

MFPA Leipzig GmbH

Testing, Monitoring and Certification Office for
Construction Materials, Products and Systems

Building Division V – Civil and Underground Engineering

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Work Group 5.1 - Structural Sealing

Investigation Report UB 5.1/12-515-1

dated January 8, 2013

1st copy

Object: 110 Wall Collar -
Testing Sealing When Installed

Client:

Receipt of samples: September 18, 2012

Sample receipt number: 381-2 and 381-5

Testing period: October to December 2012

Officer in charge: Dipl.-Ing. Jüling

This document consists of 3 pages and one annex.

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1 Task

Applicability tests were used to prove the suitability of a wall collar (designation: *110 wall collar*) from xxx for sealing pipe integrations in concrete and reinforced concrete component parts to pressurising water.

2 Object of the Investigation

The client provided a *110 wall collar* for the test. This wall collar is a black installation component formed as a sleeve and made of Indian rubber that is fixed on pipes (Annex 1, Figures 1 and 2). This installation component has a formed lamella in the middle for extending the flow path to seal the pipe ducts in the concrete and reinforced concrete component parts. The surface of the wall collar adjacent to the pipe is almost even. While the inside diameter of the wall collar is 110 mm, the lamella has an outside diameter of approximately 200 mm. Measured on its pipe axis, the wall collar is approximately 60 mm long.

The wall collar is pulled over the pipe to be sealed to install it in the component parts it is supposed to penetrate so that it is in the middle of the component part. The stainless steel clamp bands to be fastened on both sides of the lamella on the sleeve should be tightened on the turnbuckles with an open-jaw or ring spanner so that the water cannot move between the plastic pipe and the installation component.

The wall collars are offered for pipes with outside diameters of 32 mm to 1400 mm. The *110 wall collar* provided for the test is a sealing element for pipes with an outside diameter of 110 mm. Furthermore, a PE pipe was made available for the test with a cover welded on one side.

3 Test Specimen and Implementation of the Test

A test specimen of C25/30 concrete (16 mm top size of the aggregate) as per DIN 1045-1¹ is made for the suitability test with a high water penetration resistance as per DIN 1045-2² with dimensions of 60 x 60 x 25 [cm]. A section of a concrete bottom 0.25 m thick is replicated with the test specimen that is vertically penetrated by a pipe sealed with the *110 wall collar*.

¹ DIN 1045-1: Load-Bearing Structures Made of Concrete, Reinforced Concrete and Prestressed Concrete; Part 1: Measuring and Design; edition 08/2008

² DIN 1045-2: Load-Bearing Structures Made of Concrete, Reinforced Concrete and Prestressed Concrete; Part 2: Concrete - Determination, Properties, Manufacture and Conformity, Application Rules for DIN EN 206-1; edition 08/2008

Fleece fabric is wound around the PE pipe on one side of the surrounding seal to guarantee that water is transported to the pipe collar (Annex 1, Figure 3).

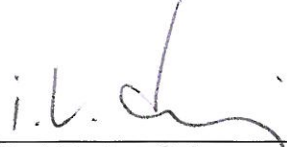
The test is started three weeks after manufacturing the test specimen. The pressure chamber is fastened and sealed over the closed side of the pipe so that the installation component and the surrounding part of the concrete surface are within the chamber. The chamber is filled with water via a filling opening and then exposed to pressure (Annex 1, Figure 4). The water pressure has an impact on the joint with fleece fabric between the concrete and the plastic pipe during the test.

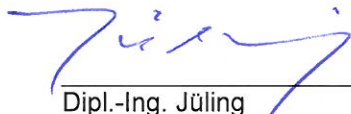
The exposure to pressurised water is carried out in the first week by boosting the test pressure by 1 bar every day to the final pressure of 5 bar. The pressure is maintained over a period of 28 days. The test is deemed as passed when no water penetration is observed during the entire test period.

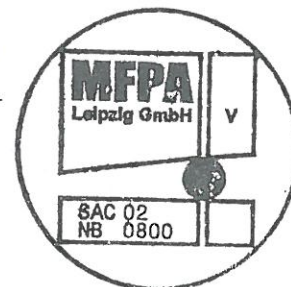
4 Test Results and Evaluation

The joint between the plastic piped sealed with the *110 wall collar* and the surrounding concrete was water-tight without any restrictions during the total 5 weeks of being exposed to pressurised water. This installation component can be used to seal pipe ducts in concrete at a high water penetration resistance to a water pressure of 5 bar. The prerequisite for this construction being sealed is proper installation as per the manufacturer's specification and an especially careful sealing of the concrete surrounding the pipe collar. The respective application limitations apply to the pipes and pipe connections to be integrated.

