



400KV XLPE-INSULATED CABLE SYSTEMS WITH DRY PLUG-IN OUTDOOR TERMINATIONS



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ABSTRACT

The dry plug-in termination concept is well known for application as GIS and transformer applications. In order to use the benefits of this technique (no liquids, short installation time, compact design) the-plug in technology has now been introduced for EHV outdoor terminations up to rated voltages of 550kV.

These benefits were successfully demonstrated during the first 400kV reference project in Thessaloniki/Greece. After the order had been placed in December 2004 commissioning was successfully completed with the AC voltage test in June 2005 only 6 month after order intake. This new termination design is type tested and long-term tested according to IEC 62067 standard.

KEYWORDS

Plug-in termination, outdoor termination, EHV XLPE cable

INTRODUCTION

The dry plug-in termination concept shows experiences for more than 10 years [1] with voltage ranges up to 170kV and several thousands installations worldwide under all relevant installation conditions.

Nowadays this technique allows applications up to the rated voltages of 550kV and cross sections up to 2500mm². In order to use the benefits of this technique (no liquids, short installation time, compact design) the-plug in technology has now been introduced for EHV outdoor terminations.

The technical solutions shows a socket which is well known from plug-in GIS termination. This socket is installed into a SF₆ filled composite insulator. This bushing-type element can be pre-installed and pre-tested in the factory and shipped as one piece to the installation site. This shortens on-site erection times drastically. On-site installation work is reduced to install the plug-in part of the termination on the EHV cable only. This installation work can be decoupled from the erection of the socket-bushing element which allows an optimisation of installation works on-site.

This paper gives a description of this new type of termination, summarizes the type tests carried out with this design and shows the experiences made during the first application at a 400kV project in Thessaloniki/Greece.

DESCRIPTION OF PLUG-IN OUTDOOR TERMINATION

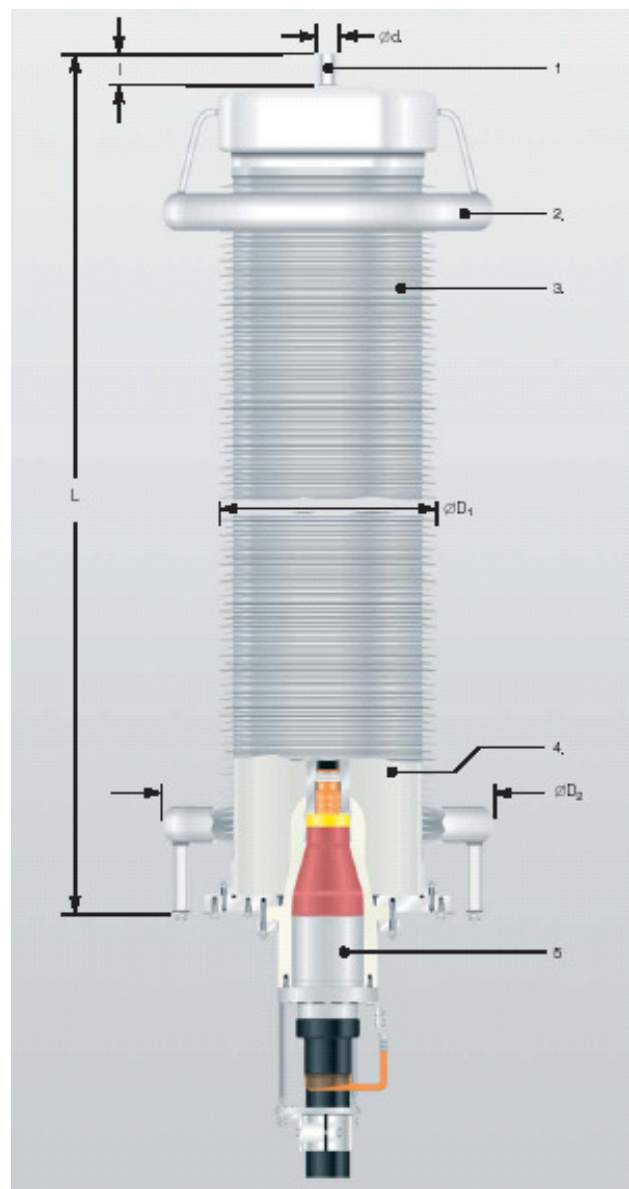


figure 1: Scheme of plug-in outdoor termination of type EHFVCS 362-550

- 1: top bolt
- 2: corona shield
- 3: composite insulator
- 4: gas filling
- 5: plug-in termination installed in socket