

WIND SOLUTIONS

GRID CONNECTIVITY + RELIABILITY

From turbine to grid, substation and energy storage



EVERY CONNECTION COUNTS

When downtime can cost you millions

In 2030, 20% of our global energy will rely on wind power. You are leading the way in this rapidly changing industry. Your success depends on reliable, high-performing connections. Connections that last as long as your wind farm's lifetime and can withstand the harshest environments – with no maintenance. Connections that can meet the increasing demand for electrical performance, that are easy to install and safe for your installers and operations.



That's why we make sure every connection counts – from early design to installation and commission, and especially during full operation.

With over 60 years of experience dedicated to the energy industry, we understand your situation and are ready to help you overcome even the toughest challenge.

OUR SUPPORT COMES IN ALL SIZES.

From a 12 MW onshore wind farm to a 752 MW offshore park, we have the expertise to meet your needs.



THE REAL COST OF CONNECTIONS.

A single crimp connector caused a fire in a nacelle that destroyed an entire \$3 million onshore wind turbine. The customer then changed to TE's shear bolt connector technology for future wind farms.



ONE CONNECTIVITY PARTNER

For safe, reliable, high-performing wind farms

From turbines to grids, substations and energy storage – we are one source for multiple connectivity and sensor needs. At every step of the way, we'll show you why TE equals more.

CONSULT

Wherever you're located, our TE experts and network of authorized distributors are ready with knowledgeable technical support to help you select the right solutions for your wind farm.

TEST

In our labs, we can directly test the custom solution we designed together. We can also test the cable you selected to our products to ensure you get the highest performance and reliability.

DESIGN

Our engineering team can collaborate with you to create a custom solution. Our research and development teams have years of industry experience and thousands of patents, which we can leverage for your ideas.

TRAIN

Wind farms require different cable preparation protocols due to the multiple cable types available, which increases the chances of incorrect installation. We deliver tailored installation training and competency assessments for your installers, trainers and supervisors.



Any connection can change the world

ENABLING MORE THAN

120 GW

WIND GENERATION WORLDWIDE OVER THE PAST TEN YEARS

+ EQUALS MORE



REDUCED TOTAL COST OF OWNERSHIP

Gain efficiency with one supplier for your onshore and offshore wind farms. Our field-proven solutions last long, which helps your bottom line.



INSTALLER & ENGINEERING SUPPORT

Improve installation accuracy and your wind farm design. We'll support you with custom solutions, training, and a product selection guide.



EASY, FAST, SAFE INSTALLATION

Shorten installation time and enable pre-installation to save time and money with our compact and safe solutions.



GRID RELIABILITY

Rely on our high quality brands, the proven service life of our products and installer support to help you deliver an uninterrupted power supply.



GRID MONITORING

Build a more intelligent network. Our Smart separable connectors with voltage sensor measure and track variables in your SCADA system.



WILDLIFE & ASSET PROTECTION

Reduce your risk of fire hazards with our customizable solutions that insulate your wind turbine and protect your substation from outages caused by wildlife.

STAY UP AND RUNNING

No matter how tough the environment

Our connectivity products are high quality and field proven. They are engineered and tested specifically for the wind farm environment so they are durable to tackle the toughest humidity, temperatures, and corrosion.

Our relentless dedication to materials science means our products are built to withstand electrical voltage, partial discharges, heating cycles and mechanical vibration. And they are designed with installation ease in mind – taking into account vertical space constraints. They comply with the IEC, IEEE, GB/T and the relevant international standards.

We are trusted by leading OEM of turbines, switchgears, and transformers, as well as cable manufacturers, EPCs and utilities to tackle the global renewable challenge head-on.

