

Steel plant Krupp Mannesmann Duisburg Germany:

Stamp of the furnace head suspension rehabilitated at blast furnace B

After more than 30 years of continuous loading, the supporting steel stamps of the furnace head suspension of a blast furnace in the Duisburg steel plant Krupp Mannesmann (HKM) now had to be rehabilitated. The biggest challenge here was the one-hundred-percent form and force-locking gap compensation between the steel components - with only a minimal time window for this work to ensure the load capacity.

The gas-catching-coating of a blast furnace of the steel plant rests on 16 "steel stamps" - the so-called furnace head suspension - with a basic dimension of the stamp feet of 70x30 centimeters. In the course of time, gaps of two to three millimeters had been created, which now had to be closed.

A particular challenge was the minimal time window for work on gap compensation: The blast furnace works in three-shift operation and can not be completely shut down over a longer period due to the process. An absolute prerequisite was therefore an extremely fast curing of the material used for the gap compensation. In addition, the full load capacity had to be restored within a very short time. Conventional methods, for example the introduction of shim plates, would not have led to the goal - a perfect form and force-locking gap compensation - due to the local conditions.

The metal polymer MM1018 Smart - in combination with the flexible application system "Injection-Pad" - enabled the form and force-locking gap compensation under these conditions and with maximum process reliability. The material and the application system were developed by the German specialist for coatings and polymers, Diamant Metallplastic GmbH. The combination is particularly suitable for difficult, quick-to-implement applications in steel construction.

MM1018 Smart is a particularly fast-hardening variant of the metal polymer MM1018, proven in bridge, steel and hydraulic engineering. Decisive for the fast processing of the Smart version is, in addition to rapid curing, easy handling with ready-to-use dual application cartridges.

At steel plant Krupp Mannesmann in Duisburg, MM1018 Smart was attached with so-called injection pads into the joints to be leveled on the stamps of the furnace head suspension. The Diamant Metallplastic Injection Pads are foil pillows tailored exactly to the joint. Without elaborate sealing work, they can be filled on site with MM1018 Smart under pressure, free of air bubbles and with a precise gap-filling connection. This is absolutely positive and strong and fully hardened within four hours.

Diamant Metallplastic GmbH, headquartered in Mönchengladbach in the Rhineland, 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 agencies in major industrial centers around the world.