

DISTRIBUTION SOLUTIONS

UniSec HBC

Air-insulated medium-voltage secondary distribution switchgear



- Compact size
- Complete solution
- Factory tested

The ABB UniSec range of air-insulated medium voltage switchgears for secondary distribution now includes the new HBC functional unit.

The HBC unit can be used in conjunction with all the other UniSec units and features HySec multifunction apparatus, which integrates the functions of circuit-breaker and disconnector.

Very small in size, being only 500 mm in width, the HBC panel is the ideal choice for compact substations, smart grids, grids using distributed generation sources, light industry, residential and commercial buildings. The HBC panel conforms to IEC 62271-200 standards and has been designed to meet the demands of the rapidly evolving secondary distribution market.

UniSec HBC

Air-insulated medium-voltage secondary distribution switchgear



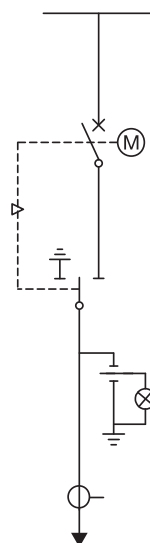
UniSec HBC Evolution

HBC AIS medium voltage panel introduces a new concept in addition to the traditional circuit-breaker and switch-disconnector panel

HySec is a multi-function apparatus with integrated circuit-breaker and disconnector housed in a single apparatus in the HBC panel. The breaking mechanism is positioned in the moulded epoxy resin upper part of the apparatus with the vacuum interrupters installed inside. The disconnecting mechanism is in the lower part of the apparatus, which is made of stainless steel and houses the contacts of the gas-insulated 3-position (line – isolated – earthed) disconnector.

Main features connected to multi-function apparatus technology:

- HySec fully tested as a single component
- all mechanical interlocks are integrated
- few spare parts
- high insensitivity to the external environment
- low quantity of SF6 gas (< 300 g)





UniSec HBC

Safety



LSC2A-PM

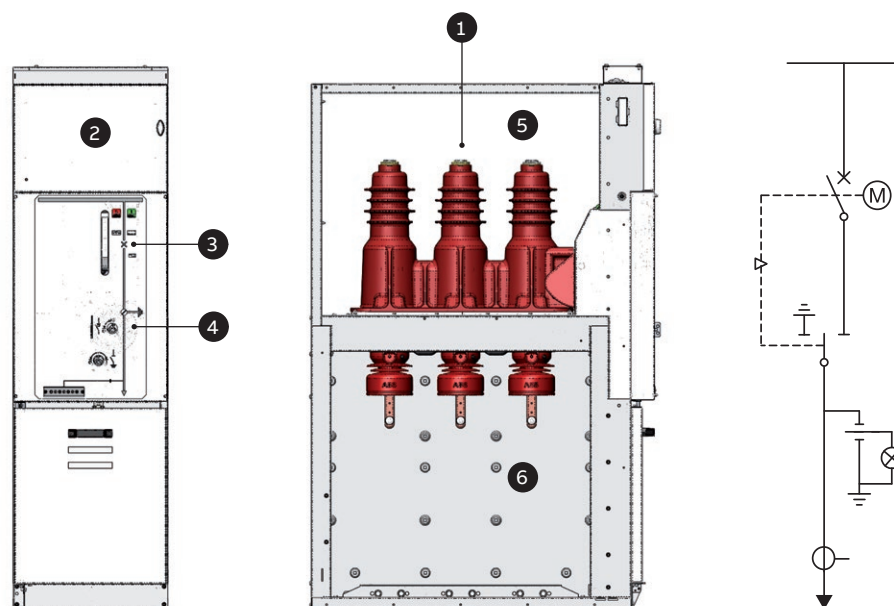
HySec is formed by 2 parts. The upper, epoxy resin part, guarantees the insulation class while the stainless steel lower part provides the panel with metal segregation.

