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# Operating experience with lapped high voltage cable joints made from EPR tapes

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**Résumé**

**Pour raccorder des câbles haute tension différents types d'accessoires on été développés. Pour des câbles 220kV la solution à jonctions préfabriqués sera dominante.**

**D'autre part, il y a des fabricants de câbles qui utilisent et continue à utiliser des jonctions réalisées avec des bandes EPR vulcanisées avec de bons résultats.**

**Cette présentation est un résumé de l'expérience avec plus de 1000 jonctions réalisées avec des bandes EPR rubanées.**
**Une description de la fabrication de telles fonctions est également donnée**

**Abstract**

A number of different joint designs for connecting polymer insulated cables have been developed. The prefabricated joints will be the dominating solution in the future for cables rated 220 kV and above.

However, companies which have many years of good experience with other solutions such as EPR lapped self vulcanizing joints will continue to use their expertise in the years to come.

The paper deals with the positive experience collected on more than 1000 installed EPR lapped joints rated between 60 and 220 kV.

A description of the manufacture of such joints is also given.

## 1. Description of Lapped Joints

After proper preparation of the cable ends and the connection of the conductor, semi-conducting tape is applied around the conducting part. With this the surface of the conducting part is electrically smoothed.

On top of this layer the main insulation is built up, consisting of layers of self vulcanizing EPR tapes. The vulcanizing is obtained by extending the tapes in a controlled manner. As a rule of thumb the tape is stretched in such a manner that it's width is reduced to 2/3 of it's width in the unstretched state. No additional heat or pressure is needed for the vulcanizing process.

In order to prevent creepage of the lapped insulation to the side, when thermally stressed, a special lapped support was developed. Both ends of the joint are complemented with a lapped part on top of the actual insulation.

Besides preventing the lapped insulation from creeping, the pressure in the critical part, where the outer semi-conductive layer of the cables ends, is increased. This actually results in a more compressed EPR insulation body and a higher breakdown voltage.