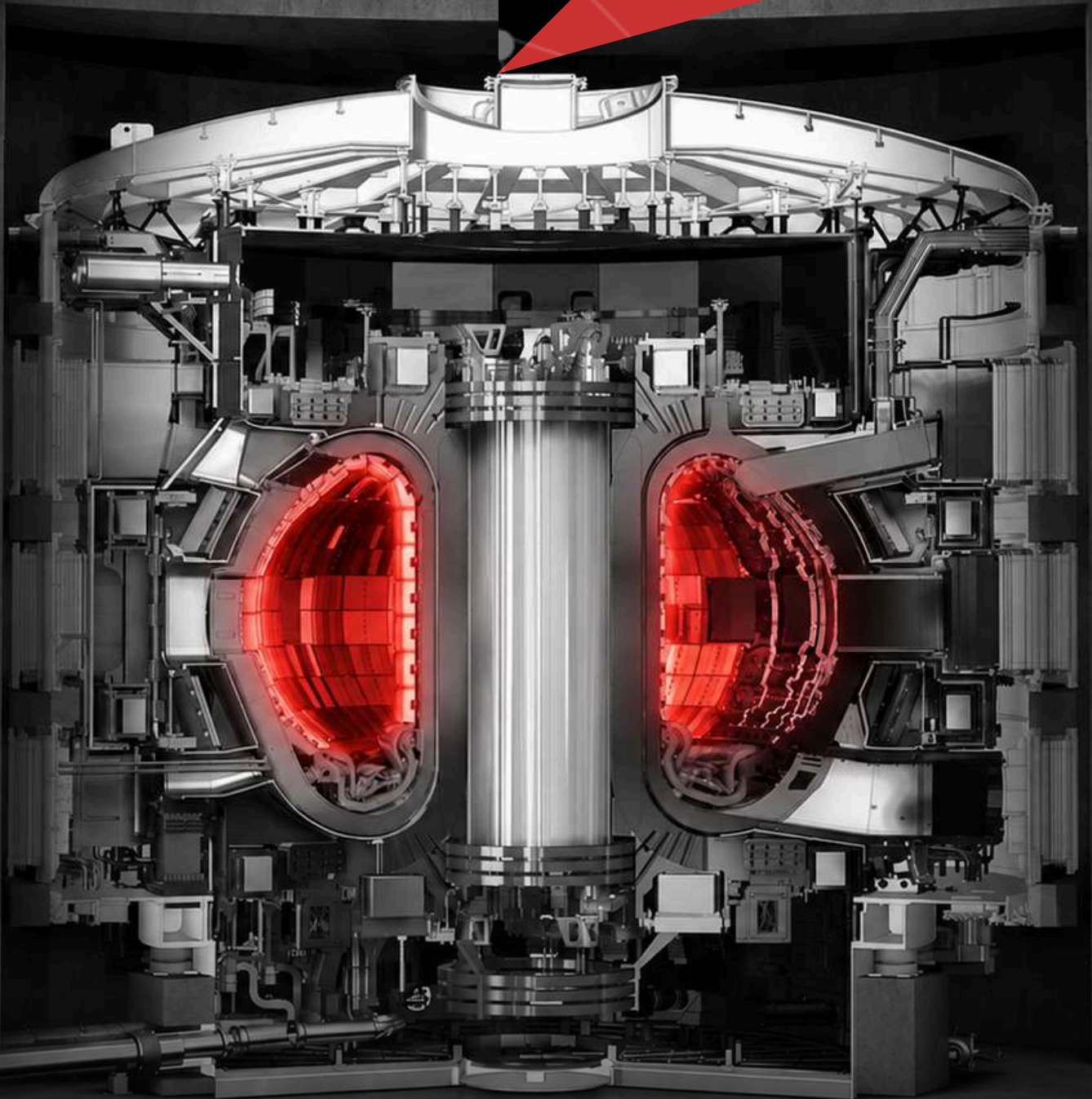




Ridgway
Machines



SUPERCONDUCTOR

CABLE AND COIL MACHINERY

A CENTURY OF ENGINEERING EXCELLENCE

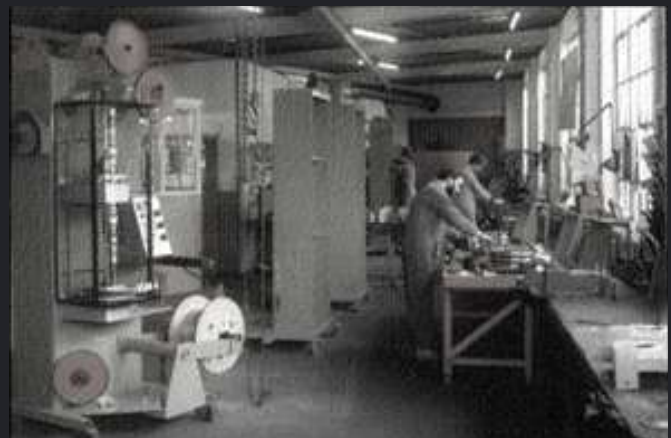
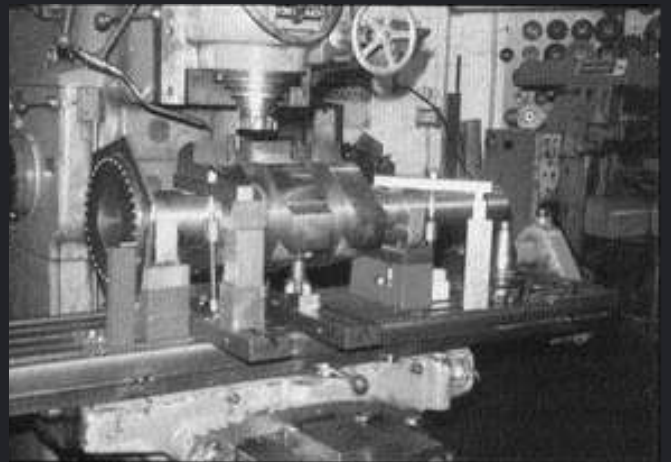
ABOUT RIDGWAY MACHINES

Founded in 1920 in Leicester, England, Ridgway Machines has built a global reputation for designing and manufacturing some of the most advanced winding, taping, and wrapping machines and manufacturing lines ever produced.

From our heritage of craftsmanship to our culture of innovation, we engineer solutions that deliver precision, reliability and performance where it matters most.

What began as a foundation in precision mechanical engineering has evolved into the global benchmark for engineering excellence.

For decades, our equipment has been trusted by industrial companies worldwide to eliminate risk and deliver absolute repeatability across high-value engineering assets. We don't just build machinery; we secure the mechanical integrity of the world's most critical infrastructure.



OUR MISSION AND AMBITION

Supplying solutions for the world's most demanding **winding, taping and insulation** applications.



OUR MISSION

To combine a century of engineering expertise with continuous innovation, delivering manufacturing systems that solve our customers' most complex challenges.



OUR AMBITION

To be the world's most trusted partner for advanced winding, taping and insulation technologies, enabling the future of electrification, superconductivity and fusion energy.

OUR CAPABILITIES



Coil Winding Systems

Precision winding solutions for motors, transformers and advanced coils.



Cable Winding Systems

Automated solutions for cable and conductor manufacturing.



Insulation Wrapping Systems

High-precision taping and insulation application using specialist materials.



Superconductor Magnet Manufacturing

Systems for the production of HTS and LTS coils and magnet assemblies.



Fusion Energy Applications

Proven solutions supporting ITER and next-generation fusion programmes.



Custom Automation

Bespoke manufacturing systems engineered around customer requirements.

