



### PROJECTS WORLDWIDE..



Yas Marina Circuit in Abu Dhabi, U.A.E.



Gardens by the Bay Tadpole Area in Singapore



Data Ran Merdeka in Kuala Lumpur, Malaysia



Teesport Container Terminal , Middlesbrough, UK

# surface drainage channel









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How to choose the right product? 12



HAURATON system comparison



**Grating designs** 

**Step Fall adaptors** 



Hydraulic



Santi

RECYFIX®PRO
Corrosion-free linear drainage for private and public areas.





RECYFIX®STANDARD
Linear drainage channels for public and commercial areas.

▲ ASTRAL H hauraton





Slotted Channels
Slotted channels for design-sensitive applications.





applications.



RECYFIX®NC
Highly stable and lightweight –
linear drainage made of PP
for Civils engineering.





14

18

RECYFIX®MONOTEC

Drainage system for traffic, parking and commercial areas.





TOP X
The drainage channel for private driveways, courtyards, patios and gardens. 64



Additional products 68



loducts

Installation
It's running well
during the installation.



### **ASTRAL THE PRO INDIA PIPE COMPANY**

Established in 1996 with the aim to manufacture best-inglobe plastic piping systems, Astral Pipes fulfils emerging piping needs of millions of houses and adds extra mileage to India's developing real estate fraternity with the hallmark of unbeaten quality and innovative piping solutions. Keeping itself ahead of technology curve, Astral has always been a front runner in the piping category by bringing innovation and getting rid of old, primitive and ineffective plumbing methods. Bringing CPVC in India, and pioneering in this technology, have set Astral apart and enabled it to obtain NSF approval for its CPVC pipes and fittings. Astral went beyond category codes by launching many industry firsts, like launching India's first lead-free uPVC pipes for plumbing as well as for stream water, just to name a few.

Astral Pipes offers the widest product range across this category when it comes to product applications. Astral Pipes is equipped with production facilities at Santej and Dholka in Gujarat, Hosur in Tamil Nadu and Ghilot in Rajasthan to manufacture plumbing systems, drainage systems, agriculture systems, fire sprinkler piping systems, industrial piping and electrical conduit pipes with all kinds of necessary fittings.

Astral Pipes has recently acquired Rex Polyxtrusion Pvt. Ltd. which enables to expand its product range in terms of offering corrugated piping for drainage & cables, polyolefin cable channels, sewage treatment plants, plastic sheathing ducts, suction houses, telecommunication PLB ducts and sub-surface drainage systems. This range helps Astral to establish a strong foothold in infrastructure & agriculture sector in the constantly evolving business of piping. Rex has production facilities at Sangli in Maharashtra and Sitarganj in Uttarakhand.

In 2014, Astral forayed into the adhesives category by acquiring UK-based Seal It Services Ltd. and Kanpur based Resinova Chemie Ltd. which manufactures adhesives, sealants and construction chemicals. With five manufacturing facilities now in this business segment, Astral has strengthened its presence in the category and made rapid in roads.

Brand Astral stands for innovation and for setting new trends in the piping industry. Bringing newer piping technologies and continuous innovation in existing as well as new products has been the focal point at Astral. This special emphasis helps the brand set the bar higher and lead amongst others by example. Astral is also known for its compromise-free quality and exceeds consumer's expectations. Right from introducing new piping technologies to innovative brand communications in the category, Astral's brand mission has been to maintain and grow a commanding presence in the minds of customers and to deliver promised values consistently.



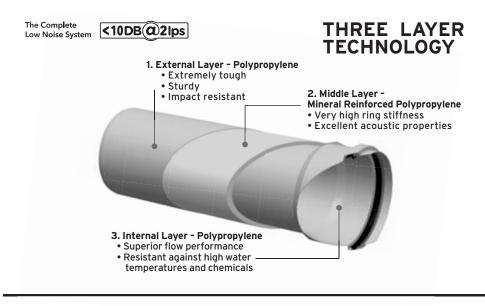
### THE COMPLETE LOW NOISE DRAINAGE SYSTEM

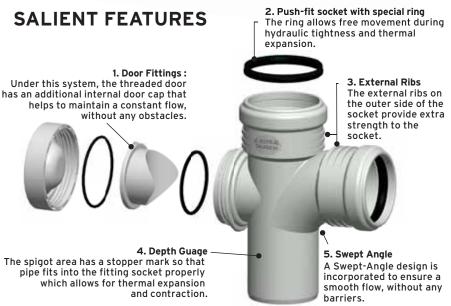
Our unique ASTRAL SILENCIO low noise system is an innovative product made of Mineral-Reinforced Polypropylene. This base material provides excellent mechanical and acoustic properties of Astral Silencio. Made with a high molecular structure, which enables absorption of both airborne sound and structure borne sound so that the sound energy does not spread over the pipe wall.

**AVAILABLE SIZES:** 

DN 40 mm, DN 50 mm, DN 75 mm, DN 110 mm, DN 160 mm DN 200 mm













### **ULTRA MODERN DRAINAGE SYSTEM**

Astral introduces the best underground drainage system which connect your SWR system to your main drains, public sewer or carry it to the sewage treatment plant. It's a complete solution for building drainage and sewerage application. Astral has designed and developed this ultra modern system in view with the highly sophisticated building drainage requirement. Astral underground system is having multiple advantages to traditional drainage products.

Astral manhole/inspection chambers are made of 100% virgin UV stabilized Polyethylene (PE) or Polypropylene (PP) material and are intended for use in underground drainage and sewerage systems. Innovative industrial strength design based on almost 20 years of German/

European experience incorporates carefully designed ribs to provide extra strength to the product and at the same time act as an uplift prevention system against ground water. Astral manholes have been installed in extremely challenging site conditions such as high ground water level. Astral chambers are suitable for both on-road and off-road installations.

Manhole/inspection chambers are an essential part of any sewerage pipeline and are typically required whenever there is a change in direction, diameter or significant change in gradient of the sewerage pipeline. Manhole/inspection chambers are required in domestic, commercial and municipal sewerage networks.





#### **KEY FEATURES**

- Prefabricated system complete with benching, shaft, steps and accessories.
- · Multiple configuration option in single piece.
- Multiple inlet options with variety of inlet and outlet sizes in single piece.
- Completely water tight with no infiltration or ex-filtration.

