



Effective protection from aggressive waste water

MLK pipes and fittings with protec coating and pro-cut tape as cut edge protection

new



Waste waters are becoming more and more aggressive ... and our pipes more and more resistant

Too much grease and not enough water

This sounds like the typical nutritional mistakes of modern times. But it can also be a troublemaker in the drainage pipe. Cooled off grease can obstruct pipelines. However, what is even worse than the purely mechanical obstruction is the possibility of chemical reactions.

The ventilation of the pipeline, impaired by grease deposits, aggravates the situation. The grease trap protects all pipelines which are behind it as well as the public canalisation. On the other hand, the feeding line of the grease trap as well as its ventilation line represent the drainage pipelines with the highest strain in a building.

Waste water gets ever more concentrated

It goes even further than that. The modern trend to save water also leads to a higher concentration of organic components (e.g. excrements) and inorganic components (e.g. phosphates) in the waste water. Harmful micro organisms decompose these organic and inorganic materials through their metabolism. The result: aggressive compounds in the waste water.

Nowadays, innovative materials permit solutions which combine higher resistance and easier application. The challenge is to recognize the potentials of these new materials and to optimise them for the intended application.

The new MLK pipes with protec lining

Even if there is no apparent difference - the new pipe lining really is extraordinary!

Epoxy resin is an organic material that adheres strongly to metal. As a coating material, epoxy resin is often applied as a wet two-components material, and hardens cold or hot. Epoxy does not form any stress cracks while hardening. Epoxy resins that harden hot show considerably better mechanical, thermal and chemical characteristics than those that harden cold, due to their high rate of cross-linking. Epoxy resins consist of a resin and a hardener component, which react and form a three-dimensional network.

Often there is filler material added to the epoxy resin, which has a positive effect on its flow behaviour and the application area. However, these filler agents can represent a target for the attack through chemicals.

new



A completely new epoxy material

Now we have succeeded in reducing these filling agents to an absolute minimum. At the same time we improved the flow behaviour of the epoxy decisively. Both aspects improve the quality of the coating and therefore the resistance of our pipes to aggressive media.

The new MLK protec lining

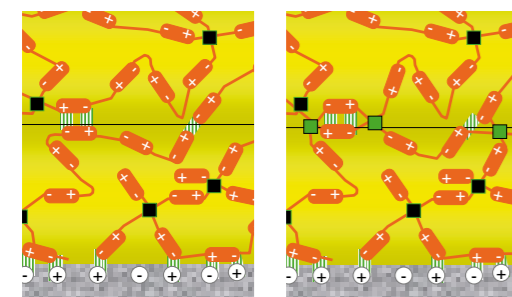
Our new MLK protec lining is applied in two layers of 120 µm each, which are burnt in one after the other. The pipe edge is coated in a separate process.

the base coat connect optimally (physical and chemical interaction at the interface). This creates an optimal and permanent adhesion between both layers and the metal.

The improved flow characteristics of the epoxy base cover lead to a more homogenous spreading of the paint on the metal surface. Furthermore we succeeded in controlling the burning temperature and duration intelligently so the cover coat and