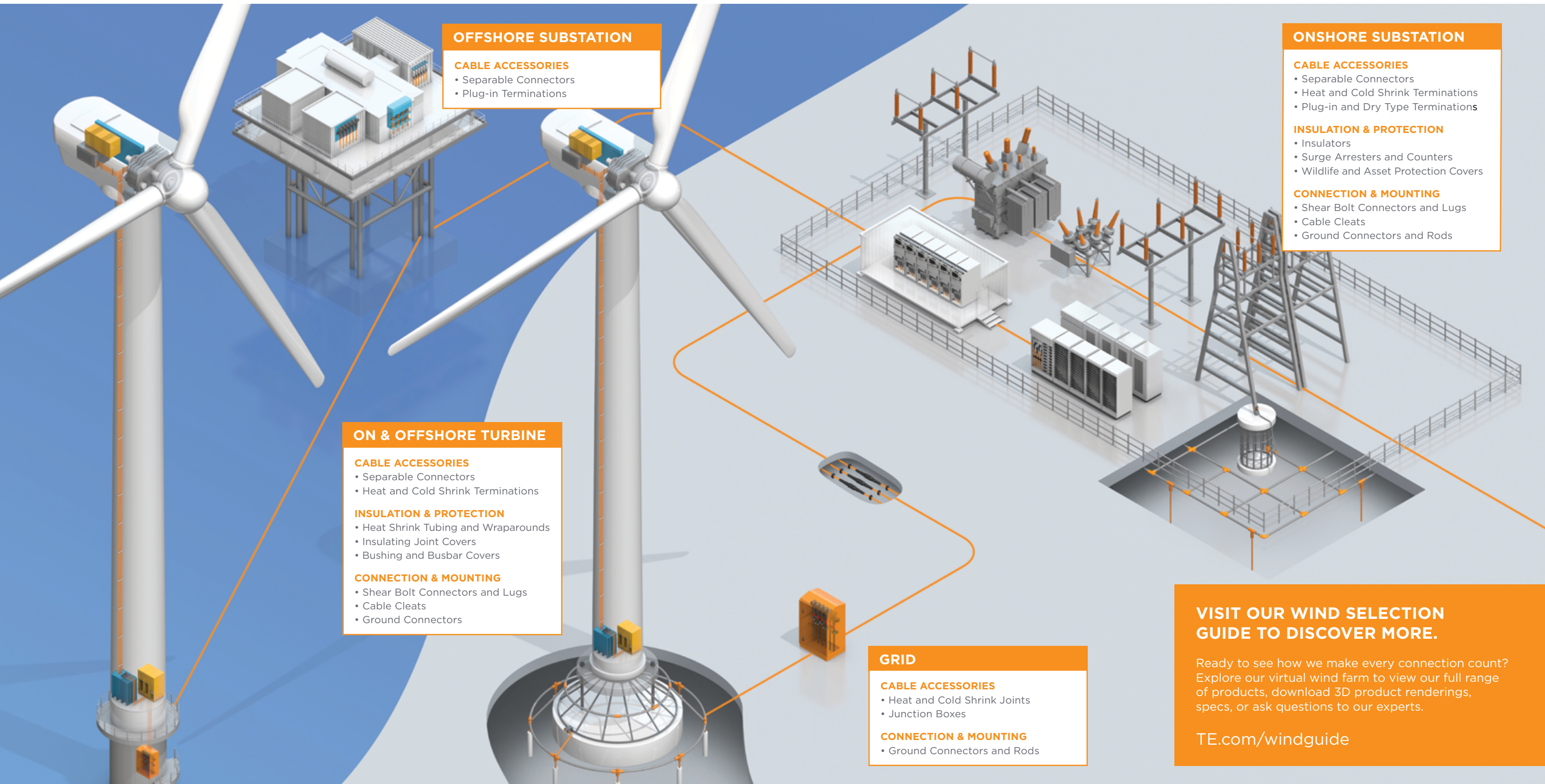
BOTTOM LINE: DURABILITY AND INSTALLATION ACCURACY ARE CRITICAL.

A failure of cable accessories in a 2 MW turbine can lead up to \$30,000 in repair costs and up to \$100,000 in lost revenue.

WE ARE THE BRANDS YOU RELY ON.

If you know Raychem, you know TE Connectivity. We are the inventors of heat shrink technology, and we have nearly three decades of proven performance in cold applied technology. Our products are trusted the world over for 'install and forget' reliability.





OFFSHORE SUBSTATION

CABLE ACCESSORIES

- Separable Connectors
- Plug-in Terminations

ONSHORE SUBSTATION

CABLE ACCESSORIES

- Separable Connectors
- Heat and Cold Shrink Terminations
- Plug-in and Dry Type Terminations

INSULATION & PROTECTION

- Insulators
- Surge Arresters and Counters
- Wildlife and Asset Protection Covers

CONNECTION & MOUNTING

- Shear Bolt Connectors and Lugs
- Cable Cleats
- Ground Connectors and Rods

ON & OFFSHORE TURBINE

CABLE ACCESSORIES

- Separable Connectors
- Heat and Cold Shrink Terminations

INSULATION & PROTECTION

- Heat Shrink Tubing and Wraparounds
- Insulating Joint Covers
- Bushing and Busbar Covers

CONNECTION & MOUNTING

- Shear Bolt Connectors and Lugs
- Cable Cleats
- Ground Connectors

GRID

CABLE ACCESSORIES

- Heat and Cold Shrink Joints
- Junction Boxes

CONNECTION & MOUNTING

- Ground Connectors and Rods

VISIT OUR WIND SELECTION GUIDE TO DISCOVER MORE.

Ready to see how we make every connection count? Explore our virtual wind farm to view our full range of products, download 3D product renderings, specs, or ask questions to our experts.

[TE.com/windguide](https://www.te.com/windguide)

OUR WIND PORTFOLIO HIGHLIGHTS

SWITCHGEAR & TRANSFORMER SOLUTIONS

Our Raychem inner and outer cone separable connectors are easy to install, compact and adaptable to most cable types to reduce your installation time and costs.



