













# Low- and medium-voltage products and systems







## Global product offering for data center applications










ABB supplies data center owners, operators, OEM partners, architecture/engineering firms, general contractors and EPC consultants with a wide range of offerings to automate data centers and make them more powerful, agile, and efficient. We provide a wide range of industrial-grade products, integrated solutions and expertise to ensure data centers operate with optimum reliability and benefit from savings in installation, energy, space and maintenance.

Product / Offering	Benefits and features
<b>Modular substation</b> <b>E-house</b> 	Metal enclosed buildings providing greater safety, easier installation, maintenance and engineering, and on site testing – all contributing to cost reductions.
<b>Skid-mounted substations</b> 	A prefabricated and economic option with easy access to equipment, which normally includes a medium-voltage section, transformer and low-voltage equipment. The skid mounted substation enables a huge reduction in installation time, including the on-site wiring and testing activities.
<b>Compact secondary substation</b> 	Compact secondary substations are prefabricated substations, which include a low-voltage switchboard, transformer and medium-voltage switchgear. CSS is internal arc tested for higher safety. ABB CSS portfolio is covered with different enclosure material, including steel, concrete, and glass fiber reinforced polyester.
<b>Medium-voltage Primary distribution</b> <b>UniGear digital</b> 	UniGear digital is an innovative solution based on market-leading industry-standard air-insulated medium-voltage switchgear called UniGear and makes full use of ABB's Relion® protection and control relays, IEC 61850 communication protocol and is combined with the advantages of sensor technology. All this leads to an advanced switchgear solution addressing important requirements of the future: <ul style="list-style-type: none"> <li>– Flexibility</li> <li>– Increased process efficiency</li> <li>– Lower cost of operation</li> <li>– Maximized integration</li> <li>– Reliability and safety</li> </ul>
<b>Motor control centers</b> 	UniGear MCC up to 12 kV, 50 kA Designed for the highest degree of safety and reliability, the UniGear MCC provides for maximum ease of use. All operations and maintenance actions are made from the front of the panel, which is equipped with mechanical safety interlocks between the vacuum contactor and earthing switch. <ul style="list-style-type: none"> <li>– Slim and compact panel only 400 mm wide</li> <li>– Wide range of applications</li> <li>– Fused vacuum contactor with magnetic actuator</li> <li>– Fitted with safety interlocks and visible earthing connection</li> </ul>




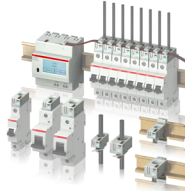





Product / Offering	Benefits and features
<b>Gas Insulated Switchgear</b> 	<b>ZX Family</b> up to 42 kV, 40 kA GIS provides ultimate protection to medium-voltage electrical distribution <ul style="list-style-type: none"> <li>– All “live” parts are completely protected from external influences like humidity, dust and vermin</li> <li>– Provides safest operating conditions over extended lifetime while minimizing maintenance</li> <li>– Saving space in particular at higher voltage levels</li> <li>– Easy “plug &amp; play” installation</li> </ul>
<b>HD4</b> 	HD4 circuit-breakers are available in fixed or withdrawable versions. The withdrawable version is available for PowerCube fixed parts and enclosures, UniSafe and UniGear type ZS1 switchgear. HD4 circuit-breakers are used in power distribution to control and protect lines, transformer and distribution substations, motors, transformers, capacitor banks, etc. They are also highly suitable for retrofitting, where the insulating materials of circuits may be sensitive to dielectric stresses.
<b>VD4</b> 	The VD4 vacuum circuit breaker with spring operated mechanism is excellently suitable for switching of short-circuit currents, overhead lines and cables under load and no load, transformers and generators, motors, ripple control systems and capacitors – even in parallel.
<b>Medium-voltage Primary distribution</b>	
<b>Medium-voltage Secondary distribution</b> 	UniSec indoor Air-Insulated switchgear for medium-voltage secondary distribution up to 24kV. UniSec metal-enclosed air-insulated switchgear is based on a highly flexible, modular concept with fewer parts and standardized solutions that can be readily configured to meet the specific needs of each application. This approach reduces training and maintenance requirements, ensures fast installation and facilitates future expansion to meet changing needs. UniSec offers highest level of safety with different solutions in terms of internal arc classification and safety interlocks.
<b>Gas Insulated Secondary Switchgear</b> 	SafeRing / SafePlus is a SF6 insulated ring main unit /compact switchgear platform for the secondary distribution network up to 40.5kV. Together, SafeRing / SafePlus provides a complete, flexible and compact switchgear system solution. It is a completely sealed system with a stainless steel tank containing all the live parts and switching functions. This ensures a high level of reliability as well as personnel safety and a virtually maintenance-free system.
<b>HD4/R</b> 	HD4/R are used in secondary medium-voltage distribution and in MV/LV transformer substations. They are available in fixed version with right-hand side operating mechanism. Circuit-breakers with rated voltage up to 24 kV can be fitted with current sensors and PR521 overcurrent release and can be used in unmanned substations without auxiliary power supply.
<b>VD4/R</b> 	VD4/R are used in secondary medium-voltage distribution and in small transformer substations. They are available in fixed version with right-hand side operating mechanism. Circuit-breakers with rated voltage up to 24 kV can be fitted with current sensors and PR521 overcurrent release and can be used in unmanned substations without auxiliary power supply.







