

MATERIAL

# RECYFIX®

**Recycled Composite**

Long-lasting, corrosion-free and economical.

# AT A GLANCE

## RECYFIX®

long-lasting, lightweight and  
corrosion-free drainage products

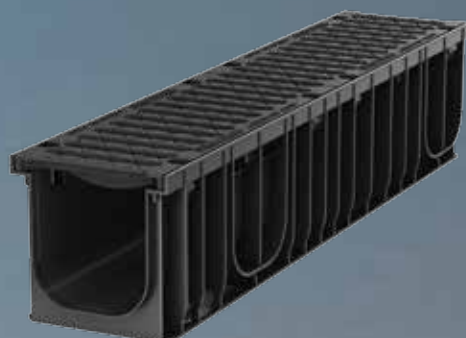
RECYFIX® is...	see page
... long-lasting	6
... energy-efficient	7
... recyclable	10
... stable and unbreakable	12, 14
... easy to process	15
... corrosion-free	16
... inert	19

## RECYFIX® CHANNELS.

**RECYFIX®** channels are available in different versions. Depending on where they are used in civil engineering or landscaping, the **RECYFIX®NC**, **RECYFIX®PRO**, **RECYFIX®PLUS** and **RECYFIX®STANDARD** variants are available.

### **RECYFIX®NC**

Black polypropylene angle housing, inlaid grating with 8 bolt connections, up to class E 600



### **RECYFIX®PRO**

Black polypropylene angle housing, inlaid grating with 2 bolt connections, up to class C 250



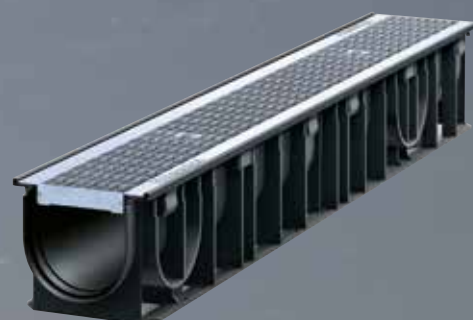
### **RECYFIX®PLUS**

Galvanised or stainless steel angle housing, overlay grating with 2 bolt connections, up to class C 250



### **RECYFIX®STANDARD**

overlay grating with 2 bolt connections, up to class C 250



## THE "PLASTIC ERA".

The modern world would be unthinkable without plastics, which are used in almost all walks of life. Be it the consumer industry or the investment goods industry, plastics are indispensable for the quality, comfort and safety of our modern lifestyle. They are now so good, lightweight and stable that they are even used in the manufacture of aircraft and motor vehicles. It is often said that we now live in a „plastic era“.

## THE HISTORY OF PLASTIC.

The first plastic was manufactured in the mid-19th century. It took a major leap about 120 years later during the economic miracle period when it was used in the industrial manufacture of various goods. This modern material has been on the increase since that time. More plastic than steel was already being produced worldwide by the 1980's in terms of volume.

# MODERN MATERIAL WITH TRADITION ...



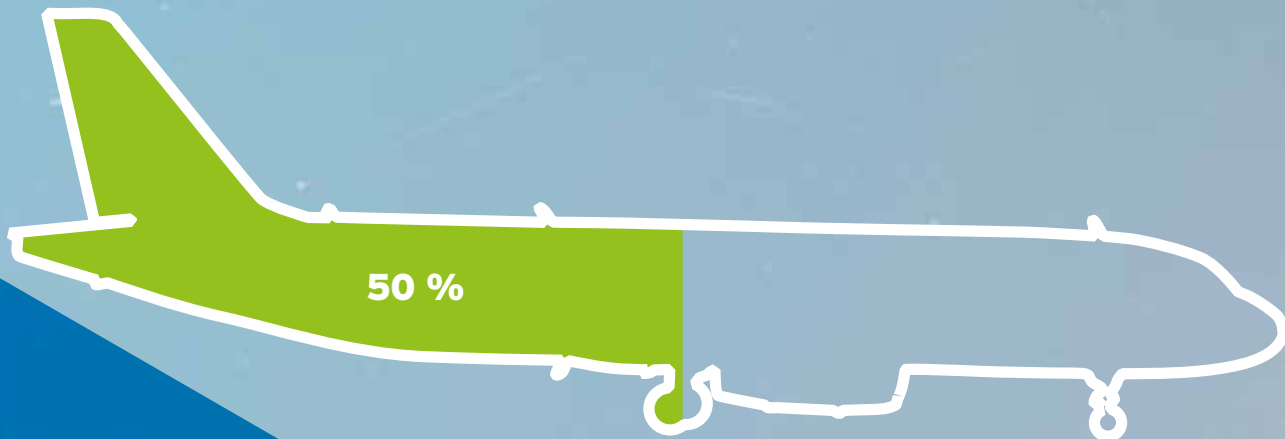
## ECOLOGY AND SUSTAINABILITY.