polished cutting of the protec inside coating



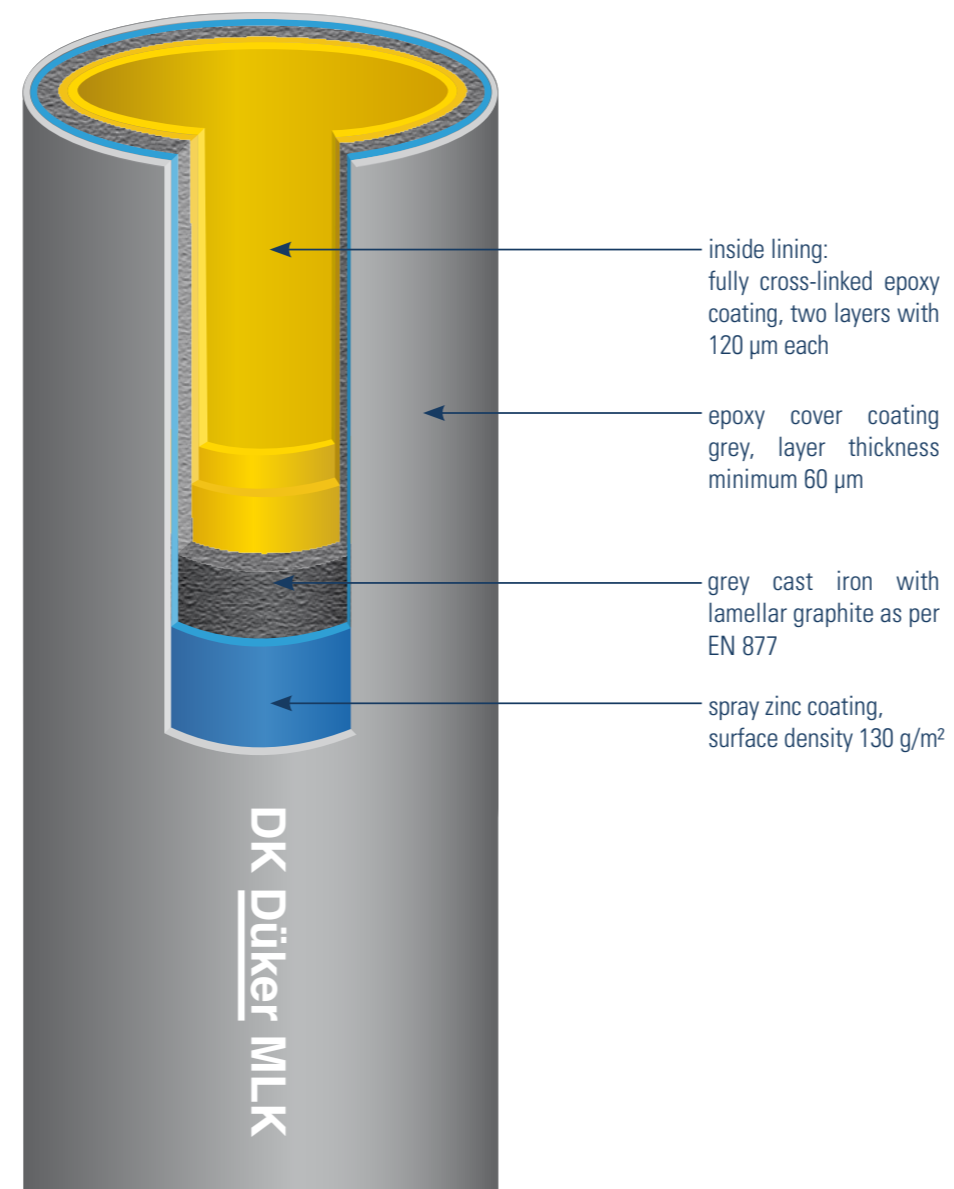
simple physical adsorption between the epoxy layers

additional chemisorption between the epoxy layers

Physical attraction between atoms and molecules, both between epoxy and metal and between the epoxy layers

Chemical bonds between the atoms and molecules within an epoxy layer

Additional chemical bonds between atoms and molecules which connect both epoxy layers

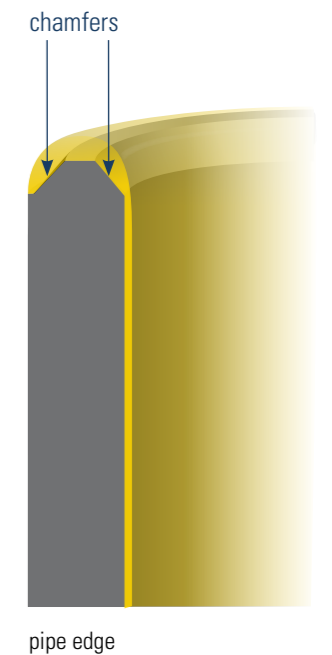


Elaborate metal preparation

In order to ensure optimal adhesion of the new coating material on the metal, we submit the metal to an elaborate preparation. In order to avoid undercuts, which would cause air inclusions in the coating, the metal surface is machined intensely. And in order that the new protec coating also adheres optimally to the pipe edges, they are chamfered twice (see illustration on the right).

