

DISTRIBUTION SOLUTIONS

UniSec for Compact Secondary Substation tested according to IEC 62271-202 ed. 2

Air-insulated medium-voltage secondary
distribution switchgear



- Safe, tested application
- Complete, compact solution
- Proven and tested by ABB

UniSec for Compact Secondary Substation

Tested according to IEC 62271-202 ed. 2 for maximum Safety

The IEC 62271-202 standard

The standard specifies the type test requirements for CSS products up to 52 kV. A “prefabricated substation” or also called “factory-assembled substation” is a housing that contains the transformer, low voltage and high voltage switchgear, connections and auxiliary installations.

They are often situated in locations accessible for general public and therefore need to ensure protection for people according to the specified service conditions.

UniSec is the ABB Medium Voltage air-insulated switchgear for secondary distribution now certified to offer the above mentioned required safety level following the rigorous arc tests passed, in accordance to the latest IEC standard, that certify the correct construction and operational behavior of the CSS.



UniSec for Compact Secondary Substation

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UniPack CSS equipped with UniSec offers the highest levels of personnel safety

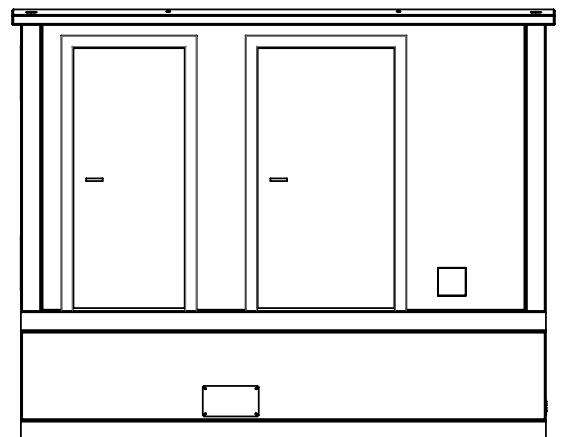
In addition to the classic type tests for medium voltage switchgear according to IEC 62271-200, which do not provide a tested level of safety inside a CSS, the performance of a walk-in CSS (ABB UniPack) equipped with UniSec portfolio has been tested for internal arc resistance according to IEC 62271-202 ed. 2.

ABB recommends internal arc fault tested CSS since this increases the safety for operators and the general public. Internal arc classification according to IEC 62271-202 ed. 2 requires two tests.

The first test proves the protection of the operating personnel in the substation, known as: accessibility A, access for authorized personnel only. In these test conditions and for a CSS operated from inside with pressure relief volume below the floor, during the internal arc in MV cubicles, CSS doors are opened and indicators are placed in front of the Switchgear assembled in the operating aisle. According to the latest version of the IEC Standard, the performance of the floor has been assessed from the point of view of the safety of the operator standing on it.



ABB UniPack



Typical dimensions for CSS with Trafo, MV and LV

The second test provides proof of the protection of the general public: accessibility B, unlimited access to all sides of the substation.

In these test conditions, during the internal arc in MV cubicles, CSS doors are closed and indicators are placed all around the CSS where the gas is likely to emit.

The internal arc classification IAC-AB up to 20 kA 1 sec of the CSS equipped with UniSec switchgear proves the level of safety provided to both operator and general public.



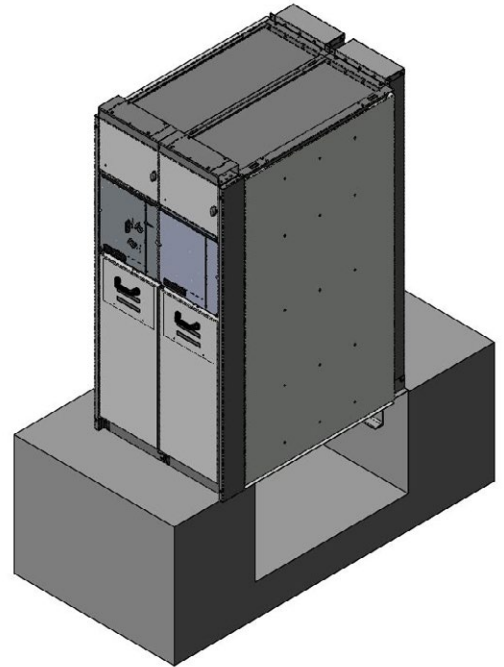
IAC-A type test.

Demonstrates the level of safety for operators inside the substation: accessibility type A.



IAC-B type test.

Demonstrates the level of safety for the general public: accessibility type B.



UniSec safety is not just and limited to Internal Arc tests performed according to IEC 62271-200 and 202; UniSec offers a very high safety standards and reliable long term operation.

Cubicle structure is always PM class having compartments segregated by metal; mechanical safety interlocks are always present and padlocks, keys, blocking magnets are available to set proper operating procedure.

Regarding internal arc gas exhaust, the type tested UniSec solution into the CSS consists in the downward type.

It is a dedicated gas duct, separated from cables and busbars compartment, mounted on the back of every cubicle that exhaust the hot gases from the bottom of the panel to the volume below the floor of the CSS.