Fulfilling the needs of tomorrow is the basis of the concept of sustainable development. Plastics make a contribution towards improving peoples' everyday lives. They make it possible to produce lightweight and long-lasting products that can be transported and processed at low cost.



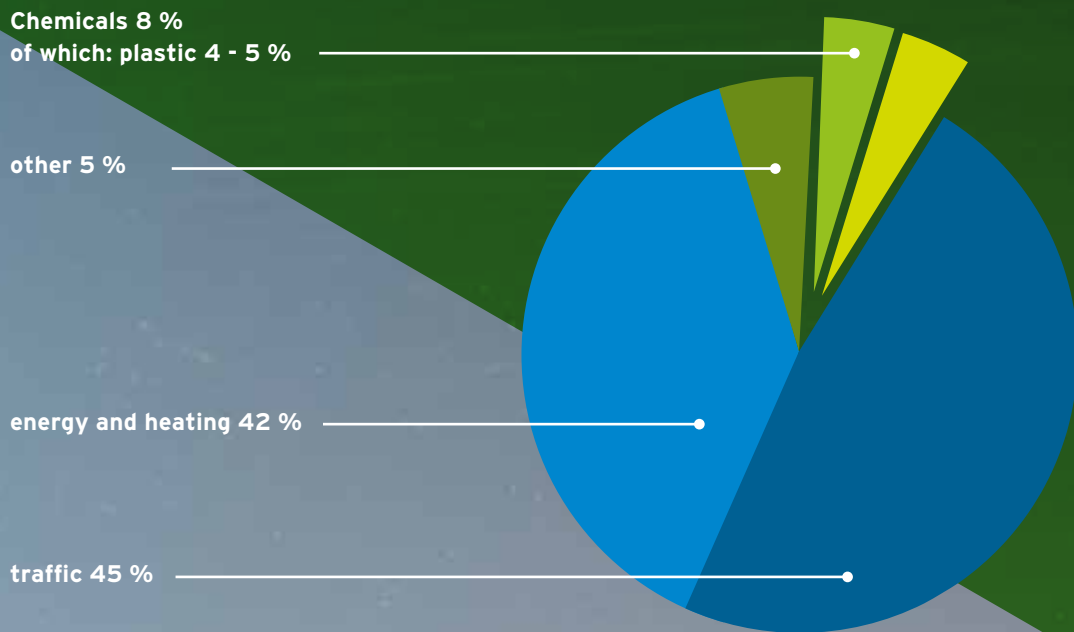
e.g. plastic bottles have now replaced the glass bottle.

About 15 % of a car is currently made from plastic, with an increasing tendency. The proportion of plastic in a modern aircraft has even reached about 50 % - not just in the interior but also in the fuselage and the wings. This results in a tremendous reduction in fuel consumption.



# Plastic requires much less oil than you think.

Plastics are mainly manufactured from mineral oil, but only about 4 % of global oil production is used for this purpose. This is extremely efficient because the quantity of energy that is saved due to easier processing and use of the plastic products that are produced is 7 times greater than the amount of energy in the oil.



- > only 4 - 5 % of global oil production goes into plastic production.
- > after the product has been used, the energy content of the plastic is still available.

Source: [http://www.christiane-brunner.com/wp-content/uploads/2010/09/SCHRATT\\_PLASTICSEUROPE.pdf](http://www.christiane-brunner.com/wp-content/uploads/2010/09/SCHRATT_PLASTICSEUROPE.pdf)

Compared to other materials, significantly less oil is required to manufacture plastic.

The following is required to manufacture	Required quantity of crude oil
1 litre of plastic	2 litres of oil
1 litre of steel	6 litres of oil
1 litre of copper	12 litres of oil
1 litre of aluminium	17 litres of oil

## RECYFIX® IS A HIGH-QUALITY RECYCLED COMPOSITE.

Even at the end of its service life plastic, in general, has a lot to offer and is much too valuable to be thrown away. Recycled plastic can be re-used with almost zero loss of quality and energy. Plastic parts are regranulated, brought to the quality level that is required for recycling by adding a small proportion of new material if necessary, and taken to a new production process. This results in an extremely high-quality material which is the basis for **RECYFIX®** channels.

