

IKT tests new private-site manhole – Verdict: Infiltration-proof!

BERDING BETON GmbH has developed a new manhole for separation systems on private sites: the Aqua-Duo®. Rainwater and sewage run separately from one another via a lower manhole section. Only a single manhole is therefore required on the site, even if a separation system is installed. The IKT tested the new manhole for infiltration tightness in May 2011.

Separate collection of sewage and rainwater is set to become ever more important in the future, and is already standard practice in a large percentage of municipalities. Two separate pipelines are required on the site for this purpose and, in most cases, two manholes, as well.



Strictly separated: sewage is routed off via the open channel, while rainwater runs off via a PVC pipe in the berm (photo: BERDING BETON GmbH).



A branch has been routed upward over the berm to facilitate inspection of the rainwater line (photo: BERDING BETON GmbH).

BERDING BETON GmbH recently introduced a private-site manhole which permits separate routing of rainwater and sewage via a single collection chamber. IKT - Institute for Underground Infrastructure comprehensively tested the Aqua-Duo® model for tightness against infiltration and exfiltration.

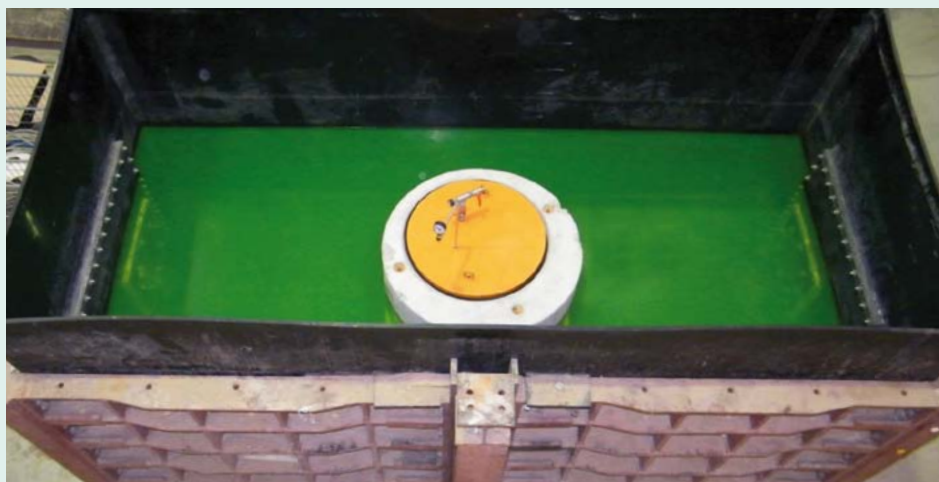
In the Aqua-Duo® private-site manhole, sewage is conveyed through an open DN 150 stone-ware channel. The rainwater is routed via a PVC pipe installed in the berm. A branch (DN/OD 150/200), which is routed up over the berm and features a closure cover, is incorporated as the inspection port for the rainwater channel.



1,000 hours of infiltration pressure

Ingress of surrounding groundwater (so-called "infiltration") is a problem which occurs frequently in manhole structures. For this reason, BERDING BETON had its Aqua Duo® manhole inspected extremely precisely by the test engineers at IKT - Institute for Underground Infrastructure. The infiltration tightness of the manhole structure was tested in the context of a long-term tightness test in which an external infiltration pressure of 8 m was simulated for a period of 1,000 hours.

Tightness against exfiltration must also be assured, however - particularly when rainwater and sewage are to be routed through the same component. Both the rainwater and the sewage lines were therefore successively submitted to a tightness test at a water pressure of 0.5 bar for a period of twenty-four hours.



Test apparatus: the method used to test infiltration tightness. No indicator liquid (water containing a green dye) entered the manhole, even after 1,000 hours.

The result: the system passed all the infiltration and exfiltration tests. The Aqua Duo® manhole thus now bears the IKT "Infiltration tight" test seal.



2 in 1 – Cost benefits in both construction and maintenance

Manufacturer BERDING BETON perceives the advantages of the Aqua-Duo® on the one hand in lower construction costs, since only one manhole is necessary for both rainwater and sewage, even using an open separation system. Another obvious benefit: only one manhole also means only one manhole cover in the front garden. In addition, the system makes parallel pipe routing possible, according to BERDING BETON. This will subsequently permit easier location of pipes for maintenance and repair purposes. This, in general, thus simplifies servicing and maintenance, and reduces costs significantly.

The manufacturer promises high long-term stability and static loadability thanks to greater

wall thicknesses, and also high operational reliability, thanks to the dependable and permanent tightness of the econorm® sealing and load-transmission system. The Aqua-Duo® private-site manhole is easy to install and can be installed quickly and without complications. According to BERDING BETON, the generously dimensioned manhole entry, and a manhole joint which can be disconnected again without damage, make the Aqua-Duo® particularly servicing-friendly.

Results available in the Internet

This article contains only extracts from the complete results. The detailed report can be downloaded from the Internet at:

www.ikt.de (select: Download/Berichte der Prüfstelle) (German Version)

neutral
independent
non-profit institute



IKT - Institute for Underground Infrastructure

ABOUT IKT



IKT - Institute for Underground Infrastructure is a research, consultancy and testing institute specialized in the field of sewers. It is neutral and independent and operates on a non-profit basis. It is oriented towards practical applications and works on issues surrounding underground pipe construction. Its key focus is centred on sewage systems. IKT provides scientifically backed analysis and advice.

IKT has been established in 1994 as a spin-off from Bochum University, Germany.

The initial funding for setting up the institute has been provided by the Ministry for the Environment of the State of North-Rhine Westphalia, Germany's largest federal state.

However, IKT is not owned by the Government. Its owners are two associations which are again non-profit organizations of their own:

- a) IKT-Association of Network Operators:**
Members are more than 120 cities, among them Berlin, Hamburg, Cologne and London (Thames Water). They hold together 66.6% of IKT.
- b) IKT-Association of Industry and Service:**
Members are more than 60 companies. They hold together 33.3% of IKT.

You can find information on projects and services at:
www.ikt.de



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