

ABB MNS®
5 essentials of low voltage
switchgear solutions

Power and productivity
for a better world™



Solutions for power distribution and motor control



Chemicals, oil and gas
Data centers
Infrastructure
Marine
Metals and mining
Nuclear power
**Power, utilities,
and renewables**
Pulp and paper
Water

Power outages cost businesses billions in lost revenues each year. Especially hard hit are mission-critical businesses like data centers where an outage can cost \$1 million or more per hour. Power loss can be equally damaging for manufacturers. Even a momentary outage may mean a production run worth millions has been reduced to mere scrap. For utilities, outages can mean lost revenues as well as expensive and damaging litigation.

The ABB MNS® low voltage switchgear platform meets the needs of business in five crucial areas:

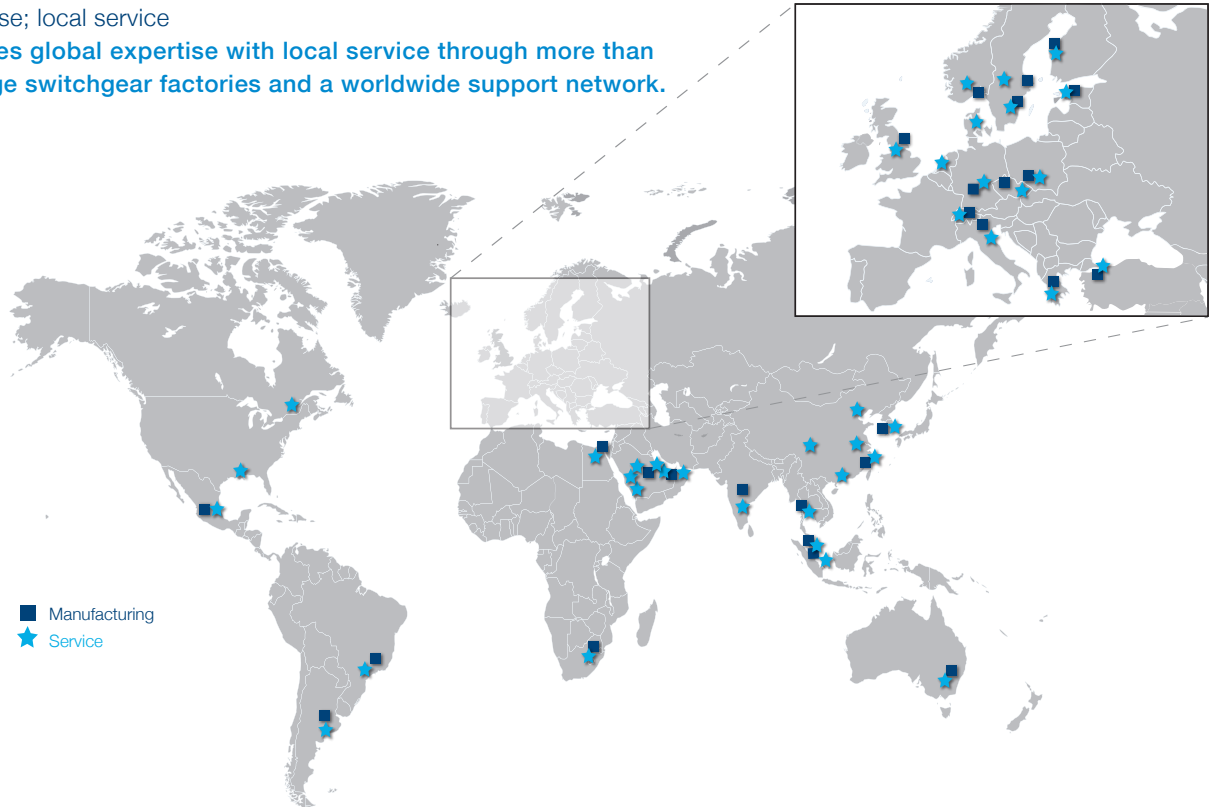
- Ease of doing business
- Safety
- Availability and reliability
- Flexibility
- Ease of maintenance

These space-saving switchgear systems help businesses control costs through ease of installation, operation and maintenance. ABB pioneered this unique, modular design, developing it with the experience gained from over forty years of providing customers with low voltage switchgear solutions that allow them to scale as their business demands, maximize their operations' productivity, and earn a better return on their switchgear investments.