Even if the re-use of materials is no longer meaningful financially, the material does not need to be disposed of. The energy that it contains can be used for generating electricity and heat.

The recycled materials for **RECYFIX®** are made by modern recycling companies. They are based on high-quality industrial plastics from the automotive industry or mechanical engineering, for example. The proportion of recycling material can vary depending on the quality that is required; all-new material can be used if necessary.



E.g. the housings of outside rearview mirrors



A large number of small, dark, irregularly shaped granules are scattered across a reflective surface. The granules are most densely packed on the left side of the image and become more sparse towards the right. Each granule has a metallic or dark grey appearance with some highlights and shadows, suggesting a slightly rough or crystalline texture. The surface they are on is dark and highly reflective, creating clear, inverted reflections of the granules below them.

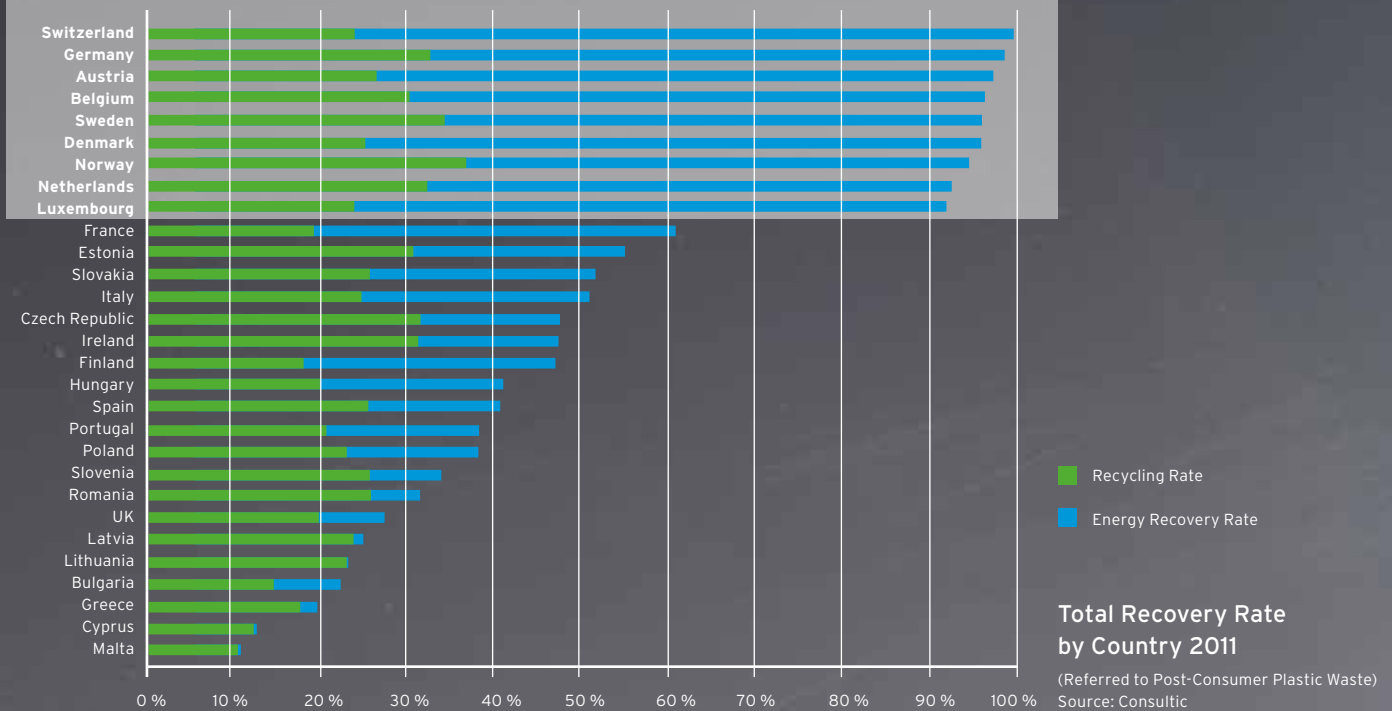
RECYFIX® granules

**... TOO VALUABLE  
TO THROW AWAY**

# RECYCLING QUOTA IN GERMANY.

Germany is one of the top countries in Europe for recycling. Of the waste that was generated in 2011, only 1 % was dumped (mainly packaging waste); 99 % was used for recycling or producing energy. High-quality plastics from industrial production are considered to be a valuable raw material and 100 % of that is recycled.