OUR TRACK RECORD



1500+

**MACHINES
DELIVERED**

500+

**CUSTOMERS
WORLDWIDE**

50+

**COUNTRIES
SHIPPED TO**

GLOBAL PRESENCE



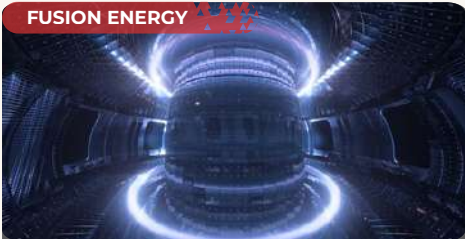
Over 80% of the machines we build are exported worldwide. Our machines operate in countries across the globe.

PARTNERS



MARKETS WE SERVE

FUSION ENERGY



We develop next-generation machinery for superconducting magnets and conductors, supporting the commercialisation of fusion power through accurate, scalable manufacturing solutions.

AVIATION AND AEROSPACE



We manufacture precision machinery for advanced lightweight conductors, insulation systems and superconducting technologies that contribute to the next generation of electric aviation, aerospace and high-performance propulsion systems.

ADVANCED MANUFACTURING



Every Ridgway machine is engineered for precision, automation, and repeatability, helping manufacturers increase production efficiency while maintaining the highest standards of quality across complex winding, taping, and coil manufacturing processes.

AI INFRASTRUCTURE



The rapid growth of AI demands higher-capacity electrical networks. Ridgway supports this transition by enabling the manufacture of advanced HTS cables and conductors that improve power transmission efficiency for next-generation data centre infrastructure.

POWER & GRID INDUSTRY



From transformers and generators to high-voltage cables and advanced conductors, our winding and taping systems help manufacturers improve precision, efficiency, and product quality across modern electrical infrastructure.

RESEARCH & DEVELOPMENT



We collaborate with research organisations, universities and technology leaders to develop bespoke machinery that accelerates innovation in superconductors, electrical systems and future energy technologies.

MEDTECH INDUSTRY



Our precision manufacturing technologies enable advanced MRI magnet production and high-performance medical components, helping healthcare innovators deliver more accurate diagnostics, greater reliability and improved patient outcomes.

OIL & GAS INDUSTRY



Our advanced RTP and TCP manufacturing equipment delivers precise tape application for high-performance composite pipelines used in demanding energy infrastructure, providing lightweight, corrosion-resistant alternatives for oil, gas and industrial applications.

OFFSHORE INDUSTRY



Our specialised winding and taping machinery supports the manufacture of subsea umbilicals and power cables designed for offshore energy, deep-water installations and harsh marine environments where long-term reliability is essential.



OUR ROADMAP TO FUSION ENERGY

The transition from traditional heavy industrial winding to next-generation fusion energy is a natural evolution of our core expertise. Advanced clean energy applications require components manufactured to tolerances that manual operations simply cannot achieve.

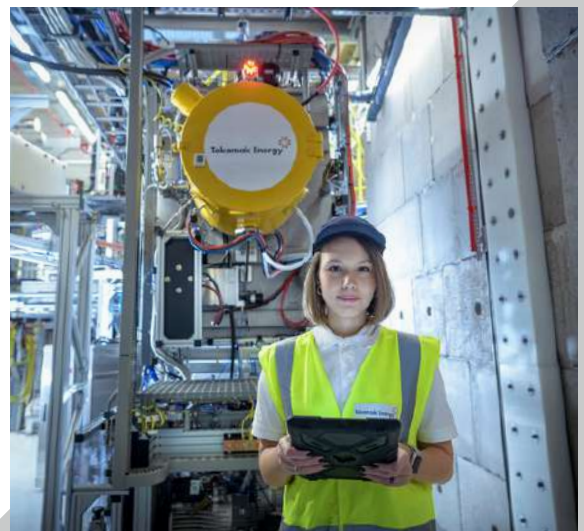
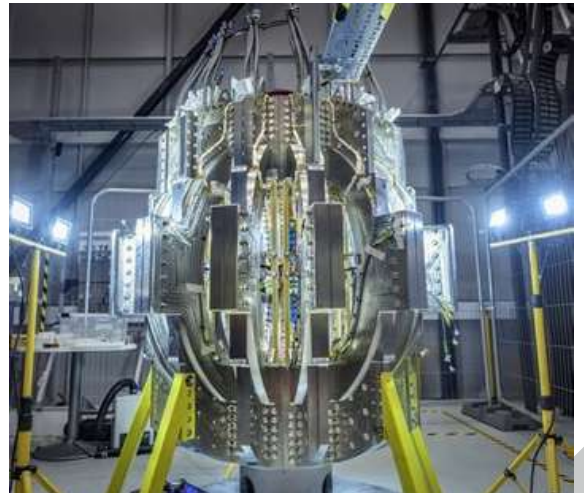


