PowerIT Compact Secondary Substations, CSS

Data Sheet, Terra 6C
PowerIT Compact Secondary Substation, CSS

**Terra 6C**
Drawing number: 1VNA00001X0304
Type: CSS-SC.4.8

**Dimensions in mm (WxLxH)**
Enclosure (6 degree roof): 1534 x 2734 x 1997 mm
Transformer compartment (oil pit): 899 x 1714 x 1801 mm
Weight without electrical equipment: 1975 kg

**Max. equipment**
Transformer: 630 kVA hermetically sealed oil transformer
MV equipment: 3-cubicle SafeRing 12 or 24 kV or NAL Cubicle 12 kV
LV equipment: LVS2-13M
Product description

Enclosure
Walls, roof and doors are made from 1.5 mm galvanized sheet steel and the base frame is made of 2 mm galvanized sheet steel. Clinching technology is used to assemble walls modules, roof and wall sections to foundation frame.

The enclosure is divided into three compartments, one for the MV switchgear, LV switchboard and distribution transformer each.

The roof is detachable and secured to the corner sections by bolts. The complete CSS, excluding transformer, can be lifted using the lifting eyes at top, thereby there is no need for special lifting devices. If the CSS should to be lifted with the transformer installed, please consult ABB for instructions.

The doors are closed by means of a two-point device and equipped with doorstopper. As standard they are fitted with handles for padlocks.

The CSS is painted with Oxidur® wet paint.

The foundation has detachable panels in front of the MV and LV compartment to allow easy installation of cables. The CSS has an integrated concrete foundation, serving as oil collecting pit for the transformer and mounting base for electrical equipment and building. It also prevents ground water from entering the CSS.

Transformer
The transformer compartment is dimensioned for a 630 kVA hermetically sealed oil transformer. Please note that the dimensions of transformers can vary and it should be checked if the desired type of transformer fits in the CSS, taking safety distances and ventilation into consideration. The dimensions of the transformer compartment are 899 x 1714 x 1801 mm (W x L x H). The transformer compartment is equipped with a concrete oil pit, to collect the transformer oil in case of leakage.
**MV equipment**

The CSS can be equipped with a maximum 3-cubicle SafeRing 12 kV or 24 kV. Alternatively a 12 kV NAL Cubicle can be mounted.

The MV transformer cables are as standard 25 mm² Cu. If the Tee-off of the SafeRing is with a vacuum circuit breaker 95 mm² Al cables will be installed. Terminations can be either SOT 241 or SOC 250 at the transformer end. For SafeRing SOC 250 terminations are used and for NAL SOT 241 terminations.

**LV equipment**

The CSS is dimensioned for low voltage switchgear of the type LVS1 or LVS2 up to 13 modules (1300 mm).

In a 13-module switchboard there is room for:

- 13 x 400 A InLine fuse switches
- 8 x 400 A Kabeldon fuse switches

The LVS2 can be configured with various metering and measuring equipment, please check relevant brochure for details.

The LV cables for a 630 kVA transformer are 2 x 240 mm² per phase with cable lugs mounted at one end.
Styling
Various styling can be selected if the CSS needs to blend in with the environment.

Colors
The steel walls can be painted in the following standard colors:
- Brown grey RAL7013 - NCS 7005Y20R
- Slate grey RAL7015 - NCS 7005R80B
- Grey beige RAL1019 - NCS 4010Y30R
- Grey beige with black roof RAL1019 / 9005 - NCS 4010Y30R / S9000N

Texture paint
- Falun red NCS S5030R
- Moss green NCS S6005G20Y
- Falun red with black roof NCS S5030R / S9000N
- Moss green with black roof NCS S6005G20Y / S9000N

Wall styling
Wood cladding can be mounted on the walls in the following standard colors:
- Light green - NCS S5010-G70Y
- Red - NCS 4060-Y80R
- Dark green - NCS S8010-G50Y
- Dark brown - NCS S8005-Y20R
- White - NCS 1005-G80Y

Roof styling
The standard roof is with a six degrees slope, but a roof with an 18 degrees slope can be selected. The 18 degrees roof can also be styled with black pantiles.

Add ons
- Cylinder door locks
- Ventilation filters
- Door gaskets
- Earthing system to 20 kA on MV
Safety

Safety has a high priority in ABB, therefore we have designed and type tested Power™ CSS according to IEC standard in order to reduce the risks and limit the consequences of faults.

Type tests are important in order to increase the safety of operation personnel as well as the general public.

The Power™ CSS is fully type tested in accordance with IEC 62271-202, which covers the following test programs:

- Mechanical impact tests
- Short time withstand current on earthing system
- IP-code verification
- Heat run test
- Mechanical functionality

Apart from the standard type tests, arc fault test is also performed on Power™ CSS in order to ensure sufficient mechanical strength in case of a fault.

- Internal arc fault test 16 or 20 kA for 1 second depending on MV equipment.

Further tests performed are:

- Magnetic field measurement
- Sound level determination

The Power™ CSS has protective measures such as locks on all doors to prevent unauthorized access. The doors to the transformer compartment are also supplied with a safety barrier to avoid unintended access. Our Walk in CSS can be supplied with internal door handle as well as panic handle. Ventilation louvers are poke proof.

Environment

ABB works to develop and supply products and solutions that do not have any unnecessary impact on the environment, are safe to use and can be recycled, reused or disposed of safely. In our research and development we aim to produce sustainable technologies, systems and products.

The Power™ CSS-SC is delivered with an integrated concrete oil pit to ensure no oil spill in nature in case of transformer oil leakages. For the CSS-SN and CSS-SW oil pit is also available.