Product / Offering	Benefits and features
<p><b>Is-Limiter</b></p> 	<p>The ultra-fast solution for handling a short circuit current.</p> <p>In short-circuit-fault conditions this fast-acting switching device triggers a small charge to open the main conductor, which is designed to carry high-operating currents in normal conditions. The short-circuit current commutates to a parallel fuse with high breaking capacity, which limits the short-circuit current during the first rise within extremely short times. The Is-Limiter is a unique solution to limit short-circuit currents up to 210kA rms while handling operation currents up to 4000A. The wide range of applications, up to 40.5kV includes power supplies and industry applications through to special applications such as platforms, IPP's or applications with ultra-fast switching requirements.</p> <p>Considering the Is-Limiter on the early engineering phase of a new project or on the extension of an existing system, the Is-Limiter is able to offer technical and economic benefits to our clients.</p>
<p><b>Ultra-Fast Earthing Switch UFES</b></p> 	<p>Active internal arc protection for switchgear.</p> <p>Innovative arc flash mitigation in less than 4 ms: the highest possible level of arc flash protection for personnel and equipment, maintenance of secure power supply and the reduction of production stoppages. The occurrence of an arc fault, the most serious fault within a switchgear system, is mostly associated with extremely high thermal and mechanical stresses in the area concerned. A new, active arc fault protection system is based on the know-how gained from decades of experience with the ABB vacuum interrupter and IS-limiter technology. This latest arc fault mitigation technology now effectively helps avoid these negative effects should a fault occur.</p> <p>The ultra-fast earthing switch of the UFESTM-type is a combination of devices consisting of an electronic unit and the corresponding primary switching elements, which initiate a 3-phase short-circuit to earth in the event of a fault. The extremely short switching time of the primary switching element in conjunction with the rapid and reliable detection of the fault, ensures that an arc fault is extinguished almost immediately after it arises (Extinguishing time &lt; 4 ms after detection).</p>
<p><b>Medium-voltage Relays/Distribution Automation</b></p> <p><b>Relion®</b></p> 	<p>The Relion® family of programmable numerical protection relays offers a full range of genuine IEC 61850 products for the protection, control, measurement and supervision of power systems. IEC 61850 supports interoperable and future-proof solutions including peer-to-peer GOOSE communication. Relion® enables the creation of comprehensive protection schemes for feeders, motors, transformers, generators, busbars, capacitor banks etc.</p> <p>Features supporting high situational awareness and communication availability:</p> <ul style="list-style-type: none"> <li>– Graphical display and web browser-based human-machine interface</li> <li>– Disturbance recorder for in-depth analysis of network disturbances</li> <li>– Support for additional communication protocols including use of two communication protocols simultaneously</li> <li>– Communication redundancy including HSR and PRP protocols</li> <li>– One configuration tool for all Relion® relays</li> </ul>
<p><b>COM600</b></p> 	<p>Web server functionality providing access to substation processes, operations and relays via a web browser (web HMI)</p> <p>Substation Automation function and its features enabled by default</p> <ul style="list-style-type: none"> <li>– Process visualization based on web HMI</li> <li>– Alarms and events</li> <li>– IEC 61850-based integration to ABB or third party relays</li> <li>– Remote relay parameter setting using SPA protocol or IEC 61850</li> <li>– Relay disturbance record upload</li> <li>– Operational and user security</li> </ul>


