

Lightweight for heavy cases

Abrasion-proof safety clamp system with light PUR conduit for loading and unloading silo vehicles



One employee is enough to fit the safety clamp system with the light and flexible PUR hose in a height of 60 meters.

LWB Refractories convert the high abrasive and robust substance corundum. For the transport during the production process were traditionally used heavy and fast-aging rubber conduits. On the search for an alternative the maintenance chief discovered a safety clamp system with a compatible, light and flexible PUR conduit, specially produced to loading and unloading silo vehicles.

In Kruff, Mayen-Koblenz the internationally acting company LWB Refractories every year produces more than 50,000 tons of fire-proof products of most different kind, mainly for the steel industry. The product range reaches from formats for steel melt and transport containers to functional products. The aluminium-oxide content is between 40 and 90 percent coordinated with the application criteria. The high abrasive raw

material corundum, mainly with corn bandwidth up to six millimetres and the second hardest mineral after the diamond, is an essential component in the refractory industry and is delivered to LWB Refractories via silo vehicles. Afterwards the grain is blown via a compressor standpipe with 2 bar up to a height of 60 meters and is transported trough fixed entrances to one of 32 chamber silos.



Burkhard Mollen
managing director

Traditionally in Krufft the stationary transport of corundum lead through non-flexible, often heavy and fast-aging rubber conduits. The conduits were too high-abrasive, leaked very quickly and were hard to install. The pollution because of abrasion in the expensive raw material was a big problem. In addition the short service life of the rubber conduits –namely only three silo vehicles à 25 t- was very dissatisfactory. The consequence was frequent business interruption to change the conduits. The new system by NORRES copes with 15 silo trains à 25 t.

Alternative searched and safety clamp system found

Always on the search for advancement the maintenance chief of LWB Refractories, Krufft got information on a specially developed safety clamp system for loading and unloading silo vehicles compatible with spiral wire reinforced polyurethane conduits. There it says “more abrasion-proof than rubber”, which arouses interest in him: we have had tried so much. The service life of finer rubber conduits was very short. When we transported via thick rubber conduits those were extremely inflexible and as heavy as two employees instead of one had to repair to a height of 60 meters to assembly.” He addressed to experts of NORRES who developed the safety clamp system and the compatible high-abrasive polyurethane conduit. The innovative solution makes it possible to combine

a polyurethane spiral conduit with a safety clamp system. The special safety clamp system for loading and unloading silo vehicles is applicable to tank truck, Kamlok and Storz couplings. The safety clamp system particularly impresses with especially its reusable clamp, and is quick and easy to fit. The hose adaptor with male thread is available in light metal, steel or two different stainless steel qualities, while the clamps themselves are made of light metal.

The compatible AIRDUC® profile hose is MHV reinforced and consists of Pre-Pur. This special mixture of Premium-Ether-Polyurethane impresses with its longer service life compared to other products, which results from the hydrolysis resistance, good thermic resistance as well as remarkable abrasion-resistance which is according to an abrasion test after DIN 53516 about three to five times higher than that one of rubber hose substances. In practice Pre-Pur has a very good absorbability and rebound elasticity. That way is reached a further elevated abrasion resistance and additional protection of the goods to be conveyed- The conduit exhibits good resistance to ozone, UV as well as oils and other chemical substances and has a high kink resistance, axial stiffness and flexibility. The polyurethane hose can be used at temperatures from -40°C to + 90°C or up to +125°C for short periods.

The high smoothness of the interior hose surface leads to less deposition

of the delivered material and allows gentler material transport. Providing the spiral is earthed, the hose is conductive according to BGR 132, so that static charge and resulting process disruptions are avoided. Above all the process can be simply observed because the hose is transparent although it can be delivered full coloured if required.

Assembly in a matter of seconds

All these arguments convinced LWB Refractories Krufft to test the system plus conduit immediately in practice. It was three month ago and the company is very content of the results of the change. With common rubber hoses they had a service life of three silo vehicles à 25 t corundum and now the new system of NORRES copes with 15 silo trains à 25 t. “By the change to the safety clamp system and the PUR conduit I associate flexibility and lightness besides a five times longer service life” explains the works management. “The longer the service life is, the lower are the default risk and the maintenance charges” The maintenance chief adds a further advantage of the system: “saving of cost is the one thing but I am fascinated of the fact that the system is quick and easy to fit to our Storz-B-couplings. Via seconds a man fits the conduit to the fixed entrances of the silos and the working process continues.”

