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Special MV cable for long stator winding application Transrapid Shanghai

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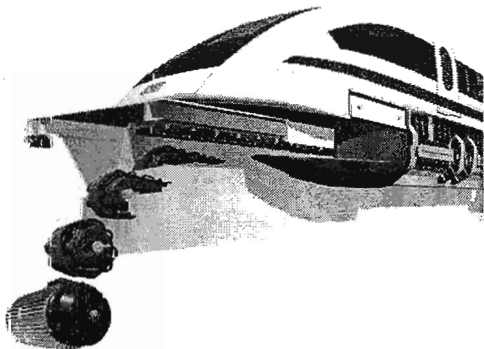
Abstract: The long stator winding of the Transrapid represents the most innovative high speed MAGLEV technology application for a special rubber MV cable with formerly unequalled mechanical and electrical requirements.

For the first time, we are able to provide details about this special MV cable solution, using high quality rubber compounds for conductor insulation and semi-conductive outer sheath with gliding coating for the long stator winding of the Transrapid Shanghai propulsion system, and to report that the high demands and specifications of the whole system were fulfilled.

Keywords: MV rubber power cable, Transrapid Shanghai project propulsion, Long Stator Winding, MAGLEV

1. Introduction

The Transrapid's magnetic levitation and propulsion system is the first fundamental innovation in railway technology since the first railway was built. The following article describes the MV power cable used for the long stator motor winding system of the Transrapid Shanghai.



picture 1: principle of the long stator winding motor [1]

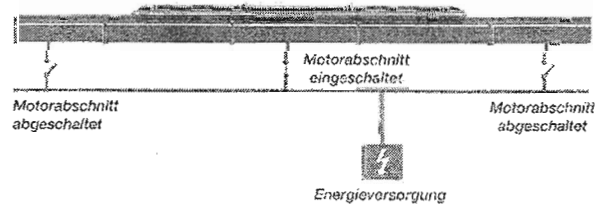
Résumé: Le stator long synchrone du Transrapid représente l'innovation la plus importante de la technologie grande vitesse MAGLEV. Le stator long synchrone du système de propulsion Transrapid Shanghai est constitué d'un câble spécial MT en matériau élastomère qui possède d'exceptionnelles caractéristiques mécaniques et électriques.

Pour la première fois, nous présentons en détails ce câble spécial MT composé de mélanges élastomères de haute qualité pour l'isolation du conducteur et la gaine semi-conductrice sur laquelle est déposée un revêtement glissant. Grâce à ses propriétés particulières, ce câble spécial MT remplit toutes les exigences nécessaires au bon fonctionnement du système de propulsion Transrapid Shanghai.

Mots clés: Câble élastomère de puissance MT, projet de propulsion Transrapid Shanghai, stator long synchrone

The MAGLEV technology is based on the principle of a long stator linear motor. In this particular case, the long stator of the linear motor comprising stator packs, stainless steel grounding sleeves, grounding cable and a 3-phase motor winding is integrated on both sides underneath the guideway.

The train is driven by the levitation magnets acting as linear propulsion rotors in the electromagnetic travelling field of the long stator. The electric system of the guideway is subdivided into motor sections of about 1000 m length each with just the one motor section being energised where the Transrapid is passing



picture 2: energising principle of the Transrapid propulsion system [1]