Ease of doing business

Global expertise; local service

ABB combines global expertise with local service through more than 30 low voltage switchgear factories and a worldwide support network.



To help our customers keep their operations running smoothly, ABB maintains an extensive network of production facilities and service centers around the world. Whether conducting a factory acceptance test, ordering replacement parts, attending a training session, or scheduling an on-site service call, this network reduces lead times and limits the language, time zone, and travel issues that can make it difficult to do business. No matter where our customers are located, ABB expertise is never far away.



All ABB customers work directly with us; no middlemen separate our customers from the experts at ABB.

Global design

When sourcing low voltage switchgear systems from ABB, customers can be sure they are buying the same high-quality design regardless of the factory from which they order. ABB engineers and project managers collaborate using a global design platform and best practices, ensuring global consistency of design while serving customers from the closest ABB factory. Over 40 years of experience have gone into our switchgear designs, and ABB has installed millions of MNS vertical sections and tens of millions of functional units around the world.

A single point of contact

To ensure project success, ABB provides a single point of contact from purchase order to delivery. All ABB customers work directly with us; no middlemen separate our customers from the experts at ABB. On-site supervision of implementations as well as comprehensive after-sale support and training helps ensure worry-free installation and commissioning of new projects. With low voltage systems engineering and production centers in over 30 countries employing more than 3000 professionals, ABB is able to offer the fastest response times available to provide services throughout the life cycle of MNS switchgear.

Safety



The unique, encapsulated, multi-function wall provides both active and passive protection for personnel and property.

According to IEEE estimates, there are more than 2000 arc flash incidents per year. In addition to the tragic cost in lives, an arc flash incident can also cause damage to property and equipment as well as unplanned downtime, lost production and lost revenues. ABB's proven Safety Plus philosophy goes beyond the industry-standards IEC 61439-1/-2 and the IEC 61641 optional standard for additional arc flash protection to provide switchgear solutions that offer the highest level of protection for personnel and property available on the market today.

Active protection prevents incidents from occurring

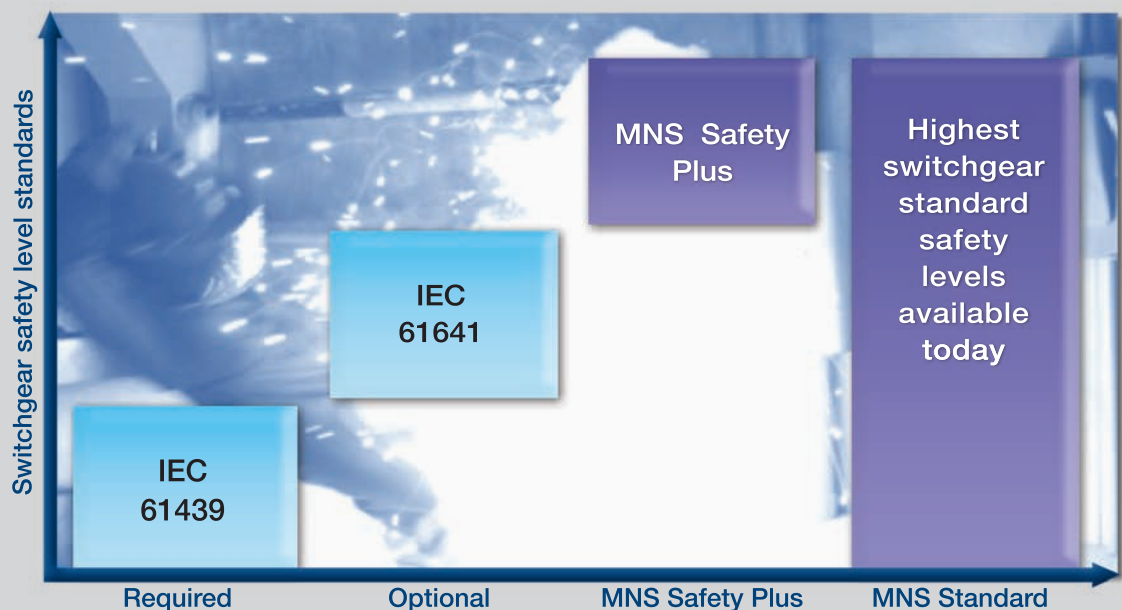
Our comprehensive approach to safety starts with active protection to help prevent incidents. For example, ABB's unique multi-function wall creates a fault-free zone that extends from the main bus bars downstream to the short-circuit protection device of the functional unit, making it virtually impossible for an arc flash to occur. The design of the multi-function wall eliminates the need for shutters, and the downtime that results from when shutters jam. In addition, when performing installation or maintenance, separation of the power and control circuitry isolates personnel from power circuits, keeping them safe and equipment secure from human error.

