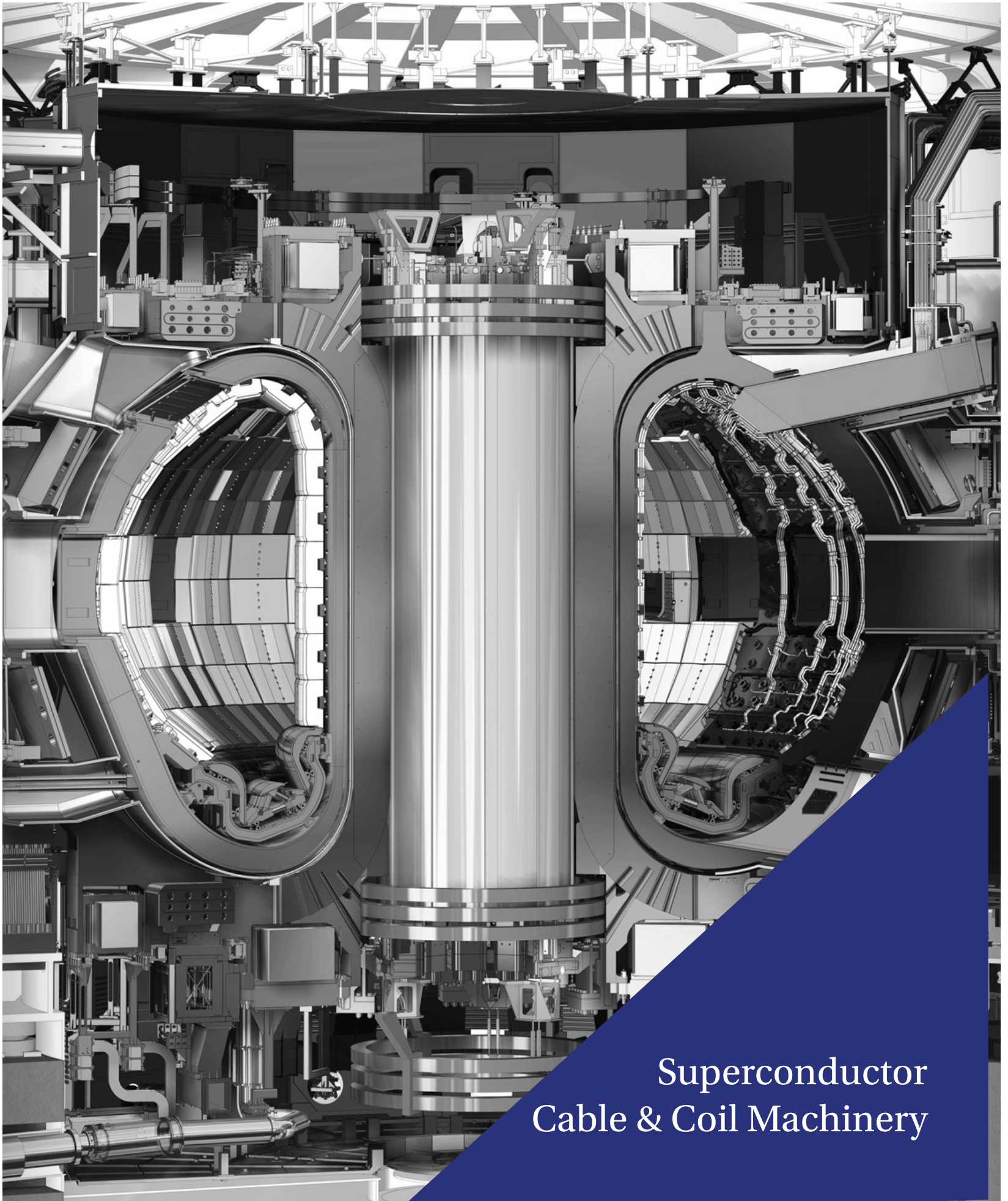


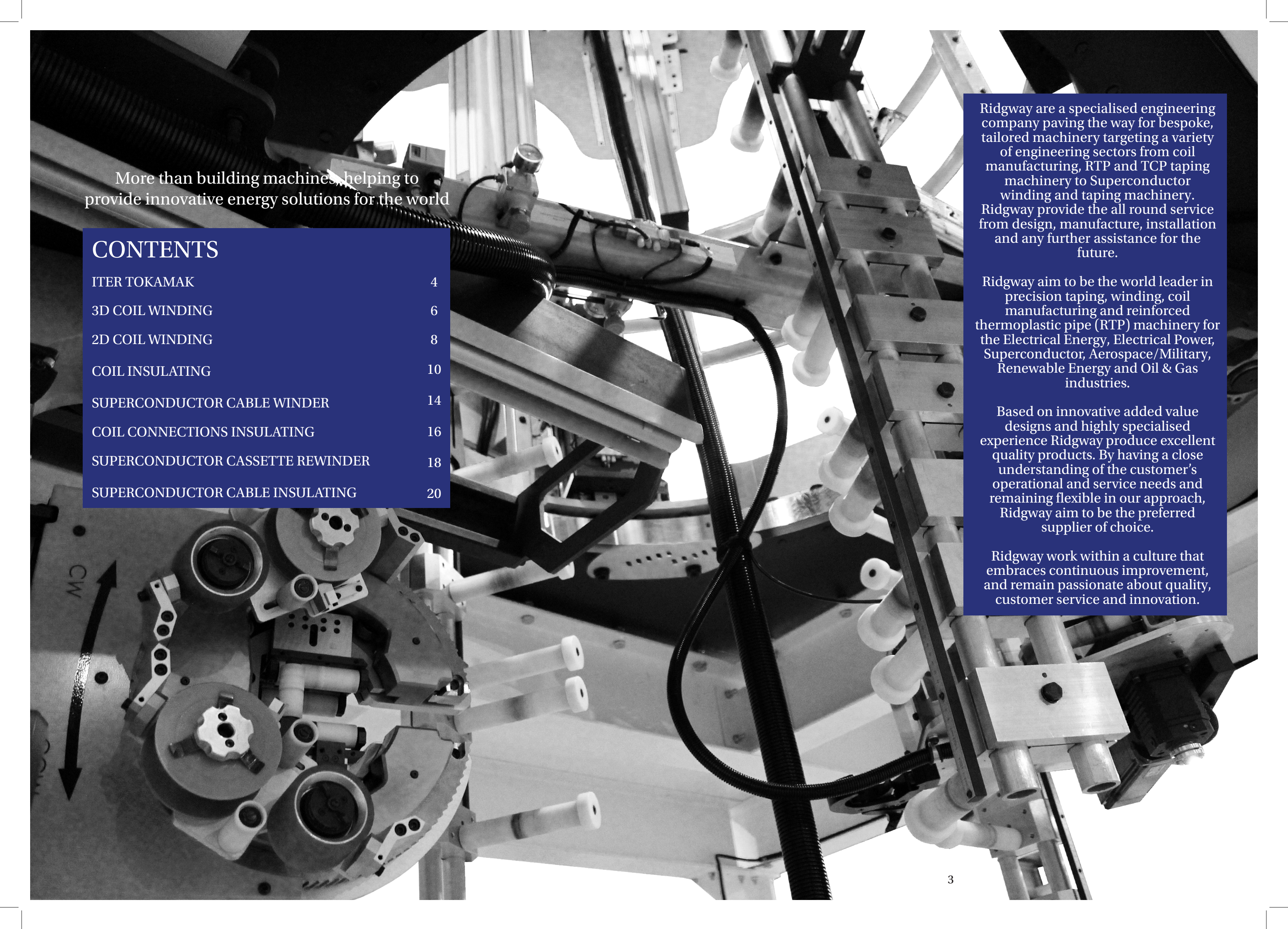


# Ridgway Machines



Superconductor  
Cable & Coil Machinery





More than building machines, helping to  
provide innovative energy solutions for the world

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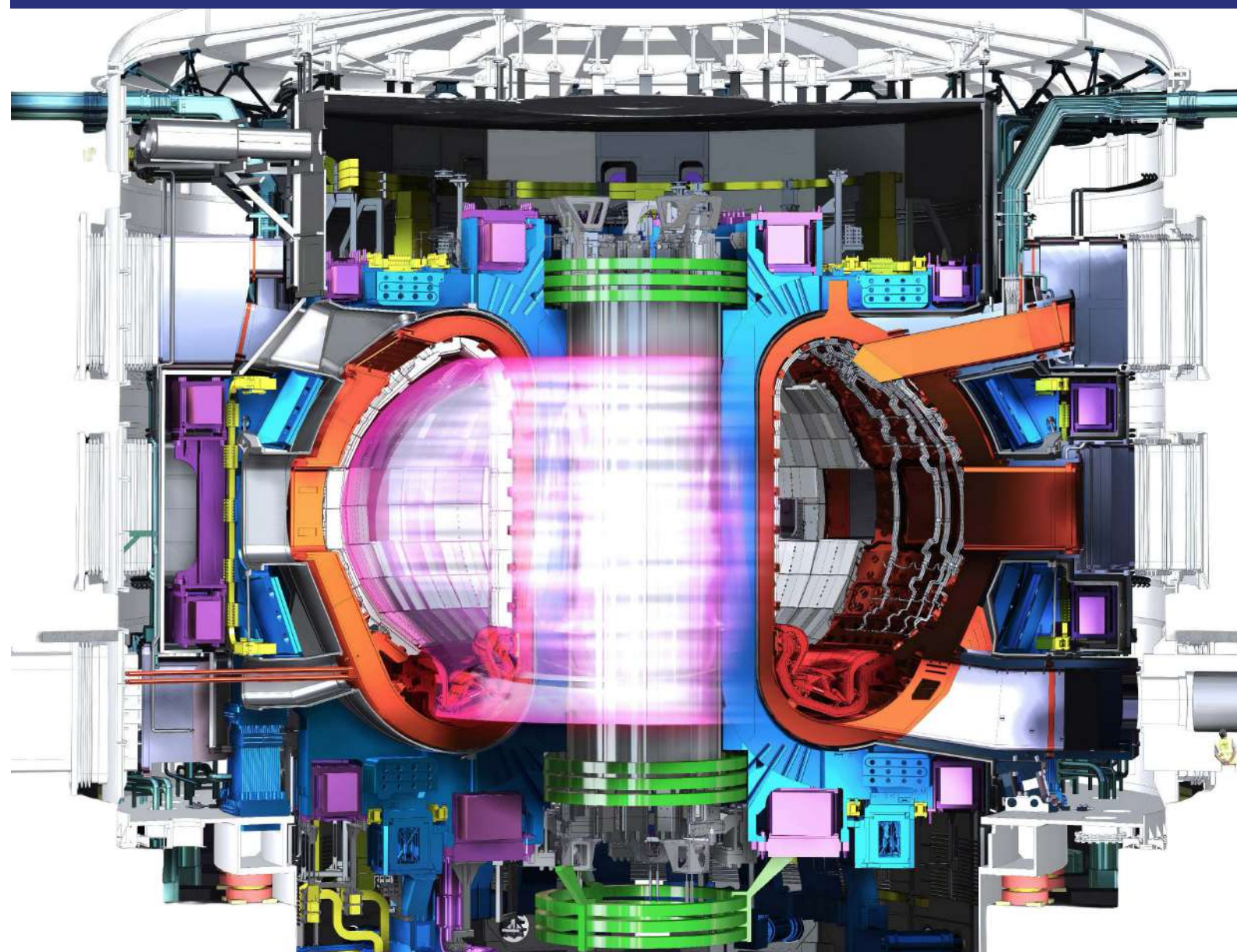
Ridgway are a specialised engineering company paving the way for bespoke, tailored machinery targeting a variety of engineering sectors from coil manufacturing, RTP and TCP taping machinery to Superconductor winding and taping machinery. Ridgway provide the all round service from design, manufacture, installation and any further assistance for the future.

Ridgway aim to be the world leader in precision taping, winding, coil manufacturing and reinforced thermoplastic pipe (RTP) machinery for the Electrical Energy, Electrical Power, Superconductor, Aerospace/Military, Renewable Energy and Oil & Gas industries.

Based on innovative added value designs and highly specialised experience Ridgway produce excellent quality products. By having a close understanding of the customer's operational and service needs and remaining flexible in our approach, Ridgway aim to be the preferred supplier of choice.

Ridgway work within a culture that embraces continuous improvement, and remain passionate about quality, customer service and innovation.