The dumping of plastic waste is forbidden in these countries. The material is recycled or used to produce energy.



## For this reason, thermoplasts can be processed into new products.

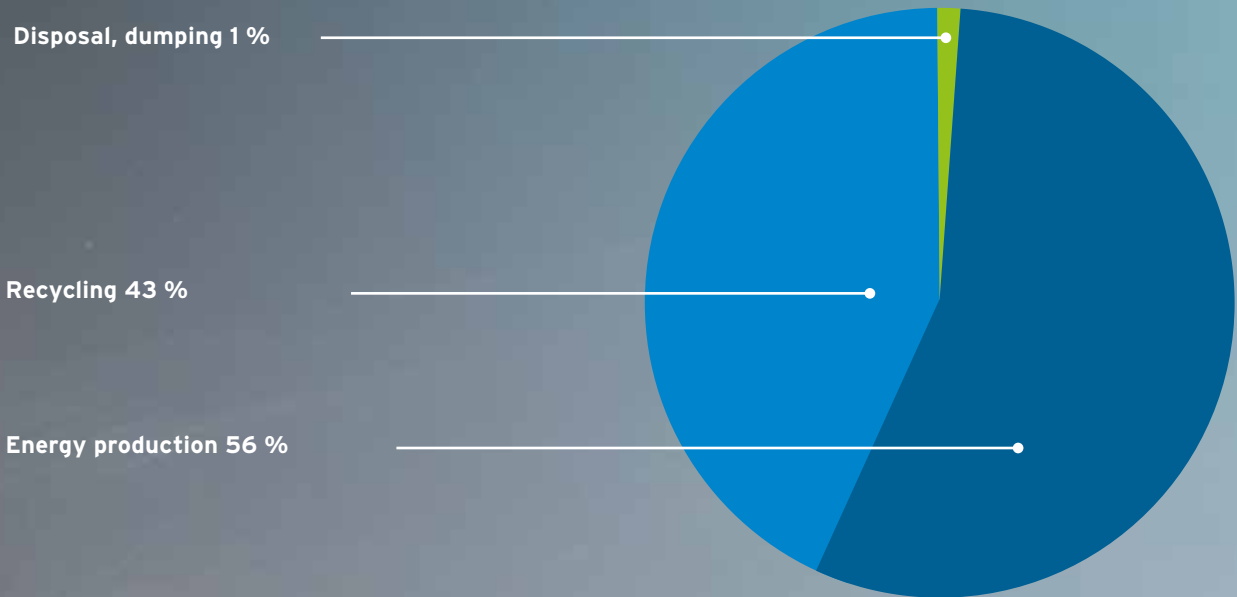


Thermoplast (= basic product for **RECYFIX®**): The thermoplasts are made from long molecule chains. They are held together by intermolecular force. This is like joining together, entangling and interlocking. There is therefore no molecular bond between the individual strands. This means that the material can be molten again without molecules having to be destroyed.

Here you can see a film on this topic.



## Recycling quota of plastic in Germany in 2011.



## Recycling code.

In order to simplify the recycling of materials, all materials are now equipped with a recycling code. Polypropylene has its own recycling code:



# DRAINAGE SYSTEMS THAT LAST

Elasticity describes a material's ability to reversibly change its geometry as a result of external force.

If force acts upon a workpiece, the distances between the material particles are increased or reduced slightly. The mechanical energy that is applied is stored and the workpiece changes its outer shape. When the force is removed again, the particles return to their initial positions and the energy is released again. The workpiece reverts to its original external shape. If the elasticity limit is exceeded, the workpiece is permanently deformed or breaks.

Why the definition from physics? Drainage channels are subjected to large amounts of dynamic force. This starts during installation when permeable paving surfaces are compacted in along the channel. Or during everyday use: In this case, the channels and gratings must be able to withstand the weight of pedestrians and vehicles, not to mention high temperature differences between summer and winter. It is therefore an advantageous material that is flexible enough to put up with this stress without causing damage to the channel. **RECYFIX®** has exactly these properties. It is unbreakable, long-lasting and provides permanently reliable surface drainage.



Elasticity is important when permeable paving surfaces are being compacted in along the **RECYFIX®** channel.

Here you can see a film on this topic.



