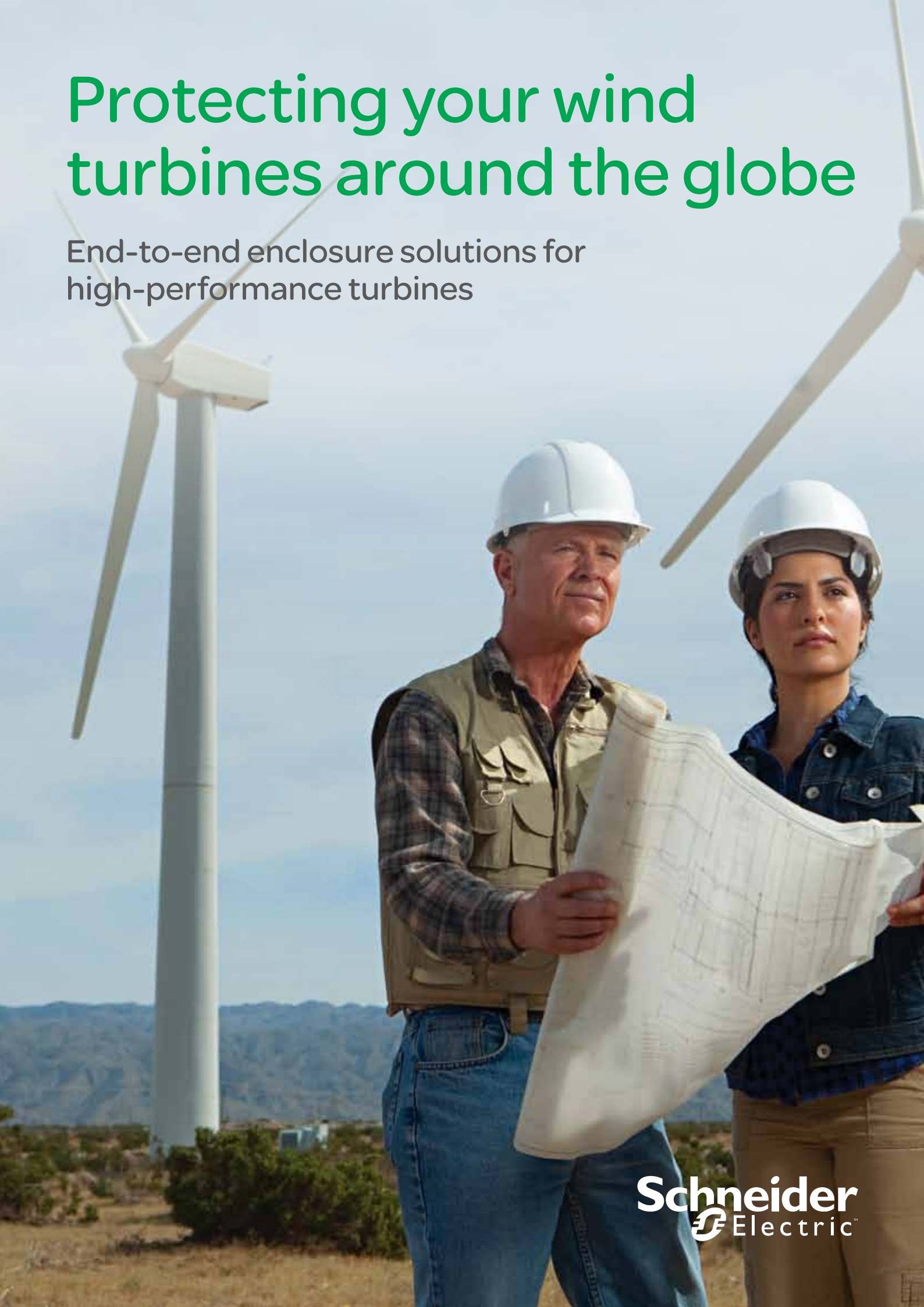
Protecting your wind turbines around the globe

End-to-end enclosure solutions for high-performance turbines



Enclosures for wind energy from Schneider Electric:

