

Specification for Central Power String Solution (CPSS) 12 feet container for 1.00 MVA

Description and dimensions of the container:

12 feet in a special container, divided into three rooms, contains medium voltage switchgear, medium voltage transformer and low voltage distribution. Space for monitoring and SCADA is available. Dimension: 3.690 x 2.438 x 2.590mm (l_xw_xh). This specification is based on the usual environmental conditions (Central Europe).

Higher requirements, e.g. Ambient temperature greater than 40° C, sand filters, air-conditioning, protection against extreme climatic conditions, fire extinguishing system, SCADA / monitoring etc. are not part of this specification. If there is a special requirement, there will also be an additional specification.

General steel construction:

The frame, the roof, the floor and the walls are made of steel. The roof panels are seamlessly welded.

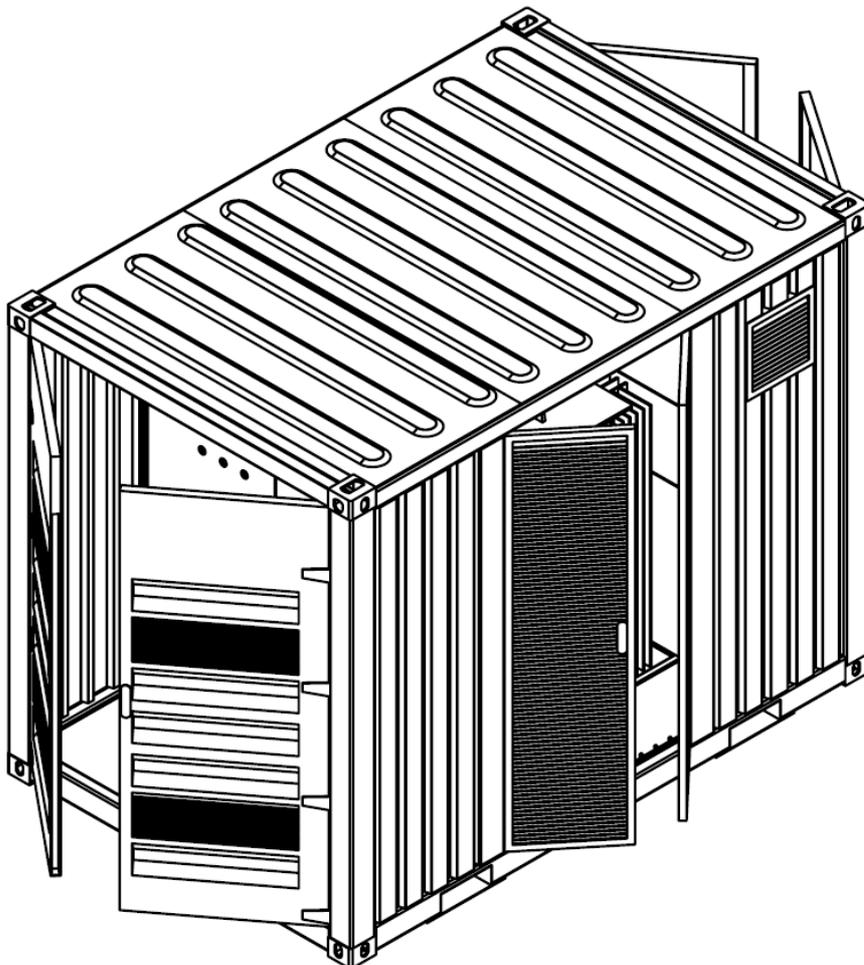


Fig. 1: Container for CPSS 0.5

Insulation against condensation:

The roofs, steel walls, including the inner walls between the three rooms are insulated with 50mm of material inside to protect them from condensation. The insulation is protected and fixed on the inside with perforated sheet metal or similar material.

IP Protection:

Protective medium voltage room and low voltage room: IP23D. Transformer compartment IP21, if the MV and LV terminals are insulated.

Doors and air inlet and outlets:

All doors can be opened to the outside (safety and panic function), can be locked in the open position and have standard cylinder locks. The cylindrical locks are interchangeable.

Low voltage compartment:

door approx. 2300mm x 2260mm (w x h) divided into two equal section.

Exterior handles.

Panic function from the inside (person is able to open the door from the inside without a key, if the door was locked). Lock function for opening the door.