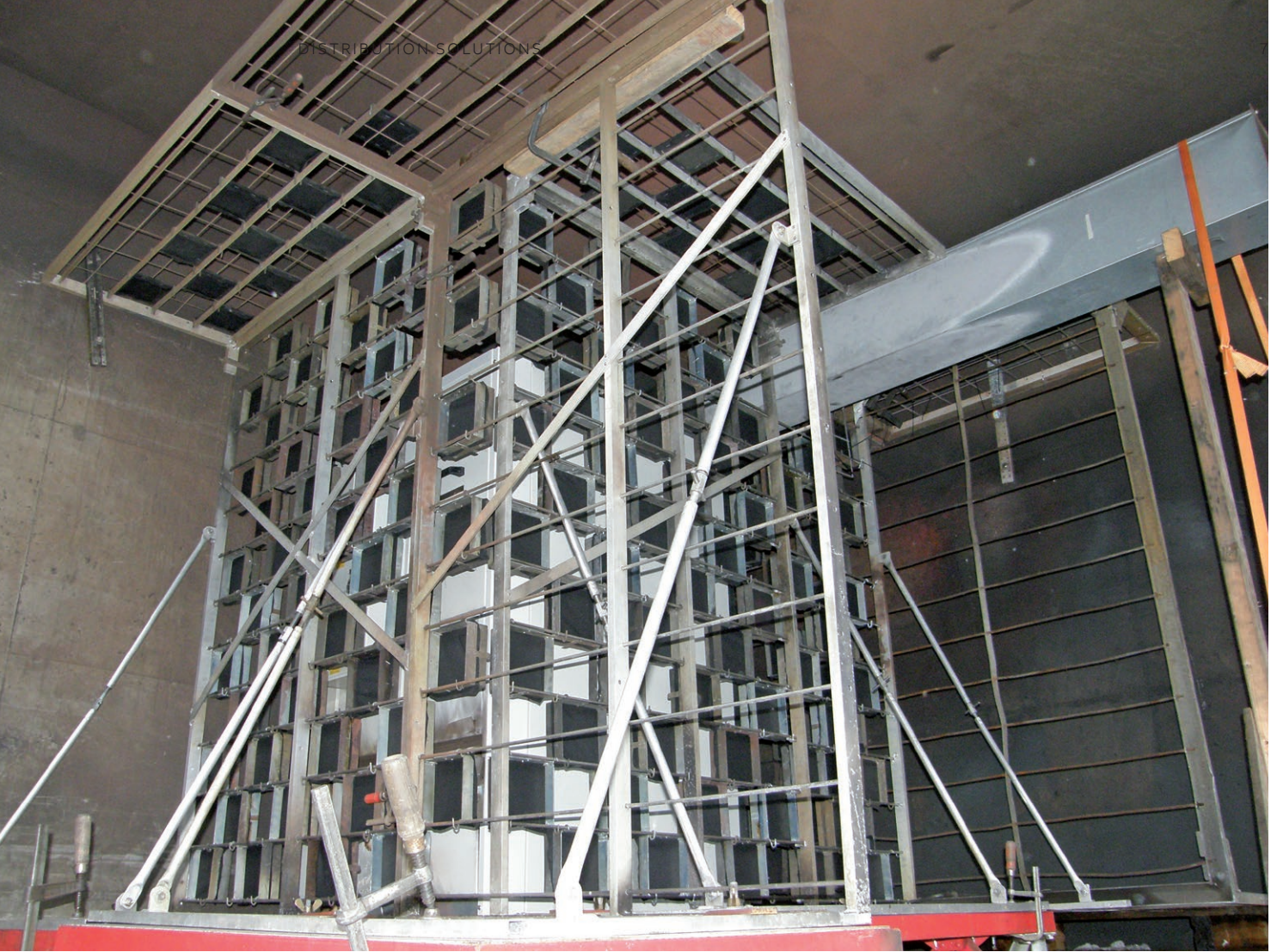
The HBC panel has two compartments for busbars and cables. The cable compartment can be accessed while the busbars and the adjacent panels are live.

Thanks to these two features, panel classification is LSC2A-PM as established by IEC 62271-200, guaranteeing maximum safety for the personnel who can work inside the line compartment even when the main busbars are live.