# STABLE AND UNBREAKABLE



# UNBREAKABLE.

RECYFIX® channels are extremely tough. They can be packed, transported and transferred with ease. This avoids problems on the building site.



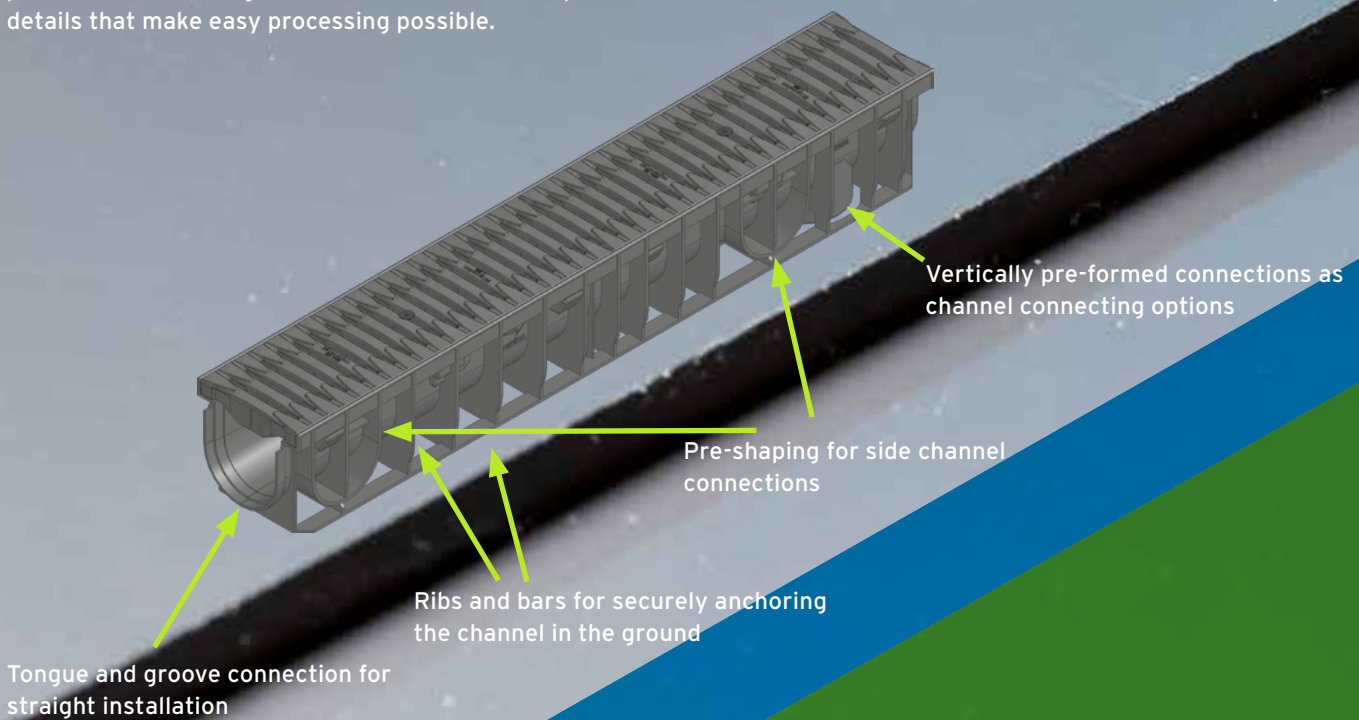
These pictures show that RECYFIX® withstands the impact of a hurled steel ball. Here it proves its characteristics of flexibility, toughness and unbreakability.

Here you can see a film on this topic.



## New design options and functional integration

Products can be designed in an extremely versatile and flexible way using composites. The material makes it possible to have designs that are much more complex than with mineral materials. RECYFIX® channels have many details that make easy processing possible.



# MONEY-SAVING INSTALLATION, EASY TO PROCESS.



## Light weight.

Its light weight will keep your back in good health: A channel with a nominal width of 100 mm weighs just 4 kg.



## Easy processing.

The recycled composite is easy to process. Fitting pieces, pre-cuts and openings can be made using simple tools such a saw or core drill bit with little effort.