- · Ultra durable and resistant to corrosion.
- High quality as per latest European Standard EN 13598 leading to consistent quality for entire Project.
- Maintenance Free.
- Reduced Operating Cost minimal blockages due to hydraulically optimized channels, no Infiltration.
- Top quality accessories watertight rubber seals for pipe connection (EN 681-1); corrosion resistant steps.

# HAURATON, ONE OF THE LEADERS WORLDWIDE IN DRAINAGE

#### Innovative drainage products from

HAURATON make sure that water flows away in proper courses and those buildings remain safe all over the world. We have been developing and producing solutions for surface drainage over 60 years and distribute them worldwide with great success. Our strengths are the flexibility and individuality of a family-owned company with short lines of decision making and a consistent market orientation.

Some figures from the **HAURATON** world

- FOUNDED IN 1956
- 1800 KM OF CHANNELS INSTALLED IN 2016
- 18,500 KM LINEAR DISTANCE
- PRESENCE IN 73 COUNTRIES WORLDWIDE

### **HAURATON locations**

















-> Factory and logistics

## **Evolution** of surface drainage systems







### **Conventional System**

#### HARAPPA 2600 B.C.

The world's first known urban waste water system appeared in Asia (Harappa/Indus to Lothal) around 2600 BC.

### In-Situ

#### IN-SITU

In-Situ Systems are simple channels formed from concrete on site with a grating laid inbetween.

Disadvantages: Time consuming, costly installation, low quality finish, poor durability, rattling and rusted gratings.

### Modern System

#### HAURATON DRAINAGE SYSTEM

The drainage systems of HAURATON are efficient, sustainable and highly stable.



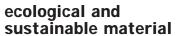
# Comparison - HAURATON RECYFIX® & Cast In Situ channels

|          | HAURATON RECYFIX®  Modified Polypropylene (PP) Channel  |   | Cast-In-Situ<br>Cement Concrete Channel   |
|----------|---|---|---|
|          | Quick, easy installation; estimated up to 4 times quicker to install compared with cast-in-situ channels.   | X | Time-consuming, costly and difficult installation process.  |
|          | Cost reductions achieved by:  Smaller trench excavation on site  Reduced costs regarding removal of site debris  Less sub-base material required  Lightweight, modular units (no shuttering)  Fewer installation procedures on-site  Edge-frame integral within channel body  Gratings pre-fitted to channels (some RECYFIX® systems) |   | Increased costs due to:  Larger trench excavation  Additional site debris to remove  Additional sub-base material  Complex shuttering system  Steel reinforcement within concrete walls  Additional construction procedures (shuttering, angle-frame installation etc).  Wider channel system (room for site work); more concrete, wider gratings; higher costs |
|          | Smaller channel sizes for given catchment area.   | X | Larger channel sizes for given catchment area.  |
|          | Lower long-term maintenance costs; durable and corrosion resistant system.  | X | Higher long-term maintenance costs; system subject to deterioration and failure as soon constructed.  |
| <b></b>  | Modular channel structure; rigid edge-frame integral within channel body. Torsion-free ribs and concrete anchors for structural integrity.  | × | Simple channel system constructed on site. Quality and precision of construction dependent on skill / experience of installer.  |
|          | Modified polypropylene (PP) is strong, durable and impact resistant with high corrosion resistance.   | X | Cement concrete has only moderate resistance. Concrete walls subject to decay/ spalling over time.  |
| <b>1</b> | RECYFIX® system / installation complies (tested) regarding international standards (EN 1433) loading, watertightness, total reassurance).   | × | Traditional methods neither constructed nor tested in accordance with recognized standards. No bench-mark against construction standards for the clients benefit.  Quality varies; no reassurance.  |
|          | Smooth internal surface (Manning n = 0.010) and U-Shaped channel profile. Efficient hydraulics, less maintenance.   | X | Rough internal surface (Manning n = 0.015 +) and rectangular channel profile. Inefficient hydraulics.   |
|          | Modular channel units with precise, effective joint design (tongue and groove profile) and high water resistance properties (water absorption <0.1%). Water tightness.  | × | Rigid concrete structure prone to cracking through settlement. Steel reinforcement bar may corrode / expand. Watertightness compromised.  |
|          | Smaller grating surface area, reduced but efficient intake area, tested intake capacity. Less ingress of leaf litter / surface debris, with reduced maintenance.  | X | Wide gratings, wide openings, leads to greater ingress of leaf litter/surface debris with increased maintenance requirement.  |
|          | Smaller gratings, narrow surface footprint, anti-slip surface design; lower skid risk. Less prone to failure.   | X | Wide gratings, larger surface area, flat bar design;<br>skid hazard when wet. More prone to failure.  |
|          | Gratings securely bolted within edge-frame housing; innovative design to prevent longitudinal / lateral movement of gratings (grating nibs / edge-frame location holes). No rattle, low noise pollution, avoids theft and vandalism. Safe!  |   | Gratings often loose within angle-frame; causing impact / shunt damage to installation (gratings / angle-frame). Gratings rattle within angle-frame, high noise pollution. Risk of theft, vandalism and wide, heavy gratings falling into channel body. Unsafe!   |
|          | Channel system installed below top-surface (3 mm – 5 mm) gratings sit precisely within channel edge. Safe to traffic.   | X | Imprecise construction; metal angle-frame and/or grating often sits above surface level. Hazard.  |
|          | High quality finish. Precise system jointing, durable materials, standards conformance. Modern, practical, discreet, decorative grating designs (HeelSafe). Compliments modern building designs.  |   | Poor quality finish. Imprecise installation, no construction standards. Basic grating features, limited design options, heavy, cumbersome, unattractive surface appearance. Unsafe. Conflicts with modern building design.  |

### **▲ASTRAL** Hauraton

## **Benefits of RECYFIX® Channels** compared to local in-situ solutions





■ RECYFIX channels are made of 100% recycled Polypropylene (PP) that is very eco friendly



### high resistance

- high chemical resistance against corrosive liquids
- 100% UV-resistant



### high security

Certified according to European Standard EN 1433



#### durability

■ Polypropylene (PP) reacts very slowly to weathering such as air, light, wind, dust and therefore is extremely durable



### **RECYFIX®**

= a high-quality recycled composite







RECYFIX® channels meet the requirement of European Standard EN 1433 (drainage channels)

## **Characteristics** of a drainage system How to choose the right product?

#### 1. Project application



Private areas Parks Pedestrian zones

Class A, 15 kN, 0.9 t wheel load



Public areas Garage entrances Car parks

Class B, 125 kN, 7.5 t wheel load



Market squares Commercial areas

Class C, 250 kN, 15 t wheel load



Streets (alongside) Commercial areas

Class D, 400 kN, 24 t wheel load



Industrial yards Container yards

Class E, 600 kN, 36 t wheel load



Airports Race tracks

Class F, 900 kN, 54 t wheel load

In case of any doubt a higher loading class should be chosen.

