



TECHNICAL APPROVAL

issued on request of

Becker Sp. z o.o.
Droginia 247
32-400 Myślenice, Poland

on the bases of tests of mechanical properties of submitted material, performed by Institute, the following products are approved for use in construction works:

BECKER 320 INFILTRATION TUNNELS

within the scope and in accordance with the rules set in the producer's instructions, included herewith, which are an integral part of this Technical Approval.

Results of test on recyklates (black granules):

Poz.	Mechanical properties	Requirements	Method test
1	Charpy notched impact strength at 23 °C, kJ/m ²	≥ 50	PN-EN ISO 179-1:2010
2	Compressive strength, MPa	≥ 28	PN-EN ISO 604:2006
3	Tensile strength, MPa	≥ 18	PN-EN ISO 527-1,2:2012
4	Young modulus [E], MPa	≥ 1000	PN-EN ISO 527-1,2:2012
5	Poisson's ratio [NU]	0,45	PN-EN ISO 527-1,2:2012

Date and signature

9.09.2019

Stanisław Kuciel

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PURPOSE, SCOPE AND CONDITIONS OF USE

The purpose of the Becker tunnel includes: retention and gravitational infiltration of the rainwater coming from the rooftops and hardened areas. The tunnels may also be used with biological sewage treatment plants. - The tunnels should be founded in a light and water conductive grounds.

When founding Becker 320 tunnels, the following conditions must be met:

The bottom of the excavation should be leveled off and covered with a 10 cm layer of 8/16 mm gravel,

The tunnels should be placed on the layer of gravel and connected with each other by their overlapping edges. Then they should be wrapped in the geo-textile cover, with a 30 cm overlap,

- the bottom surface of the tunnels should be placed at least 1.0 m above the ground water level,

- the rainwater pipes should be placed with a proper slope,

- the top ends of the rainwater sewage system and filters should be compliant with the PN-EN 124:2000 norm,

- the distance between the tunnels and a building with a non-isolated basement should be at least 6.0 m,

- to drain an area of 100 m² during a 150l/s/ha rainfall at least 3-7 tunnels are needed - it depends on the soil water conductivity factor.

Conditions of using the Becker 320 Infiltration Tunels:

maximum load of the lorry traffic for vehicles up to 30 tons

Minimum thickness of ground topping layer:

25 cm under the pedestrian traffic

75 cm under the passenger cars traffic

150 cm when under 30 t lorries

Maximum depth of foundation

(measured from the bottom of the tunnel):

- 250 cm

When constructing a Becker infiltration system you have to take into account the requirements of the following norms:

PN-B-10736:1999 Excavation Works - Open excavations for the water pipelines and sewage pipelines - Technical Conditions

PN-EN 1295-1:2002 Static calculations for ground pipelines at a variety of load conditions - Part 1: General requirements

PN-EN 1610:2002 Structure and functioning of the sewage systems

