

# Solutions for HVAC applications

## Increased energy efficiency



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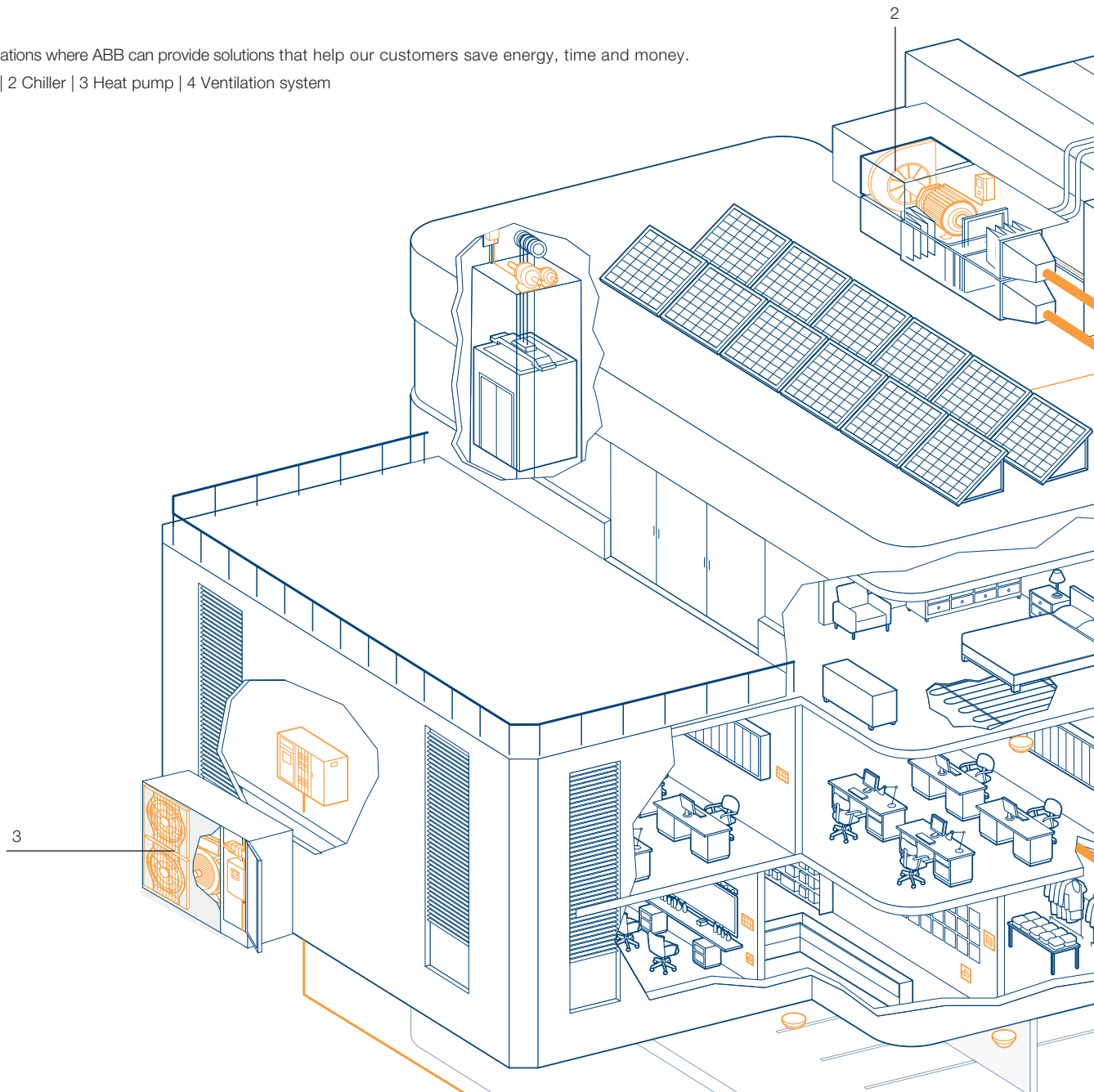
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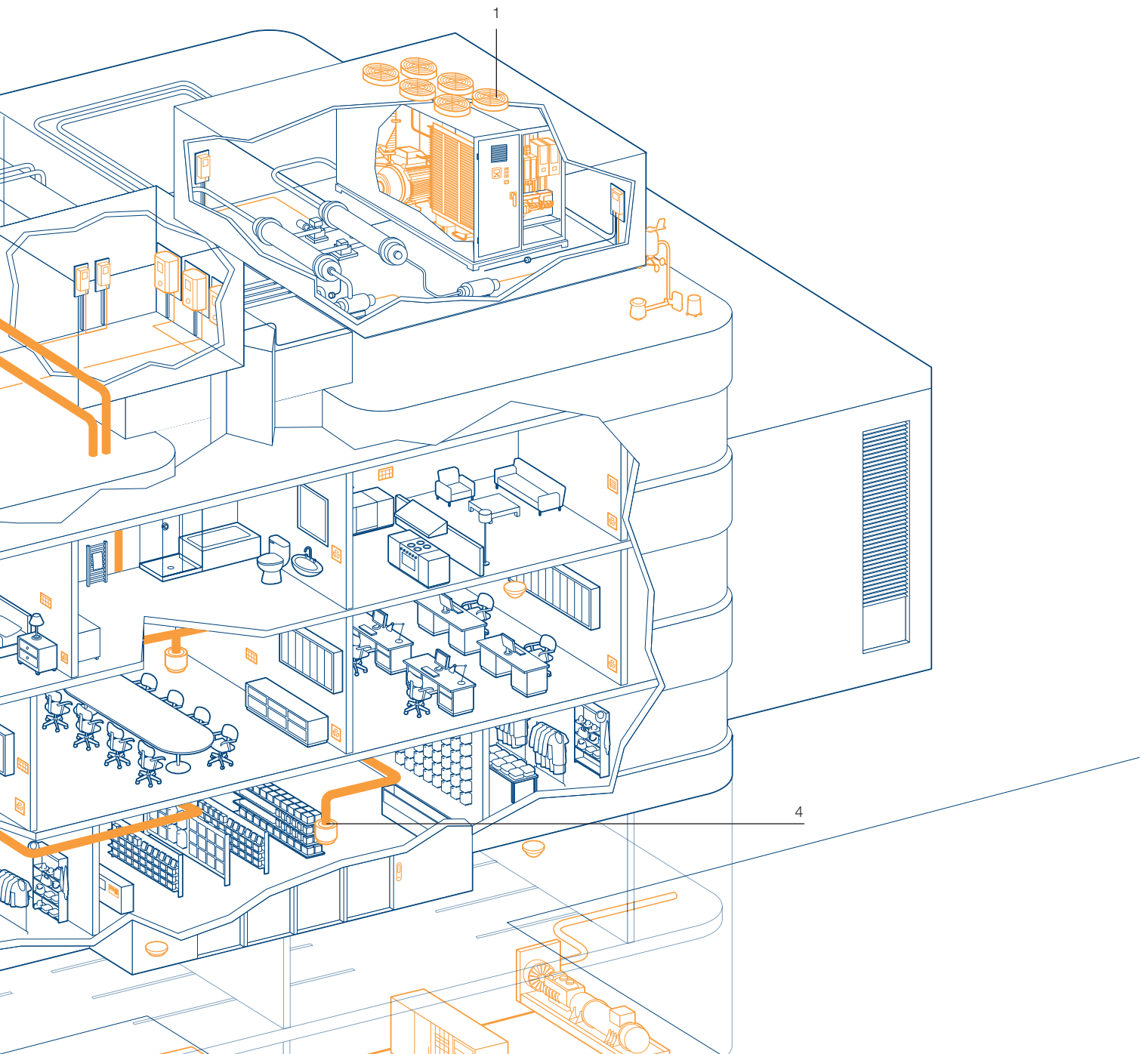
Our solutions help our customers address problems in their HVAC installations. We have an extensive offering of automation, motor, and connectivity products and the application experience to put together the best product solutions for our customers. The offering includes premium efficiency low voltage AC motor and drive packages that