Since 1990's active in onshore and offshore wind farms across the world

+50 years and still going strong in producing high-performance enclosures

Enclosure solutions for wind power

From local product availability to worldwide services,
Schneider Electric works with you wherever your business takes you

Support from a global partner

Whether it's developing greenfield projects or retrofitting existing wind farms, Schneider Electric delivers best-in-class integrated enclosure solutions to ensure your projects run smoothly, from design and construction to operation and maintenance. Our factories are strategically located in Europe, Asia and the Americas, giving us the manufacturing and storage capacity to respond promptly to any order volumes. Having a single source for all your components simplifies supplier management, resulting in cost and time savings.

Consistency from local services

Wherever your installations happen to be, enjoy complete peace of mind knowing every location will receive the same high product and service quality. At any site worldwide, you can count on our local after-sales services to speak your language and respond to your requests during local business hours.

Quality for the long term

Central to prolonging equipment life is the reliability of each component. Schneider Electric has a complete range of internationally certified enclosures that developers and contractors can rely on to effectively protect and insulate all the devices in a turbine. We have the long-term outlook the wind energy industry needs to ensure product and service continuity.

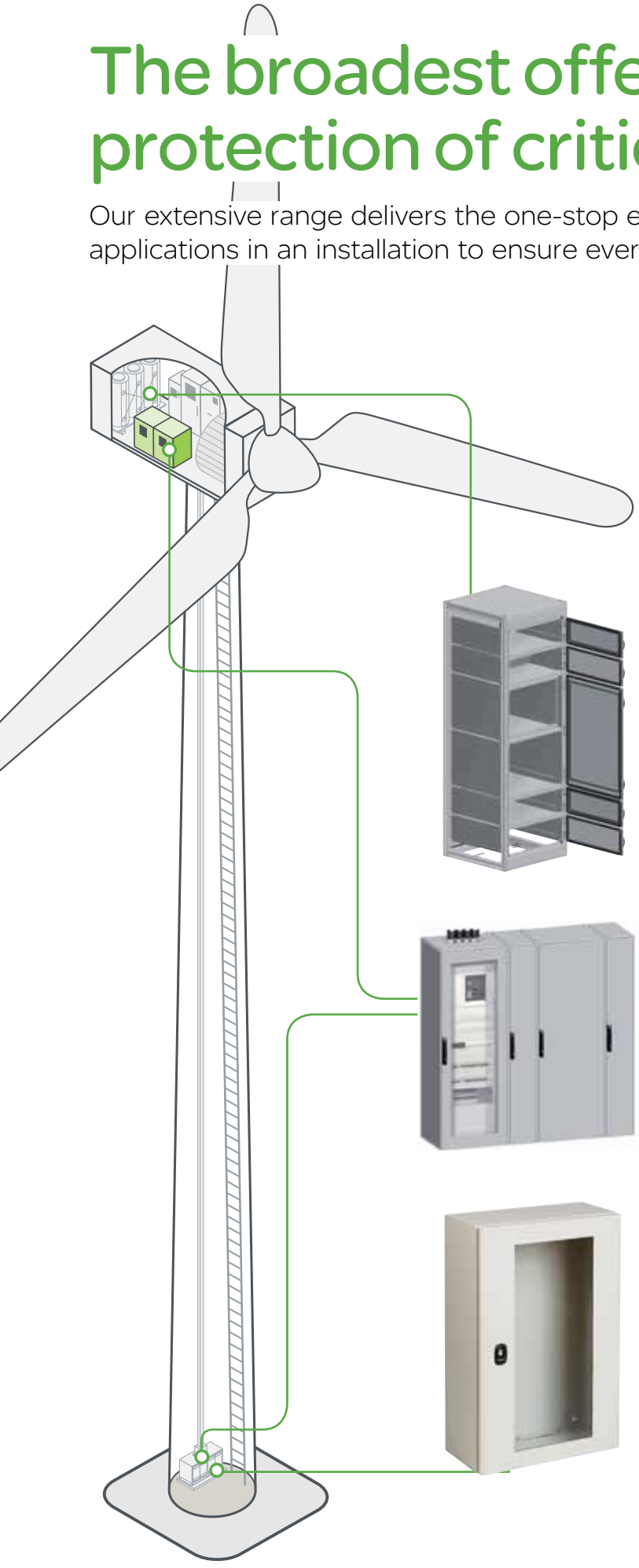
Global support
for the entire project life cycle