#### 2. Hydraulic design

Drainage area depths in dependence on the line length of RECYFIX channels

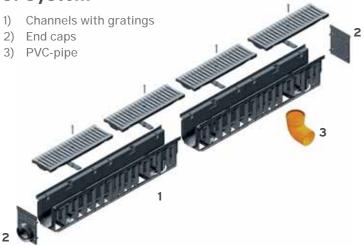


With a few information on area to be drained such as length, width and surface layer plus the rain intensity, with the HAURATON Hydraulic-App the best system from hydraulic purpose can be calculated.

request

More information on page 15.

### 3. System



A professional hydraulic calculation is available on

## **HAURATON** product range

| Appli-   |  |   | Nomina           | al width unit    |            |                 |
|----------|--|---|------------------|------------------|------------|-----------------|
| cations  | 100  | 150                                       | 200              | 300              | 400        | 680             |
|          | RECYFIX® PRO                                     | RECYFIX® PRO                              | RECYFIX® PRO     |                  |            |                 |
|          | RECYFIX®STANDARD / RECYFIX®PRO / Slotted Channel | RECYFIX®STANDARD<br>PRO / Slotted Channel | RECYFIX*STANDARD | RECYFIX*STANDARD |            |                 |
|          | RECYFIX®MONOTEC                                  |   | RECYFIX®MONOTEC  |                  | RECYFIX®NC |                 |
|          | RECYFIX®NC                                       |   | RECYFIX®NC       | RECYFIX®NC       |            |                 |
| <b>★</b> | RECYFIX®HICAP®F                                  |   | RECYFIX®HICAP®F  | RECYFIX®HICAP®F  |            | RECYFIX®HICAP®F |

Further details on following product pages. RECYFIX HICAP F on request for project business.

### ASTRAL Hauraton

## **HAURATON** system comparison

| System Characteristics | RECYFIX®STANDARD   |
|------------------------|--|
| System rendered image  |  |
| Applications           | Landscape or domestic projects with light pedestrian use and no (or very limited) domestic car traffic  Examples:  Light pedestrian use  Lightly used pathways  Cycle tracks (not trafficked)  Domestic driveways  House entrances  None-traffic locations (against buildings and walls)  Gardens and green areas (light pedestrian use) |
| Surface finish types   | <ul> <li>Paving Units</li> <li>Concrete Pavement</li> <li>Resin Surfaces</li> <li>Other</li> </ul>   |
| Channel edge detail    | <ul> <li>Integral PP edge frame         (within channel body)</li> <li>lay-on' grating design;         gratings laid on PP channel edge</li> <li>Visible edge detail</li> </ul>  |
| Grating fixing system  | 2 locking bars and bolts per metre   |
| Highlights             | <ul> <li>Basic, commercial grade' channel system</li> <li>Lowest cost product of the listed channel systems</li> <li>System generally delivered with gratings pre-assembled</li> </ul>   |

| <b>RECYFIX</b> ®PRO  | <b>RECYFIX</b> ®NC  |
|--|---|
|  |   |
| Areas subject to heavy-duty pedestrian use; or limited use by ,slow-moving' domestic/light-commercial vehicles  Examples: Light pedestrian use and lightly used pathways Cycle tracks (not trafficked) Domestic driveways House entrances None-traffic locations (against buildings and walls) Gardens and green areas (light pedestrian use) Sidewalks Pedestrian areas and yards Public parks and communal areas Shopping centres and precincts Light vehicle driveways and private parking areas Commercial and multi-storey parking areas Small commercial and industrial premises (use by hand-held pallet trucks only) Railway platforms | Areas subject to more regular traffic; light commercial forklifts/slow-moving heavy vehicles. *Not suitable for fast-moving traffic on roads and highways  Examples: Public areas Petrol filling station forecourts (not constantly traffic by heavy vehicles) Service yards and logistic areas; commercial and industrial areas (*refer to general note above) Roadsides and carriageway locations (non-traffic locations) |
| <ul> <li>Paving Units</li> <li>Concrete Pavement</li> <li>Resin Surfaces</li> <li>Asphalt</li> <li>Other</li> </ul>  | <ul> <li>Concrete Pavement (recommend concrete surround installed to top surface for heavy-duty applications)</li> <li>Paving Units</li> <li>Resin Surfaces</li> <li>Asphalt</li> <li>Other</li> </ul>  |
| <ul> <li>Integral PP edge-frame         (within channel body)</li> <li>In-laid' grating design;         gratings inserted inside/         in-between channel edge-frame</li> <li>Visible (narrow) edge detail         (aesthetic finish)</li> </ul>  | <ul> <li>Composite PP edge-frame is an integral part of the channel body; for added rigidity and corrosion resistance.</li> <li>In-laid' grating design; gratings inserted inside/in-between channel edge-frame</li> <li>Visible (narrow) edge detail (aesthetic finish)</li> <li>Gratings are bolted to channel edge-frame (8 bolts/metre)</li> </ul>  |
| 2 locking bars and bolts per metre   | 8 bolt innovative fixing system per metre   |
| <ul> <li>Ridges prevent longitudinal movement of grating</li> <li>System generally delivered with gratings pre-assembled</li> <li>This is HAURATON's best selling product</li> </ul>   | RECYFIX®NC provides a secure grating connection to<br>the channel edge-frame with a 8 bolt-fixing per metre<br>for heavier and more regular loads   |

# HAURATON grating designs for landscaping applications

### **RECYFIX®PRO 100**



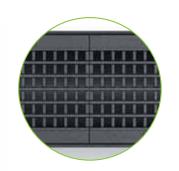


GUGI-Grating made of PA-GF

Mesh width: 15 x 25 mm



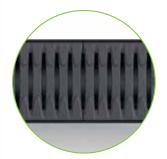
**RECYFIX®STANDARD 200** 



GUGI-Ductile iron mesh gratings

Mesh width: 15 x 25 mm





FIBRETEC Slotted grating made of PA-GF

Slot width: 9 mm







GUGI-Ductile iron mesh gratings

Mesh width: 15 x 25 mm

#### **RECYFIX®PRO 200**





FIBRETEC Slotted grating made of PA-GF

Slot width: 9 mm

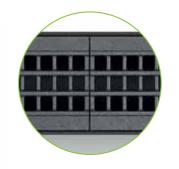
#### **FIBRETEC®**



The art of drainage has many styles. With the coloured FIBRETEC® gratings, HAURATON creates a completely new scope of design.