UniSec has the advantage that no access from the back is required and then can be assembled against the wall saving space in the CSS footprint. Complete UniSec LSC2A (two MV compartments) portfolio is available for the installation in CSS according to IEC 62271-202 with rating up to 24 kV, 1250 A and 20 kA 1sec.

UniSec ratings and compartments overview are described in below table.

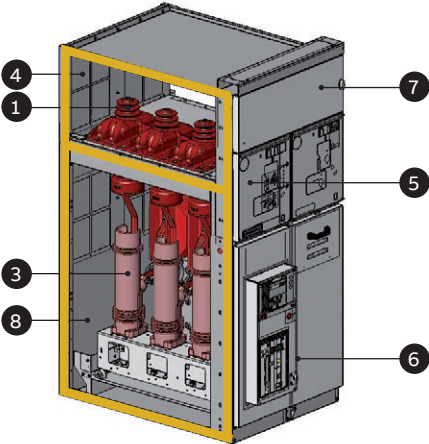
Additional information about UniSec MV Air insulated switchgear for secondary distribution are in dedicated catalogue 1VFM2000003.

UniSec electrical characteristics

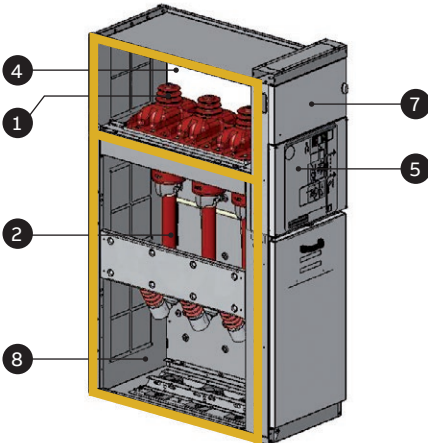
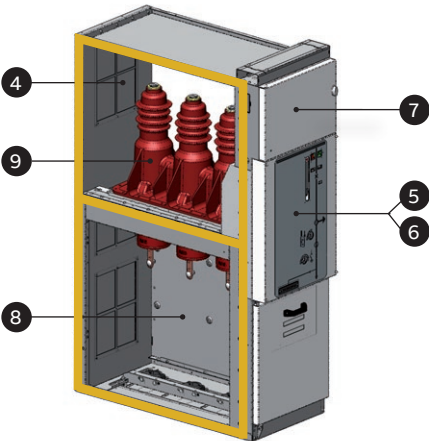
Tensione nominale	kV	12	17.5	24
Test voltage (50-60 Hz x 1 min)	kV	28	38	50
Impulse withstand voltage	kV	75	95	125
Rated frequency	Hz	50-60	50-60	50-60
Rated main busbar current	A	630/800/1250	630/800/1250	630
Rated current of apparatus:				
VD4/R-Sec - HD4/R-Sec - HD4/RE-Sec removable circuit-breaker	A	630/800	630/800	630
HySec multi-function apparatus	A	630	630	630
GSec gas switch-disconnector	A	630/800	630/800	630
Rated short time withstand current	kA (3s)	16 ⁽³⁾ /20 ⁽²⁾ /25 ⁽¹⁾	16 ⁽³⁾ /20 ⁽²⁾	16 ⁽³⁾ /20 ⁽²⁾
Peak current	kA	40 ⁽³⁾ /50/62,5	40 ⁽³⁾ /50	40 ⁽³⁾ /50
Internal arc withstand current (IAC AFLR)	kA (1s)	12,5/16 ⁽³⁾ /20	12,5/16 ⁽³⁾ /20	12,5/16 ⁽³⁾ /20

⁽¹⁾ 25 kA 2s
⁽²⁾ Contact ABB for 21 kA/52.5 kAp
⁽³⁾ For HySec 16 kA(1s)/40 kAp

UniSec LSC2A class compartments overview

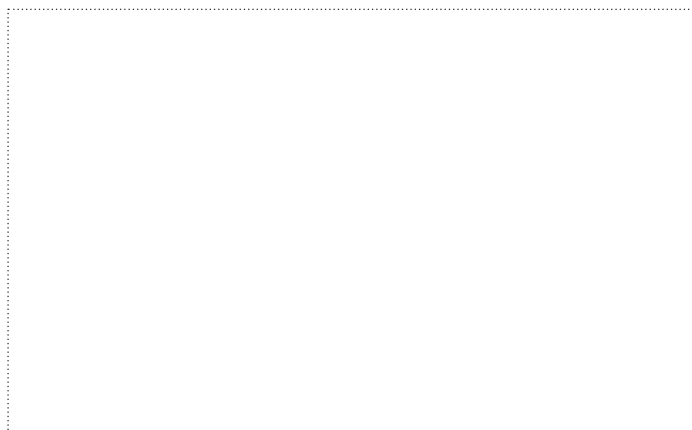


Caption
1 Switch-disconnector
2 Fuses
3 Circuit-breaker
4 Busbar compartment
5 Mechanism compartment
6 Circuit-breaker operating mechanism
7 LV compartment for auxiliary circuits
8 Cable compartment
9 Multi functional apparatus





For more information please contact:



More product information:

abb.com/mediumvoltage

Your contact center:

abb.com/contactcenters

More service information:

abb.com/service