Leading the commercialisation of transformative superconducting and fusion technologies with strategic partners.

Tokamak Energy is the only private company with over a decade of experience developing high-temperature superconducting (HTS) and magnetic-confinement fusion technologies. A major part of this is their end-to-end capability in HTS systems, from design to manufacturing. They also provide fusion expertise for government and private-sector programmes worldwide.

Ridgway's decades of perfecting continuous, closed-loop tension control and automated multi-tape wrapping are now driving the commercial scaling of High-Temperature Superconducting (HTS) magnets and coils. This unique engineering capability is so vital to the future of clean tech infrastructure that Ridgway Machines was officially acquired by Tokamak Energy.

Whilst we are part of Tokamak Energy, we still work independently with customers with complete confidentiality under independent NDA's.



OUR MACHINERY

Manufacturing platforms for fusion, superconducting power and advanced electrical infrastructure from **first-of-a-kind prototypes** to repeatable industrial production.

PRECISION

REPEATABILITY

PRODUCTION

AUTOMATION

RELIABILITY

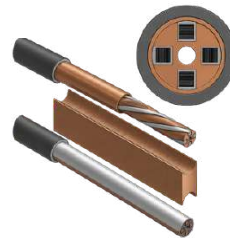


FUSION & HTS

ITER Tokamak

Fusion coil insulation platforms for world-renowned magnet programmes.

Page no. 8



HTS CABLE

Viper Type Cable Winding Lines

Specialist winding for superconducting cable for fusion applications.

Page no. 13

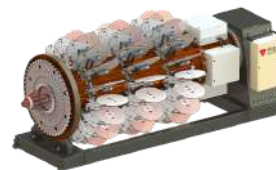


FUSION COILS

Coil Insulating

PF and CS coil taping systems for Tokamak magnet insulation.

Page no. 9



CABLE WINDING

Superconductor Cable Winder

Complete HTS cable winding lines for the production of Super conductor cables.

Page no. 14

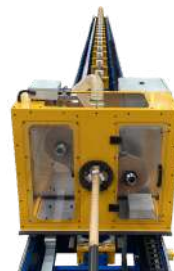


COIL MANUFACTURING

Coil Winding

Precision winding systems for complex 2D and 3D coil geometries.

Page no. 10



TESTING & VALIDATION

Superconductor Cable Insulating Machine

Sample-length cable insulation for testing and validation programmes.

Page no. 16



PAY-OFF SYSTEMS

Coil Winder & Pay-Off Systems

Configurable multi-pay-off systems with active tension control.

Page no. 12



FUSION & COIL SYSTEMS

Feed/Terminal Connection Insulating Machines

Gantry-based taping systems for coil connections, cables and conductors.

Page no. 17

ITER TOKAMAK

Ridgway supplied coil insulation wrapping machinery for the ITER Tokamak, supporting the manufacture of some of the world's largest superconducting magnet systems.