### **RECYFIX®STANDARD 100**





GUGI-Ductile iron -mesh gratings

Mesh width: 15 x 25 mm

# Hydraulic performance of RECYFIX® channels

The exemplary hydraulic performance test on the hydraulic capacity of two channel runs (4 meter of RECYFIX® 150 Type 01), one with and one without built-in fall, clearly shows, that at the end the hydraulic performance is almost the same.

**Until the channels are** completely emptied of water, it takes 1:17 minutes without built-in fall compared to 1:13 minutes with 0.5% built-in fall.









**As a result, although** RECYFIX channels do not have a built-in fall, RECYFIX channels fulfill all hydraulic demands and also ensure that under all applications storm water flows into the channel.



See here the hydraulic performance test.

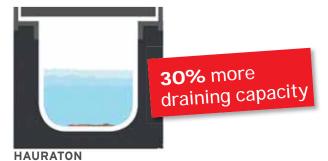
HAURATON channels have optimized hydraulics and don't require slope.

#### Channel shape

Tests and hydraulic calculations have shown that channels with a U-shaped cross section have a better velocity at the end of the channel run and a higher cleaning power compared with a V-shaped or an In-Situ cross section.







Competitor

Results

- U-shaped channels have up to a 30 % increased draining capacity compared to V-shaped channels.
- In a U-shaped channel the water has a larger contact area with the soiling. That's why this channel cleans itself more efficiently.

### **HAURATON Hydraulic App**

With our HAURATON hydraulic app you can get a quick overview on our channel systems. Since we want to provide you with a straightforward and easy-to-use application, only four parameters need to be entered. With just one click you can select between the channel systems according to your individual needs .





### **RECYFIX®PRO**

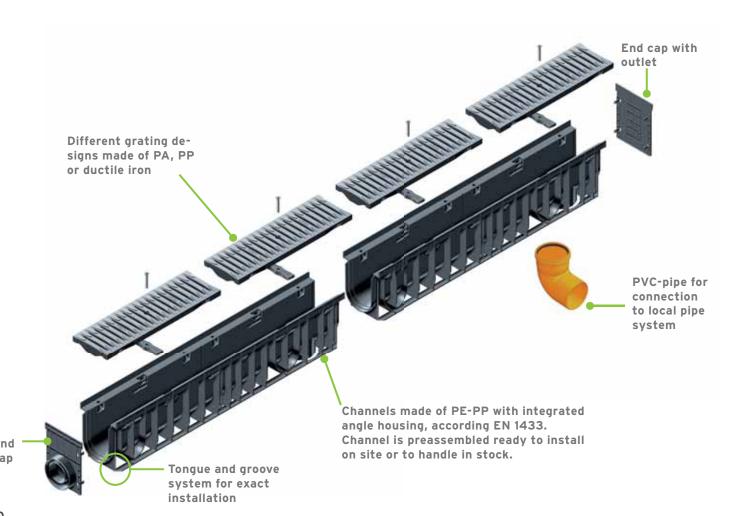
Corrosion-free drainage system for private and public areas.

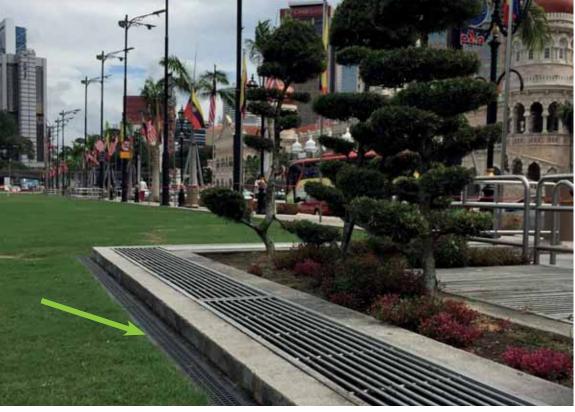












Data Ran Merdeka in Kuala Lumpur, Malaysia



European quarter in Frankfurt, Germany

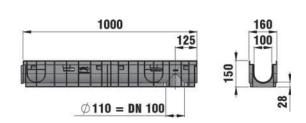
### ASTRAL Hauraton

### **RECYFIX®PRO 100**

### Combi article

#### RECYFIX®PRO 100, class A 15





Intake

Weight

| 1  | mm   | mm  | mm  | cross-sect.<br>cm² | cross-sect.<br>cm²/m | kg  | No.   |
|--|------|-----|-----|--------------------|----------------------|-----|-------|
| Type 01 with slotted grating<br>SW 80/10, locked   | 1000 | 160 | 150 | 92                 | 378                  | 4,8 | 47021 |
| Type 020 with slotted grating,<br>SW 80/10, locked | 1000 | 160 | 250 | 192                | 278                  | 6,6 | 48621 |

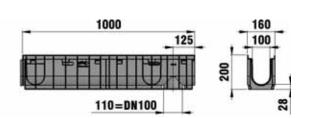
Width

Height

Drainage

#### RECYFIX®PRO 100, class B 125





|   | Length<br>mm | Width<br>mm | Height<br>mm | Drainage<br>cross-sect.<br>cm² | Intake<br>cross-sect.<br>cm²/m | Weight<br>kg | Item<br>No. |
|---|--------------|-------------|--------------|--------------------------------|--------------------------------|--------------|-------------|
| Type 01 with GUGI-Grating made of PA-GF,<br>MW 15/25, black, locked       | 1000         | 160         | 150          | 92                             | 444                            | 4,3          | 47035       |
| Type 010 with GUGI-Grating made of PA-GF,<br>MW 15/25, black, locked      | 1000         | 160         | 200          | 142                            | 444                            | 4,7          | 47040       |
| Type 01005 with GUGI-Grating made of PA-GF,<br>MW 15/25 mm, black, locked | 500          | 160         | 200          | 142                            | 444                            | 2,5          | 47041       |
| Type 020 with GUGI-Grating made of PA-GF,<br>MW 15/25, black, locked      | 1000         | 160         | 250          | 192                            | 444                            | 5,5          | 48623       |
| Type 75 with GUGI-Grating made of PA-GF,<br>MW 15/25, black, locked       | 1000         | 160         | 75           | 35                             | 444                            | 2,9          | 47032       |
| Type 95 with GUGI-Grating made of PA-GF,<br>MW 15/25, black, locked       | 1000         | 160         | 95           | 55                             | 444                            | 3,6          | 47033       |

