Dramix®

BEKAERT

better together

Create flexible and productive solutions for your concrete drainage

Dramix® Green: the fresh approach to your concrete pipes and manholes

In our every day lives everything needs to be faster, better and stronger. What's more, we always look for improved quality. Things are no different in the global business of construction. As an industrial supplier of building products you are often confronted with critical situations such as:

- order placement on Monday for delivery on Tuesday
- a major contract that has to be fitted into a crowded production program
- a request for a non standard dimension from your most important client

Does this sound familiar? These examples are everyday situations in the construction industry and they are becoming more and more normal.

But how can you optimize your production output, be more flexible and improve your quality level – all at the same time?

Let us show you how some of your fellow producers have responded to this …

Philibert Sainte Rose
General manager SDPI
Martinique

"Dramix® Green transformed our production process completely in an efficient, cost- and time saving way. Now we can respond more easily to the specific demands of our clients."

In the past we were always dependent on our supplier of traditional rebar. Being located on an island is always interesting for our stock management! Delivery delays between five and six weeks were common in our business. These problems forced us to hunt for a more interesting alternative which we have found in Dramix® Green.

Now we can respond more easily to the specific demands of our clients. We just need to adapt the dosage of the fibres to their requested performance class. Dramix® Green transformed our production process completely in an efficient, cost and time saving way.

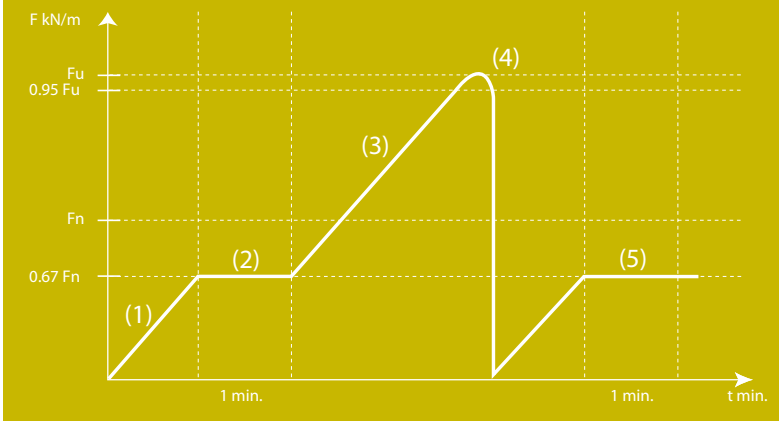
Our decision to switch to steel fibres was initially a purely practical one. The quality improvement that we received on top of it is an excellent bonus for our customers.

European standard EN 1916: 2002

“Concrete pipes and fittings: unreinforced, steel fibre and traditional reinforced”

This European Standard specifies performance requirements and describes test methods for precast concrete pipes and fittings for which the main intended use is the conveyance of sewage, rainwater and surface water.

Crush test for steel fibre concrete pipes (according to EN 1916: 2002)



Fn: minimum crushing load
Fu: ultimate (collapse) load

A steel fibre concrete pipe must conform to the following sequence of test requirements:

Stage 1=>2
It should withstand a proof load of 0,67 Fn* appropriate to its nominal size and strength class for one minute without showing any crack.

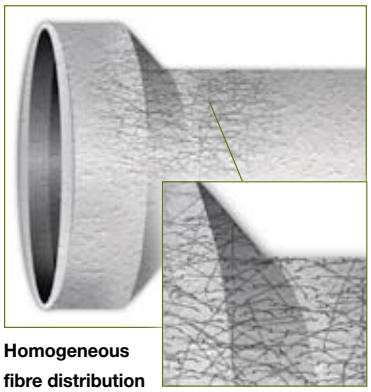
Stage 2 =>3
If no crack is found the load is taken to ultimate (collapse) load Fu which is greater than Fn.

Stage 4=>5
After the sustained load has fallen to 95 % or less of the ultimate (collapse) load it is released, then reapplied to 0,67 Fn* and supported for one minute.

Steel fibre concrete pipe VS traditional reinforced concrete pipe

The European standard defines a more extensive test program for steel fibre reinforced pipes:

- Where a steel fibre concrete pipe has to withstand a proof load of 0,67 Fn without showing any crack in the first stages of the crush test; for conventionally reinforced concrete pipes it is a complete different story. They are permitted to exhibit a stabilized surface crack in the tensile zones of the concrete, with a width not exceeding 0,3 mm over a continuous length of 300 mm or more.
- Not only that, they don’t have to conform to the crush test requirements of stage 4 and 5.



Homogeneous fibre distribution

CONCLUSIONS

- **A steel fibre concrete pipe has to fulfill more onerous demands. This means steel fibre pipes can guarantee a higher quality level then a normally reinforced concrete pipe.**
- **The difference in crack width at the different stages of the test program also means that steel fibre pipes provide a higher watertightness performance.**

Fibre network delivers a perfect load transfer

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Thomas Bonamie
Concrete lab manager
Bekaert Building Products

Watertightness test

“Avoiding crack formation at an early stage automatically results in greater watertightness.”

“We have organized joint test programs with our customers, in addition to the crush testing prescribed in the European Standard”, explains Thomas Bonamie.

We tested different Dramix® Green reinforced pipes and verified their crack length, crack width and watertightness. **Our customers were very pleased to see such convincing results.**

Our testing clearly showed that, thanks to Dramix® Green, these reinforced pipes can resist a water pressure of more than 1 bar for a period of more than 15 minutes. As a result they exceed the demands of the European Standard EN 1916 : 2002, which only requires a pressure of 0,5 bar for the same duration.

Dramix® Green improves the watertightness of your concrete pipes and you can be sure that they meet all 3 main requirements of the European Standard EN 1916 : 2002:

- **Resistance**
- **Watertightness**
- **Durability**

“Since we started using Dramix® Green, we see a very genuine improvement when we check the quality of our products.”

Els Guns
Quality manager Tubobel
Belgium

The biggest advantage of working with Dramix® steel fibres is the fact that the network of fibres is distributed homogeneously throughout the pipe. As a result they inhibit crack formation everywhere. When we use this material we can guarantee that our customer receives a pipe that really meets the specification. What’s more, the costs are about the same as a conventionally reinforced pipe.

When we look at the quality of our product we see a real improvement since we started using Dramix® Green. **Bekaert’s products guarantee a consistent quality and performance, and now they come with CE marking.**

BEKAERT

Nicolas Fabre
Production manager
S.A. Bétons Libaud
France

"The Dramix® dosing equipment pushed our productivity to another level."

Our complete range of pipes from diameter 300 to 600mm now uses Dramix® Green. Since we started with these steel fibres a couple years ago, we have pushed our productivity to another level and maintained quality of our end-product.

We are convinced that we have made the right choice by investing in dosing equipment. It allows you to work in a very professional way with Dramix® steel fibres.

We had no problem with implementing the change to Dramix® Green and installing the dosing equipment into our production process, with the knowledge and experience of Bekaert. This professional way of working gives me the confidence that we are at the beginning of a long-term business relationship.

The next success story can be yours!

If you want to find out how these high quality fibres can work for you too,

we are happy to advise. Please contact your local Bekaert specialist.

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