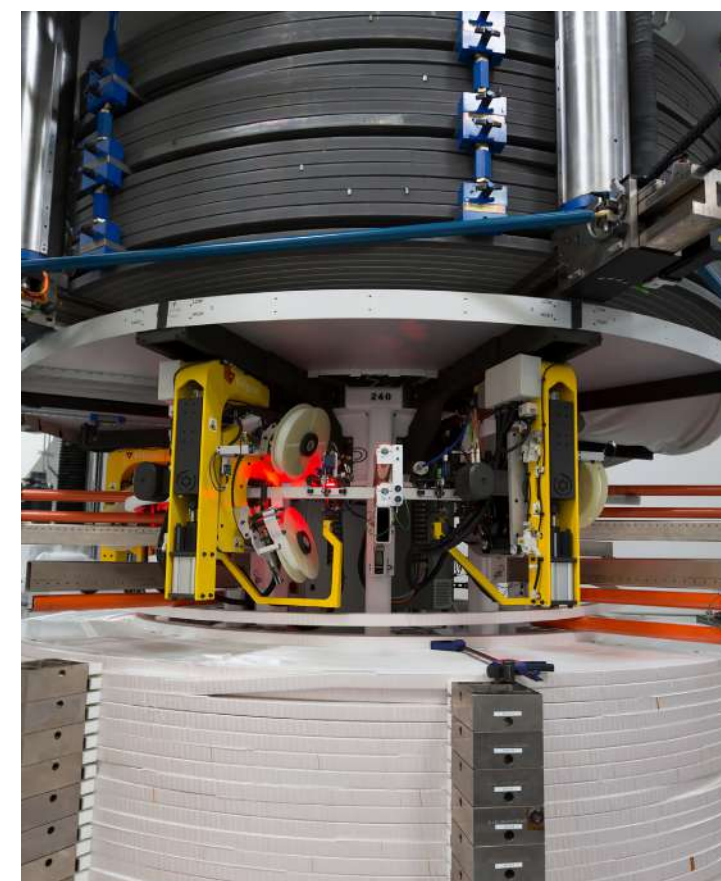
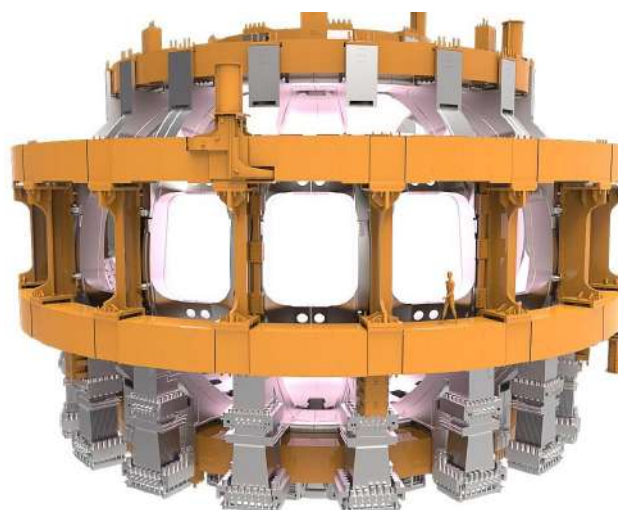




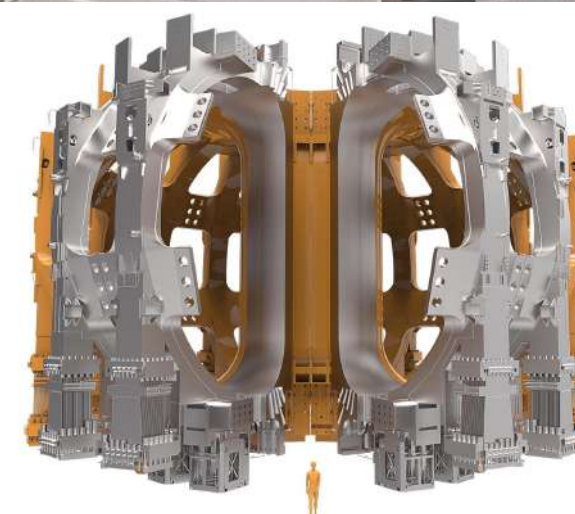
Ridgway supplied the insulation wrapping machines for the Central Solenoid, Poloidal Field and the Toroidal field coils for the ITER Tokamak. Typically the coils were wrapped with Kapton and glass tapes.



Poloidal Field coil wrapping machine supplied to Sea Alp. Coils were up to 26m outside diameter.



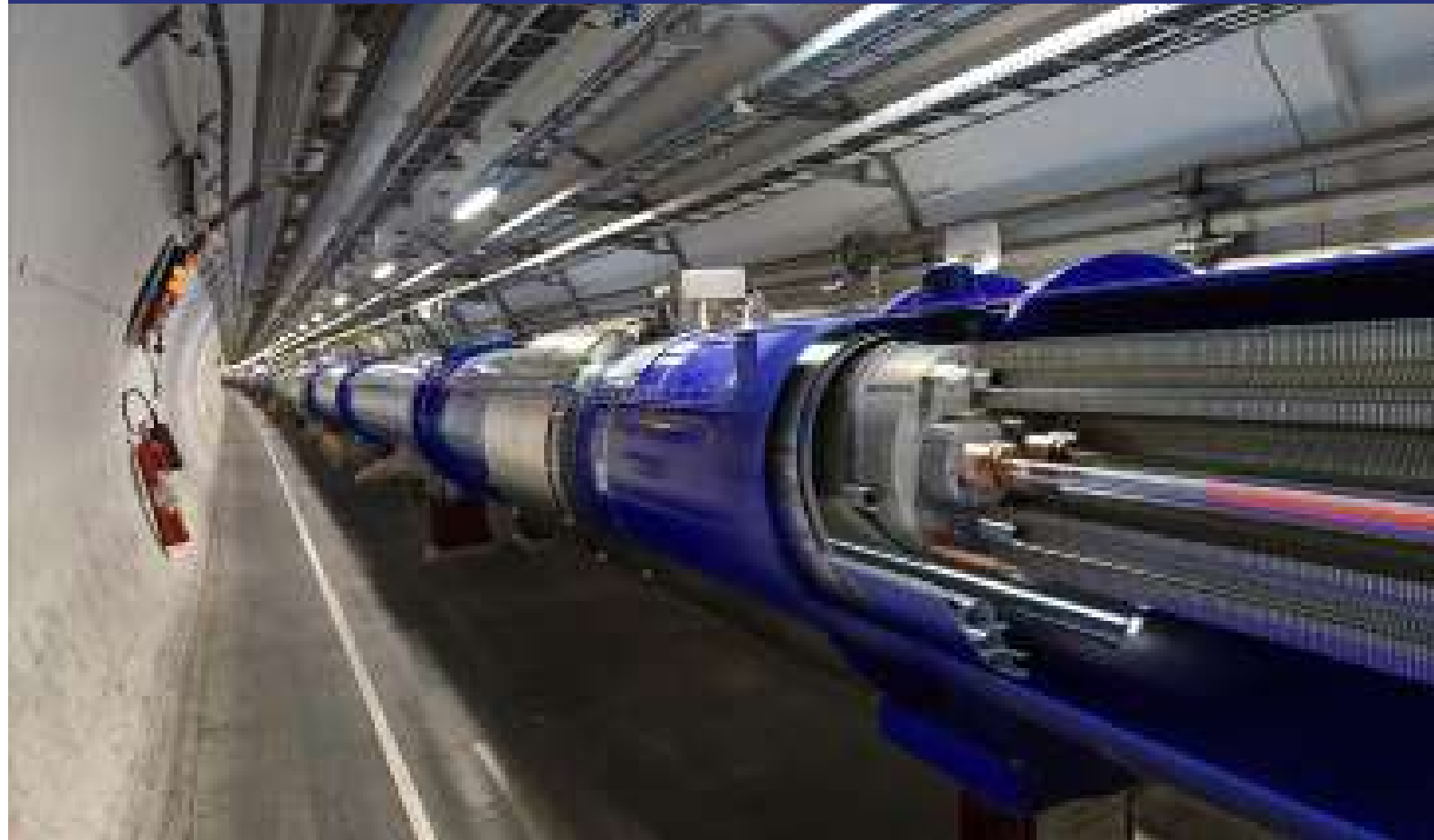
Central Solenoid coil wrapping machine supplied to General Atomics. Coils were 4.2m outside diameter x 2.6m inside diameter.



Toroidal Field coil wrapping machine supplied to Elytt. Coils were 14m high x 8.6m wide.

