

Hume Beton Segment-Lining

Segments for any cross-section

Segment lining



Polymer concrete benefits

Polymer concrete is a material with high corrosion resistance and superb mechanical properties, both of which have been tried and tested over many years. Continuous quality assurance monitoring of both material and products ensures speedy installation and a long service life. Hume concrete's inherent ease of moulding to any shape contributes to a highly adaptable, efficient and cost-effective method of production.

Adjustment of the segment's wall strength allows their use as a liner or a structural element.

Polymer concrete's high corrosion resistance and superb mechanical properties have been proven over decades by its successful use in tough applications and products such as jacking pipes, eggshaped profiles, manholes and structures. Hume concrete segments are also showing that it is ideal for lining.

By utilising the inherent physical and mechanical properties of Polymer concrete fast, cost effective solutions can be found, even for small quantities.

The wall-thickness of the segment can be exactly matched to the structural requirements. Depending upon the stability of the existing sewer the segments can be used as fully or partially load-bearing, or simply function as a liner to prevent further corrosion.

Like all Hume concrete products Polymer segments are continuously monitored for quality and improved performance. Project-specific third party monitoring and electronic-measurement checks ensure problem free installation on the construction site.



Rectangular profile



Polymer Resin Concrete

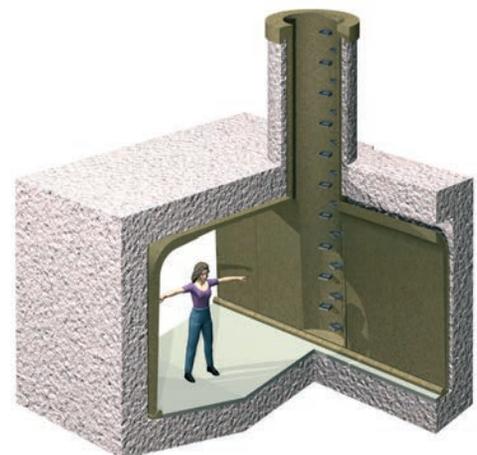
Polymer resin concrete (PRC) consists of quartzite sand and aggregate bound together with an un-saturated polyester resin, not cement. When cured the polyester resin gives PRC its superior mechanical, physical and corrosion resistant properties.

Mainfield collector Frankfurt

Several methods of rehabilitating the 2,200 m long sewer with a 2.5 x 2 m and a 4 x 3 m cross-section were assessed. It turned out that the best engineering solution was also the most cost-effective, to partially line the sewer with Polymer concrete angular elements.

Changes in direction

Each Polymer concrete angular element stands on Polymer concrete base units previously installed inside the existing corroded concrete sewer. The changes in direction are accomplished using individually customized elements manufactured within a tolerance of ± 4 mm. The geometry of each unit is carefully considered and detailed to ensure the tongue and groove joints fitted exactly. Every element is numbered indicating its exact position in the collector.



Dual service units



Rehabilitation of Muenzenbag collector in Freiberg Saxony

In the rehabilitation of the Muenzbach sewage collector a major requirement was to keep the mixed sewage separate from the Muenzbach creek surface water and to allow the latter to bypass the sewage treatment plant and thereby eliminating the unnecessary treatment of surface water and minimizing the load put on the plant.

The original intention was to install GRP elements over the length of 967 m and to route the Muenzbach creek water through a DN 700 GRP pipe within the collector. The maximum allow-able cross-section reduction

was 10%, and the rehabilitation work had to be done with the collector in operation.

Flexible design of shape

The crucial design point for selecting Polymer concrete segments for this project instead of another relining material was the possibility of exactly adapting the shape of the elements to the local situation. The decision was made to use a two-part Polymer concrete hood profile lining with a 2.6 m x 1.9 m cross-section and 1.20 m long elements. The Muenzbach creek water was routed through a Polymer concrete hood profile bonded onto the sewer invert.



Hood profile with dry-weather



Simrock/Heinrichstr. in Duesseldorf

The overall length of the section to be repaired was 70 m, made up of three sub-sections. Again the cost-efficient solution was segment lining. The sub-sections to be rehabilitated were taken out of use and scanned with a 3D laser system that measures the pulse run time. The digital 3D measurement values allowed the engineers to specify the exact shape of the segment. The structural engineer calculated the wall thickness required to carry the expected load.



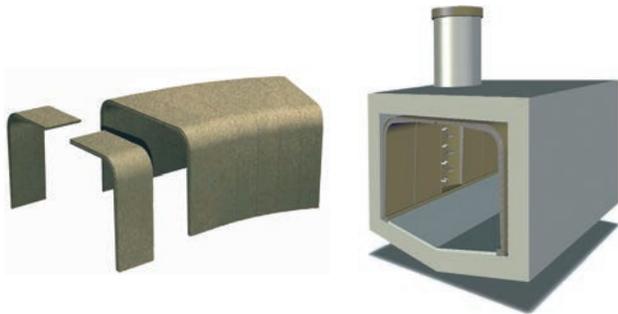
In this project the new sewer included 7 different elements that were manufactured in 6 different moulds.

The project benefited from the easy production process that allows us to quickly manufacture prototypes for such small projects at reasonable costs.



Overview of our products

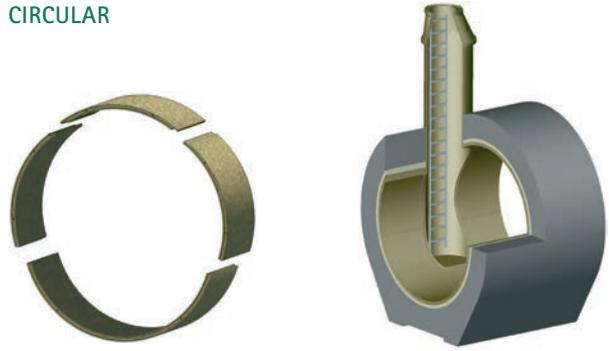
RECTANGULAR PROFILE



angular elements
curved route

installed angular elements with
integrated manhole

CIRCULAR



circular segments DN 3200

installed segments DN 3200
with tangential manhole

DUAL SERVICE UNITS



individual elements

joined segment liner elements

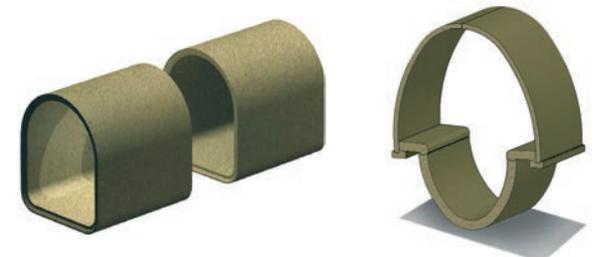
SEMI-ELLIPTIC PROFILE



individual elements
curved route

installed segments

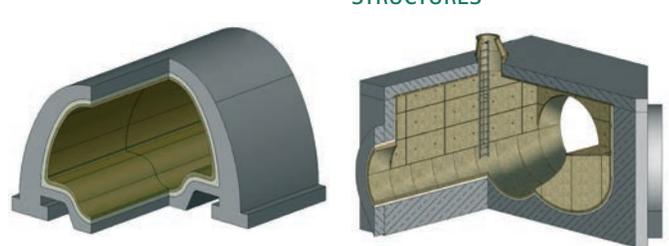
HOOD PROFILE



simple hood profile

hood profile with dry-weather
channel

MANHOLES AND STRUCTURES



hood profile with dry-weather
channel and rounded step

liners for various building and
channel shapes

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