Air intakes in the door 4 pieces approx. 900mm x 300mm (w x h).

Medium voltage room:

Door approx. 2300mm x 2260mm (w x h) divided into two equal section.

A built-in door handles outside. Panic function from the inside (person is able to open the door from the inside without a key, if the door was locked). Lock function for opening the door. Air inlets. 4 pieces about 900mm x 300mm (w x h).

Transformer room backside:

Clip-in frame or screwed frame ca. 1490mm x 2260mm (w x h) with double layer grid (rough and fine) for protection again animals, insects and long metal sticks.

Transformer room frontside:

Door approx. 1490mm x 2260mm (w x h) divided into two equal sections with double-layered grid (rough and fine) for protection against animals, insects and long metal bars. Panic function from the inside (person must be able to open the door from the inside without a key, if the door was locked). Lock function for opening the door.

Container 12' HC
(3690x2438x2895)

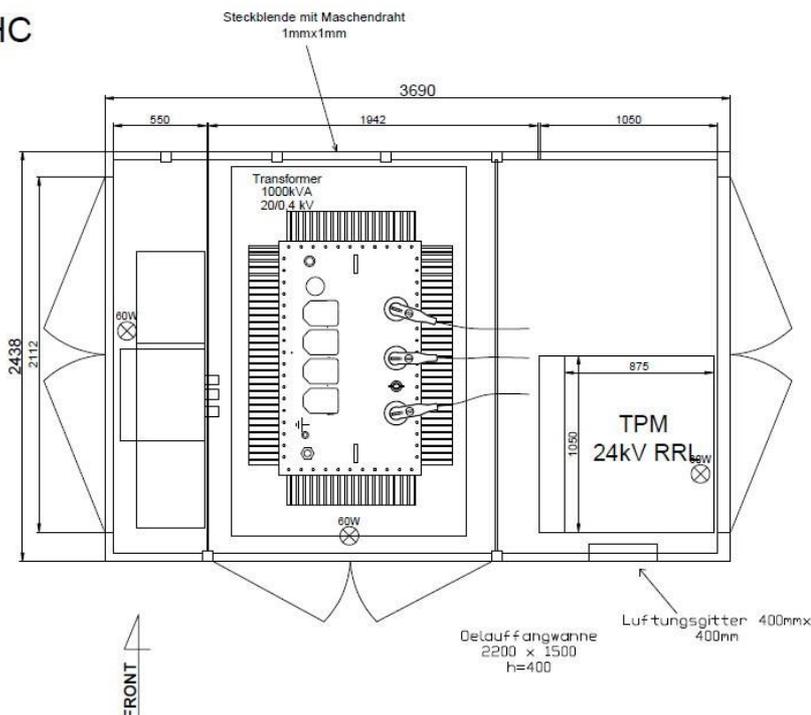


Fig. 4: top view

Coating and flooring:

The steel structure including walls, floor and roof are sandblasted and primed. It is attached a UV-protected coating suitable for outdoor use. Standard corrosion protection is C3 according to DIN EN ISO 12944-2. Higher protection levels are possible according to the project requirements. The flooring in the low voltage and medium voltage rooms is non-slip and electrically isolated according to DIN VDE 0105-100: 2015-10.

Electronic Components:

- Medium voltage (MV) Switchgear ZUPe 24kV gas-insulated.
- MV transformers (ONAN) 800kVA, Dyn5, up to 24kV / 0.4kV with insulated MV terminals
- Low-voltage (LV) distributors with auxiliary distributors and protective devices
- Three-phase connection between MV switchgear and MV transformer.
- Three-phase connection with additional PEN between MV transformer and LV distribution unit 4 x 7 x 240mm².
- Potential earth busbar.
- Three moisture-proof diffuser fluorescent lamps or moisture-proof diffuser lamps LED lamps. Protection class IP65. 36W or similar to 36W. For each room a lamp. Each lamp is separately switchable.