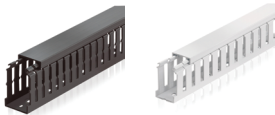


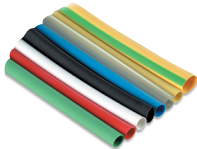
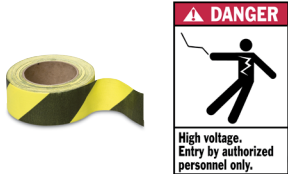

Product / Offering	Benefits and features
<p data-bbox="107 113 418 134"><b>Low-voltage Power Distribution</b></p> <p data-bbox="107 142 402 197"><b>MNS conventional – ANSI/IEC power distribution switchgear</b></p> 	<p data-bbox="602 142 1539 380">MNS conventional is ABB's global solution for power distribution up to 690 V / 6300 A / 250 kA (IEC) and 600 V / 5000 A / 100 kA (ANSI) respectively. With options for fixed, plug-in and withdrawable breakers and modules and top or bottom power cable and bus duct connections, MNS offers unrivalled flexibility. MNS is fully arc-proof as per the applicable IEC and ANSI/UL standards, respectively, thus setting the standard for operator and equipment safety. The maintenance-free bus bar design and its withdrawable Emax2 circuit breaker help minimize maintenance and unscheduled downtime.</p>
<p data-bbox="107 413 505 468"><b>MNS-Up(R) – Integrated power supply solution for mission-critical applications</b></p> 	<p data-bbox="602 413 1539 831">MNS-Up is a fully integrated combination of two of ABB's key products for data centers and other mission-critical applications – our MNS power distribution switchgear and our ConceptPower DPA500 UPS. MNS-Up does away with external cable or bus duct connections between switchgear, bypass and UPS, thereby minimizing the footprint and reducing installation and commissioning time. Delivered as a completely factory-tested assembly, MNS-Up also offers the highest level of quality. MNS-Up is scalable in 100 kW increments up to 3 MW, allowing users to adapt the power distribution solution to their actual needs and pace their investment. Flexibility is further enhanced by options for installation in a straight line, back-to-back or in L- or U-shape to optimize room utilization. ABB's exclusive Decentralized UPS Paralleling Architecture (DPA™) with N+1 redundancy at module level ensures service continuity as well as easy, quick and safe replacement.</p>
<p data-bbox="107 863 354 917"><b>Main Distribution Boards</b> System pro E power</p> 	<p data-bbox="602 863 1539 1041">System pro E power is the ABB solution for main distribution switchboard with rated current up to 6300A and short-circuit current up to 120kA. It meets all types of installation requirements, degrees of protection, and the electrical and mechanical specifications. ABB System pro E power provides complete solutions for main power distribution in infrastructure and industries in accordance with the Standard IEC 61439. In addition, it guarantees full compatibility with all other ABB products.</p>
<p data-bbox="107 1157 431 1211"><b>Sub distribution Boards</b> System pro E energy – TwinLine</p> 	<p data-bbox="602 1157 1539 1367">With TwinLine N 55 we have a perfect system in achieving space savings for RPP (Remote Power Panels). TwinLine N 55 is a welded system up to 850A, with protection class I and II, IP rate 55. All in accordance to IEC 61439 and DIN EN 61439 Parts -1, -2 and -3. Continuity is the guiding principle for these wall-mounted and floor standing cabinets for distribution assembly – from the degree of protection, over the ease of installation, to the wide range of portfolio we can meet all requirements in the field.</p> <p data-bbox="602 1373 1539 1428">System intelligence comes as standard with TwinLine in combination with System pro E combi – CombiLine modules.</p> <p data-bbox="602 1434 1328 1461">TwinLine offers unlimited possibilities for all internal combinations.</p>
<p data-bbox="107 1493 386 1547"><b>Automation Boards</b> System pro E control – IS2</p> 	<p data-bbox="602 1493 1539 1583">System pro E control – IS2 is the ABB range of metal structures and boxes for industrial automation and controlgear switchboards compliant to several international standards such as the IEC 62208, to the new IEC 61439-1-2 and UL 50.</p>
<p data-bbox="107 1625 342 1652"><b>Emax 2 circuit breakers</b></p> 	<p data-bbox="602 1625 1539 1923">ABB Emax 2 is the new benchmark of air circuit-breakers that not only monitors power, but has evolved into a true power manager. It is offered in frame sizes up to 6300A for applications in accordance to IEC 60947 and UL 1066 standards – with exclusive integrated functions such as the Ekip power controller, generator protection and network analyzer functions. Emax 2 is the only breaker that protects electrical circuits and also reduces energy consumption based on the user's needs, thereby leading to massive reductions in energy waste. Emax 2 contains the perfect blend of control, connectivity, safety and performance. Installing Emax 2 power circuit breakers in data center could result in footprint savings of 20% for the switchboard, providing additional square meters for IT equipment.</p>