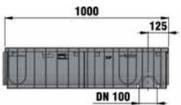
### **RECYFIX®PRO 100**

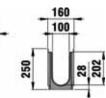
#### Combi article

#### RECYFIX®PRO 100, class C 250

Type 020 with FIBRETEC slotted grating, SW 9







|  | Length<br>mm | Width<br>mm | Height<br>mm | Drainage<br>cross-sect.<br>cm² | Intake<br>cross-sect.<br>cm²/m | Weight<br>kg | Item-No.<br>galvanised |
|--|--------------|-------------|--------------|--------------------------------|--------------------------------|--------------|------------------------|
| Type 01 with FIBRETEC slotted grating, SW 9, black                                 | 1000         | 160         | 150          | 92                             | 372                            | 4,6          | 47055                  |
| Type 010 with FIBRETEC slotted grating, SW 9, black                                | 1000         | 160         | 200          | 142                            | 372                            | 4,9          | 47060                  |
| Type 020 with FIBRETEC slotted grating, SW 9, black, locked                        | 1000         | 160         | 250          | 192                            | 372                            | 5,8          | 48625                  |
| Type 75 with FIBRETEC slotted grating, SW 9, black                                 | 1000         | 160         | 75           | 35                             | 372                            | 3,4          | 47062                  |
| Type 95 with FIBRETEC slotted grating, SW 9, black                                 | 1000         | 160         | 95           | 55                             | 372                            | 3,7          | 47063                  |
| Type 01 with FIBRETEC design slotted grating in the colour Sand, SW 9 mm, locked   | 1000         | 160         | 150          | 92                             | 372                            | 4.6          | 47405                  |
| Type 010 with FIBRETEC design slotted grating in the colour Sand,SW 9 mm, locked   | 1000         | 160         | 200          | 142                            | 372                            | 4.9          | 47406                  |
| Type 020 with FIBRETEC design slotted grating in the colour Sand, SW 9 mm, locked  | 1000         | 160         | 250          | 192                            | 372                            | 5.8          | 47407                  |
| Type 75 with FIBRETEC design slotted grating in the colour Sand, SW 9 mm, locked   | 1000         | 160         | 75           | 35                             | 372                            | 3.4          | 47403                  |
| Type 95 with FIBRETEC design slotted grating in the colour Sand, SW 9 mm, locked   | 1000         | 160         | 95           | 55                             | 372                            | 3.7          | 47404                  |
| Type 01 with FIBRETEC design slotted grating in the colour Fern, SW 9 mm, locked   | 1000         | 160         | 150          | 92                             | 372                            | 4.6          | 47417                  |
| Type 010 with FIBRETEC design slotted grating in the colour Fern, SW 9 mm, locked  | 1000         | 160         | 200          | 142                            | 372                            | 4.9          | 47418                  |
| Type 020 with FIBRETEC design slotted grating in the colour Fern, SW 9 mm, locked  | 1000         | 160         | 250          | 192                            | 372                            | 5.8          | 47419                  |
| Type 75 with FIBRETEC design slotted grating in the colour Fern, SW 9 mm, locked   | 1000         | 160         | 75           | 35                             | 372                            | 3.4          | 47415                  |
| Type 95 with FIBRETEC design slotted grating in the colour Fern, SW 9 mm, locked   | 1000         | 160         | 95           | 55                             | 372                            | 3.7          | 47416                  |
| Type 01 with FIBRETEC design slotted grating in the colour Stone, SW 9 mm, locked  | 1000         | 160         | 150          | 92                             | 372                            | 4.6          | 47411                  |
| Type 010 with FIBRETEC design slotted grating in the colour Stone, SW 9 mm, locked | 1000         | 160         | 200          | 142                            | 372                            | 4.9          | 47412                  |
| Type 020 with FIBRETEC design slotted grating in the colour Stone, SW 9 mm, locked | 1000         | 160         | 250          | 192                            | 372                            | 5.8          | 47413                  |
| Type 75 with FIBRETEC design slotted grating in the colour Stone, SW 9 mm, locked  | 1000         | 160         | 75           | 35                             | 372                            | 3.4          | 47409                  |
| Type 95 with FIBRETEC design slotted grating in the colour Stone, SW 9 mm, locked  | 1000         | 160         | 95           | 55                             | 372                            | 3.7          | 47410                  |
|  |              |             |              |                                |                                |              |                        |

### **△ASTRAL** Hauraton

### End caps and further accessories







End cap made of PP with outlet DN 100 for type 01



Mud bucket vertical DN 100,



Holesaw, Ø 102 mm, with tool holder for a driller

|   | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |   |
|---|--------------|-------------|--------------|--------------|-------------|---|
| End cap closed for Type 01  | -            | 160         | 124          | -            | 48681       | 0 |
| End cap made of PP with outlet DN/OD 110, type 01                                     | -            | 160         | 200          | 0,1          | 48691       | 0 |
| End cap closed for Type 010   | -            | 160         | 176          | 0,1          | 47082       | 0 |
| End cap made of PP with outlet DN 100 for Type 010                                    | -            | 160         | 201          | 0,1          | 47093       | 0 |
| End cap made of PP, Type 020  | -            | 160         | 250          | 0,1          | 48683       | 0 |
| End cap made of PP with outlet DN 100, Type 020                                       | -            | 160         | 250          | 0,1          | 48695       | 0 |
| End cap Type 75   | -            | 160         | 61           | -            | 47097       | 0 |
| End cap Type 95   | -            | 160         | 81           | -            | 47098       | 0 |
| Mud bucket vertical DN 100, black   | 100          | 100         | 85           | =            | 40293       | 0 |
| Step Fall Adapter for step slope, from type 01 to type 010, from Type 010 to Type 020 | 174          | 98          | 92           | 0,2          | 48790       |   |
| Holesaw, Ø 102 mm, with tool holder for a driller                                     | -            |             |              | 0,6          | 980         |   |



= The product is available in India

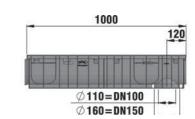
All other products are available on request.

