NeoGear™

The new industry standard in low-voltage switchgear for safe, smart and sustainable electrification

- The safest switchgear in the market
- Enhanced reliability and operational efficiency
- Significantly improved carbon footprint
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ABB NeoGear™: a revolution in motor control and smart power distribution.

Our world is changing at an ever-increasing pace. New technologies are transforming the way we power our societies, produce our goods and services – as well as how we work, live and move.

Switchgear systems are key to this electrified economy. However, over the past 30 years they have seen little innovation. This all changes with the launch of NeoGear, which heralds a revolution in switchgear technology.
The move to Industry 4.0

Across society and industry, electricity demands are increasing, driven by diverse trends, including data center demand, electric vehicle growth and the electrification of industry.

NEW WAVE OF MACROECONOMIC AND TECHNOLOGICAL TRENDS

- Data demand
- Industry 4.0
- Sustainability
- Digitalization of the electricity value chain

DRIVING CHANGES IN THE ELECTRICAL ENERGY LANDSCAPE

- Zero tolerance for unsafe working environments
- Convergence of data and electricity
- Growth in demand for electricity is more than double that of other energy sources

LEADING TO EVOLVING CUSTOMER NEEDS

- More solutions designed inherently safe
- Role for digitally enabled hardware and intelligence to create new opportunities
- More sustainable equipment to reduce carbon footprint
Introducing NeoGear

ABB’s low-voltage switchgear has been the product of choice since 1972. Now we introduce the next innovation leap in switchgear technology for industry.

Switchgear are essential technology for safe energy distribution and motor control, but the way they are designed and created hasn’t changed for years. With NeoGear, ABB has taken switchgear to the next level, bringing about a revolution in power distribution in the process.

The first real innovation introduced in low-voltage switchgear technologies since the 1980s, NeoGear is ready to help customers across process industries to manage changing external dynamics and realize new opportunities in their working environments.

Central to NeoGear is its laminated bus plate technology, which replaces traditional horizontal and vertical busbar systems. This innovative bus plate technology, combined with the connectivity and intelligence of the ABB Ability™ platform, make it an unrivalled solution for industry.

1972  First fixed raster-based weld-free frame with MNS®
1983  First modular fully withdrawable arc proof system MNS
1990  First digital LV System with MNS and INSUM
2005/2007  First fully self supervising LV system MNS IS with condition monitoring
2019  First laminated bus plate technology in NeoGear low-voltage switchgear
Safe

- Revolutionary design eliminates hazardous exposure to live busbar parts
- Arc ignition protected zones keep maintenance personnel safe
- Reduced risk of arcs caused by mechanical failures slashes maintenance and downtime

Smart

- 92% fewer busbar parts than traditional switchgear
- 30% reduction in operational costs through predictive maintenance, increasing uptime and performance
- 90% fewer electrical joints for highest switchgear availability

Sustainable

- 20% less heat dissipated saves energy and lowers cost thanks to excellent cooling efficiency
- Efficient use of reduced CAPEX budgets for quicker return on investment
- Up to 25% less space needed - reduced switchgear footprint brings space savings
What our customers say

JÜRG HITZ, MAINTENANCE AND TECHNOLOGY MANAGER, AT CEMENT MANUFACTURER JURA.

“We’ve been piloting ABB’s laminated bus plate technology in our cement plant in Switzerland since 2017. We, as a business, have always been open to learning about new technologies and are generally keen to participate in these types of projects, as a part of our continuous search for solutions to improve our operations. We have had a positive experience testing this technology in a real-life environment over the last two years and have seen first-hand the increased safety for our operations and personnel.”

PERRY JASPER, PROCESS OWNER – ELECTRICITY & AUTOMATION, AT MINERAL FERTILIZER BUSINESS YARA.