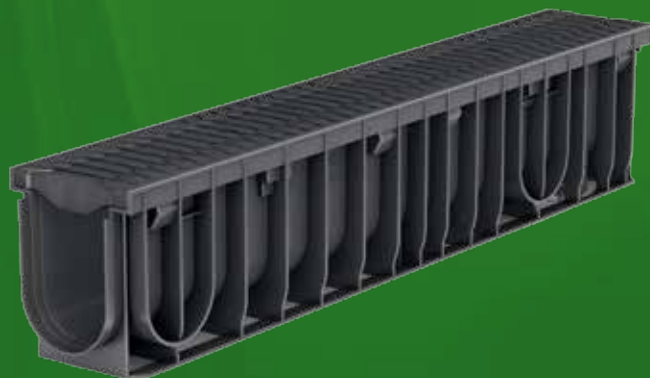


## Combination items.

**RECYFIX® channels are delivered to site pre-assembled with an inlaid grating, and can be directly removed from the palette and laid by one person.**

## CORROSION-FREE AND EXTREMELY DURABLE DRAINAGE SYSTEMS.

**RECYFIX®** is corrosion-free and is characterised by its outstanding strength. The material is so dense that it does not absorb water. It is resistant to frost and salt gritting material. This will guarantee a permanently aesthetic appearance and reliable operation of the drainage system for many years.





# CORROSION- FREE...

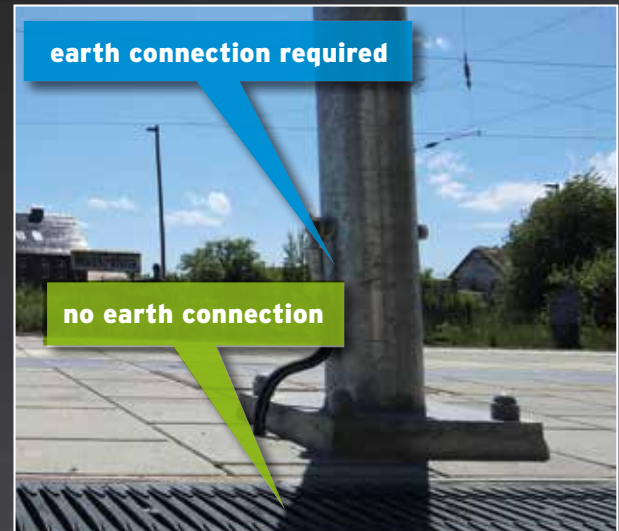
# RESISTANT TO FROST, SALT GRITTING MATERIAL AND AGGRESSIVE MATTER.

**RECYFIX®** is permanently resistant to UV light and complies with the requirements of EN 1433. The material is given this resistance by adding industrial carbon black as a UV stabiliser. The structure of the material and the consistent appearance are unaffected.



# TOP-QUALITY INSULATOR.

Plastic, in general, is non-conductive and is used as an insulator. For safety reasons, metal objects in the vicinity of power lines have to be earthed, e.g. on railway platforms. Products made from plastic are non-conductive and the use thereof avoids expensive earthing work.



## INERT AND FREE OF SOLUBLE SUBSTANCES.

Like polyolefines, polypropylene is inert. It is free of soluble substances and is suitable for products used for supplying, diverting and storing water. Polypropylene is even used with foodstuffs and products with extremely high hygiene requirements.





## DEVELOPMENT AND PRODUCTION.

**RECYFIX®** channels are a HAURATON invention. Developed in Rastatt, more than 15 million metres of channel have been draining surfaces and buildings all over the world since the introduction of the **RECYFIX®** range in 1995 - reliably and safely.

**RECYFIX®** channels are certified to DIN EN 1433, and also in accordance with the more stringent German standard DIN V 19580. Products are CE Marked which represents full standards compliance and quality assurance.



**RECYFIX®**  
Production film

# RECYFIX® - TESTED BY LIFE.

RECYFIX® channels have been tested within the toughest laboratory in the world: practical use on site. They have all the necessary properties for use in the harshest conditions of everyday life - and have been proving this in projects all over the world since 1995.



**RECYFIX®PLUS**  
Basilica in Budapest



2003



**RECYFIX®STANDARD**  
Logistics centre, Kamen



2001



2014



2014



**RECYFIX®PLUS**  
Nice airport



2001



**RECYFIX®STANDARD**  
„Mineralbäder“ tram stop,  
Stuttgart



2002



2014



2014

HAURATON GmbH & Co. KG  
Werkstraße 13  
76437 Rastatt  
Germany  
Tel. +49 7222 958-0  
Fax +49 7222 958-222  
info@hauraton.com  
www.hauraton.com

04/2014 | Printed in Germany  
The illustrations, dimensions and  
weight information are non-binding  
Right reserved to make technical  
changes to make improvements.