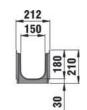
### **RECYFIX®PRO 150**

#### Combi article

#### RECYFIX®PRO 150, class B 125







|   | Length<br>mm | Width<br>mm | Height<br>mm | Drainage<br>cross-sect.<br>cm² | Intake<br>cross-sect.<br>cm²/m | Weight<br>kg | Item<br>No. |   |
|---|--------------|-------------|--------------|--------------------------------|--------------------------------|--------------|-------------|---|
| Type 01 with FIBRETEC slotted grating, SW 9 mm, black, locked | 1000         | 212         | 210          | 230                            | 500                            | 7,4          | 47135       | 0 |

### End caps and further accessories



End cap closed for Type 01



Mud bucket vertical DN 100, black



End cap closed, with outlet  $\,$  Foul air trap set, vertical DN DN 70/100 for Type 01  $\,$  100  $\,$ 

| 1  |   |
|--|---|
| N. A. S. |   |
| W. S.  | - |
|  |   |
|  |   |
|  |   |

|  | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |
|--|--------------|-------------|--------------|--------------|-------------|
| End cap closed for Type 01                                   | -            | 210         | 218          | 0,1          | 40591       |
| End cap combined, made of PP, with outlet DN 70/100, Type 01 | -            | 210         | 203          | 0,1          | 40191       |
| Mud bucket, vertical, DN 100, black                          | 100          | 100         | 85           | -            | 40293       |
| Foul air trap set, vertical DN 100                           | -            | -           | 203          | 0,4          | 40294       |



= The product is available in India

All other products are available on request.

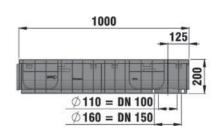


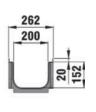
### RECYFIX®PRO 200

### Combi article

#### RECYFIX®PRO 200, class B 125







|   | Length<br>mm | Width | Height<br>mm | Drainage<br>cross-sect.<br>cm² | Intake<br>cross-sect.<br>cm²/m | Weight<br>kg | No.   |
|---|--------------|-------|--------------|--------------------------------|--------------------------------|--------------|-------|
| Type 010 with FIBRETEC slotted grating,<br>SW 9 mm, black, locked | 1000         | 262   | 200          | 294                            | 656                            | 8,3          | 47246 |
| Type 115 with FIBRETEC slotted grating,<br>SW 9 mm, black, locked | 1000         | 262   | 115          | 150                            | 656                            | 7,0          | 47233 |

### End caps and further accessories







End cap combined made of PP closed / with outlet DN 100, Type 010

Mud bucket DN 150

Holesaw, Ø 102 mm, with tool holder for a driller

|   | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |          |
|---|--------------|-------------|--------------|--------------|-------------|----------|
| End cap combined made of PP closed / with outlet DN 100, Type 010 | -            | 258         | 217          | 0,2          | 41387       | <b>①</b> |
| End cap closed, Type 115  | -            | 250         | 100          | 0,1          | 47297       |          |
| Mud bucket vertical DN 100, black                                 | 100          | 100         | 85           | -            | 40293       | 0        |
| Mud bucket DN 150   | -            | -           | 180          | 0,6          | 2191        |          |
| Holesaw, Ø 102 mm, with tool holder for a driller                 | -            | -           | =            | 0,6          | 980         |          |



= The product is available in India

All other products are available on request.



Puteri Harbour, Malaysia



School in Sunderland, Great Britain

### **△**ASTRAL Hauraton

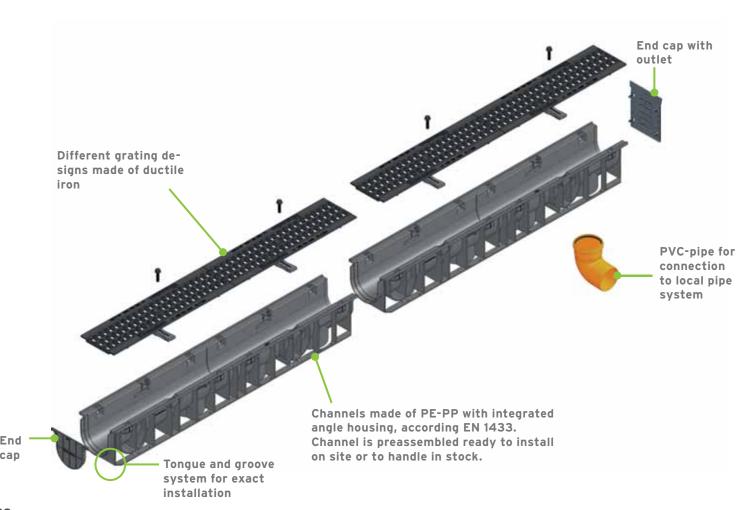
### **RECYFIX®STANDARD**

Linear drainage channels for public and commercial area.











Public square in Hungary



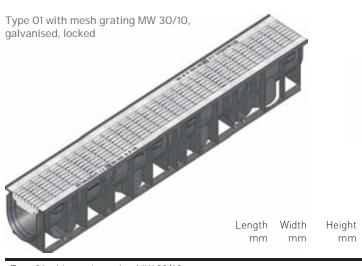
Condominium Suites Project Parque Norm Marque in Bangkok, Thailand

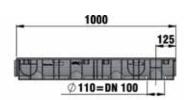


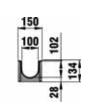
### **RECYFIX®STANDARD 100**

#### Combi article

#### RECYFIX®STANDARD 100, class B 125



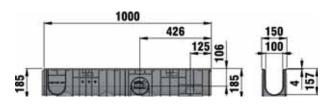




|  | Length<br>mm | Width<br>mm | Height<br>mm | Drainage<br>cross-sect.<br>cm² | Intake<br>cross-sect.<br>cm²/m | Weight<br>kg | Item No.<br>galvanised | Item No.<br>Stainless<br>steel |   |
|--|--------------|-------------|--------------|--------------------------------|--------------------------------|--------------|------------------------|--------------------------------|---|
| Type 01 with mesh grating MW 30/10 mm, galvanised, locked  | 1000         | 150         | 134          | 92                             | 650                            | 5,1          | 41220                  | 41210                          |   |
| Type 010 with mesh grating MW 30/10 mm, galvanised, locked | 1000         | 150         | 185          | 142                            | 650                            | 6,6          | 41222                  | 41212                          |   |
| Type 60 with mesh grating MW 30/10 mm, galvanised, locked* | 1000         | 150         | 60           | 35                             | 650                            | 5,0          | 41224                  |                                | • |
| Type 80 with mesh grating MW 30/10 mm, galvanised, locked  | 1000         | 150         | 80           | 55                             | 650                            | 5,1          | 41226                  | 41216                          |   |