Proven outside coating

On the outside, our MLK pipes will continue to be covered with a thermal spray zinc coat of 130 g/m² and a grey cover coat. This is the coating composition defined in the product standard EN 877 for underground installation. Naturally this coating also offers very good protection inside a building.



MLK fittings with protec coating

On our fittings the protec coating is applied inside and outside as a powder. The metallic surfaces are first submitted to shot blasting, then heated to approx. 200 °C and then dipped into a whirl sintering basin. There the powder is whirled up with air (fluidised) and can layer itself optimally to the metal. Larger fittings and those with complicated shapes are spray powdered by hand and burnt in. This is necessary to reach an optimal cross-link denseness on large fittings.

The result is always a hard and brilliant epoxy surface which is chemically very resistant and free of pores.

The new protec coating is an all-round solution for the aggressive areas of the building drainage. The two pipe variants MLK and MLetec®, that have so far been marketed paralely, will therefore be replaced by the new MLK with protec coating within the year 2009.

Our new pro-cut tape - an effective, easy and fast cut edge protection

When MLK pipes are cut on site, the raw cut edges need to be protected. So far a special zinc dust primer has been used for this. However, this primer has to dry before the coupling can be pushed on. This causes unproductive delays. With the new Düker pro-cut tape as cut edge protection, you can do without paintbrush and delays!

Our new pro-cut tape, which has been developed and tested for Düker pipe systems, consists of butyl rubber, which is equipped with a cover sheet of Fluor Polyethylene (FPE). Butyl is insusceptible to ageing and impermeable to water. Due to its structure it shows a high affinity to metal, without however reacting with it. FPE distinguishes itself by a very good chemical resistance and an inferior surface tension.

In the combination, both materials form an extremely performing and safe protection of the raw pipe cut edges.



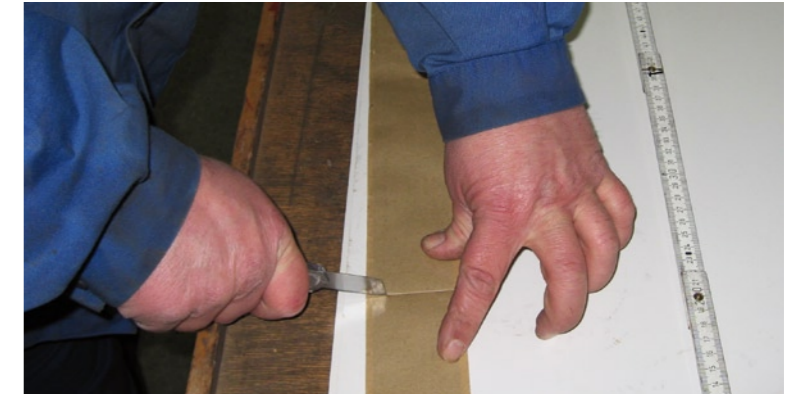
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Within approx. 45 seconds you get a perfect cut edge protection.

1. Cut off:

The pro-cut tape is cut to the length of the pipe inside circumference.



2. Stick on:

The pro-cut tape is stuck onto the outside of the pipe, under slight tension, until it overlaps slightly.



3. Fold around:

Then the tape is folded to the inside and pressed onto the edge.



4. Finished:

The coupling can be pushed on immediately!



DRAINAGE TECHNOLOGY

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FITTINGS AND VALVES

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