Caption

- 1 HySec multi-function apparatus
- 2 Low voltage compartment
- 3 Vacuum circuit-breaker operating mechanism
- 4 Disconnecter operating mechanism
- 5 Busbar compartment
- 6 Cable compartment





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Structure for an internal
arc withstand test

Internal arc-proof solution

Like the other UniSec panels, the HBC unit is internal arc proof to ensure a high level of security for the people in accordance with standard IEC 62271-200, annex A.

All the available solutions are class A (only authorized personnel), can be accessed from different sides (F for front, L for laterals, R for rear) and comply with all 5 of IEC standard criteria.

The available IAC versions are:

- IAC AF^(*) 16 kA, 1 s
- IAC A-FL^(**) 12.5 kA, 1s
- IAC A-FLR 16 kA, 1s

^(*) WARNING: It is forbidden to access the rear and laterals of the switchgear during service

^(**) WARNING: It is forbidden to access the rear of the switchgear during service

UniSec HBC

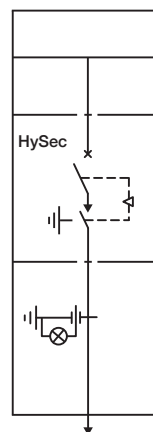
Safety

Interlocks

The HBC panel is equipped with all the interlocks and accessories able to ensure top-level safety and reliability for both the installation and operators. Interlocks ensure that operations take place in the correct sequence in accordance with IEC 62271-200.

The mechanical interlock between the cable compartment door and the position of the disconnecter prevents access to the cable compartment when cables are not earthed. Key interlocks can be installed on the earthing switch and feeder disconnecter.

In addition to the interlocks required by IEC 6227-200, the circuit-breaker and disconnecter in the HySec enclosure are mechanically interlocked with each other and guarantee a correct operating sequence. The system is thus error-free.