Passive protection safeguards personnel and property

In the highly unlikely event that an arc flash does occur, ABB offers passive protection to contain the incident and prevent damage to personnel and property. Compartments are segregated, and gas-tight seals between the bus bar and the equipment compartment prevent the arc from traveling. In addition, the compartmentalized design of the vertical sections and the modular design of the functional units limit the damage to the unit in which the arc originates.

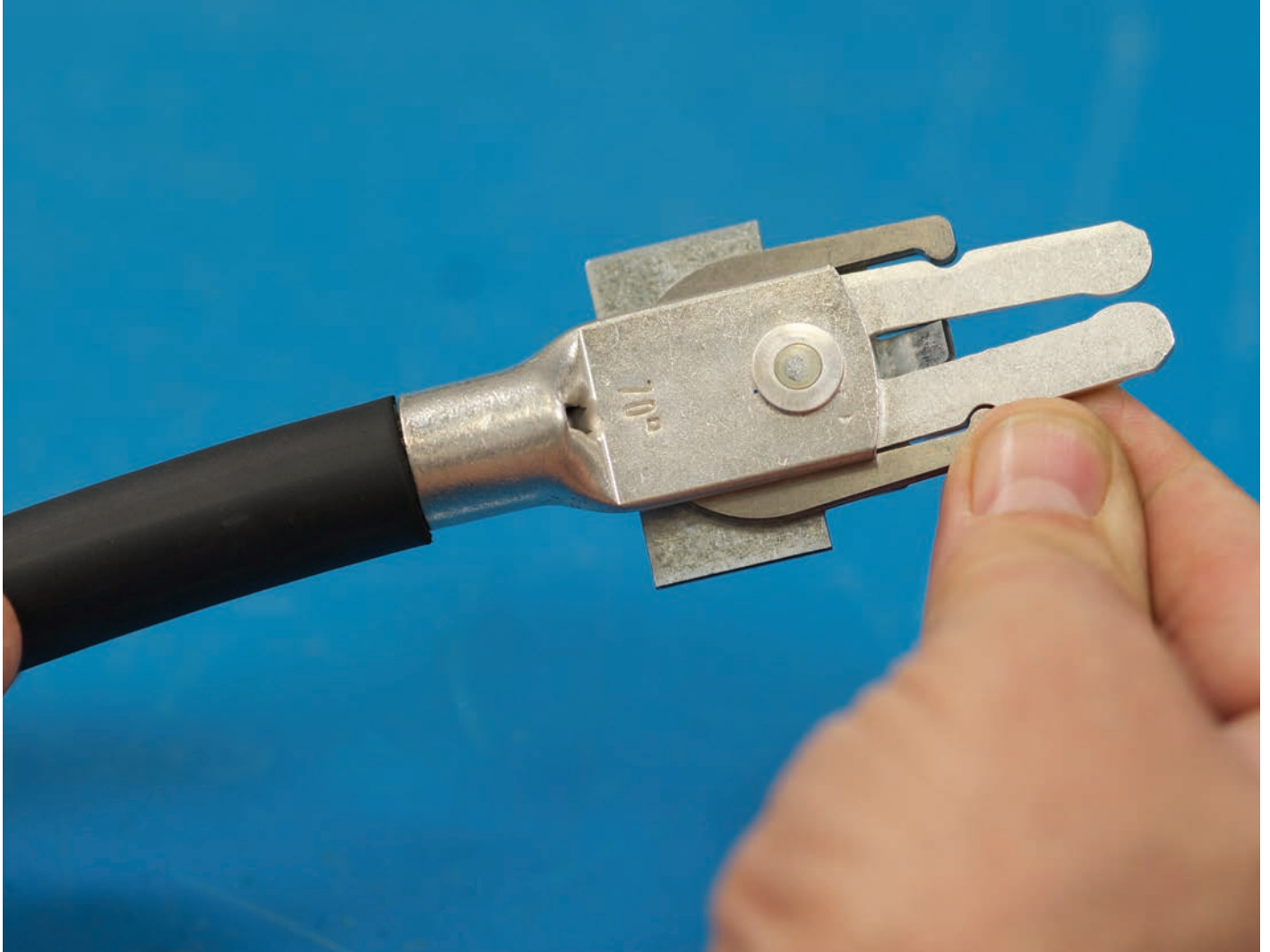
Minimize risk of deadly arc flash incidents

The MNS low voltage switchgear solutions meet and exceed the IEC 61439-1/-2 and IEC 61641 safety standards for arc flash protection.



