

# BIO-BLOK<sup>®</sup> 125



EXPO-NET Danmark A/S has developed a new type of BIO-BLOK<sup>®</sup> – BIO-BLOK<sup>®</sup> 125 – for treatment of waste water. It has the same good qualities as our BIO-BLOK<sup>®</sup> 100 as it is constructed using the same concept as for the BIO-BLOK<sup>®</sup> 100. The only physical change is the diameter of the net tubes which has been reduced from approx. 65mm to approx. 55mm. This results in the specific biologically active surface being approx. 25% larger when in a dry condition. It will therefore offer greater efficiency to use BIO-BLOK<sup>®</sup> 125 instead of BIO-BLOK<sup>®</sup> 100 in situations where the blocks need to be transported or when a wastewater treatment plant needs to be constructed in a more compact way

**Table 1: BIO-BLOK<sup>®</sup> media – overview**

Type	Specific surface (m <sup>2</sup> /m <sup>3</sup> )	Surface structure	Area of flow	Void percentage	Outer tube diameter	Standard module form
BIO-BLOK <sup>®</sup> 100	100	Rough	70%	90%	67.5mm	54x54x55cm
BIO-BLOK <sup>®</sup> 125	125	Rough	67%	89%	55mm	55x55x55cm

*Due to the natural characteristics of extruded products, all measurements are approximate.*

**Table 2: Specific biologically active surface area for BIO-BLOK<sup>®</sup> filter media**

Filter type	Dry condition	Thickness of biofilm			
	0mm biofilm	1mm	2mm	3mm	4mm
BIO-BLOK <sup>®</sup> 100	100m <sup>2</sup> /m <sup>3</sup>	165m <sup>2</sup> /m <sup>3</sup>	233m <sup>2</sup> /m <sup>3</sup>	299m <sup>2</sup> /m <sup>3</sup>	366m <sup>2</sup> /m <sup>3</sup>
BIO-BLOK <sup>®</sup> 125	125m <sup>2</sup> /m <sup>3</sup>	206m <sup>2</sup> /m <sup>3</sup>	291m <sup>2</sup> /m <sup>3</sup>	374m <sup>2</sup> /m <sup>3</sup>	457m <sup>2</sup> /m <sup>3</sup>

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## Fields of application – BIO-BLOK<sup>®</sup> 125

BIO-BLOK<sup>®</sup> 125 is extremely well-suited for BOD reduction as it allows for thick layers of biofilm of up to 4mm before the hole in the net tube closes and the specific biologically active surface thus is reduced. This means that the specific biologically active surface will vary – depending on the organic load – from 206m<sup>2</sup>/m<sup>3</sup> (1mm) to approx. 457m<sup>2</sup>/m<sup>3</sup> (4mm). When calculating the volume of BIO-BLOK<sup>®</sup> to be used in a wastewater treatment system, it is common practice to calculate with a biofilm thickness of 2mm corresponding to 291m<sup>2</sup>/m<sup>3</sup> BIO-BLOK<sup>®</sup> 125. If using this principle, the wastewater treatment system can always treat an even bigger volume of waste water for a shorter or longer period than estimated.

If solely focusing on a nitrifying filter it is a well-known fact that the nitrifying bacteria only develop thin biofilm layers and this is the reason why you only calculate with a specific biologically active surface of maximum 1mm. It is also a well-known fact that the organic load (BOD) must be at a low level before nitrifying bacteria can emerge and develop on the filter media. This is also the reason why you always separate the bioreactor into two or four connecting chambers.

If BIO-BLOK<sup>®</sup> 150 is used for nitrification, the specific biologically active surface will be of approx. 268m<sup>2</sup>/m<sup>3</sup> (1mm). If BIO-BLOK<sup>®</sup> 125 is used for nitrification, the specific biologically active surface will be approx. 206m<sup>2</sup>/m<sup>3</sup> (1mm). This means that 30% more BIO-BLOK<sup>®</sup> 125 should be used compared to using BIO-BLOK<sup>®</sup> 150.

The conclusion is therefore that when constructing small-scale wastewater treatment systems, BIO-BLOK<sup>®</sup> 125 can offer significant advantages for both the reduction of BOD and for nitrification. If, however, the project requires a large-scale wastewater treatment system with high requirements on nitrification, BIO-BLOK<sup>®</sup> 150, BIO-BLOK<sup>®</sup> 200 or our new floating filter media, BIO-BLOK<sup>®</sup> Random media Ø 25 x 25mm, for nitrification offer optimal efficiency.



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