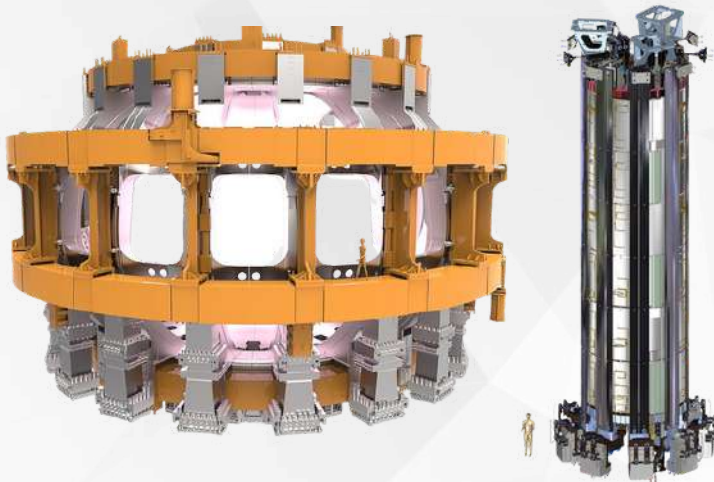
THE CHALLENGE

Kapton® and glass insulation needed to be wrapped to tight dimensional tolerances under controlled tensions around the Central Solenoid (CS), Toroidal Field (TF), and Poloidal Field (PF) magnet coils. Diameters ranged from 2m to 26 m, along with the typical D-shaped TF coils.



THE RIDGWAY SOLUTION

Ridgway worked with ITER partners, designing and manufacturing bespoke wrapping heads and integrating them into the various coil manufacturing machines and control systems.



PROJECT HIGHLIGHTS



Square section Poloidal Field coils wrapped during forming/winding process



Square section spiral wound Central Solenoid coils separated to enable insulation wrapping



Round cross section Toroidal Field coils wrapped with multiple layers of tape



All layers of insulation wrapped to high specifications

Providing engineering solutions that enable the future of fusion energy.

FUSION COIL INSULATING

Ridgway has designed and manufactured a variety of fusion coil insulating machines. These machines spread the coil turns sufficiently to enable the insulation wrapping machine to apply the tapes to customer specifications.

POLOIDAL FIELD (PF) COIL INSULATION WRAPPING MACHINE

Large spiral wound coils, spread apart and wrapped with insulation to customer specifications.



CENTRAL SOLENOID (CS) COIL INSULATION WRAPPING MACHINE

Smaller spiral wound coils, spread apart and wrapped with insulation to customer specifications.



COIL WINDING SOLUTIONS

Precision winding systems for low and high-temperature superconductors, metallic and non-metallic tapes, including insulating tapes. These machines can be scaled to wind small or large coils/magnets and are suitable for all types of coils, including particle accelerator and fusion coils. Programmable with data capture for quality assurance.



ENGINEERED PRECISION POWERING THE FUTURE



**FUSION
COILS**



**LTS AND HTS
APPLICATIONS**



**SUITABLE
FOR R&D**

3D COIL WINDER

Advanced multi-axis winding system designed for complex 3D coil geometries.

- ✓ **Complex 3D Geometries**

Multi-axis control for precise coil winding.

- ✓ **Repeatability & Quality**

Programmable with data capture for quality assurance.

- ✓ **Customisable & Scalable**

Standard and bespoke machines can be supplied.



Pendant Control Interface

The operator can get close to the winding operation with teach control functions and remote programming.

2D COIL WINDER

Precision 2D winding machines for planar coils. Multiple pay-off units with a single winding spindle. Fully programmable system for repeatable 2D coil winding with advanced control and data logging.

- ✓ Precision layer winding
- ✓ Consistent tension control
- ✓ Wide coil range capability

- ✓ High accuracy & repeatability
- ✓ Robust design, compact footprint
- ✓ Durable, low-maintenance design



COIL WINDING MACHINES

WITH MULTIPLE PAY-OFF SYSTEMS

Designed to handle a wide range of wire, cable, and tape with accuracy and efficiency.