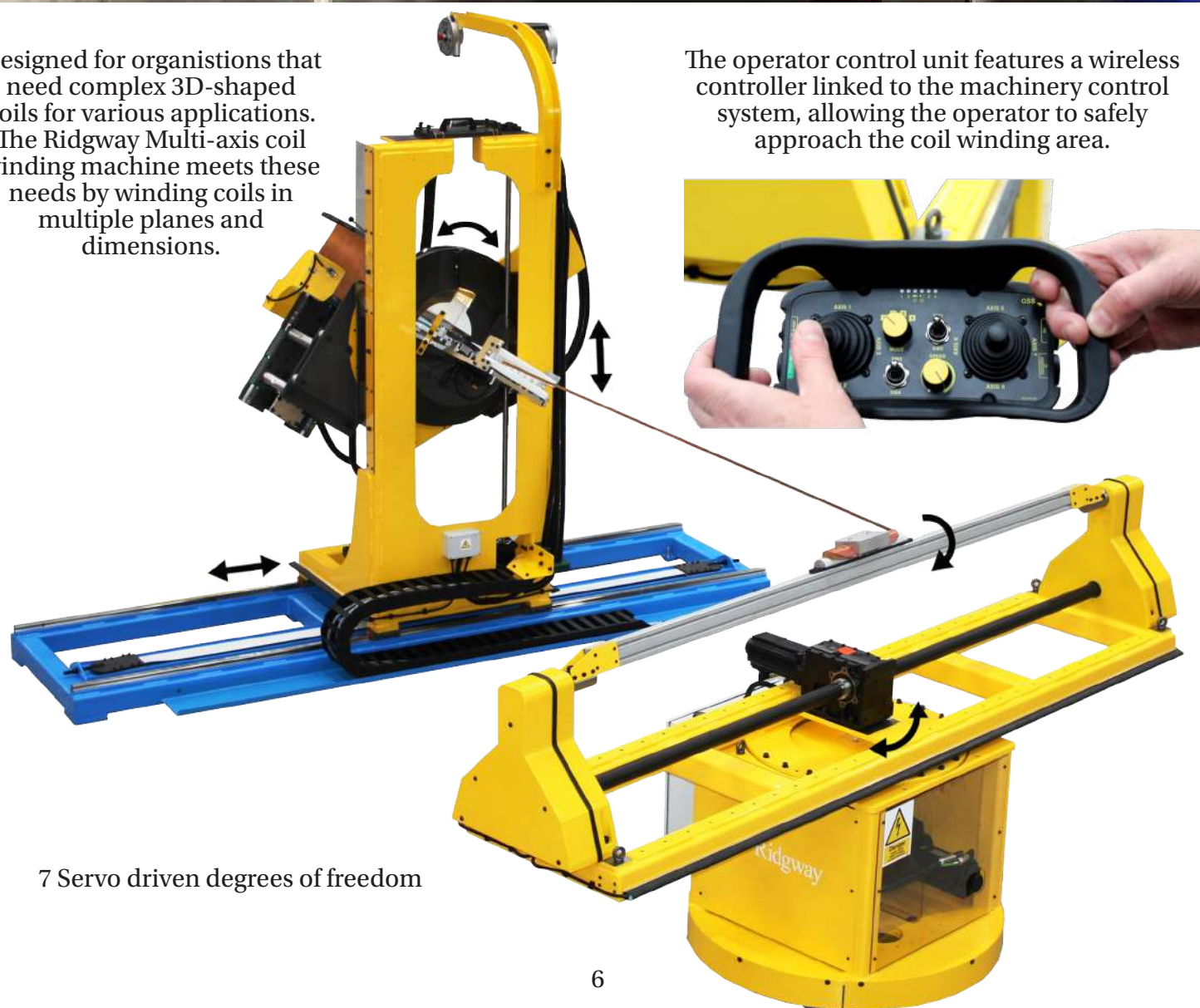




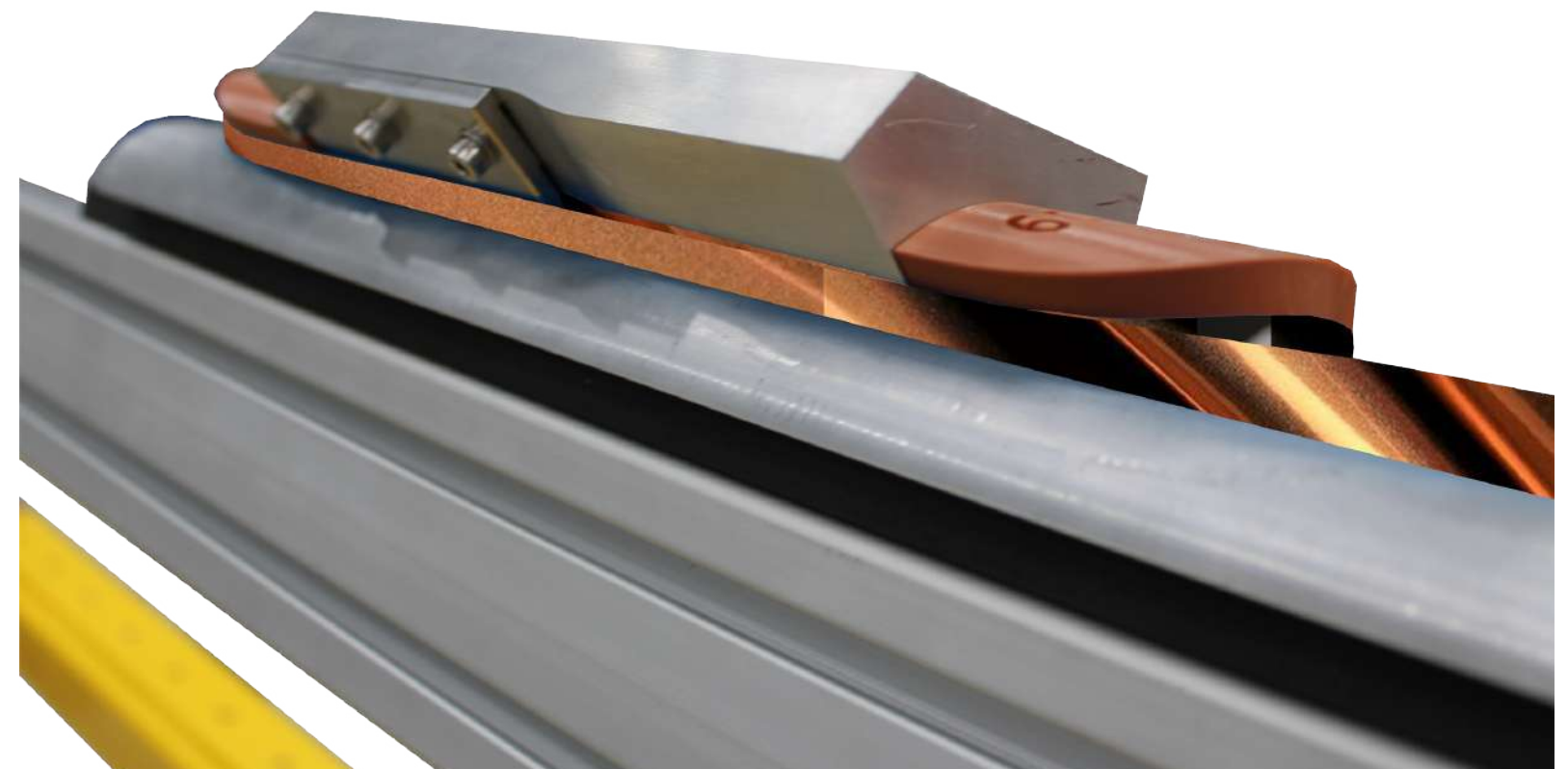


Designed for organisations that need complex 3D-shaped coils for various applications. The Ridgway Multi-axis coil winding machine meets these needs by winding coils in multiple planes and dimensions.

The operator control unit features a wireless controller linked to the machinery control system, allowing the operator to safely approach the coil winding area.



CERN and PSI are among some of the companies working on developing these coils using Ridgway Multi-axis coil winding machines.



7 Servo driven degrees of freedom



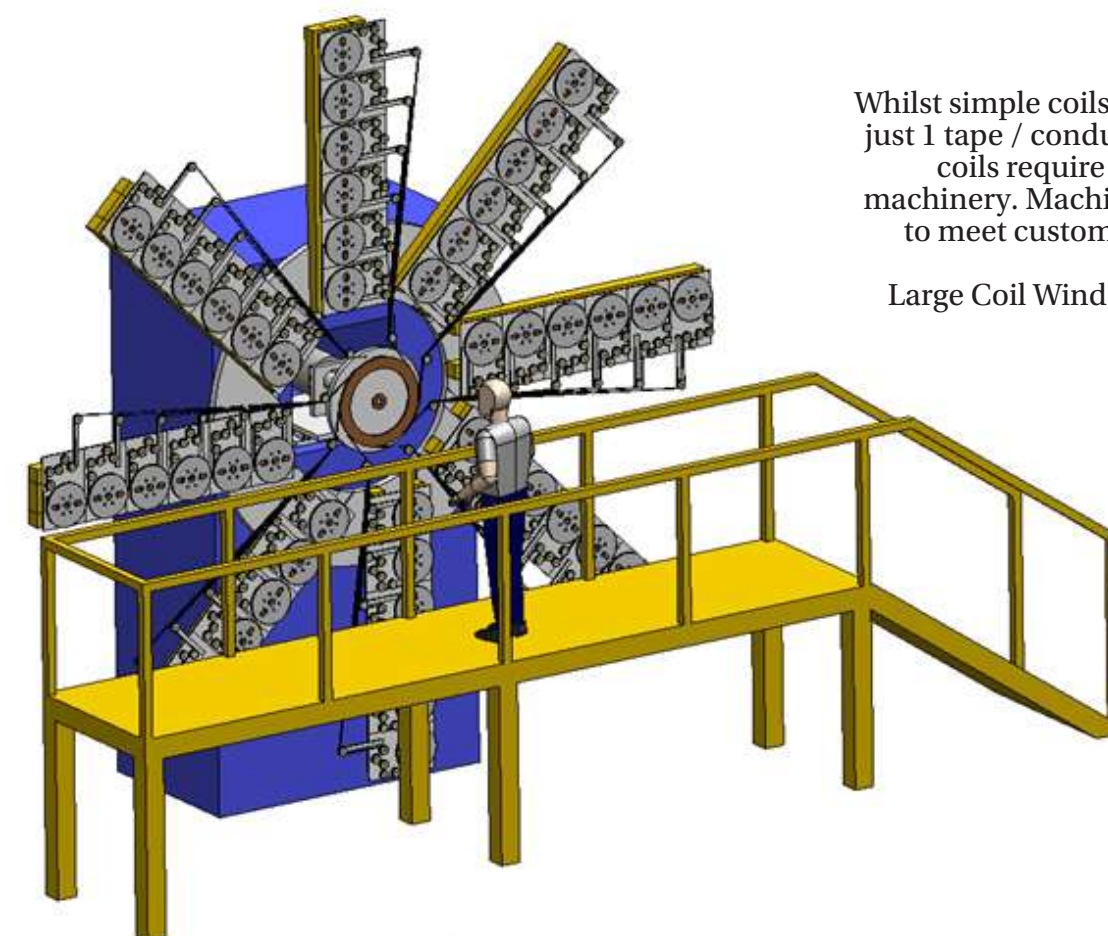


The 2D Coil Winder enables 2D / flat coils to be wound with precise tension control. Each pay-off is fitted with a dancer, load cell and length encoder systems.

It is IPC controlled and fully programmable, enabling the coil to be wound with constant or a varying tension. The winding data can be captured for quality control purposes.

The standard machine can accommodate 2 pay-off cassettes of up to 300mm diameter. The winding fixture can be up to 400mm diameter.

2D coil winding machines can be supplied to suit customer specifications with multiple pay-offs.



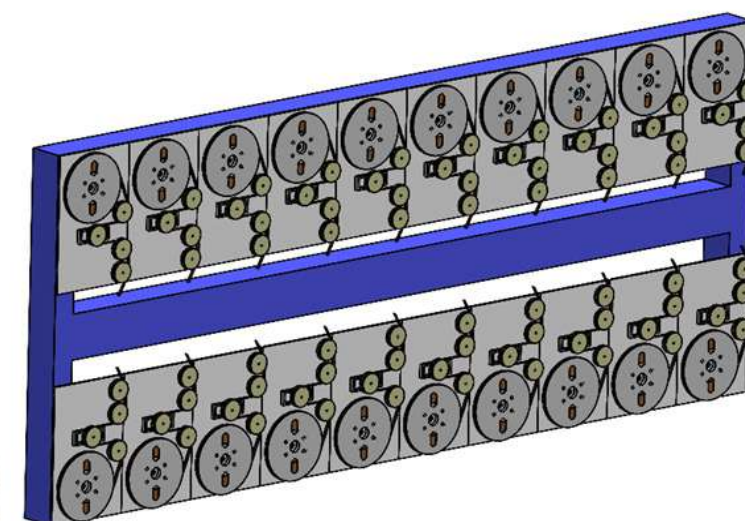
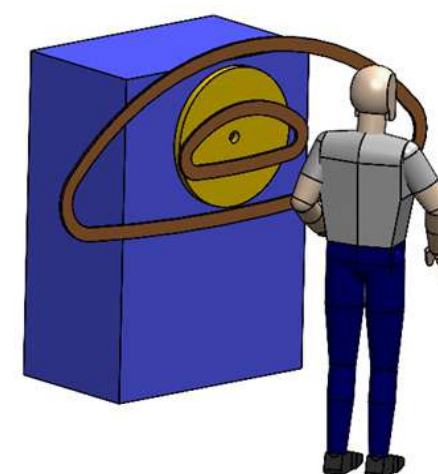
Whilst simple coils can be wound using just 1 tape / conductor, more complex coils require more complex machinery. Machines can be supplied to meet customer requirements.

Large Coil Winder with 48 pay-offs



Precision tension controlled pay-off unit complete with load cell feedback, length and spool diameter measurement.

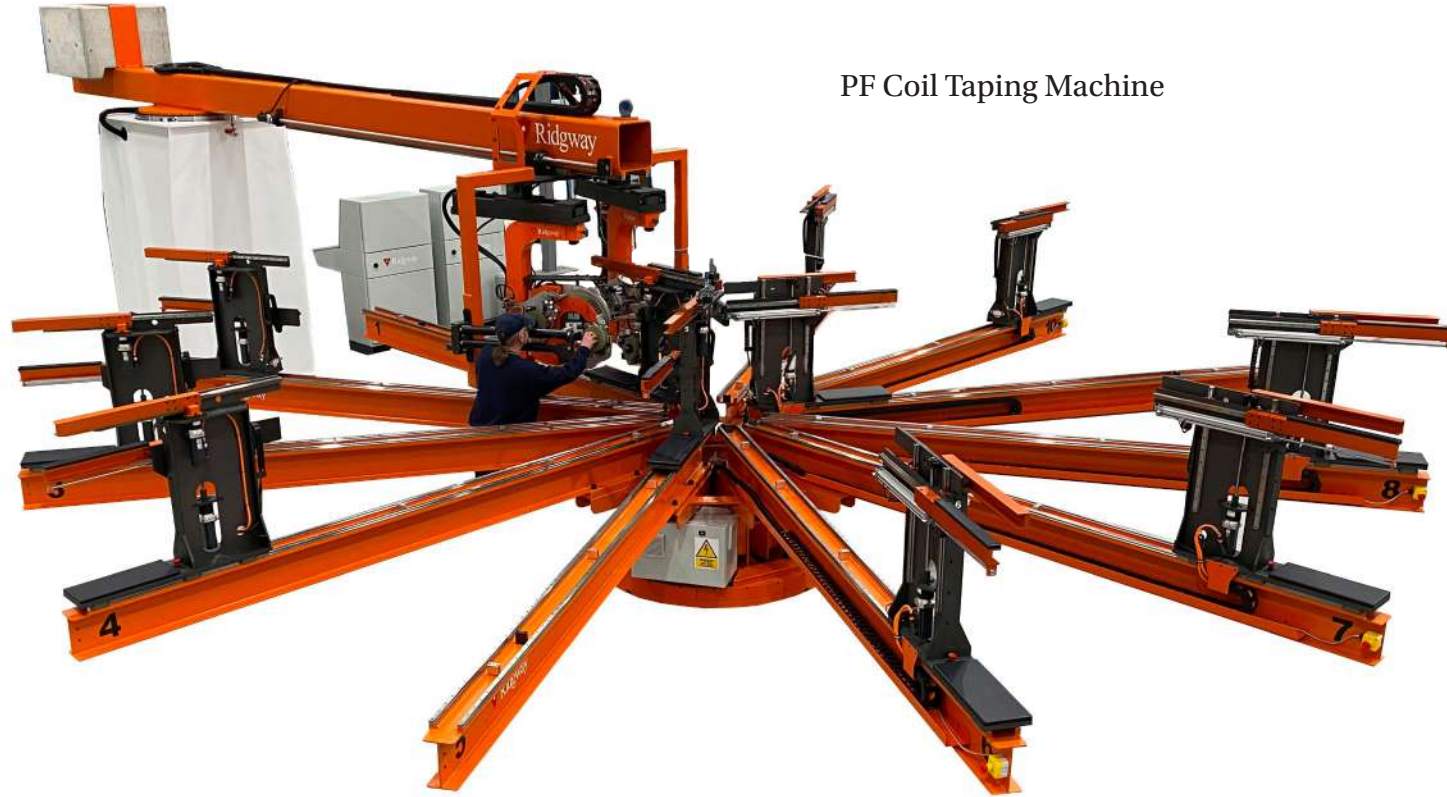
A single pay-off spindle to accommodate the HTS spools. Designed to be positioned vertically using weights to set the tension level in the superconductor. Designs are also available with electro-pneumatic or servo tension control.