Typical HVAC applications where ABB can provide solutions that help our customers save energy, time and money.

1 Air Handling Unit | 2 Chiller | 3 Heat pump | 4 Ventilation system



reduce installation space and lower energy consumption by as much as 50 to 60 percent. Additionally ABB offers solutions that connect the electrical system and provide protection for HVAC applications. From circuit-breakers, contactors, relays and switches to surge protection and residual current devices.





# HVAC applications – component reliability a must

## AHU - Air Handling Unit

AHU is used to condition and circulate air as part of a HVAC system. An AHU usually contains a blower, heating or cooling elements, filter racks or chambers, sound attenuators, and dampers. AHU:s usually connect to a ductwork ventilation system that distributes the conditioned air through the building and returns it to the AHU as part of a HVAC system.

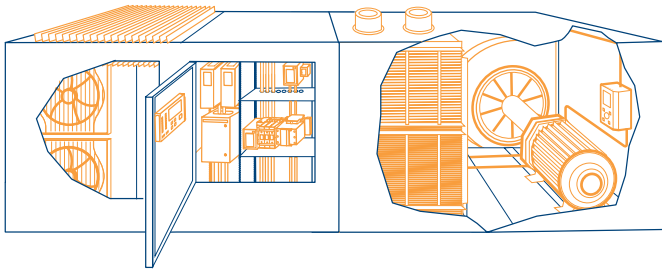


ABB can offer circuit-breakers, switches, MCB:s, contactors, terminal blocks, EPR-Electronic relay and pilot devices for the AHU control panel. Motors and drives run and control the blower.



**ABB key solution:** AHUs are typically designed to handle the maximum demand based upon worst case environmental conditions. As these situations are atypical, reducing the speed of the AHUs' motors will save energy, efficiently and money. Drives electronically vary the speed of motors, and thus the airflow, reducing efficiency losses inherent with mechanical flow varying techniques. VFDs will eliminate these - such as mechanically controlled dampers and valves - and stop/start cycles.

Additionally, drives bring added functionality such as: the ability to communicate with building management systems (BMS), provide pass through I/O, and eliminate stress on connected equipment such as motor belts and pulleys.

## Chiller

A chiller is a machine that removes heat from a liquid through vapour compression. This liquid than can be circulated through a AHU to condition and circulate air.

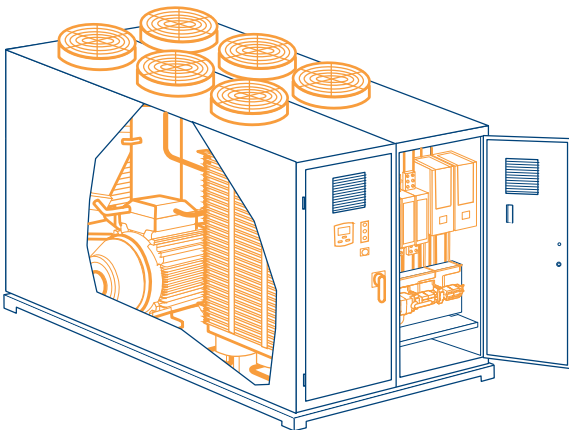
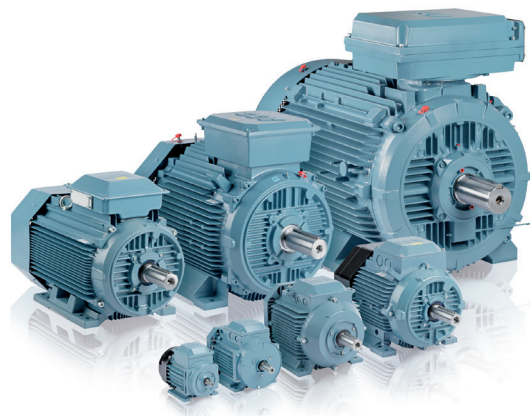


ABB can offer circuit-breakers, switches, MCB:s, contactors, softstarters, manual motor starters, terminal blocks, EPR-Electronic relay and pilot devices for the chiller control panel.



**ABB key solution:** External compressor motors, as opposed to hermetic motors, primarily equip the largest category of chillers, the centrifugal chillers. The main advantage of the centrifugal chiller compressor, and the main reason why this type of compressor is selected for large capacity chillers (above 750 refrigerant tons (RT)), is that they offer the best energy efficiency in maximum cooling load conditions. As a result, centrifugal chillers are mainly found in heavy duty industrial, data center, marine and large building cooling applications where, besides energy efficiency, reliability is an essential characteristic. ABB high and premium efficiency Process Performance Motors lend themselves ideally to this task.