MULTI PAY-OFF COIL WINDERS

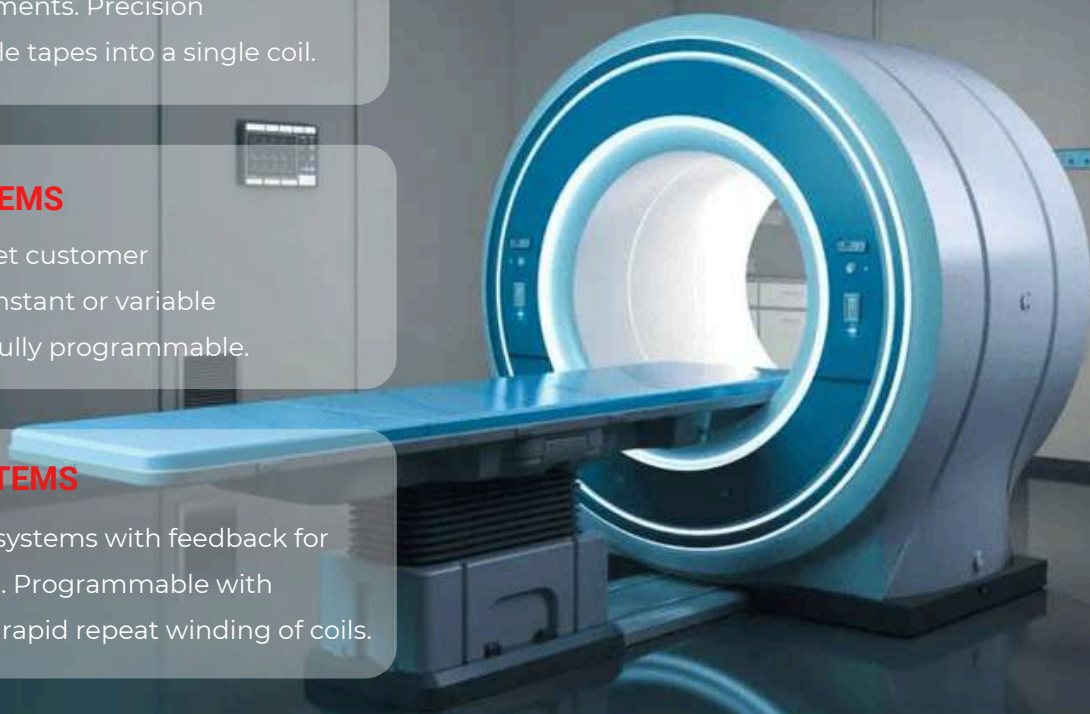
Standard and bespoke designs to meet customer requirements. Precision winding of multiple tapes into a single coil.

PAY-OFF SYSTEMS

Spool sizes to meet customer specifications. Constant or variable tension control - fully programmable.

CONTROL SYSTEMS

Servo tensioning systems with feedback for precision winding. Programmable with 'recipes' enabling rapid repeat winding of coils.



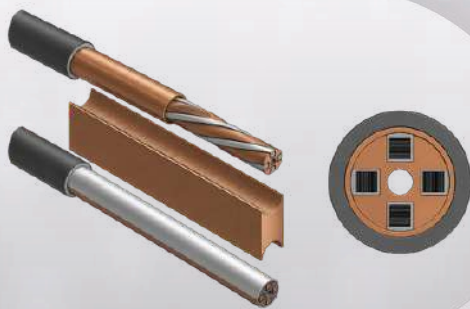
A versatile **HTS coil winding machine** to manufacture different size coils for use as superconducting magnets. Easy to programme with data capture for quality assurance.



VIPER TYPE CABLE

WINDING LINES

The Viper type cable winding machine delivers consistent **tension control** and exceptional winding accuracy for a wide range of cable designs.



SUPERCONDUCTOR

CABLE INSULATING

Ridgway supplies high-speed taping lines to apply insulation tapes to conductors. Standard lines are available, or lines can be tailored to suit specific customer requirements.