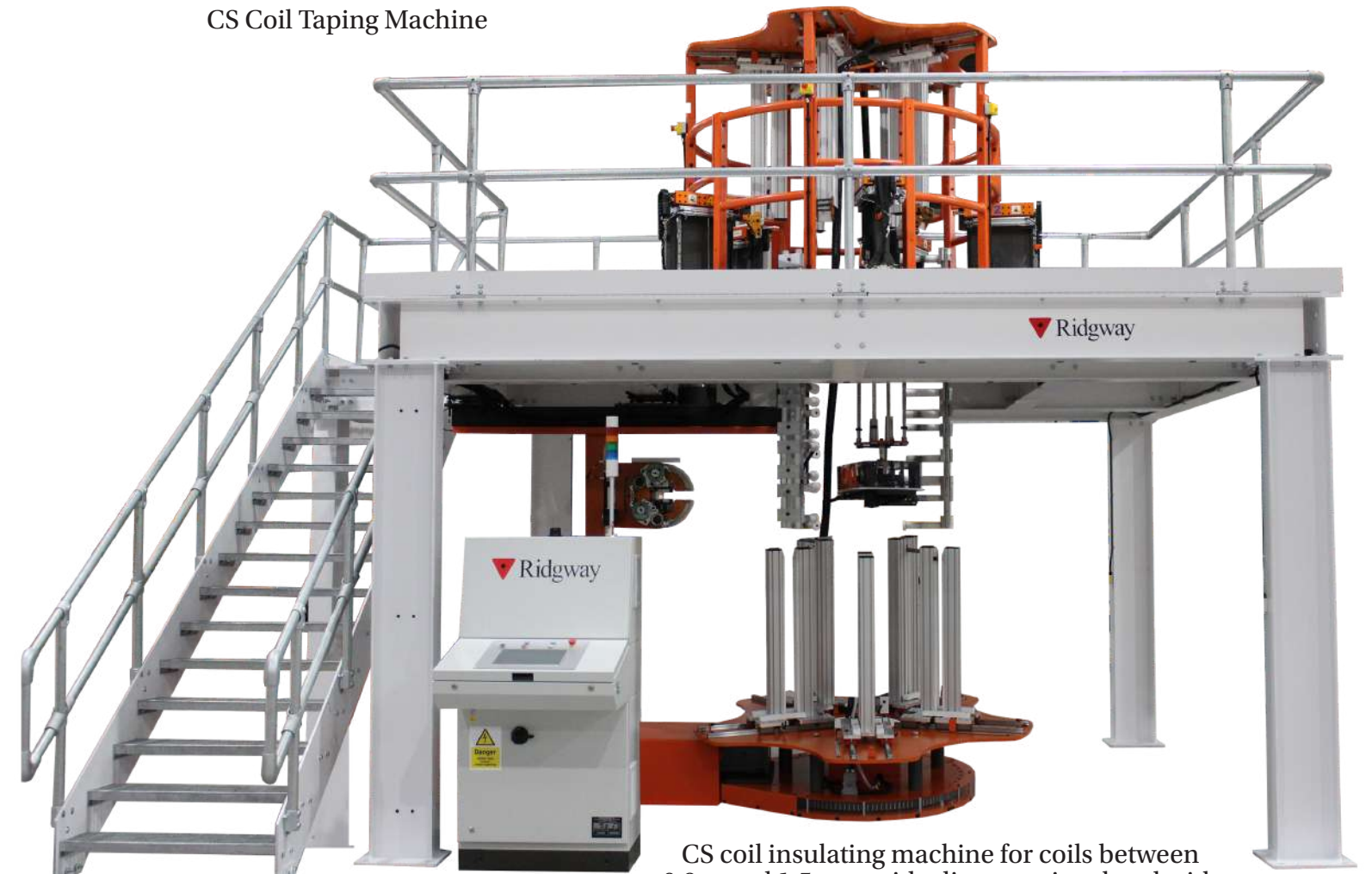
Coil Winder with 20 pay-offs



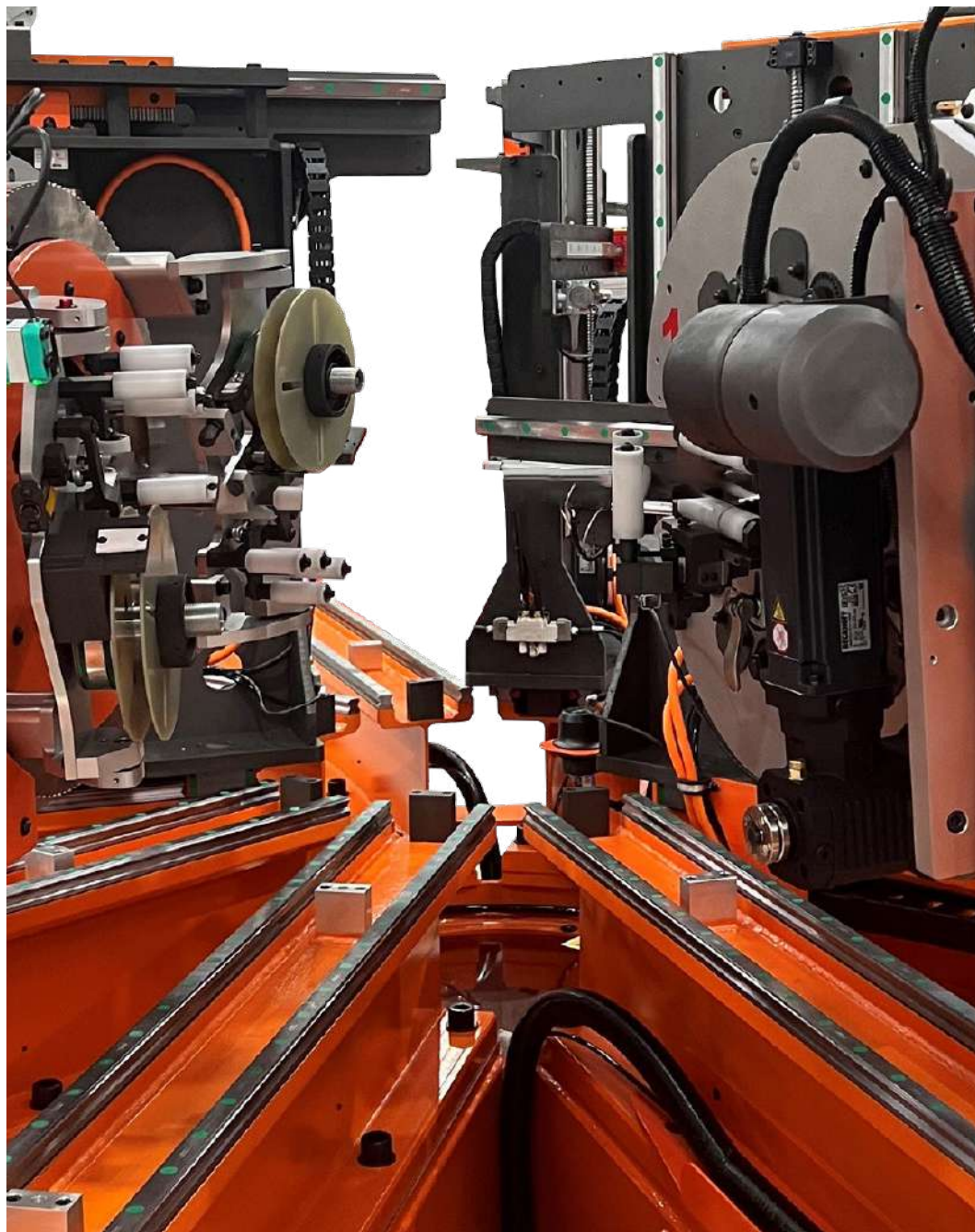
PF Coil Taping Machine



CS Coil Taping Machine

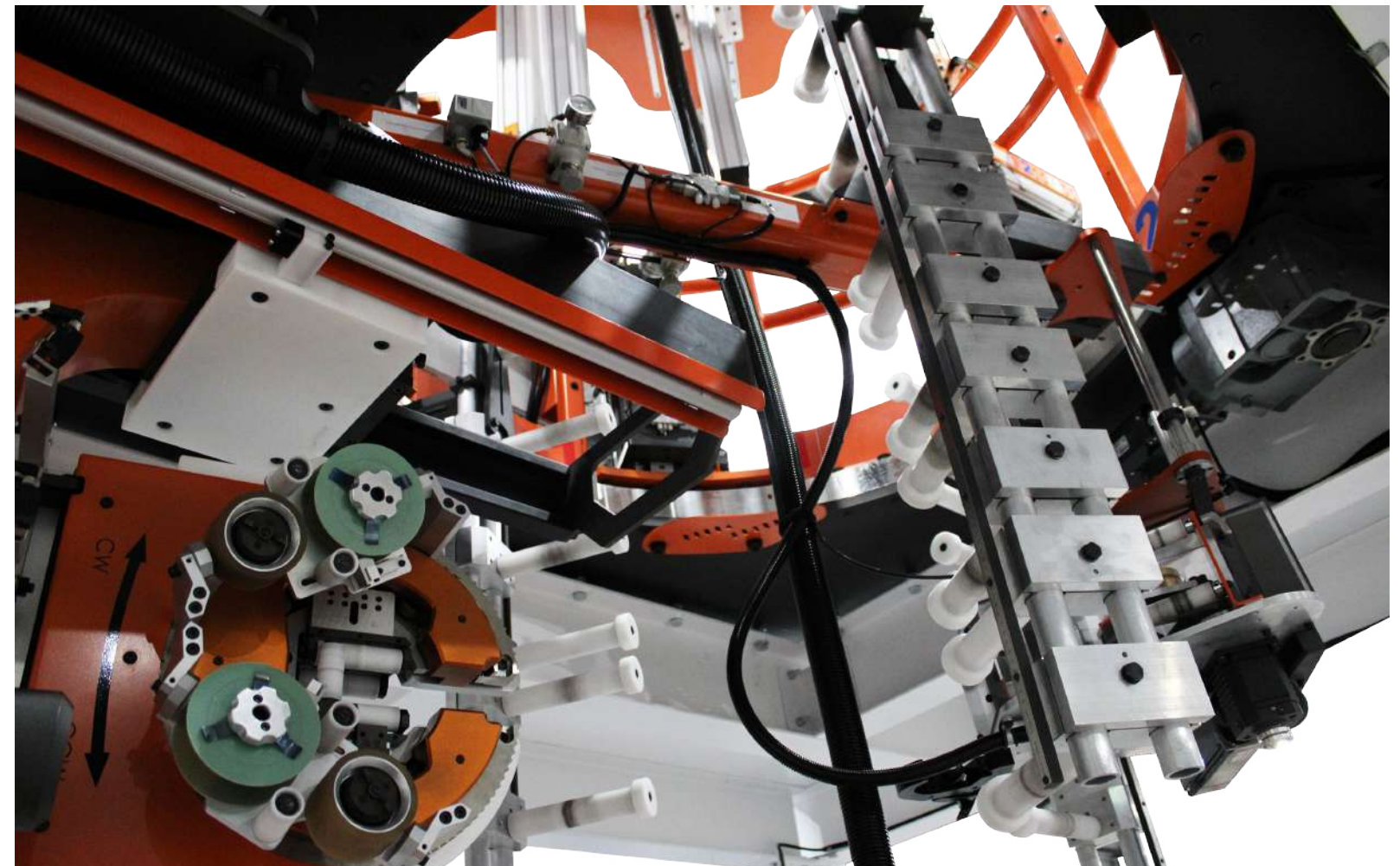


CS coil insulating machine for coils between 0.9m and 1.5m outside diameter, insulated with glass and Kapton tapes.