Product / Offering	Benefits and features
<b>Tmax XT circuit breakers</b> 	<p>ABB's molded case circuit breakers guarantee an extremely high performance level while being progressively smaller in size, simple to install and able to provide increasingly better safety. Our Tmax XT range is complete with four frame sizes: XT1, XT2 up to 160A, and XT3, XT4 up to 250A. Our Tmax T range completes the offering from 320A up to 1600A.</p>
<b>SlimLine XR - Switch disconnector fuse</b> 	<p>The SlimLine XR meets increasing demands in the industry for safe and reliable energy distribution. Thanks to the unique contact design and compact size, the installation is safe, fast and easy. For remote operation and monitoring, SlimLine XR is available with an integrated motor, electronic fuse monitor (EFM) or the new integrated energy monitoring device ITS2.</p>
<b>SMISLINE TP</b> 	<p>Being the world's first pluggable socket system, SMISLINE TP ensures that load-free devices and components can be snapped on and off under voltage without the need for additional personal protective equipment to guard against electrical hazards. Saving time thanks to the easy plug-in system and saving space devices during first installation and maintenance, thanks to the vertical installation of the bus-bars socket. The switchboard is easy and quick to maintain since the input wiring is already integrated in the plug-in socket system, thus the installation is better arranged and tidier, making it possible for non-qualified personnel to check. All the above mentioned benefits ensure maximum flexibility, expandability and availability.</p>
<b>Current and voltage sensors</b> 	<p>As an expert in low voltage and control systems, we offer sensors that can handle rough applications and combine excellent accuracy, reliability and robustness.</p>
<b>Power Distribution Units</b> <b>Cyberex® PDU</b> 	<p>The Cyberex PDU combines flexible output distribution and a large array of transformer options to provide the most versatile PDU offering in the industry. Features include touch safe, selectively coordinating, current limiting breaker options, along with energy efficient transformers. Add Cyberex's Circuit Management System and take complete control of your data center's power.</p>
<b>Remote Panel Panels (RPP)</b> <b>Configurable remote power panel</b> 	<p>ABB's configurable Remote Power Panel (RPP) helps to meet the demands of power-intensive applications, delivering unsurpassed power monitoring and distribution with up to 240 poles in a safe, reliable, space-saving footprint. The RPP is the ideal solution for data center engineers, saving the time for planning and drawing of the RPP. The preconfigurable RPP can dramatically reduce the certification costs and ensure continuous power to critical applications.</p>
<b>RPP from Cyberex</b> 	<p>Today's data centers require the highest level of reliability and performance. The Cyberex RPP Series provides the flexibility to expand your data center distribution capabilities. Fed from your existing PDM, the RPP readily provides up to (4) 42 circuit output panelboards and (4) source breakers.</p>
<b>Protection and Safety</b> <b>Arc Guard System</b> 	<p>The Arc Guard TVOC-2 builds on the well-appreciated TVOC design and offers unmatched arc monitoring. With over 35 years of experience, Arc Guard System™ has become an industry standard in several key markets, helping to protect personnel and businesses around the world. The TVOC-2 is an optical detection system that together with an external breaker can limit the damage done to personnel and equipment in case of an arc accident happening.</p>
<b>Surge protection devices</b> 	<p>The OVR range is designed to protect electrical systems and equipment against transitory surges and impulses caused by lightning and operations on the electrical grid. QuickSafe is a new generation of Surge Protection Device (SPD) with improved performance.</p>