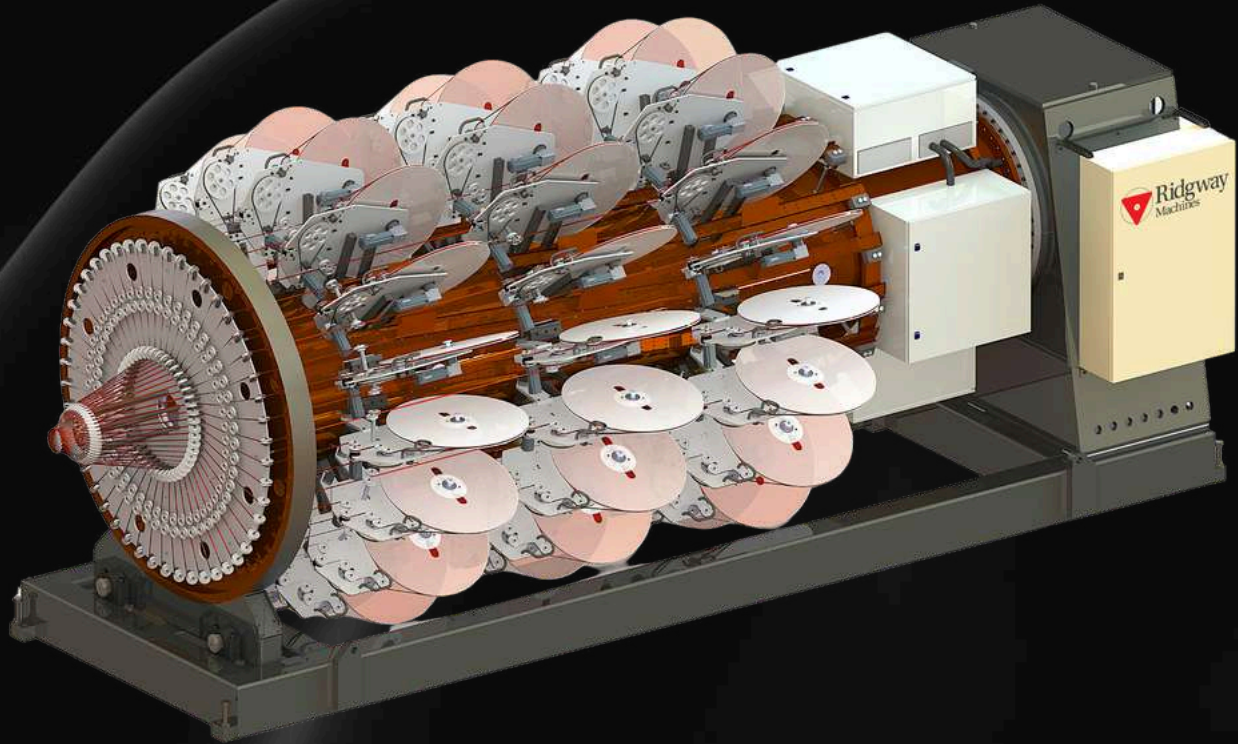


KEY CAPABILITIES

- Complete taping line solutions
- Options for pay-off and take-up
- Tape placement measurement and control
- Multiple wrapping head solutions
- PLC control systems with HMI interface
- Quality control systems

SUPERCONDUCTOR POWER CABLE WINDING LINES

Complete solutions including pay-off drum stands, caterpillars, rigid stranders, wrapping machines, take-up drum stands, and control systems. Ridgway provides fully integrated manufacturing systems for the development and production of high-temperature superconducting cables.



HTS CABLE DEVELOPMENT LINE





Engineered for Performance

Our HTS cable development lines are designed and built for precision, reliability, and flexibility.



End-to-end Integration

Each system is tailored to your process requirements and supplied complete with drum stands, caterpillars, taping machines, winding machines, and advanced control systems.



Advanced Control Systems

Intuitive operation, real-time monitoring, and full data logging.



Precision. Quality. Productivity.

