

Installation of cables system connections to gas insulated metal-enclosed switchgear (GIS)

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The GIS substations are more and more used specially in urban areas because of their reduced footprint as compared to open air substations.

The connection of underground cables requires specific GIS terminations.

Usually the GIS manufacturer is different from the cable system manufacturer.

The international standard IEC 62271-209 defines the limits of supply and responsibility of each manufacturer. However, civil works are not addressed and many issues remain to be clarified.

The purpose of this paper is to review the additional technical requirements that are needed to install and operate a connection between a cable system and a GIS.

- The identification and tests of the different components
- Pre-installation (when requested) of cable manufacturer insulator at the GIS manufacturer's factory and subsequent tests
- Cable route dimensions (depending on the cable bending radius and supporting frame)
- Clearance around and under the metallic termination enclosure (depending on supporting structure for the metallic enclosure, and on the hole size in the intermediate floor)
- Supply of Surge Voltage Limiters (SVL) and related clearances (voltage related)
- Gas pressure and insulation level for safe connection works
- Instrumentation position, current transformer, protection around cable screen and SVL
- After installation tests
- Maintenance facilities

The requirements will be discussed in reference to the CIGRE technical brochure B1-B3.33 and available international standards.

Example of recent installation will be provided.