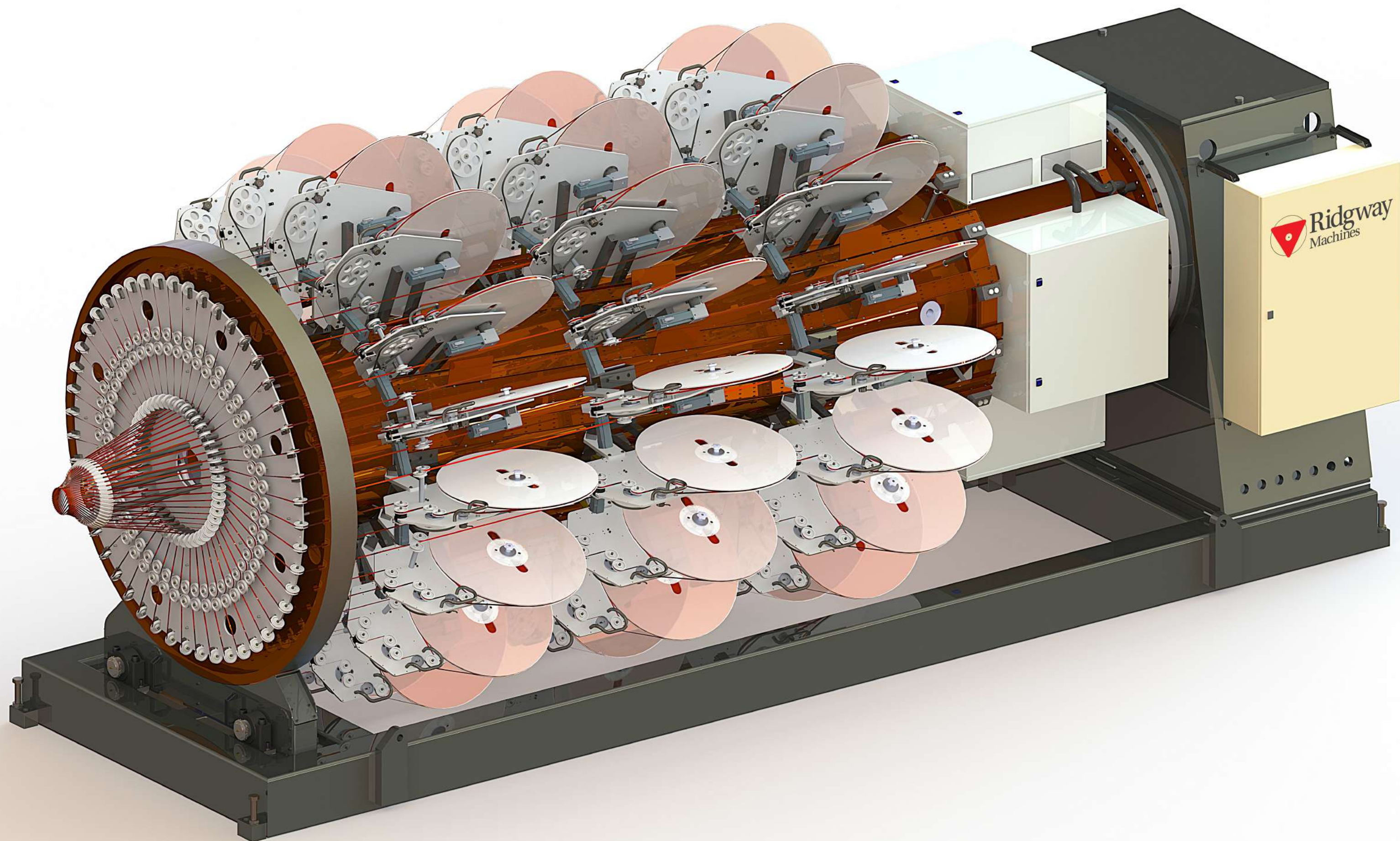


Ridgway have designed and manufactured a variety of Tokamak coil insulating machines. These machines spread the coil turns sufficiently to enable the insulation wrapping machine to apply the tapes to customer specifications.

PF coil insulating machine for coils between 0.9m and 8m outside diameter, insulated with glass and Kapton tapes.

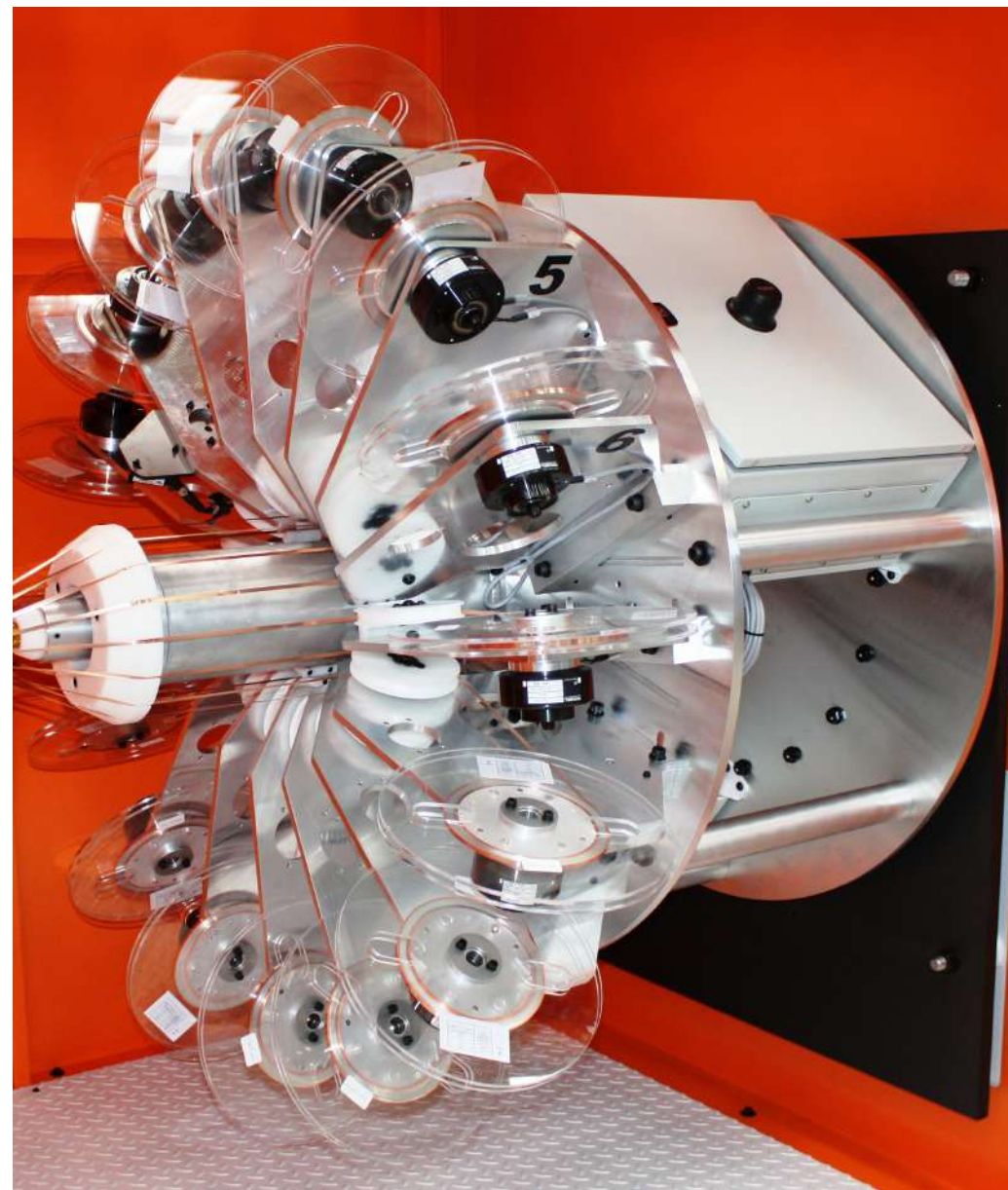








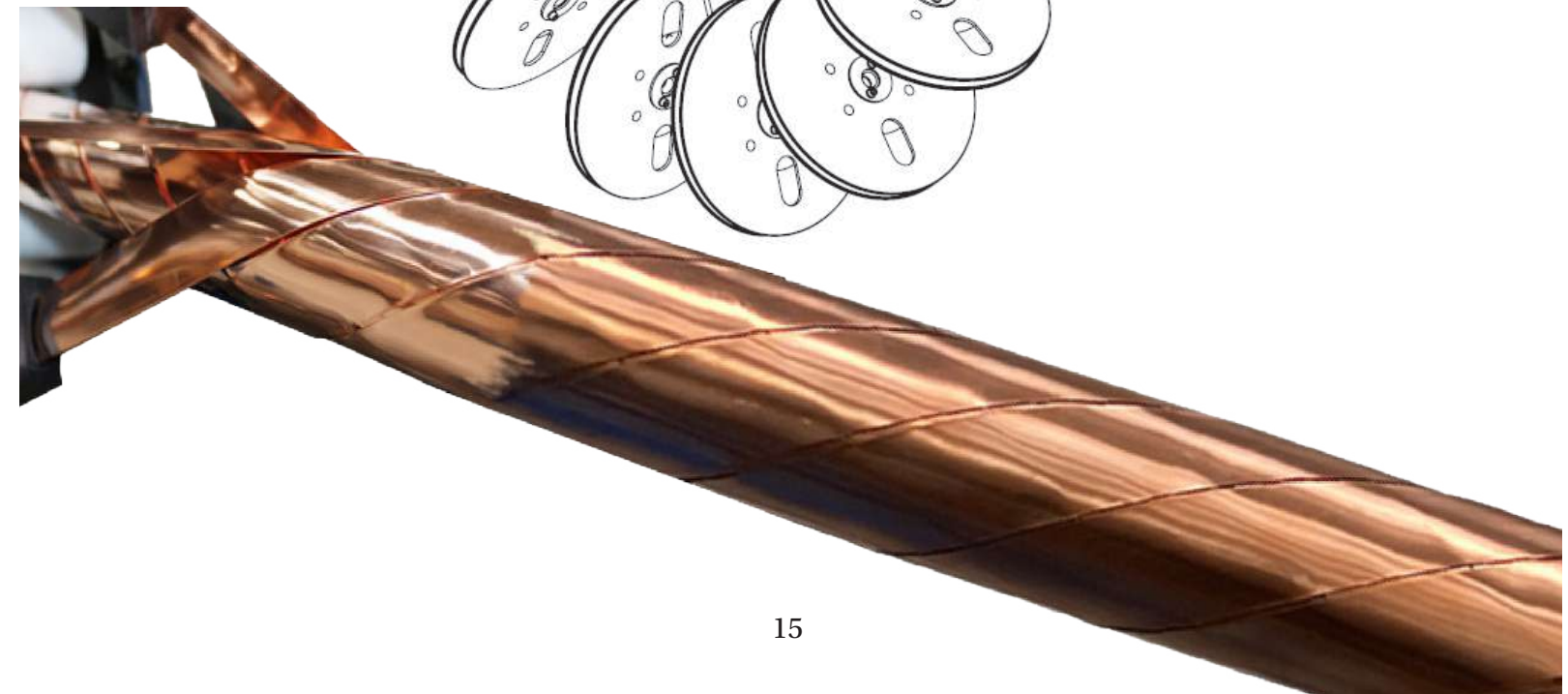
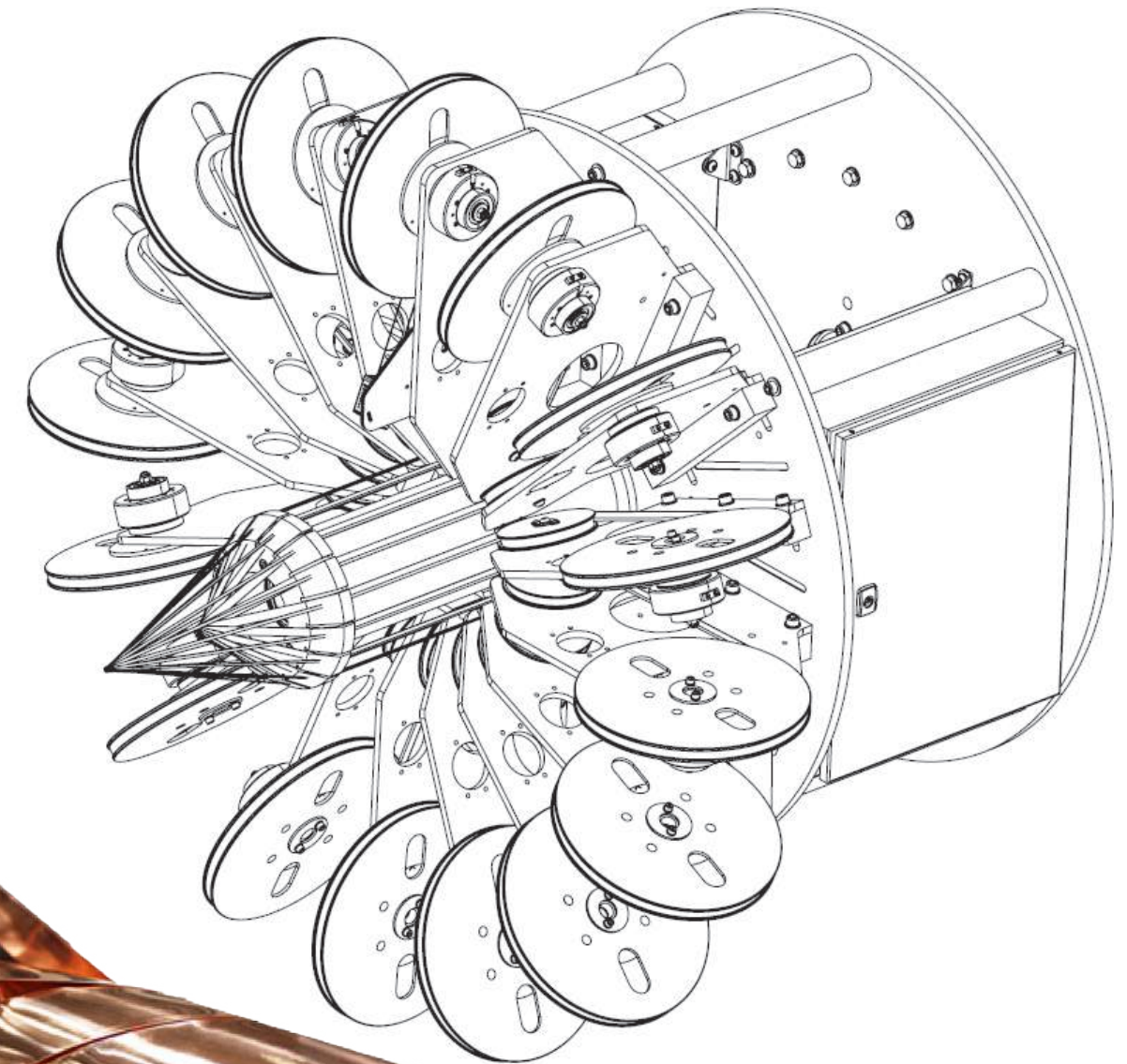
## SUPERCONDUCTOR CABLE WINDER



