend beyond their primary commercial use in MRI imaging. As the industry leader in manufacturing MRI superconductor wire, Luvata is well positioned to meet the global need for superconductor wire and cable.



Multifilament billet assembly



Superconductor rod production

Braided wire inspection

Pushing the boundaries of knowledge and innovation

In addition to our expertise in mass production, we have a wealth of experience in one-off design. We have been involved in several high energy physics projects, fusion energy development and other applications where quality, delivery and performance are critical. In many of the high-profile scientific projects we have often broke new ground with highly innovative solutions to the unique challenges.

CERN
Luvata superconductor strands are used at the heart of the Large Hadron Collider (LHC) at CERN in Switzerland, the world's largest high-energy particle accelerator, where scientists are recreating the conditions that occurred immediately after the Big Bang.

The superconducting magnets operate close to absolute zero temperature at 4.2K or below. We supplied 2,280 kilometers of cable, with 36 strands per cable and 6,400 filaments per strand. That's over 525 million kilometers of superconducting filament, the equivalent to 684 return journeys to the moon.

We were also the sole supplier manufacturing the advanced superconducting NbTi wire needed for the second big experiment at the LHC; the CMS detector. We are proud of our contributions to this project, which aims to unlock some of the most powerful secrets of the cosmos' origins.

ITER
The International Thermonuclear Experimental Reactor (ITER) project, based in Cadarache France, is a partnership between the People's Republic of China, the European Union, India, Japan, the Republic of Korea, the Russian Federation and the USA, and will play a significant role in the production of energy in the future.

Using a plasma device designed by ITER scientists, the project aims to demonstrate the scientific and technological feasibility of fusion power. The device utilizes extremely powerful superconducting magnets to enable the fusion process, which releases vast amounts of heat that can be harnessed to generate carbon-free electricity.

Luvata has delivered on-time and to an exact specification, the superconductive material for the US Department of Energy for the TF-magnet coils. We supplied 86% of the US commitment for superconductive wire and copper wire needed to complete this massive and scientifically significant project. In addition, Luvata was the sole supplier of 62 tons of chrome-plated copper wire for Europe's share to make the same TF-magnet coils.

CEA SACLAY
Luvata has supplied superconductor cable to CEA Saclay in France for the world's strongest MRI machine which, at 11.75 Tesla is four to ten times more powerful than most clinical MRI machines.

As the sole superconducting wire supplier to the project, we delivered two types of superconductor including 158 kilometers of cable-in-channel for the main coils and 60 kilometers of wire-in-channel for the shield coils.

The incredibly powerful 11.75 Tesla whole-body MRI system is designed to scan body tissue structures with a clarity that has never before been possible. It will reveal details that are invisible in lower magnetic fields and will provide earlier detection and treatment for many diseases as well as new insights into brain activity that could pinpoint the causes of Alzheimer's.

Large Hadron Collider (LHC) at CERN

Luvata - Partnerships with a Promise

Working for People, Society and the Earth
We all want to ensure a sustainable future for our planet. As a manufacturer, we know that we have both an opportunity and a responsibility to contribute positively to the changes needed to secure that future. We have stated that our vision is to be the leading provider of copper solutions that benefit people, society and the earth, and this is a serious commitment. We are active in markets such as e-mobility, healthcare, electrification and the green transition, all of which have a need for copper products. We believe that our innovations will help drive these markets forwards, making green solutions more easily accessible to all.

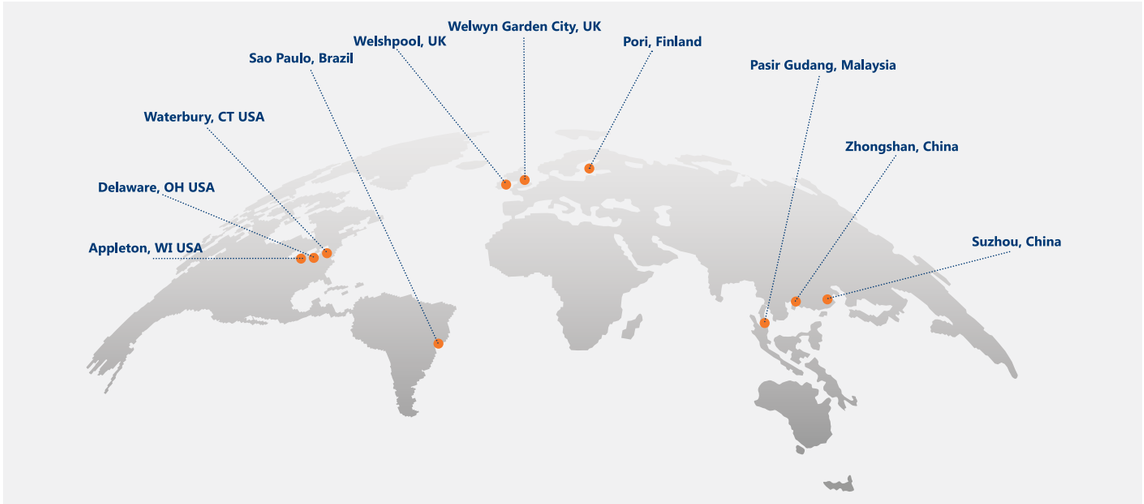
We also recognize the need for our operations to be sustainable. To this end, we are striving to reduce greenhouse gas emissions, aiming to be using 100% renewable electricity by 2035 and to be fully carbon neutral by 2045.

Helping our customers grow and thrive
We have always worked in partnership with our customers, getting to know their businesses and collaborating on custom-made solutions. We take great satisfaction in seeing our customers thrive, and knowing that we played a part in their success.

Where we believe we can make a real difference is in sharing our robust manufacturing capabilities, technology and material knowledge, and by using our unique expertise to develop technically-demanding products. Together with an emphasis on lean production, innovation and value-added solutions, we work hard to ensure that we are the partner of choice for our customers, every time.

Partnerships with a Promise
At Luvata, we deliver on our promises. We have pledged always to treat people with respect, keep an open mindset and work together with others.

Our global footprint stretches across four continents. Our diversity of locations, cultures and markets gives us access to a wealth of knowledge and expertise that continues to grow. It also means that we are local to our customers, wherever they are, so we can continue to forge the strong relationships we are known for.



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About Luvata

Luvata is a world leader in copper manufacturing and related engineering services. It brings together people, innovation and technology to create solutions in areas such as e-mobility, healthcare, and in electrification & the green transition. The company's success is driven by innovation, lean production and value-added sales, and its vision is to provide copper solutions which benefit people, society and the earth. Employing over 1,400 staff on four continents, Luvata works in partnership with customers such as ABB, CERN and Siemens. Luvata is a group company of Mitsubishi Materials Corporation.

LUVATA

Partnerships with a Promise