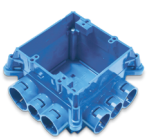








Product / Offering	Benefits and features
<b>Industrial plug and sockets – Easy &amp; Safe</b> 	<p>Basic range of industrial plugs and sockets for 16-32A with high requirements on quality, safety and functionality. Plugs, connectors, sockets and inlets for surface and panel mounting. Compact design makes 'Easy &amp; Safe' suitable for applications with limited space.</p>
<b>Industrial plugs and sockets – Modular Combi</b> 	<p>Modular Combi is an effective fully customized system with a combination of IP&amp;S outlets and inlets, Schuko outlets and ABB DIN-rail components in a robust metal or plastic box. Managing power this way is rational and safe. Modular Combi is very easy to install, delivered fully assembled and wired, only one feeding cable is needed. It is easy to modify in the future for additional needs.</p>
<b>Metering, monitoring and signalling</b>	
<b>Electricity meters</b> 	<p>Managing electrical supply is a priority. Without measuring usage, it is hard to determine efficiency. Measuring an electrical installation can save effort and money. The addition of energy meters for sub-metering and a current measurement system for branch supervision enables the monitoring of energy usage, from the incoming energy all the way down to the last branch.</p>
<b>Circuit Monitoring System (CMS)</b> 	<p>The circuit monitoring system (CMS) is a family of unique ultra-compact and high-performance multichannel measurement systems for branch monitoring. The system consists of a control unit and sensors with different measurement ranges and mounting possibilities. The sensors are measuring alternating (AC), direct (DC) and mixed currents up to 160A. Up to 64 sensors can be connected to each control unit. The measurement data can be remotely queried by a Modbus system via RS485 Modbus RTU interface.</p>
<b>Network Analyzer</b> 	<p>Energy efficiency, minimized costs and high system availability represent three central aspects of electrical systems. For full installation monitoring, ABB offers a front-panel range of network analyzers: M2M and ANR are able to measure and record network parameters, energy consumption and alarms, routing data to supervision and monitoring systems.</p> <p>They also work as panel manager thanks to the digital inputs, used to gather the information about the status of other devices in the panel in a unique device. The status of the other devices, as well as energy pulse inputs from energy meters, can remotely monitored via bus to a supervision monitor thanks to the wide range of available communication protocols.</p>
<b>Switch and disconnect</b>	
<b>Limit switches</b> 	<p>Limit switches are the easiest way to convert mechanical movement in to electrical signals. They combine different types of actuators, casings and contacts and are perfectly suited to a large variety of applications, whatever the environment.</p>
<b>Switch-disconnectors</b> 	<p>The OT range of switch disconnectors from 16 to 4000A is suitable for diverse applications such as machinery, power distribution and motor control centers. Thanks to a modular design, OT switches are available in different pole configurations. Mounting is possible in any direction and a wide offering of accessories is available.</p>
<b>Switch fuses</b> 	<p>OS switch fuses range from 20 to 1250A and are suitable for different types of fuses: DIN, BS, NFC, J and L. OS switch fuses have a modular design and are available in different pole configurations. ABB offers ready and tested type 2 coordination tables for easy and fast selection of motor control devices.</p>
<b>Transfer and change-over switches</b> 	<p>ABB's transfer switch range from 16 to 3200A includes switches for transfer of loads from one source to another manually, remotely or automatically. Adequate durability has been ensured by testing against the IEC 60947-6-1 standard in the specification of endurance requirements. The switches have a comprehensive range of built-in safety features. The motorized and automatic change-over switches are also equipped with a handle for manual operation in case of emergency.</p>

