

## MAINTENANCE INSTRUCTIONS HERMETICALLY SEALED TRANSFORMER

### TRANSPORT

The unit is arranged lengthwise in the vehicle. The rollers must be removed and can be fastened the wrong way around on the substructures or packed in a cardboard box inside the box.



The unit must be on a wooden floor and rest on the substructures only. It must be carefully shored in both directions using wooden parts applied against the substructures. It must be securely slinged by lifting rings so as to seat it firmly on the floor and prevent it from tilting.

Take all the necessary precautions to prevent the load from knocking against the vehicle during transport.



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### **HANDLING**

Take all the necessary precautions so that the unit is not submitted to impacts during the handling operations.

For the hoisting operation, you must use the lifting rings of transformer to fasten the slings. They must not form an angle of more than 30° with respect to the vertical plane.



When unloading, the rollers must be mounted on the substructures and tilted in the desired direction. The yokes are stopped from turning using the envisaged screws.

The unit must be laid down delicately on the floor.

For handling operations on the floor using a winch, only use the substructures or the haulage rings as fastening points for the slings.



### **ACCEPTANCE**

Check that the unit has not received any impacts during transport, otherwise make the reservations to the forwarding agent, to be confirmed within 48 hours by registered letter. Make sure the protective relay and the connection terminals have not received any impacts and that there is no sign of a leak on the tank.

The handling must be performed as indicated in the previous paragraph.

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### STORAGE

The unit must be stored in a weatherproof room at a minimum ambient temperature of  $-25^{\circ}\text{C}$ .

The unit is protected from impacts and any splashes of any kind whether solid or liquid, particularly the cover with the bushings and protective relay as well as the other accessories.

Once the unit is in place, it shall rest on its substructure or the rollers which are shimmed. Stop the rollers from turning by a suitable device or turning two rollers  $90^{\circ}$ .

### INSTALLATION

Use the bushings to make the connections. Provide cable supports so that there is no load on the bushings. Rigid connections are forbidden.

If the oil level in the protective relay is low before start-up, make sure the unit does not have any signs of a leak.

To top up the oil level, open the drain tap :

- the level of dielectric goes up on its own. Close the valve when the floats are on maximum level.
- the level of dielectric goes down. Suck up through the drain valve until the protective relay is filled.



See “DGPT2 draining” video in Loading part on celduc-transfo website.

The earth connections are done on the terminals provided for this matter either on the cover (lifting rings) or the substructures.



Transformer with naturally cooled : for a properly cooling keep a free area around the equipment.

Perimeter = prescribed contour of the transformer (CEI 60076-10 §8) spaced 1m minimum

Height = height of the transformer (minimum)

If the equipment is an indoor type, provide for an acceptable temperature in order to measure :

Air pulled out – Air intake  $< 10\text{K}$

Ambiente temperature MAX :  $40^{\circ}\text{C}$  / 1 000 m above sea level.

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## START-UP

When the connections are done in accordance with the previous paragraph, check that the position of the tap changer is correct using the rating plate.



Check also the earth connections.

## MAINTENANCE

The unit is filled with mineral oil.

Tank : hermetic type and completely filled with liquid. The tank deforms itself to take up the increase in the volume of dielectric due to heating. It is therefore necessary to check that the tank does not show any signs of a leak of dielectric once a year. It is not necessary to check the state of the dielectric liquid as it is not subject to any oxidation or penetration of humidity.

However, the user can take a sample every 5 years of operation taking the following precautions :

- Do not open the filler plug when the temperature of the unit is high as it is overpressurised.
- Put this plug back on when the liquid is at a temperature close to 18-20°C,
- Every year remove the dust from the porcelain bushings and sets of bars.
- Transformer with tap(s) changer :  
every year, operate off voltage the tap(s) changer control device on all the positions by taking care to bring back it (them) in initial position.
- Transformer with protection covers : every year check the seals.
- Transformer with ceramic bushings : every year, check the lugs and bushings are correctly tightened.



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### **DIELECTRIC QUALITY**

The dielectric rigidity must be at least equal to 35 kV (gap spark measurement with sphere dia. of 12.5 mm distance of 2.5 mm as per the standard NFC 27 221 / 1995 - CEI 60 156 / 1995).

If not, the oil must be purified. The recipient (made of glass) used for the sampling must be carefully cleaned and thoroughly dried as the slightest trace of humidity would distort the measurement completely.

**OIL** : draw off from the bottom of the tank (sample valve) after allowing a certain quantity to run out to remove any impurities in the drain device.