Green Premium™ Product
eco-mark confirms our commitment to green products and solutions

Stamps of approval
from top international quality certification agencies

The broadest offer for complete protection of critical components

Our extensive range delivers the one-stop enclosure solutions covering all applications in an installation to ensure every turbine device performs optimally



Control of the turbine & main power circuit

Steel Spacial SF-SM

- 18-fold frame with the highest inertia momentum in the market
- Maximizes available space
- Painted steel, 304L or 316L stainless steel
- UL type 1, 3R, 4, 4X, 12 classified
- Single and double-door

Auxiliary circuits

Spacial for Prisma

- Ventilation grilles
- IEC 61439-1 verified
- From 630A to 3200A
- Painted steel
- IP 55, IK 10

Auxiliary panels in step-up substations and lift control boards

Wall-mounting and junction boxes

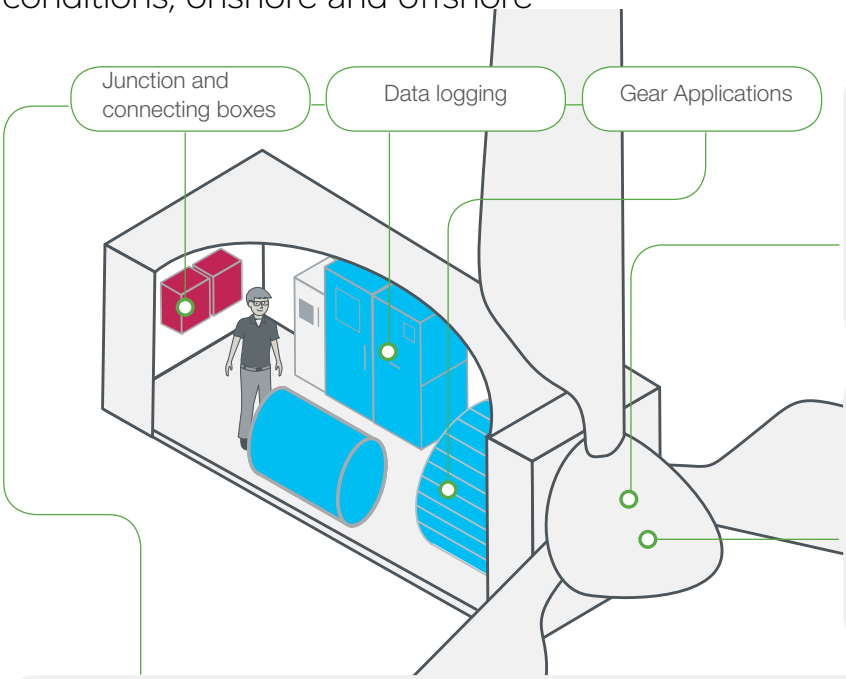
- Painted steel, 304L or 316L stainless steel
- UL type 1, 3R, 4, 4X, 12 classified
- Single and double-door

Time-saving selection tools

While our technical team is ready to help you choose the right enclosures, free software is also available to simplify configurations and quotations

Enclosures adapted for any operating environment

Our multi-material ranges, made to the highest construction standards and with durable materials, are designed to withstand the wear and tear of harsh operating conditions, onshore and offshore