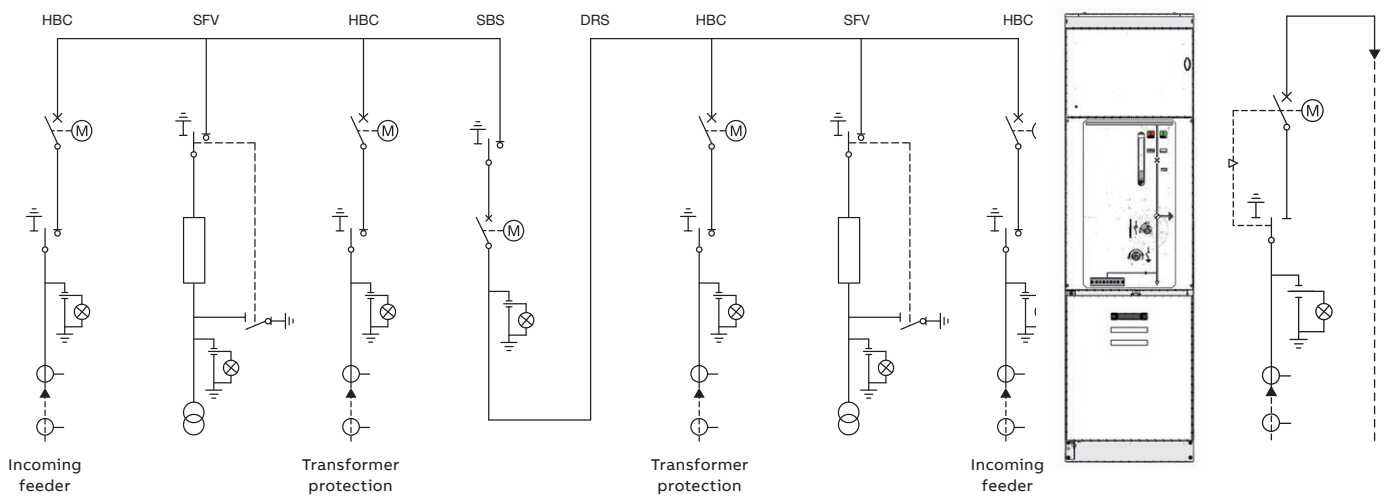
UniSec HBC

Flexibility



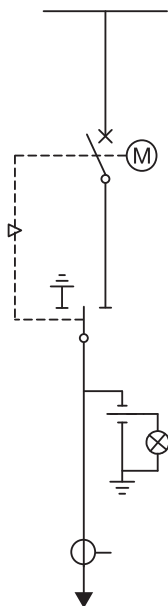
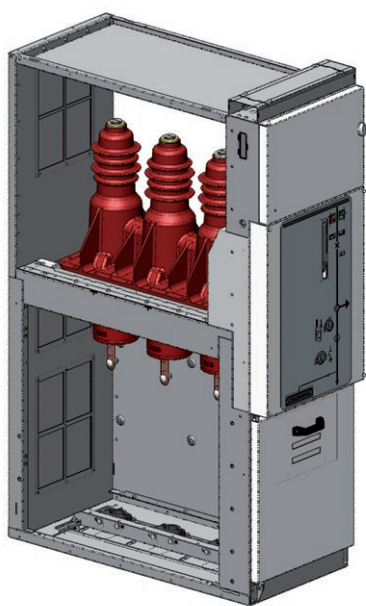
Thanks to flexibility in use and application of the HySec multi-function apparatus, the HBC panel can be used to protect and control both the incoming and outgoing feeders; in addition can be coupled to all others functional units of existing UniSec portfolio.

Moreover, the HySec apparatus allows the HBC panel to be used as incoming feeder in accordance with CEI 0-16, since the connection to the distributor network is equipped with earthing switch, as required by the standards.



UniSec HBC

Dimensions and ratings



Thanks to the multi-functional apparatus, ABB is able to offer a circuit-breaker and disconnector panel in only 500 mm width. In addition the cable connection height is up to 600 mm.

Panel characteristics

- Compactness: 500 mm width only
- Suitable ratings: up to 24 kV - 630 A - 16 kA 1 s
- Few spare parts
- High insensitivity to the external environment
- Low quantity of SF6 gas (< 300 g)

Electrical characteristics

| Rated voltage | kV | 12 | 17.5 | 24 |
|--------------------------------------|---------|--------------|--------------|--------------|
| Test voltage (50-60 Hz for 1 min) | kV | 28 | 38 | 50 |
| Impulse withstand voltage | kV | 75 | 95 | 125 |
| Rated frequency | Hz | 50-60 | 50-60 | 50-60 |
| Rated main busbar current | A | 630/800/1250 | 630/800/1250 | 630/800/1250 |
| Rated current of HySec | A | 630 | 630 | 630 |
| Rated short-time withstand current | kA (1s) | 12,5/16 | 12,5/16 | 12,5/16 |
| Peak current | kA | 31,5/40 | 31,5/40 | 31,5/40 |
| Internal arc withstand current (IAC) | kA (1s) | 12,5/16 | 12,5/16 | 12,5/16 |

UniSec HBC

Where to install



01 Utility

02
Compact Secondary
Substation



UniSec HBC

Where to install



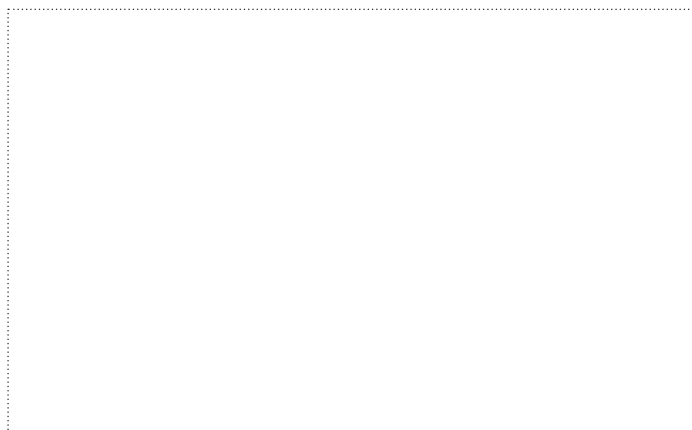
—
03 Residential and
commercial building



—
04 Light industry



For more information please contact:



More product information:

abb.com/mediumvoltage

Your contact center:

abb.com/contactcenters

More service information:

abb.com/service