## Heat pumps

Heat pumps have the ability to move heat energy from one environment to another, and in either direction.

The heat pump can both bring heat into an occupied space, and take it out. A heat pump which is able to provide both heating and cooling is called a reversible heat pump. In the cooling mode a heat pump works the same as an ordinary air conditioner. When a heat pump is used for heating, it employs the same basic refrigeration-type cycle used by an air conditioner or a refrigerator but in the opposite direction, releasing heat into the conditioned space rather than the surrounding environment. In this use, heat pumps generally draw heat from the cooler external air or from the ground.

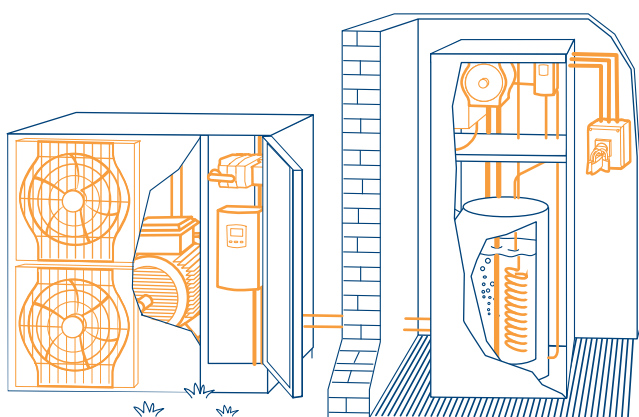


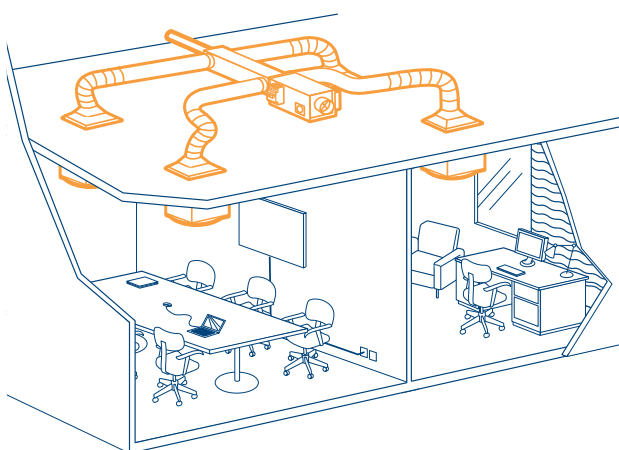
ABB can offer circuit-breakers, switches, MCB:s, contactors, softstarters, manual motor starters, terminal blocks, EPR-Electronic relay, pilot devices for the heat pump control panel. Safety switches for safety in service. Motors and drives for blowers and pumps.



**ABB key solution:** Heat pumps often include scroll compressors. The application demands a lot from these compressors and the life span of the compressor can become an issue. ABB offer unique PSRC softstarters that are designed specifically for scroll compressors. They are very easy to use and install. The PSRC softstarter was designed with a short starting time whilst maintaining a low starting current thus increasing the life span of the compressor. As the settings cannot be changed, reliability is guaranteed.

## VAV - Variable Air Volume

Variable Air Volume (VAV) is a type of heating, ventilating, and/or air-conditioning system. The air blower's flow rate is variable. For a single VAV air handler that serves multiple thermal zones, the flow rate to each zone must be varied as well.



**ABB key solution:** ABB can provide optimal disconnect means for a VAV unit. OT disconnects feature high performance electrical and mechanical capabilities in a very small footprint. A small footprint allows for space saving in your VAV control box. Our OT disconnects are globally available with approvals for the US, European and Asian markets.

# ABB offers motors, drives, breakers, switches, contactors, softstarters and many other components for HVAC applications



## Motors

ABB offers a wide range of low voltage AC motors with improved energy efficiency and lifecycle value.

Suitable for all industries, all applications - fulfilling all national mandatory efficiency regulations.

For more information, please visit  
<http://www.abb.com/motors>



## Drives

The ABB ACH550 is a complete dedicated low voltage AC drive especially for HVAC applications. The drives are designed to meet the HVAC market requirements including harmonics and EMC standards, and for easy integration with building management systems straight out of the box.