Thalassa PLM


Spacial S3X


Spacial SBM


Thalassa TBS


Thalassa TBP


Thalassa PLS

Made for long-lasting protection in harsh enviroments

- Multi-material – painted steel, stainless steel, fibreglass-reinforced polyester, and ABS or polycarbonate
- ClimaSys™ Thermal Management – integrated heat control
- Spacial S3X 304L – stainless steel for maximum robustness and durability
- Thalassa PLM – corrosion-free for years with ratings up to IP 66 and IK 10, and supports operating temperature of -50°C to 150°C
- Light-weight – protects electronic equipment, gearbox controls, hydraulic systems, lighting, alarms, and other sensitive devices
- Vibration-resistant - robust construction to withstand constant vibrations and protect internal components

Designed for ease of installation

- SLIM cooling units to maximize space usage
- Wall-mounting or floor-standing, and single or double door for ergonomics
- Wide range of compatible accessories for seamless connections

International standards

ISO9001 - quality management
ISO14001 - environmental management
ISO50001 - energy efficiency

Certified for your peace-of-mind

UL, BV, DNV, GL, GOST, TÜV, BV Marine.

REACH & RoHS

compliant

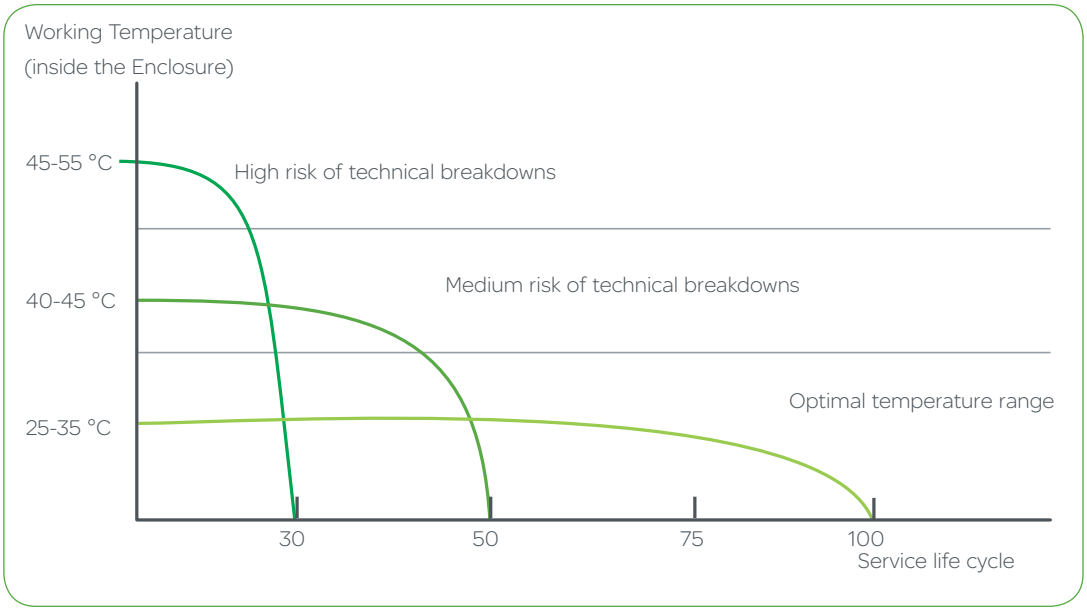
Thermal management for reliable performance and longer equipment life

Due to space constraint within turbines, increasing component miniaturization and the high density of electronic devices, effective temperature management must be taken into account during the electrical system design phase in order to prevent:

- **Unexpected halts in production**
- **Machine malfunctions and equipment de-rating**
- **Reduced service life of components**

Over 80% of electronic failures are due to thermal issues and insufficient environmental protection

Lack of thermal management can cost a lot more than money!



ProClima for longer equipment life

www.schneider-electric.com/proclima-software

Considering thermal management at the design stage can double equipment life and increase productivity. ProClima enables precise computation of the ideal thermal settings by taking into account the devices installed in the enclosures and the environmental conditions. Its key success factor is calculations based on the reliable databases of dissipation values of the most common electrical and electronic devices provided by Schneider Electric.

