

Gigantic construction project in the Himalayas: Chenab Bridge

German material secures the highest railway bridge in the world

The tallest railway bridge in the world, with the longest steel arch for rail traffic ever built, is currently being built at the foot of the Himalayas in northwestern India. A prerequisite for the stability of the millennium structure is the one-hundred-percent form and force-locking, gap-free connection of the steel arch base with the concrete foundations on both sides. This ensures the metal polymer MM1018 of the German coating and polymer expert Diamant Metallplastic.

With a length of 1,315 meters, a height of 359 meters and a main span of 469 meters, the Chenab Railway Bridge will be the largest of its kind in the world. Their completion is scheduled for 2019. The gigantic steel arch of the record-bridge rests on eight support points on the extremely steep slopes of the Chenab valley. Achieving a 100% frictional, gap-free connection between the steel arch root and the cast-in steel plate is a great challenge. Finally, the stability for a designed life of the bridge of 120 years should be secured.

The seven-centimeter-thick and eight-square-meter steel arch bases showed deformations in the normal tolerance range after welding. A correction with straightening work was not possible because of the stiff construction. Also, the surface flatness of the cast-in steel slabs and their height in the concrete foundation were in the normal tolerance range. Nevertheless, there were gaps of up to 19 millimeters. Balancing the concerns of this column by manual and / or machining proved to be impossible.

The rescue solution was found by the construction management - Dipl.-Ing. Frank Bauchspiess, Afcons Infrastructure Limited - and finally the German coating and polymer expert Diamant Metallplastic from Mönchengladbach. Its bridge-building proven metal polymer MM1018 achieves 100% form and force-locking gap compensation in one step without mechanical processing and without the need for additional wedge plates or lining plates. And within just two days of operation in the Chenab Valley.

MM1018 is a two-component reaction resin system highly filled with special metallic materials. The material can be passively or liquidly filled or, as in the case of the Chenab bridge, injected. It is the only metal polymer to date with general building approval and has been established in the metal industry with more than 1,000 applications worldwide.

Based in Mönchengladbach, Germany, Diamant Metallplastic GmbH develops, formulates and produces metal polymers and coatings for the metalworking industry, casting, steel and bridge construction and shipbuilding. Founded in 1886 and still managed as a family business, Diamant Metallplastic GmbH has a global sales network with over 40 foreign representations in major industrial centers around the world.