Leipzig, January 8, 2013


Prof. Dr.-Ing. Selle
Head of Business Division


Dipl.-Ing. Jüling
Officer in Charge



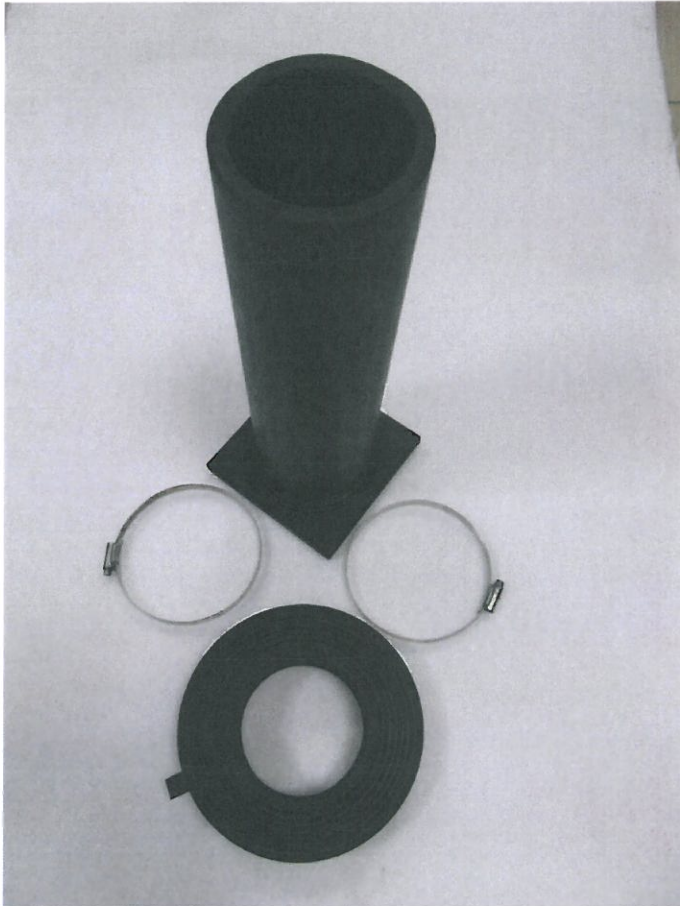


Figure 1:
*110 wall collar with its clamp bands and
the PE pipe closed on one side*

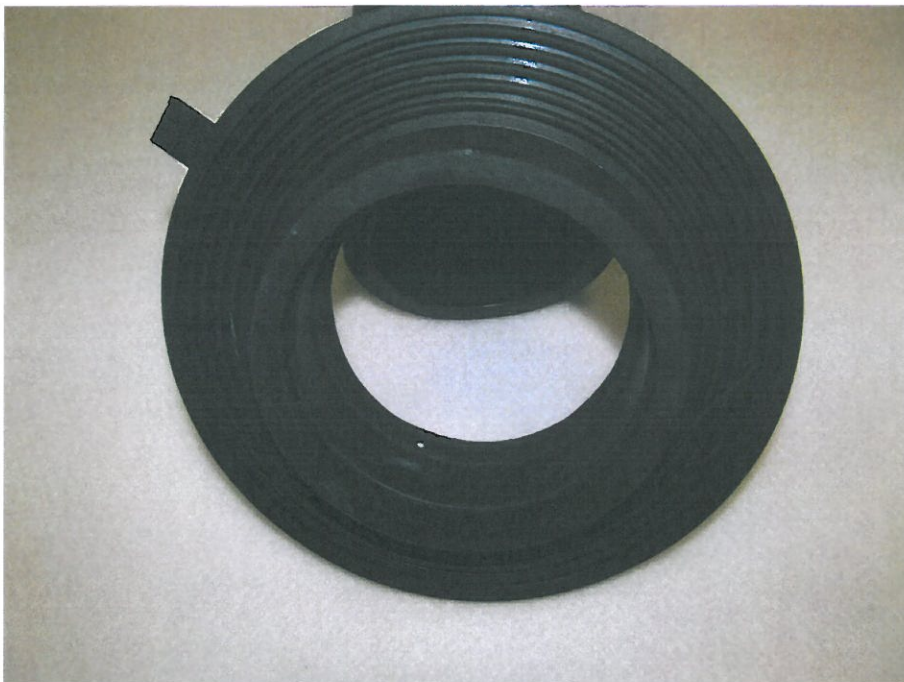


Figure 2: also there, detail of the *110 wall collar*



Figure 3:
The PE pipe encased with fleece fabric
on one side to guarantee that water is
transported to the pipe collar

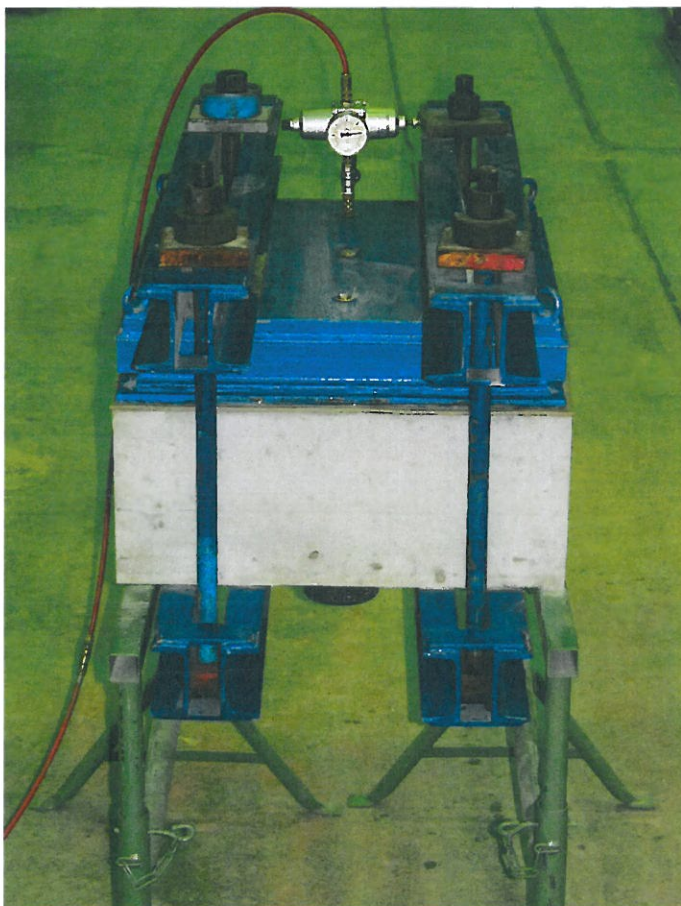


Figure 4:
The test specimen during the exposure to
pressurised water to 5 bar