Product / Offering	Benefits and features
<b>Terminal blocks</b> 	<p>SNK series terminal blocks offer high productivity and space saving, an excellent marking visibility which are important values in data centers where a large number of connections are handled.</p> <p>The range is available in PI-Spring (Push-in and spring), screw clamp and pluggable technologies with common accessories. Connecting capacity from 0.22 to 95 mm<sup>2</sup> (24 to 0000 AWG).</p>
<b>HVAC motor control and protection</b> <b>Installation Contactors</b> 	<p>ESB installation contactors are mainly used in buildings for switching and controlling lighting, heating, ventilation, motor and pumps. They are designed to match the ABB modular DIN-Rail components and can be easily integrated into dedicated panels. EN contactors have a built-in toggle switch for automatic and manual application.</p>
<b>Manual Motor Starters</b> 	<p>Manual motor starters are electromechanical protection devices for the main circuit. They are used mainly to switch motors manually ON/OFF and to provide fuseless protection against short-circuit, overload and phase failures. Fuseless protection saves costs, space and ensures a quick reaction under short-circuit condition by switching off the motor within milliseconds. Starter combinations are set up together with contactors.</p>
<b>Motor Controllers</b> 	<p>The intelligent ABB Motor Controllers (Universal Motor Controller, UMC) for motor protection, motor control, fieldbus and Ethernet communication and fault diagnosis. Due to the benefits it provides, the UMC is used worldwide in many segments and in projects with several thousand motor controllers.</p>
<b>Soft Starters</b> 	<p>ABB's soft starters increase a motor's lifetime by protecting it from electrical stresses. They do so by letting you optimize starting currents that with conventional starting methods put lots of stress on the motor. With many built-in motor protection features, your motor is safe in its hands. ABB's soft starters are also installation-friendly and can cut your assembly and startup time by being easy to use and easy to learn. With everything that you need in one unit, from bypass contactor to overload protection, a single soft starter makes for a compact and complete starting solution. Furthermore, with many application specific features, ABB's soft starters can ultimately help you increase productivity. Torque control, pump cleaning and many more features let you do more than simply softstarting.</p>
<b>3-Pole Contactors and Overload Relays for Motor Starting and Power Switching</b> 	<p>ABB 3-pole contactors offer an exhaustive selection of products for simple and extreme applications as well as products with specific purposes. The AF contactor technology revolutionizes how we use contactors and allows use in all parts of the world and in a variety of network conditions. Furthermore, the mini-contactor range offers compact dimensions and specific connection possibilities. The AS contactor is efficient and allows optimization of equipment design. You can choose terminals between screw, spring and ring tongue from our range of products.</p>
<b>4-Pole Contactors for Power Switching</b> 	<p>ABB's AF 4-pole contactor range is a complement to the family of 3-pole AF contactors and motor protection equipment. Unmatched performance in a variety of applications and environments has made the AF contactors well appreciated by customers throughout the world. You can also benefit from the compactness of the 4-pole mini contactors available with 3 connection types.</p>
<b>Intelligent Building Control</b> <b>ABB i-bus KNX</b> 	<p>ABB i-bus KNX is the intelligent building system that meets the highest requirements for applications in building control data centers. By controlling applications such as lighting, heating, ventilation and air-conditioning building operators can benefit from comfort, security and energy efficiency. The system is based on the simple and proven KNX technology, which is accepted as the world's first open standard for the control of all types of intelligent buildings – industrial, commercial or residential.</p>