“This is the type of switchgear industry has been waiting for. Safer by design with a fully encapsulated and touch proof main current carrying system, more reliable, less components. Using this type of switchgear as a standard solution is a no brainer.”
Segments and solutions

**Safe**

**Pain point:**
- Exposed conductors
- Existing risk of internal arc
- Increased risk to personnel safety

**Solution:**
- Increase safety for maintenance personnel handling live switchgear compartments with arc ignition protected zones
- Higher process availability by reducing switchgear downtime due to need of maintenance or internal arc
- Eliminate hazardous exposure to live busbar parts with a revolutionary design that further reduces the chance of serious injuries

**Smart**

**Pain point:**
- Reactive maintenance needs and unplanned downtime
- Reduced CAPEX budgets
- Long supplier lead times

**Solution:**
- Predictive maintenance for increased uptime enabled by asset management based on digital monitoring and diagnostics and highest process availability through a simplified and robust module contact system
- Smart design and digital capabilities lower total cost of ownership
- Radical reduction in number of parts, which allows faster delivery and a simplified engineering process

**Sustainable**

**Pain point:**
- Need for operational efficiencies
- Carbon footprint targets

**Solution:**
- Reduced switchgear footprint for more efficient design of the electrical room
- Reduced heat dissipation for saving cooling energy and lower cost for switchgear room conditioning
Digital capabilities to deliver Industry 4.0

Advancements in IoT, connectivity and cloud computing all present an opportunity to gain unprecedented operational efficiency and flexibility.

NeoGear can be enabled with digital capabilities, including predictive maintenance, remote assistance, fault and solutions diagnostics and data analytics for Industry 4.0. It takes monitoring to a new level, using information collected to analyze performance data – including current levels, temperature, operating cycles and load levels – in such a way that plant and maintenance managers can use it effectively to improve reliability and reduce maintenance costs. All this can be done from a remote location, eliminating the need for maintenance personnel to conduct regular onsite checks.

An ABB Ability™ enabled NeoGear provides a complete and scalable solution for new projects and future upgrades, to keep systems up-to-date and future-proof for emerging trends in smart electricity distribution.

Unlocking industry of the future with new technology

ABB Ability™ Condition Monitoring for electrical systems (CMES) to provide diagnostics and predictability

- Enabling predictive maintenance
- Remote assistance
- Fault analysis and solution suggestions
- Data analytics
From conventional to digital

**DELIVERING SOLUTIONS:**
- Enabling predictive maintenance
- Remote assistance
- Fault analysis and solution suggestions
- Data analytics

**SUPERVISION:**
- 24/7 supervision
- Condition monitoring

**CONNECTION:**
- Gateway for connection to superior control systems
- Cloud connectivity for remote services

**COLLECTING INFORMATION:**
- Temperature sensors
- Integration of field devices

**LIMITED TO:**
- Hard wired remote control
- Protection and metering functions with conventional devices
Laminated bus plate technology has revolutionized today’s switchgear, but the journey doesn’t stop there. Over the coming years, ABB will continue to build on this innovative technology with additional functionality that will deliver safe, smart, and sustainable solutions long into the future.

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**Technical overview**

First release

<table>
<thead>
<tr>
<th>Standards and approvals</th>
<th>IEC 61439-1 and -2</th>
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<tbody>
<tr>
<td>Standards</td>
<td>IEC/TR 61641 Class C</td>
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<tr>
<td>Arc proof</td>
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**Electrical rating**

<table>
<thead>
<tr>
<th>Rated current laminated bus plate</th>
<th>Up to 3200 A</th>
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<tr>
<td>Poles</td>
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<tr>
<td>Short circuit current</td>
<td>Up to 80 kA (1 sec)</td>
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<tr>
<td>Service voltage</td>
<td>Up to 400/415 V ac</td>
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<tr>
<td>Service frequency</td>
<td>50 Hz</td>
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**Protection rating**

<table>
<thead>
<tr>
<th>Degree of protection</th>
<th>Up to IP43</th>
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<tbody>
<tr>
<td>Internal separation ACB/MCC</td>
<td>Up to 4b/3b</td>
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<tr>
<td>Arc proof execution</td>
<td>Up to 80 kA (0.5 sec)</td>
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Second release

<table>
<thead>
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<th>Standards and approvals</th>
<th>IEC 61439-1 and -2</th>
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<td>IEC/TR 61641 Class C</td>
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<td>Arc proof</td>
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**Electrical rating**

<table>
<thead>
<tr>
<th>Rated current laminated bus plate</th>
<th>Up to 6300 A</th>
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<tr>
<td>Poles</td>
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<td>Short circuit current</td>
<td>Up to 100 kA (1 sec)</td>
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<td>Up to 690 V ac</td>
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<td>Service frequency</td>
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**Protection rating**

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<tr>
<td>Internal separation ACB/MCC</td>
<td>Up to 4b/4b</td>
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<tr>
<td>Arc proof execution</td>
<td>Up to 100 kA (0.5 sec)</td>
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