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Availability and reliability



Helping our customers achieve peak performance means providing reliable equipment that ensures power to their operations when it is needed. ABB's MNS platform helps power-intensive businesses remain operational by minimizing unplanned outages and reducing planned downtime.

Designed for reliability

The ABB MNS family of products is designed to withstand the toughest environments and provide years of safe, reliable operations. For example, ABB's precision-engineered power stabs are independently certified for over 1000 operations, more than five times the industry standard. In addition, cable forces are decoupled from the power stabs, reducing cable stress and breakage. Individual venting of compartments provides better cooling and eliminates thermal interference and hot spots to further increase reliability.

Address problems before they occur

Real-time condition monitoring allows ABB customers to monitor the health of their assets and address problems before they occur, reducing downtime by as much as 50 percent. In addition, redundant communications interfaces ensure 100 percent process control back up.



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Flexibility



The MNS platform provides the flexibility to mix and match feeders, motor starters, variable speed drives, soft starters, and reactive power compensation, all in a single line-up.

Adapt to changing business needs

Business needs change and ABB customers look for solutions that help them meet their challenges and take advantage of new opportunities. The MNS platform provides the flexibility to mix and match feeders, motor starters, variable speed drives, soft starters, and reactive power compensation, all in a single line-up. The modular design of our functional units allows more than 99 percent of our customers to leverage the advantages of mass-produced standard components.

The mechanical structure (frame) and the main bus bar system are designed to be maintenance-free and front accessible. By eliminating the need to access the equipment from the rear, MNS can be installed virtually anywhere in a facility.

Lower costs through industry standardization

ABB also helps reduce expenses by deploying industry standards wherever possible. With our non-proprietary, human-machine interface, businesses can choose any off-the-shelf hardware with web-based functionality, lowering the cost of training and spare parts. Additionally, options include several industry standard communications protocols such as Modbus RTU, Modbus TCP, Profibus, and Profinet to fit the requirements of their control systems.



Ease of maintenance

Lower maintenance requirements

All operations require a certain amount of planned downtime to maintain equipment and keep everything in working order. In addition to building reliability into ABB designs, the MNS product family helps keep maintenance downtime to a minimum with standard design features such as withdrawable units. These functional units permit easy access and reduce downtime to minutes instead of hours, enabling facilities to get back online 20 to 30 times faster than common fixed installed starter modules. This withdrawable design even allows software application changes to be made without powering down the unit, and its touch-proof compartments keep technicians safe from hazardous voltages.

Reduce inventory with standardized parts

Reduced maintenance requirements increase uptime and provide a welcome relief to strained budgets. ABB helps further ease the financial burden by designing functional units with standardized components. This standardization has allowed many ABB customers to reduce spare parts inventory by as much as 75 percent.

Service after the sale

ABB's MNS platform is supported by a full range of after-sales solutions and support. In addition to answering questions and providing training, ABB experts can help keep equipment in safe, reliable working order through preventive care and maintenance services. ABB advanced service solutions can monitor asset condition to identify potential problems before they occur, reducing costs and increasing productivity. Our focus on areas at the greatest risk of failure helps ABB customers optimize both capital investments and maintenance budgets.



Lowering maintenance requirements significantly reduces downtime for utilities and industry.

Standardization reduces spare parts inventory by as much as 75 percent.

Level 1: Priority care	Level 2: Preventive care	Level 3: Performance care	Level 4: Advanced care
<ul style="list-style-type: none"> – Technical support – Practical user guidance – Operational care training – Priority service in emergencies 	<ul style="list-style-type: none"> – Visual inspection – Functional testing of the switchgear (normal operating conditions) – Service report – Systematic component replacement with 100% genuine parts 	<ul style="list-style-type: none"> – Visual inspection – Functional testing and performance verification of the switchgear (normal operating conditions) – Thermographic scan – Performance report – Complete spare parts handling 	<ul style="list-style-type: none"> – Installation of condition monitoring software – Setting-up of the remote access connection – 24/7 remote diagnostics and support – Condition-based maintenance

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