Deutsches Institut für Bautechnik

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Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

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European Technical Assessment

ETA-19/0285 of 2 December 2019

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	Acid resistant pipe
Product family to which the construction product belongs	Acid resistant concrete pipes, unreinforced and reinforced
Manufacturer	BERDING BETON GmbH Industriestraße 6 49439 Steinfeld DEUTSCHLAND
Manufacturing plant	Plant 1,2,3,4,5
This European Technical Assessment contains	5 pages including 1 annex which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 180009-00-0704

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Specific Part

1 Technical Description of the product

The construction product comprises pipes made of acid resistant concrete, unreinforced and reinforced with the designation "Acid resistant concrete pipes, unreinforced and reinforced". They are used for the transport of wastewater, rainwater and surface water and are operated as underground non-pressure pipes or occasionally at low positive pressure.

The product is not fully covered by the harmonised technical specification hEN 1916:2002, which covers concrete pipes for which the main intended use is the conveyance of sewage, rainwater and surface water with weak chemical impact.

The pipes joints and seals meet the requirements of EN 681-1:2006-11 and, with regard to durability, those set out in clause 4.3.4 of EN 1916. They are delivered by the manufacturer of the pipes, either integrated in the product or separately.

Concrete in accordance with clause 4.2 of EN 1916 in connection with the provisions set out in EN 206 is used for the factory-based manufacturing process.

When leaving the factory, the product meets the requirements set out in Clause 4.3.2 of EN 1916. All surfaces are even and intact to ensure the product's serviceability and hydraulic performance. There may be some small pores and irregularities in the pipes' surface which do not exceed 15 mm in diameter and 10 mm in depth. For products made of reinforced concrete, a minimum concrete cover of 10 mm is respected in the area of pores. For pipe having a flat base, the pores can have a maximum length of 20 mm and a maximum depth of 10 mm at the flat base.

The dimensions of the pipes complies the requirement of EN 1916, clause 4.3.3 as well as DIN V 1201.

Cement comply with EN 197-1 and DIN 1164-10. Aggregates comply with EN 12602. Reinforcing steels comply with the standard series DIN 488 and have a minimum ductility of class A.

2 Specification of the intended use according to the applicable European Assessment Document.

Relevant performance criteria of the construction product are described in Table 1 of section 3.

They are used for the transport of wastewater, rainwater and surface water and operated as underground non-pressure pipes or occasionally at low positive pressure and it´s laid out for a working life of 100 years.

3 Performance of the product and the methods of its assessment

Table 1 shows how the performance of acid resistant concrete pipes, unreinforced and reinforced is assessed in relation to the essential characteristics.

No	Essential characteristic	Performance
Basic Works Requirement 1: Mechanical resistance and stability		
1	Crushing strength	NPA
2	Concrete strength	$f_{ck,cube} \geq 60$ MPa
3	Longitudinal bending moment resistance	NPA

Basic Works Requirement 2: Safety in case of fire		
4	Reaction to fire	A1
Basic Works Requirement 3: Hygiene, health and the environment		
Water tightness		
5	Water tightness of units	NPA
6	Water tightness of joints	NPA
Basic Works Requirement 4: Safety and accessibility in use		
Durability		
7	Water content of concrete	≤ 0,45
8	Chloride content of concrete	≤ 0,4 M.-%
9	Water absorption of concrete	NPA
10	Concrete cover	NPA
Resistance against aggressive substances in wastewater		
11	Total porosity	<11,0 Vol-%
	mean pore volume	<0,1 µm
	cumulative pore radius	<40 mm^3/g
12	Sulphate resistance	NPD
13	Residual alkalinity in relation to binder content	> 3 % $Ca(OH)_2$

4 System applied for assessment and verification of constancy of performance with indication of legal basis

In accordance with EAD No. 180009-00-0704 the applicable European legal act is 99/472/EC. The system to be applied is 4.

5 Technical details necessary for the implementation of the constancy of performance assessment and verification system as specified in the applicable European Assessment Document.

Technical details are necessary for the implementation of the AVCP system are layed down in the control plan deposited with Deutsches Institut für Bautechnik.

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MajaTiemann
Head of Department

beglaubigt:
Samuel

Deutsches Institut für Bautechnik DIBt

Manufacturing Plants	
Plant Badeborn	BERDING BETON GmbH Werk Badeborn Große Gasse 370 06493 Badeborn
Plant Möhnsee	Berding Beton GmbH Werk Möhnsee Delecker Weg 33 5919 Möhnsee
Plant Schermbeck SWB 9	Beridng Beton GmbH Werk Schermbeck Alte Poststraße 97 46514 Schermbeck
Plant Schermbeck SWB 10	Berding Beton GmbH Werk Schermbeck Alte Poststraße 97 46514 Schermbeck
Plant Nievenheim	BERDING BETON GmbH Werk DW-Nievenheim Zinkhüttenweg 16 41542 Dormagen-Nievenheim

Acid resistant pipe	Annex 1
Manufacturing plants	