### RECYFIX®STANDARD 100, class C 250





|  | Length<br>mm | Width<br>mm | Height<br>mm | Drainage<br>cross-sect.<br>cm² | Intake<br>cross-sect.<br>cm²/m | Weight<br>kg | Item<br>No. |
|--|--------------|-------------|--------------|--------------------------------|--------------------------------|--------------|-------------|
| Type 01 with GUGI-Ductile iron mesh grating MW 15/25, black, locked  | 1000         | 150         | 134          | 92                             | 444                            | 7,1          | 40234       |
| Type 010 with GUGI-Ductile iron mesh grating MW 15/25, black, locked | 1000         | 150         | 185          | 142                            | 444                            | 8,6          | 40299       |
| Type 60 with GUGI-Ductile iron mesh grating MW 15/25, black, locked* | 1000         | 150         | 60           | 35                             | 444                            | 5,4          | 40239       |
| Type 80 with GUGI-Ductile iron mesh grating MW 15/25, black, locked* | 1000         | 150         | 80           | 55                             | 444                            | 5,5          | 40253       |

#### End caps and further accessories











End cap combined made of PP End cap, closed for type 01 with outlet DN 100, type 010

Mud bucket vertical DN 100, black

|   | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |  |
|---|--------------|-------------|--------------|--------------|-------------|--|
| End cap, closed for type 01                                 | -            | 150         | 108          | -            | 48081       |  |
| End cap with outlet DN/OD 110 for type 01                   | -            | 148         | 185          | 0,1          | 48091       |  |
| End cap closed for type 010                                 | -            | 150         | 160          | -            | 40282       |  |
| End cap combined made of PP with outlet DN/OD 110, type 010 | -            | 148         | 185          | 0,1          | 40283       |  |
| End cap closed, made of PP, for type 60                     | -            | 147         | 44           | -            | 40284       |  |
| End cap closed, made of PP, for type 80                     | -            | 147         | 64           | -            | 40291       |  |
| Mud bucket vertical DN 100, black                           | 100          | 100         | 85           | -            | 40293       |  |
| Step Fall Adapter for step slope, from type 01 to type 010  | -            | -           | -            | 0,2          | 41290       |  |
| Holesaw, Ø 102 mm, with tool holder for a driller           | _            | -           | -            | 0,6          | 980         |  |

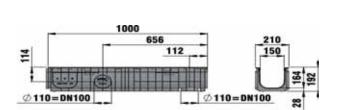
### ASTRAL Hauraton

### **RECYFIX®STANDARD 150**

#### Combi article

#### RECYFIX®STANDARD 150, class B 125

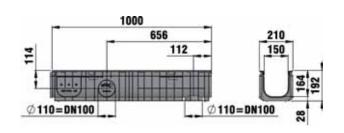




|  | Length<br>mm | Width<br>mm | Height<br>mm | Internal<br>channel<br>cross-sect.<br>cm² | Intake<br>cross-sect.<br>cm²/m | Weight<br>kg | Item<br>No. |
|--|--------------|-------------|--------------|---|--------------------------------|--------------|-------------|
| Type 01 with mesh grating MW 30/30 mm, galvanised, locked  | 1000         | 210         | 192          | 225                                       | 1081                           | 7,7          | 40171       |
| Type 100 with mesh grating MW 30/30 mm, galvanised, locked | 1000         | 210         | 100          | 116                                       | 1081                           | 6,8          | 40135       |
| Type 01 with mesh grating MW 30/10 mm, galvanised, locked  | 1000         | 210         | 192          | 225                                       | 1098                           | 8,7          | 40177       |
| Type 100 with mesh grating MW 30/10 mm, galvanised, locked | 1000         | 210         | 100          | 116                                       | 1098                           | 7,8          | 40136       |

#### RECYFIX®STANDARD 150, class C 250





|   | Length<br>mm | Width<br>mm | Height<br>mm | Drainage<br>cross-sect.<br>cm² | Intake<br>cross-sect.<br>cm²/m | Weight<br>kg | Item<br>No. |
|---|--------------|-------------|--------------|--------------------------------|--------------------------------|--------------|-------------|
| Type 01 with GUGI-Ductile iron mesh grating MW 15/25, black, locked | 1000         | 210         | 192          | 225                            | 745                            | 13,5         | 40174       |

### **RECYFIX®STANDARD 150**

#### Accessories

#### End caps and further accessories





End cap combined made of PP closed / with outlet DN 100, Type 010

Foul air trap set, vertical DN

|   | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |
|---|--------------|-------------|--------------|--------------|-------------|
| End cap closed, type 100                                      | -            | 208         | 100          | -            | 40190       |
| End cap combined made of PP with outlet DN/OD 75/110, type 01 | -            | 210         | 203          | 0,1          | 40191       |
| Foul air trap set, vertical DN 100                            | -            | -           | 203          | 0,4          | 40294       |



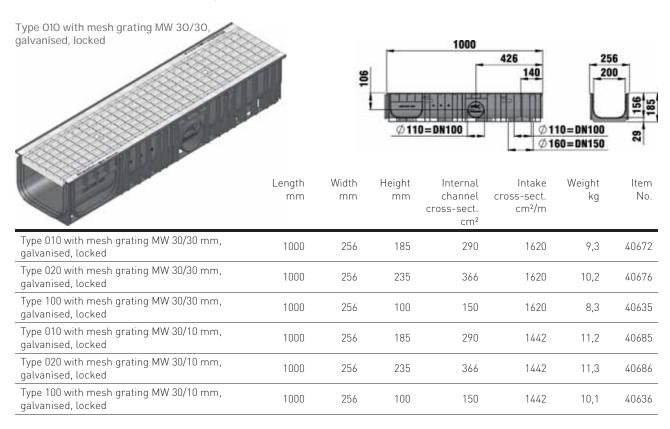
= The product is available in India

All other products are available on request.