Delivering consistent, high-quality HTS cables that meet the demands of next-generation applications.



Flexible Configuration

Modular design to suit a wide range of cable types and production requirements.



Reliable and Durable

Robust construction and proven components for long service life.

SUPERCONDUCTOR CABLE INSULATING MACHINES

Designed to support insulation development, process validation and prototype manufacture for superconducting cable systems.

KEY CAPABILITIES

- **Up to 30m Sample Lengths**
Supports extended cable testing and insulation evaluation.
- **PLC Controlled Operation**
Simple operation with repeatable process control.
- **Retractable Support System**
Maintains cable stability throughout the wrapping process.
- **Flexible Insulation Options**
Compatible with a wide range of tape materials and configurations.



TAPE APPLICATION

Precision application of insulation tapes for consistent wrapping quality.



CABLES SUPPORTED WITHIN RETRACTABLE CLAMPS

Precision application of insulation tapes for consistent wrapping quality.



IRIS GUIDE

Maintains cable alignment enabling repeatable insulation placement.

FEED / TERMINAL CONNECTION

INSULATING MACHINES

Modular tapping systems for coil connections, conductors and large-scale superconducting magnet assemblies.

KEY SPECIFICATIONS

➤ Gantry Length	Up to 18 m
➤ Gantry Width	Up to 4 m
➤ Application	Coil Connections
➤ Taping Process	Insulation Wrapping



SUSPENSION GANTRY SYSTEM

The suspension gantry complements the Ridgway BCT tapping range, providing a smooth, precise and adaptable solution for the lateral movement of the taping head.



TAPING HEAD

- Precise insulation tape application for consistent performance
- Engineered for high-quality, repeatable results
- Designed for complex conductor geometries and coil connections
- Supports Kapton®, glass fibre and specialist tapes



WHY CHOOSE RIDGWAY?

For over a century, Ridgway has partnered with industry leaders to deliver precision winding, taping and automation solutions that power the world's most demanding applications. Every system is engineered to maximise performance, reliability and long-term value.



HIGH PRECISION

Engineered for exceptional accuracy, repeatability and consistent quality in every application.



FLEXIBLE & MODULAR

Solutions built around your needs; from standalone machines to complete lines.



RELIABLE & PROVEN

More than 100 years of engineering excellence and innovation in mission-critical industries.



GLOBAL SUPPORT

Expert service and support, wherever you operate in the world.



BESPOKE SOLUTIONS FOR UNIQUE CHALLENGES

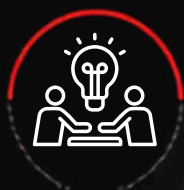


TURNKEY SYSTEMS



TRUSTED BY INDUSTRY LEADERS

ENGINEERED AROUND YOUR PROCESS



1

CONSULT

We understand your production challenges, goals and technical requirements.



2

DESIGN

Our engineers develop bespoke solutions tailored to your application.



3

BUILD

Manufactured in the UK to the highest standards of quality, precision and reliability.



4

SUPPORT

Installation, training and lifetime technical support to keep your operations moving.



BUILDING THE TECHNOLOGIES OF TOMORROW

From fusion energy and superconductors to advanced electrical and AI infrastructure, we are committed to develop precision manufacturing systems that enable the world's most innovative industries to evolve, decarbonise and create a sustainable future.

PEOPLE OF RIDGWAY



Mike Allen
Managing Director



Christina King
VP - Business Development



Andy Glanville
Technical Director



Tony Hart
Operations Director



Andy Clarke
Sales and Marketing Director



Rupinder Bassi
Financial Controller



Jack Witherington
Technical Sales Manager



Gareth Jenkins
Engineering Manager



Richard Glanville
Sales Manager

We Industrialise What Others Prototype



More Solutions



**Wire & Cable Taping
Machinery**



**RTP & TCP Taping
Machinery**



**Coil Taping
Machinery**



**Coil Manufacturing
Machinery**



**Iris
Guides**

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