15 years of customer satisfaction with ProClima software's effective thermal management calculation

Introducing ClimaSys, a dedicated and complete range for thermal management

To ensure that the components in your turbines function optimally, Schneider Electric presents a new generation of electronic thermal control devices with the capabilities to handle not only overheating, but also humidity and water condensation issues in onshore and offshore installations.

Eco-friendly
solutions to help you meet your commitment to the environment

Filter fans and outlets

High quality fans and outlets to optimize air flow.

Air/air exchangers

Resistance heaters

Various designs for the most effective methods to prevent high humidity and condensation:

- For different environments
- Cater to space constraints: compact CRS fits onto the side or back panels of doors and mounting plates

Cooling units

Engineered for utmost reliability:

- Easy installation and maintenance
- Up to IP 55
- High performance at extreme temperatures (55°C)
- Minimum depth for reduced footprint

Control devices

Allow flexible and precise adjustments of the operational conditions:

- Sensitive readings with an external sensor
- Easy-to-adjust parameters from ergonomic designs
- Vital environmental metrics and energy consumption data
- Up to six functions for regulating heating and ventilation
- Highly precise humidity control
- Designed to withstand the extreme cold (up to -50°C) of offshore sites

The easiest way to save money
is to cut breakdowns caused by severe environmental conditions

Co-engineering for maximizing performance

Because every wind turbine installation is unique

Every wind turbine installation has unique technical specifications and budget requirements. To that end, Schneider Electric offers its co-engineering support to address any integration or development constraints. Our technical experts stand ready to share their skills, know-how, and proven solutions to tackle the challenges. We work cooperatively with you to mutually identify your technical requirements and deliver the customized enclosures needed for seamless integration in your systems.

Our co-engineering services enhances turbine performance:

- **Custom designs optimize space usage within the enclosures and inside the turbines**
- **Optimized product quality with best production practices**
- **In-depth thermal studies avert technical breakdowns in electronic devices**

Further, the co-engineering collaboration maximizes project productivity with:

- Shortening of the design process with collaborative help from our experts and your technical team
- Simplified order management and time savings by using a single supplier for the entire procurement processes, from ordering through delivery and invoicing
- Time-saving from ease of installation with enclosures that are ready for wiring
- Optimized delivery time adapted to your project schedule

Special dimensions?
No restrictions in building enclosures to fulfill unique requirements and maximize ergonomics

Time-savings
from simplified order management and wiring-ready enclosures

Why choose our customization services?

Because your customized enclosures deserve the same high quality as our standard range

Building the right enclosures to custom specifications is what we do best. To provide the highest quality needed to withstand the harsh conditions of wind turbine sites, customized cut-outs, painting, and cladding are executed in the controlled environment of our facilities using the latest manufacturing technologies.

Cut-outs

- Laser technology for fine and precise cuts with no burnt or rough edges to increase resistance to corrosion

Painting

- Painting after cutting out guarantees the best anti-corrosion protection
- A wide range of RAL colours

Cladding and factory assembly

- Assembly of the enclosures according to your requirements
- Accessories mounted in our factories
- Highest quality and standards guaranteed
- Certification by independent third parties

Multi-material

Enclosures are manufactured using the material best suited for the technical requirement of light-weight, robustness, vibration-resistance, or corrosion-proof

Quality
enhanced by manufacturing best practices

Safety
from made-to-order packaging

Installation efficiency
from ease of wiring

Our customization services deliver ready-to-use enclosures with machining and mounting specifications pre-made in our certified factories to reduce wiring-time during installation

Schneider Electric has been providing us with excellent support in co-engineering solutions, technical documentation, product supply, and after-sales care. Their effort and timely communication with our production team are major factors in our business success, enabling us to be more effective in reaching our objectives.

Rebecca Lee, Senior Electric Sourcing of Gamesa Wind (Tianjin)

For your one-stop guide to thermal optimization
visit www.schneider-electric.com/thermal-management
to download our FREE Control Panel Technical Guide and more.

Schneider Electric Industries SAS
Head Office
35, rue Joseph Monier - CS 30323
F92506 Rueil-Malmaison Cedex
FRANCE
www.schneider-electric.com

02/2013