Ridgway have recently worked with companies supplying them with machinery to manufacture Superconducting cables using HTS technology.

Production lines have been designed and manufactured for winding of HTS conductors around cable cores. Insulation wrapping heads have also been supplied as required.

The lines have been supplied complete with drum stands, caterpillars, taping machines, winding machines and PLC control systems.





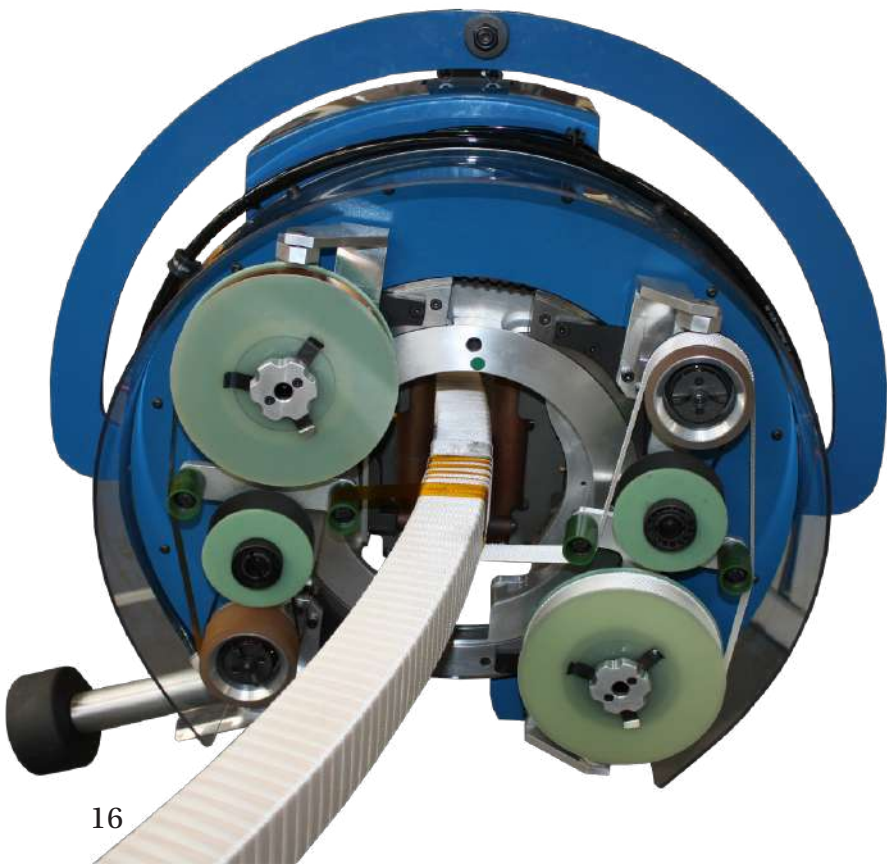
18m long x 4m wide BCT Taping Machine Gantry



Coil connection holding fixtures which are moved to suit the shape.

The suspension gantries complement the Ridgway range of BCT taping machines. Designed as a work station, a free running carriage mounted to linear rails ensures smooth lateral movement of the taping head.

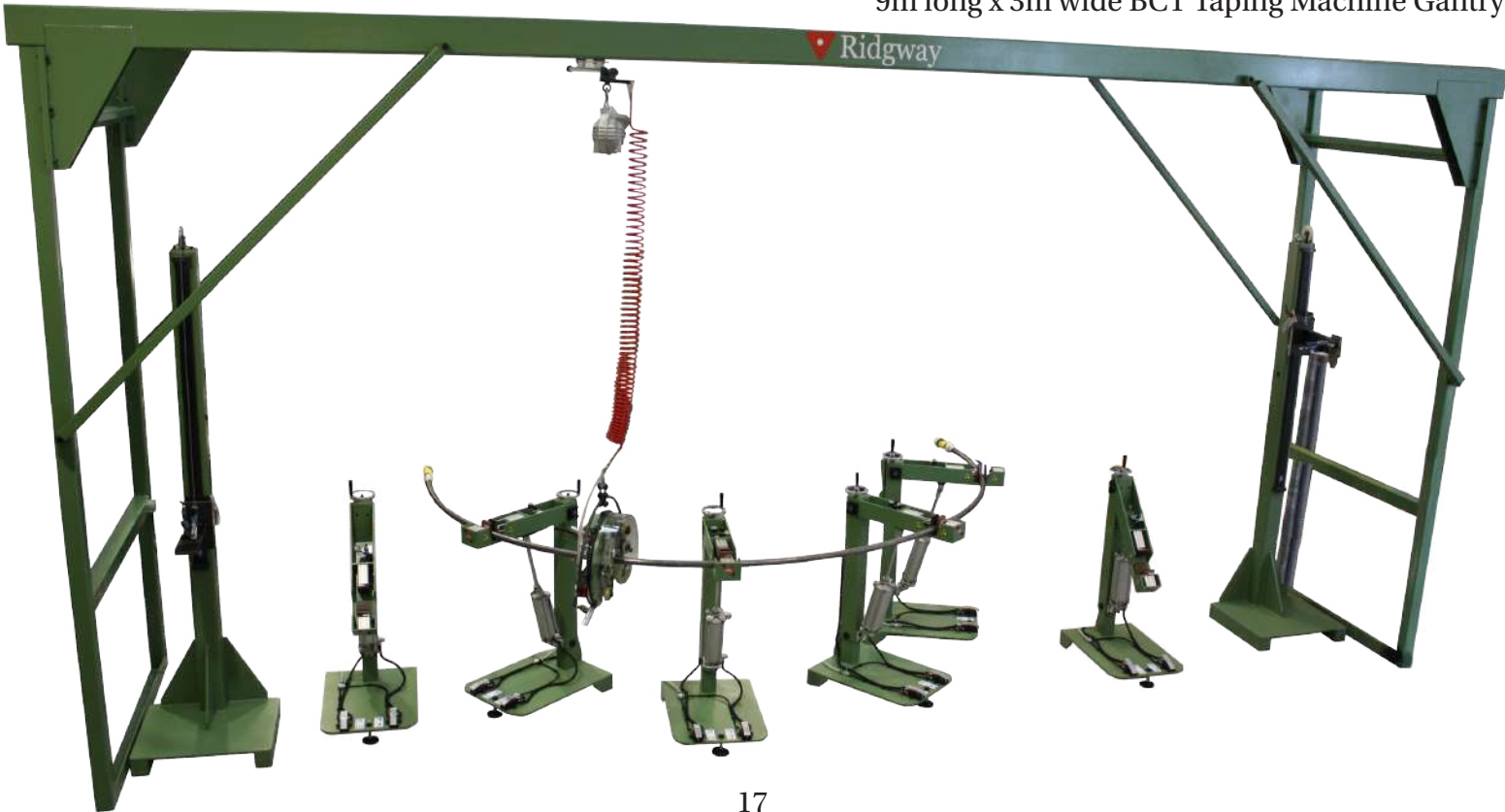
Conductors are held and supported by the moveable holding fixtures. The gantry creates a support structure for the BCT taping machine.



The BCT taping machine is designed to wrap insulation tapes to coil connections, cables and conductors.



9m long x 3m wide BCT Taping Machine Gantry





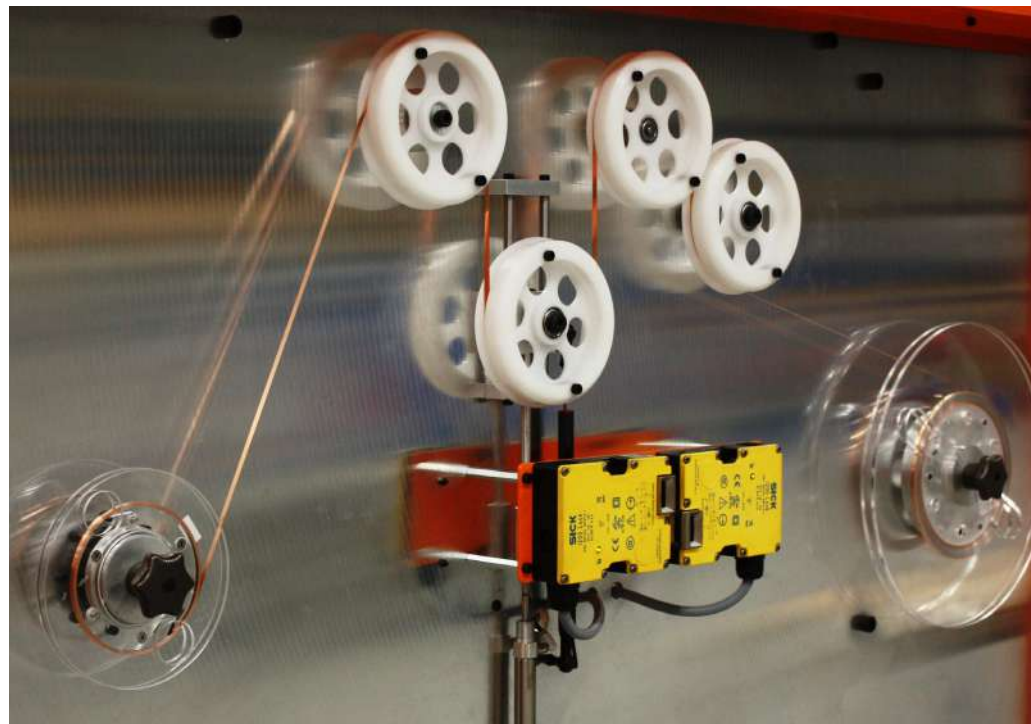
## SUPERCONDUCTOR CASSETTE REWINDER

The Superconductor Cassette Rewinder is typically used for transferring tapes / conductors from one cassette to another, rewinding poorly wound tapes / conductors with controlled and precise tension, rewinding so that a tow or tail piece can be added to carry out quality checks.