For more information, please visit  
<http://www.abb.com/drives>



## Circuit-breakers - Tmax XT

Tmax XT moulded-case circuit-breakers feature high performance level and an increasingly smaller size, while being easy to install and able to provide improved safety guarantees for the operator. These products have been created with the most advanced design engineering and simulation tools.

For more information, please visit  
<http://www.abb.com/lowvoltage>



## Miniature circuit-breakers

MCBs protect installations against overload and short-circuit, warranting reliability and safety for operations.

For more information, please visit  
<http://www.abb.com/lowvoltage>



# - a one stop shop for your HVAC products and solutions



## Switches

OT switch-disconnectors offer high performance in a very small footprint making them optimal main switches in HVAC control units. ABB can provide a full range of high quality switch-disconnectors from 16 all the way up to 4000 Amperes.

For more information, please visit  
<http://www.abb.com/lowvoltage>



## Softstarters

The ABB softstarter portfolio now consists of 4 different ranges making it possible to find a suitable softstarter for almost all possible applications and motor sizes all the way up to 1800A. PSRC is a unique softstarter designed specifically for scroll compressors, that is very easy to use and install. The PSRC softstarter was designed with a short starting time whilst maintaining a low starting current thus increasing the life span of the compressor. As the settings cannot be changed, reliability is guaranteed.

For more information, please visit  
<http://www.abb.com/lowvoltage>



## Contactors

Featuring AF technology as standard, the latest range of ABB's contactors establishes a new industry benchmark. The electronically controlled coil offers multiple benefits over conventional alternatives, and together with ABB's wide product offering – an optimal configuration, every time. The AF contactors range from AF09 through AF2650 features a electronically controlled coil that allows for a much wider operating voltage and AC/DC support. One contactor now covers 100 V-250 V AC/DC.

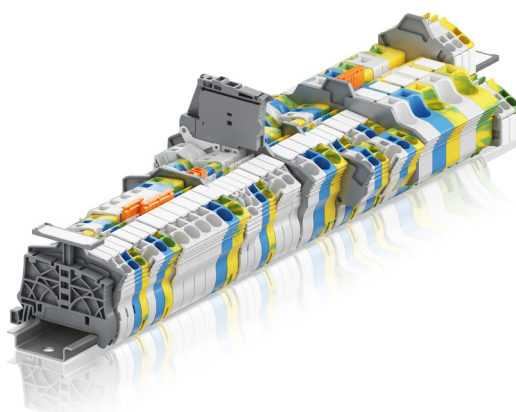
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## Manual motor starters

The choice of appropriate motor protection is key to the dependable operation of the motor and thus also for the reliable availability of the manufacturing process. Manual motor starters are used to manually switch on and off motors and to protect them reliably from short circuits, overload and phase failures. ABB manual motor starters permit quick reactions in the event of failures, provides for a compact switchgear cabinet layout that saves time and money

For more information, please visit  
<http://www.abb.com/lowvoltage>



## Terminal blocks

Our new SNK range of terminal blocks with, spring clamp, screw terminal and also ADO technology offers a wide range of wire size terminations. The spring clamp technology and ADO offer you a vibration resistant connection by keeping constant pressure on the wire termination. Terminal block Spring Clamp and ADO technology eliminates numerous wire preparation step.

For more information, please visit  
<http://www.abb.com/lowvoltage>



## Electronic Products and Relays

ABBs Electronic Products and Relays (EPR) complete ABBs excellent offer for HVAC systems. In our wide EPR assortment all products can be found to complete the control cabinets: Timers, monitoring relays, power supplies, signal converters, interface relays and logic relays. All lines offer products with single functionality and multifunction. Furthermore our customer can select from different enclosures: D-range in MDRC design, E-range in serial application industrial design and S-range multifunctional industrial design.

For more information, please visit  
<http://www.abb.com/lowvoltage>



## Pilot devices

A complete range of operators signalling units. These are complemented with enclosures and a wide range of accessories. The pilot devices have an aesthetic and functional design withstanding even the toughest environment. Large text and push area and customer specific marking on-line for quick and easy handling. Also several types of Emergency stop buttons which is demanded virtually in all HVAC applications.

For more information, please visit  
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# Contact us

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