MV Switchgear:

- Manufacturer: ZPUe.
- 8DJH (up to 24kV) - Insulation SF6 gas.
- two ring feeders (RRL)
- A circuit breaker with WC1 protection device for transformer
- Capacitive voltage detection system for each R field
- Remote release between LV switchgear and LV load disconnecter.
- Pressure relief via duct and absorber.

option

MV Switchgear:

- Manufacturer: ZPUe.
- 8DJH (up to 24kV) - Insulation SF6 gas.
- Typ (RLMe)
- A ring feeders
- A circuit breaker with WC1 protection device for transformer
- Measuring cell for medium voltage (measuring converters are supplied by network operators)
- Capacitive voltage detection system for each R field
- Remote release between LV switchgear and LV load disconnecter.
- Pressure relief via duct and absorber

MV Transformer

Cast Resin Transformer:

- 1000 kVA rated power
- 50 Hz rated frequency
- HV voltage up to 24kV
- HV tapping adjustable +/- 2x2.5
- 400V LV rated voltage (no-load)
- Vector group: Dyn5
- HV connection: Delta
- LV connection: Star
- HV / LV winding insulation class: A / A
- Maximum ambient temperature: 40° C
- Indoor installation

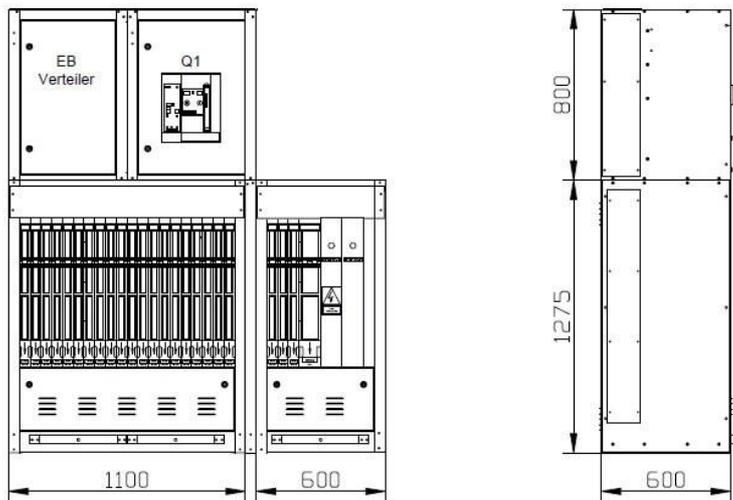
- Cooling system: two ventilation units with six air forced fans. Temperature control unit TSX1 with three pieces PT100 temperature sensor

option

MV transformer

- Oil immersed hermetic transformer
- 1000 kVA rated power
- 50 rated frequency
- HV voltage up to 24kV
- HV tapping adjustable +/- 2x2.5
- 400V LV rated voltage (no-load)
- Vector group: Dyn5
- HV connection: Delta
- LV connection: Star
- HV / LV winding insulation class: A / A
- Maximum ambient temperature: 40 ° C
- Indoor installation
- Cooling system: ONAN
- ≤1000m altitude above sea level (for special requirements it can be more altitude)
- HV plug in connectors
- Electrostatic screen between primary and secondary winding
- D.M.C.R. Protection relay for the oil transformer with following detections:
Pressure, Temperature, Oil level, Gassing.

LV distribution



Variant for 1.00 MVA

- 1 piece circuit breaker panel 800 x 600 x 600 mm (transformer connection)
- 1 piece supply panel 600 x 1100 x 1275 mm (inverter connection)
- 1 piece supply panel 600 x 600 x 1275 mm (inverter connection)
- 1 piece bus bar system 1250 A, 5 - pole PE
- 1 circuit breaker 1600 A, 4 - pole with power unit 230 VAC, under voltage relay 230 VAC,
- 1 piece UPS 18 Ah 230 VAC
- 20 pieces NH00, 3 - pole, with V - terminal
- 40 pieces of fuse NH00 - 100 A
- 1 piece Switch strip NH02, 3 - pole with V terminal (overvoltage protection)
- 3 pieces fuses NH02 - 315 A
- 1 piece Surge protection type 1 + 2 TN-C (optional TN-S)

- 3 pieces of fuse NH00 - 160 A
- 4 pcs. Of LS automatic machines B16A, 1 - pole
- 1 piece RCD 25A, 4 - pole, 0.03 A
- 4 pcs. Of LS machines B10A, 1 - pole
- 2 pieces sockets 230 VAC
- 1 piece Motor protection switch 2,5 - 4 A
- 1 piece Voltage Relay ABB Type CM UFD.M31
- 1 time relay NO / NC, 230 VAC

RRL without measurement