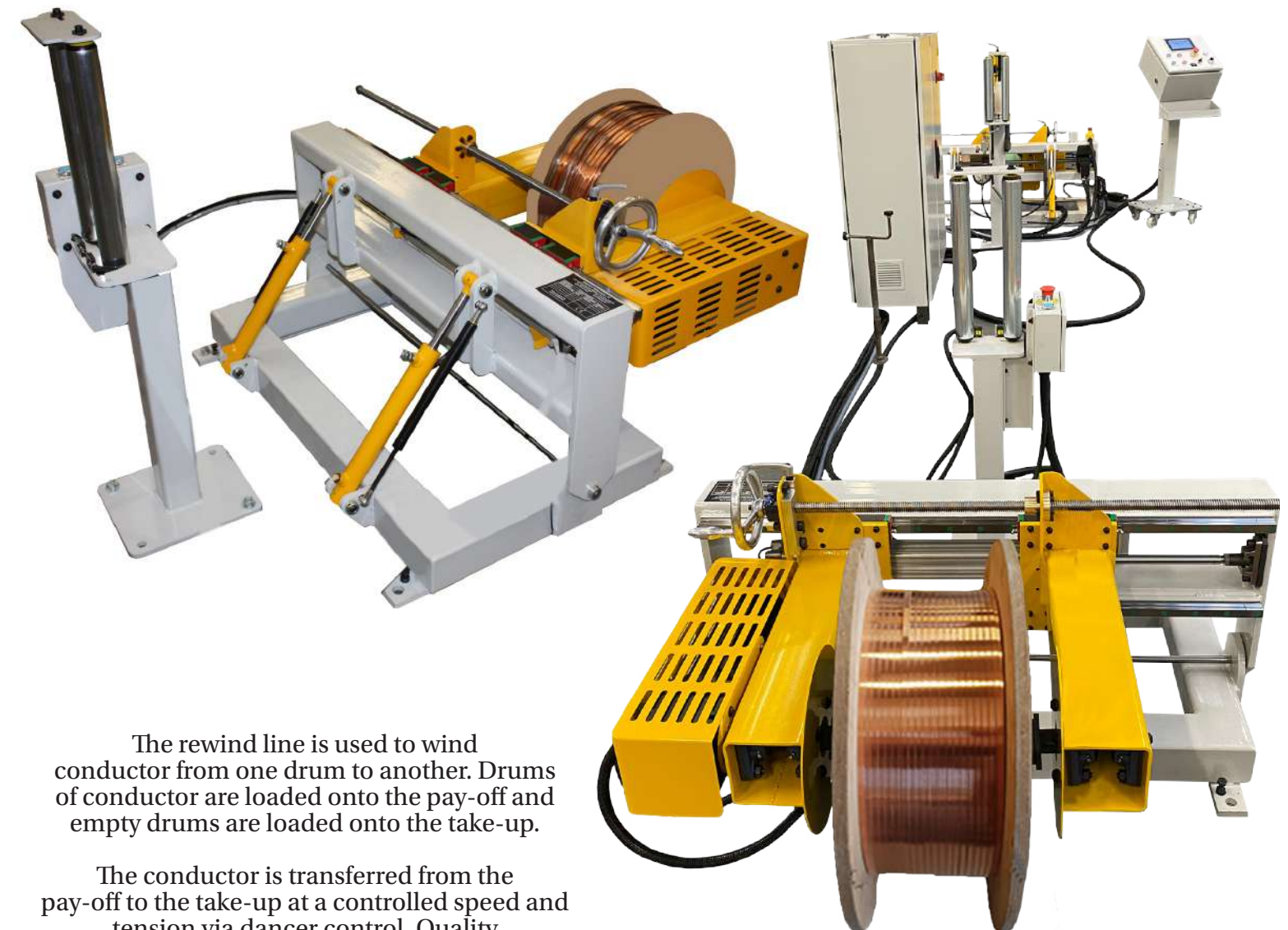
The machine includes a servo driven pay-off, take-up and dancer for precise tensions control, length counter, PLC control system with HMI and guard systems with electrical interlocks.

It can accommodate cassettes up to 600mm in diameter, tapes between 4mm and 12mm wide, tensions between 5N and 40N with speeds up to 10m/minute. Data capture for distance and rewind tension is also included.

The machine can be adjusted to suit customer specifications.



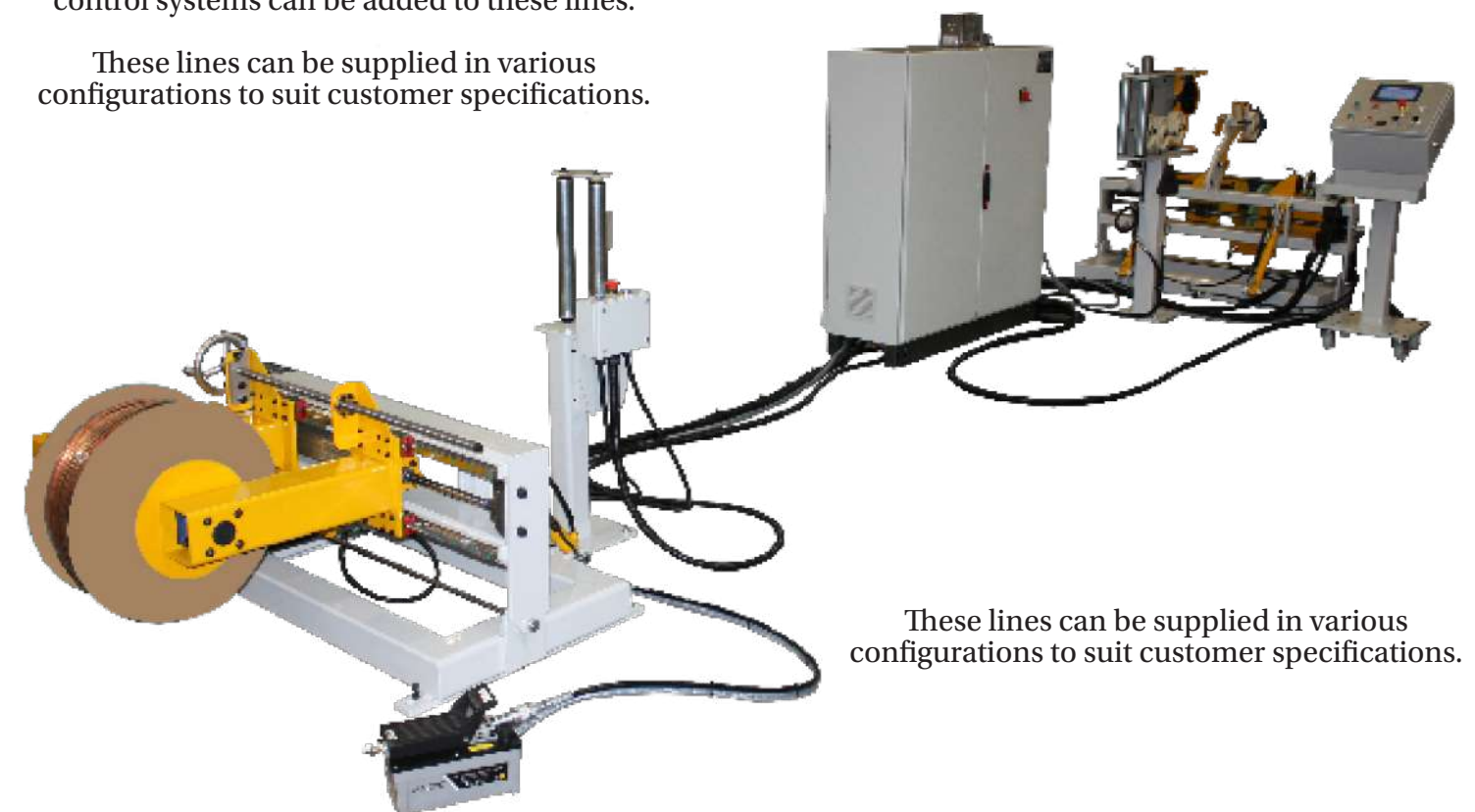
## SUPERCONDUCTOR REWIND LINE



The rewind line is used to wind conductor from one drum to another. Drums of conductor are loaded onto the pay-off and empty drums are loaded onto the take-up.

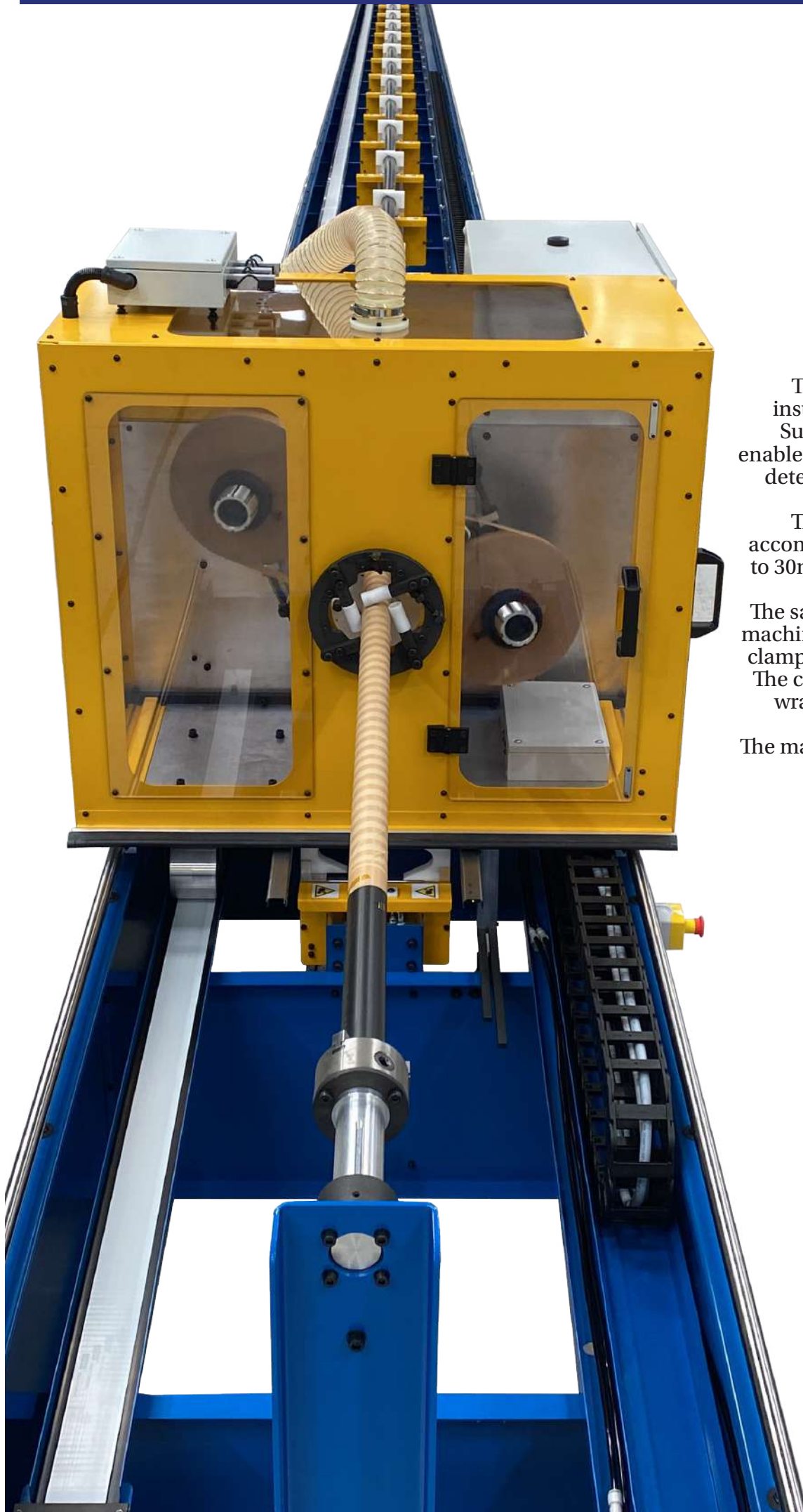
The conductor is transferred from the pay-off to the take-up at a controlled speed and tension via dancer control. Quality control systems can be added to these lines.

These lines can be supplied in various configurations to suit customer specifications.



These lines can be supplied in various configurations to suit customer specifications.





This machine is used for insulating sample lengths of Superconducting cables to enable testing of insulation types to determine their performance.

The machine shown can accommodate sample lengths up to 30m long x 80mm in diameter.

The sample cable is placed in the machine, supported on retractable clamps and secured at both ends. The cable supports retract as the wrapping head approaches.

The machine is PLC controlled and fitted with HMI.