Product / Offering	Benefits and features
<p data-bbox="107 113 313 140"><b>Installation products</b></p> <p data-bbox="107 144 435 172"><b>Cable ties, tools and accessories</b></p> 	<p data-bbox="602 144 1526 289">ABB offers one of the industry's broadest ranges of innovative solutions for fastening, bundling and securing wire and cable, including the trusted Ty-Rap®, Ty-Fast® and Spec-Kon® cable tie brands in multiple sizes, colors and specialty materials for demanding applications. Our range also covers many mounting bases and easy-to-use tools.</p> <ul data-bbox="602 296 1526 415" style="list-style-type: none"> <li>– Hook-and-loop fasteners for bundling low-voltage and fiber optic cabling</li> <li>– Plenum-rated for use in air-handling spaces above ceilings and under floors</li> <li>– Weather-resistant for rooftops and other outdoor applications</li> <li>– UL® Listed for metal-clad cable support in walls</li> </ul>
<p data-bbox="107 459 227 487"><b>Wiring duct</b></p> 	<p data-bbox="602 459 1526 579">Premium quality duct for point-to-point wiring is ideal for electrical enclosures, machine building and data/communications panels and cabinets. Offering includes imperial, metric and DIN duct in standard materials and specialty materials that are halogen-free.</p>
<p data-bbox="107 663 370 690"><b>Wire termination and tools</b></p> 	<p data-bbox="602 663 1526 783">A full line that includes insulated and non-insulated terminals, splices, wire joints, disconnects, ferrules, heat-shrinkable terminals, splices and disconnects in imperial and metric sizes. A complete set of tooling is included. Products are IEC, UL® listed and CSA certified.</p>
<p data-bbox="107 856 526 884"><b>Shield-Kon® coaxial grounding connectors</b></p> 	<ul data-bbox="602 856 1526 976" style="list-style-type: none"> <li>– One- and two-piece coaxial connectors for grounding</li> <li>– Save time and reduce assembly costs</li> <li>– Safe monitoring and simple operation</li> <li>– Low profile and compact size</li> </ul>
<p data-bbox="107 1039 313 1066"><b>Heatshrink solutions</b></p> 	<p data-bbox="602 1039 1526 1159">A broad range of heat shrink products with different wall thicknesses (thin, medium, thick), packaging (reels, cut lengths, dispenser boxes, pre-cut bags), shrink ratios (2:1, 3:1, 4:1), different colors, pre-molded parts, with or without glue are offered (dual).</p>
<p data-bbox="107 1255 558 1283"><b>Safety labels, tags, signs and barricade tapes</b></p> 	<p data-bbox="602 1255 1101 1283">Safety labels, tags, signs and barricade tapes</p> <ul data-bbox="602 1289 1526 1440" style="list-style-type: none"> <li>– Help to ensure personnel and workplace safety</li> <li>– Conform to NECR 2012 Section 110.3(A)(1)</li> <li>– Highly visible and long-lasting materials</li> <li>– Barricades and burial marking tapes in a variety of materials and colors</li> <li>– Custom labels, tags and signs</li> </ul>
<p data-bbox="107 1493 444 1520"><b>Compression cable lugs and tools</b></p> 	<p data-bbox="602 1493 1526 1644">AWG, IEC and DIN compression connectors, made of the highest-grade materials offering high conductivity/low resistance, meet or exceed all industry standards. Range includes straight and angled connectors and splices, plus a full range of mechanical, pneumatic, and battery operated compression tools. Specifically for space saving applications we offer:</p> <p data-bbox="602 1650 829 1677">Narrow-tongue Lugs</p> <ul data-bbox="602 1684 1526 1854" style="list-style-type: none"> <li>– Consistent narrow width from barrel to tongue to fit into tight spaces</li> <li>– Featuring the Color-Keyed® Installation Tooling System that ensures proper connections</li> <li>– Space-saving 90°, tee and cross connections</li> <li>– Use with standard compression lugs and splices and install with standard compression tools</li> </ul>