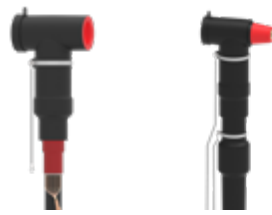
SEPARABLE CONNECTORS UP TO 42 kV

Increase grid reliability when combined with voltage sensors, testing points or surge arresters



INNER CONE CONNECTORS UP TO 52 kV

Withstand high short-circuit current thanks to the spring-loaded protection cover and the metal-enclosed design



SEPARABLE CONNECTORS FOR 72.5 kV

Easy push-on fitting with high reliability and safety thanks to state-of-the-art ZnO surge arresters

CABLE TERMINATION SOLUTIONS

Our Raychem heat shrink, cold shrink and dry type terminations handle long-term electrical stress. Easy to install with high-reliability thanks to our material science innovations.



COLD SHRINK TERMINATIONS UP TO 52 kV

Components are pre-expanded on a spiral holdout to save time on-site and decrease risk of incorrect installation



DRY TYPE TERMINATIONS UP TO 170 kV

Filled with Rayfil®Gel for no leakages and a more environmentally friendly solution for your substation

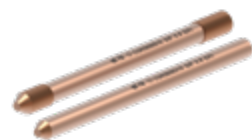


PLUG-IN TERMINATIONS UP TO 245 kV

Ensure no SF6 leakage to reduce outage risk and increase the safety of your offshore substation

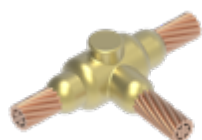
GROUNDING SOLUTIONS

Our ground rods and AMP or SIMEL connectors – exothermic welded, compression and bolted – are resistant to corrosion and help eliminate grounding failures to ensure your grid safety and effective operation.



EARTHING RODS

Made from high strength steel and copper coated to ensure high corrosion protection even deep into the earth



EXOTHERMIC CONNECTORS

High-quality permanent connectors for copper and steel conductors made from premium welding material

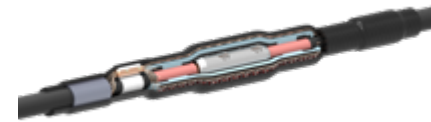


COMPRESSION CONNECTORS

Pure electrolytic copper and tin-coated to deliver high performance, easy installation with crimping tool

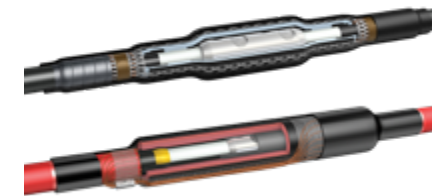
ONSHORE GRID CONNECTIONS

To connect your grid, we offer a complete range of Raychem heat and cold shrink joints for 1-core to 3-core cables, and junction boxes to separately branch-off joints or cable junctions.



JOINTS WITH SEPARATE REJACKETING UP TO 35 kV

Enable cable neutral wires to pass over cold-applied splice body, and sealed with re-jacketing



HEAT & COLD SHRINK JOINTS UP TO 42 kV

Compact design to fit in limited spaces and ease installation thanks to shear bolt technology



JUNCTION BOXES UP TO 36 kV

Full metal encapsulation for long service life, easy access to connectors for phasing and voltage indication

CONNECTION & MOUNTING SOLUTIONS

Compact and easy to install, we have a wide range of cable cleats and shear bolt connectors to reduce your stock levels.



ROTATIVE SPLIT SHEAR BOLT CONNECTORS

Allow pre-installation to gain time on-site, eliminating the need to orientate cables inside the tower



SHEAR BOLT LUGS FOR ALUMINUM FLEXIBLE CABLES

A more cost-effective solution compared with copper cables, meets the new cable flexibility needs



CABLE CLEATS

Restrain cables to prevent excessive cable deflection during short circuit events with their robust design

INSULATION & PROTECTION SOLUTIONS

Our Raychem heat shrink and cold-applied components deliver high electrical and mechanical performance to protect your cables from damages caused by bending or insulate your assets from flashover.



HEAT SHRINK TUBING

Available with flame retardant properties to mitigate fire propagation or with zero halogen for low smoke



BUSBAR & BUSHING COVERS

Fast installation and easy inspection with robust latching and hinging mechanism, highly flame-retardant



INSULATING JOINT COVERS

Reduce installation time and costs thanks to a quick roll-on application with no tools

TE Connectivity is a \$13 billion global industrial technology leader creating a safer, sustainable, productive, and connected future. Our broad range of connectivity and sensor solutions, proven in the harshest environments, enable advancements in transportation, industrial applications, medical technology, energy, data communications, and the home. With nearly 80,000 employees, including more than 8,000 engineers, working alongside customers in approximately 150 countries, TE ensures that EVERY CONNECTION COUNTS.

Learn more at www.TE.com and on [LinkedIn](#), [Facebook](#), [WeChat](#) and [Twitter](#).

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