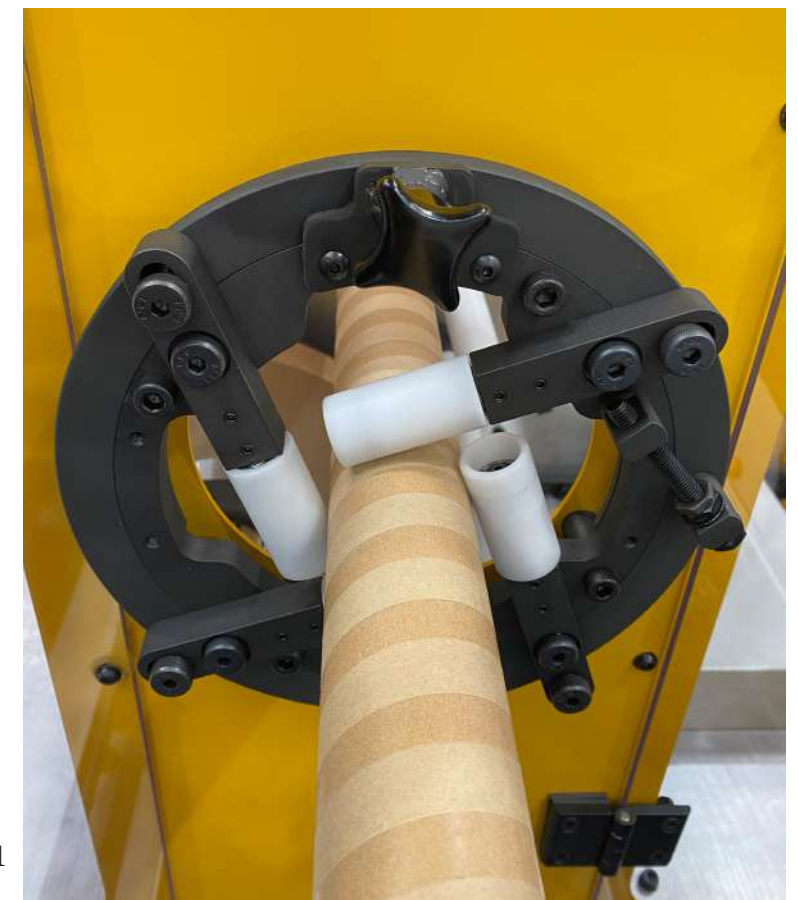


Tapes being applied

Retractable clamp unit



Wrapping machines iris guide





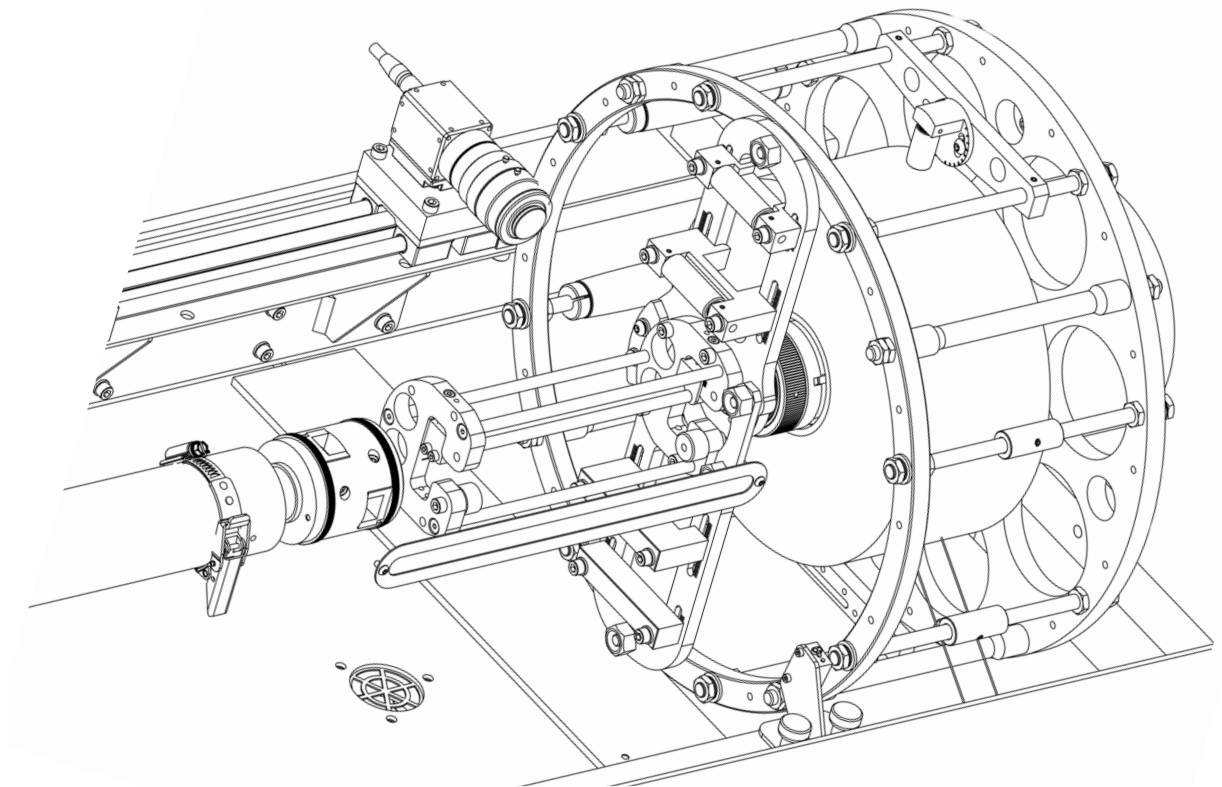
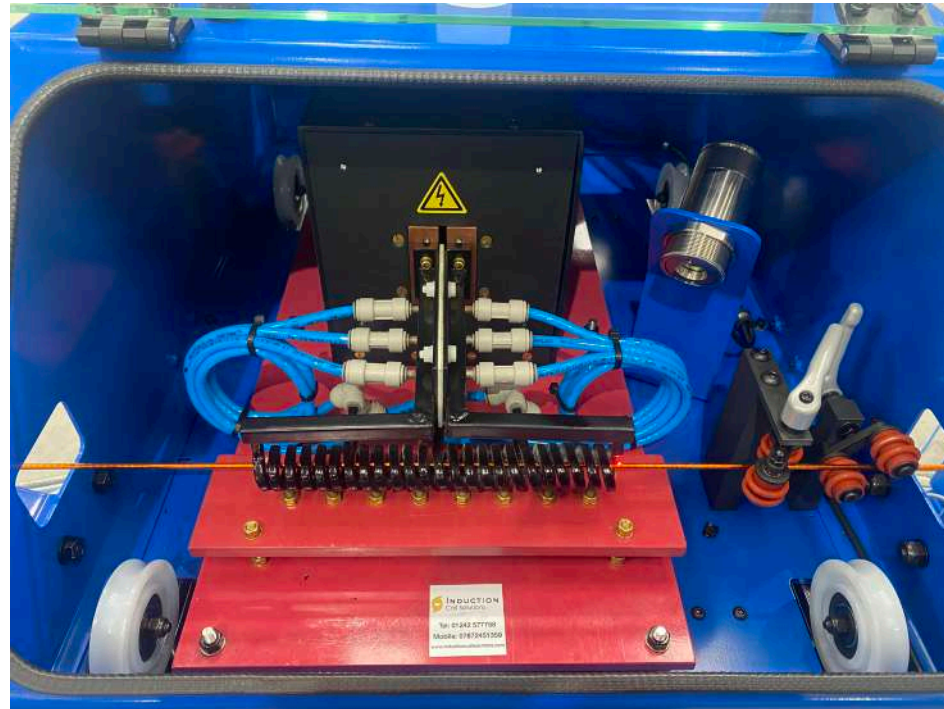
## SUPERCONDUCTOR CABLE INSULATING



Ridgway supply taping lines capable of applying a variety of insulation tapes to Superconductor cables.

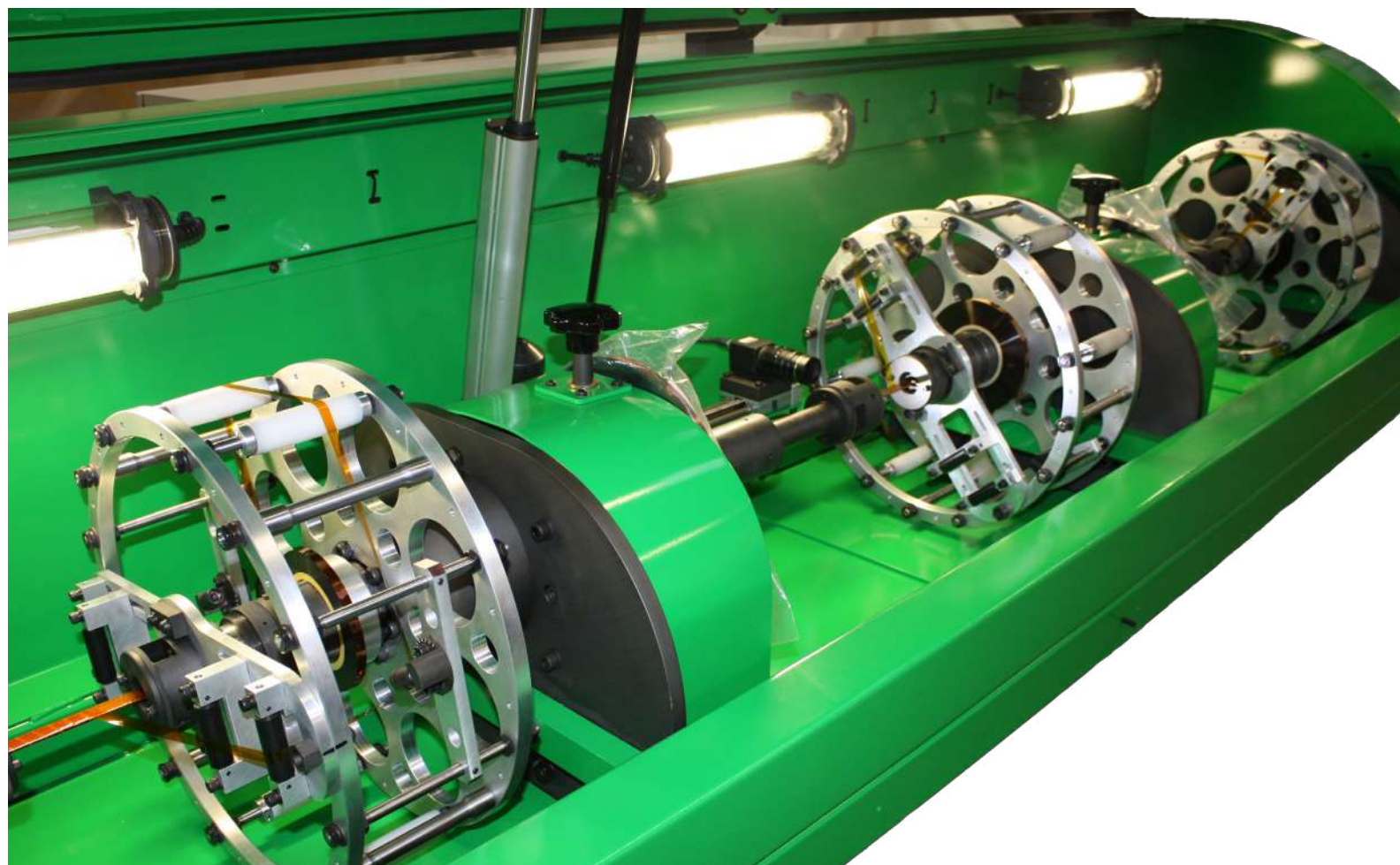
Lines come complete with pay-off, tape wrapping heads, caterpillar or capstan wheels, take-up and PLC control systems.

The lines can be supplied to customer requirements including multiple wrapping heads and a variety of pay-offs and take-ups. Quality control systems can be added including tape position measuring cameras and spark tester.



This taping line has been designed with a single high speed concentric taping head, used for the application of Kapton tape onto HTS and similar conductors.

Cassettes of conductor are loaded onto the pay-off stand or the conductor is then fed through the integrated dancer, into the taping machine, passing through the spark tester, before being wound on the take-up stand.







# Ridgway Machines



## Other Solutions



Wire & Cable  
Taping Machinery



Coil Taping  
Machinery



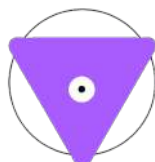
Superconductor  
Cable & Coil Machinery



Coil Manufacturing  
Machinery



RTP & TCP Taping  
Machinery



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