Product / Offering	Benefits and features
<b>DuraGard® pin-and-sleeve connectors</b> 	<ul style="list-style-type: none"> <li>– Complete line of 20–60A (600VAC/250VDC max.) connectors, plugs and receptacles</li> <li>– UL94V-0 flammability-rated, corrosion-resistant non-metallic housings</li> <li>– Waterproof whether mated or unmated</li> </ul>
<b>T&amp;B fittings</b> 	<b>CHASE® Fittings</b> <ul style="list-style-type: none"> <li>– Compact, low-profile fittings – ideal for limited space</li> <li>– Line encompasses nipples and hubs for rigid conduit, as well as liquid-tight conduit fittings and cord connectors</li> </ul> <b>Multi-Hole cord grips</b> <ul style="list-style-type: none"> <li>– Space- and labor-saving metallic or non-metallic cord fittings for panels</li> <li>– Up to 4-to-1 SKU reduction – purchase, stock and install one fitting versus four</li> </ul>
<b>Carlton ENT (Electrical Non-metallic Tubing) system</b> 	<ul style="list-style-type: none"> <li>– To be used within the air-handling spaces beneath raised floors for informational technology equipment as per NEC® Sections 300.22(D) and 645.5(E)</li> <li>– Material-handling savings with lightweight, flexible coils</li> <li>– Installs in half the time of comparable EMT conduit</li> </ul>
<b>Cable tray &amp; metal framing systems</b> 	T&B® cable tray is a cost effective, reliable and adaptable alternative to conduit systems. Additionally ABB offers a comprehensive lines of metal framing including the industry's only 100% plated products, our 11/2" modular system, and hundreds of accessories to complete any job.
<b>Grounding systems</b> 	<ul style="list-style-type: none"> <li>– Superior grounding and bonding of electrical systems and equipment</li> <li>– EZGround™ connectors provide a consistent, irreversible bond</li> <li>– Connectors require no special tools to install</li> </ul>
<b>Flexible braids</b> 	<ul style="list-style-type: none"> <li>– Variety of flexible straps and accessories for grounding</li> <li>– Extra-flexible links for heavy-duty applications to 3,600A</li> <li>– Standard links for medium-duty applications to 2,350A</li> </ul>
<b>Signal reference grid connectors and clamps</b> 	<ul style="list-style-type: none"> <li>– Secures grid grounding to raised floor posts</li> <li>– No kinks or bends with lay-in feature</li> <li>– Range-taking design</li> <li>– Quick and easy installation</li> </ul>
<b>Grounding bushings &amp; bonding locknuts</b> 	<b>Blackjack® Grounding Bushings</b> <ul style="list-style-type: none"> <li>– Dual rated for grounding and bonding of threaded and unthreaded conduit, aluminum and copper wire</li> <li>– Speeds installation and improves aesthetics</li> <li>– UL® listed and CSA Certified</li> </ul> <b>Bonding Locknuts</b> <ul style="list-style-type: none"> <li>– Ensure positive bonding of conduit to enclosure</li> <li>– Available in steel or aluminum</li> </ul>

Product / Offering	Benefits and features
<b>Distribution switchgear and molded vacuum interrupters</b> 	<p>Solid EPDM insulating media makes them maintenance-free and environmentally friendly – no oil, no gas</p> <ul style="list-style-type: none"> <li>– Compact modular switchgear designs allow for smaller footprint and field assembly inside tight vaults</li> <li>– Molded vacuum interrupters provide compact, lightweight, submersible protection with predictable tripping for ease of upstream/downstream coordination</li> </ul>
Services and Support	
<b>Service</b>	<p>The services offered by ABB for the low- and medium-voltage products and systems span the entire value chain, from the moment a customer makes the first inquiry to disposal and recycling of the product. Throughout the value chain, ABB provides training, technical support and customized contracts. All of this is supported by one of the most extensive global sales and service networks.</p>
<b>Consultancy</b>	<p>Finding the best technology solution for your electrical system designs is easy with ABB's comprehensive selection tools and extensive technical documentation. We offer highly functional and easy to deploy products to support a wide range of projects. And we want to support you at each stage of your project, with design software, training materials, configuration and product selection tools. Whether you're looking to deliver energy efficiency, space savings, easily maintained systems or overall project cost reduction for your customers, with the breadth of our offering you can deliver customized solutions to meet your project goals and streamline engineering processes.</p>
<b>Design software</b>	<p>Choosing the right products for complex installations can be extremely time consuming. ABB provides a wide range of software and mobile applications to help you select precisely what you need, in a simple yet effective way. Choosing, dimensioning and drawing your application has never been easier.</p>

Please note: This is ABB's global offering and some products might not be available in your country. Refer to [abb.com](http://abb.com) for your location.

# Contact us

## **ABB**

Low Voltage Products

Cityport, Affolternstrasse 44, Zurich 8126

Switzerland

For more information and local contacts, please visit:

**[www.abb.com/low-voltage](http://www.abb.com/low-voltage)**

The information contained in this document is for general information purposes only.

While ABB strives to keep the information up to date and correct, it makes no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability or availability with respect to the information, products, services, or related graphics contained in the document for any purpose. Any reliance placed on such information is therefore strictly at your own risk. ABB reserves the right to discontinue any product or service at any time.

© Copyright 2016 ABB. All rights reserved.