### **RECYFIX®STANDARD 200**

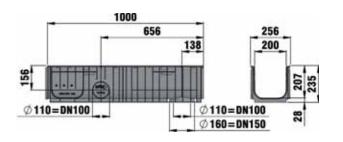
#### Combi article

#### RECYFIX®STANDARD 200, class B 125



#### RECYFIX®STANDARD 200, class C 250





Intake

Weight

Item

|  | mm   | mm  | mm  | cross-sect.<br>cm² | cross-sect.<br>cm²/m | kg   | No.   |
|--|------|-----|-----|--------------------|----------------------|------|-------|
| Type 010 with GUGI-Ductile iron mesh grating MW 15/25, black, locked | 1000 | 256 | 185 | 290                | 825                  | 15,4 | 40665 |
| Type 020 with GUGI-Ductile iron mesh grating MW 15/25, black, locked | 1000 | 256 | 235 | 366                | 825                  | 15,8 | 40666 |
| Type 100 with GUGI-Ductile iron mesh grating MW 15/25, black, locked | 1000 | 256 | 100 | 150                | 825                  | 14,1 | 40641 |

Height

Drainage

### **RECYFIX®STANDARD 200**

#### Accessories

#### End caps and further accessories







Mud bucket DN 150



Holesaw, Ø 102 mm, with tool holder for a driller



Foul air trap set, vertical DN 100

|  | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item-No.<br>galvanised | Item-No.<br>stainless<br>steel |
|--|--------------|-------------|--------------|--------------|------------------------|--------------------------------|
| End cap combined made of PP closed / with outlet DN/0D 110, Type 010                     | -            | 254         | 199          | 0,2          | 40792                  | -                              |
| End cap closed, FASERFIX KS type 01/ RECYFIX PLUS type 020/<br>RECYFIX STANDARD type 020 | -            | 260         | 275          | 1,1          | 12081                  | 12581                          |
| End cap closed, type 100   | -            | 262         | 100          | 0,1          | 40690                  | 0 -                            |
| Step Fall Adapter for step slope, from type 010 to type 020                              | 218          | 200         | 99           | 0,4          | 49590                  | =                              |
| Mud bucket vertical DN 100, black  | 100          | 100         | 85           | -            | 40293                  | 0                              |
| Mud bucket DN 150  | -            | -           | 180          | 0,6          | 2191                   | 0                              |
| Holesaw, Ø 102 mm, with tool holder for a driller  | -            | -           | -            | 0,6          | 980                    | -                              |
| Foul air trap set, vertical DN 100 for RECYFIX 100                                       | -            | -           | 203          | 0,4          | 40294                  |                                |



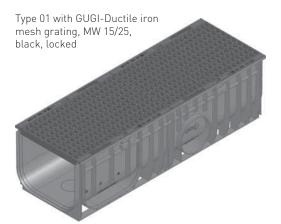
= The product is available in India

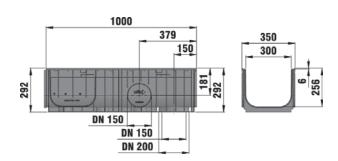
All other products are available on request.

### Combi article

#### RECYFIX® STANDARD 300, class C 250

**RECYFIX®STANDARD 300** 



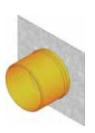


|   | Length<br>mm | Width<br>mm | Height<br>mm | Drainage<br>cross-sect.<br>cm² | Intake<br>cross-sect.<br>cm²/m | Weight<br>kg | Item<br>No. |
|---|--------------|-------------|--------------|--------------------------------|--------------------------------|--------------|-------------|
| Type 01 with GUGI-Ductile iron mesh grating,<br>MW 15/25, black, locked   | 1000         | 350         | 292          | 725                            | 1385                           | 29,1         | 40870       |
| T ype 010 with GUGI-Ductile iron mesh grating,<br>MW 15/25, black, locked | 1000         | 420         | 381          | 857                            | 1385                           | 33,2         | 40875       |

### Accessories

### End caps and further accessories







End cap closed, galvanised, Type 010

End cap with vertical UPVC outlet, galvanised, Type 01

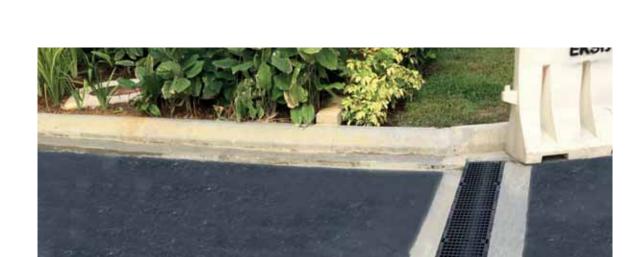
Mud bucket DN 150

|   | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |   |
|---|--------------|-------------|--------------|--------------|-------------|---|
| End cap closed, galvanised, Type 01                         | -            | 360         | 340          | 1,8          | 40882       | 0 |
| End cap closed, galvanised, Type 010                        | -            | 420         | 380          | 2,8          | 40881       | 0 |
| End cap with vertical UPVC outlet, galvanised, Type 01      | -            | 360         | 340          | 2,3          | 40892       |   |
| Mud bucket DN 150   | -            | -           | 180          | 0,6          | 2191        |   |
| Holesaw, $\emptyset$ 102 mm, with tool holder for a driller | =            | -           | -            | 0,6          | 980         |   |



= The product is available in India

All other products are available on request.



▲ ASTRAL H hauraton

Teega Residence - Iskandar, Puteri, Johor - Malaysia



City centre of Békéscsaba in Hungary

### ▲ ASTRAL Hauraton

39

### **Slotted Channels**

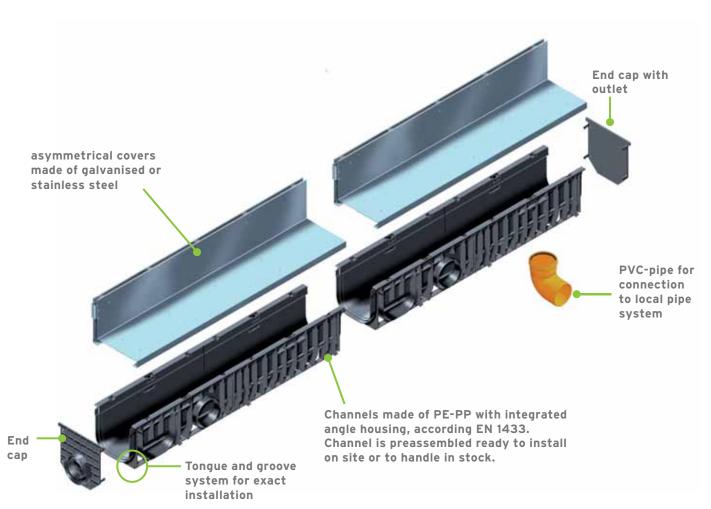




Market squares

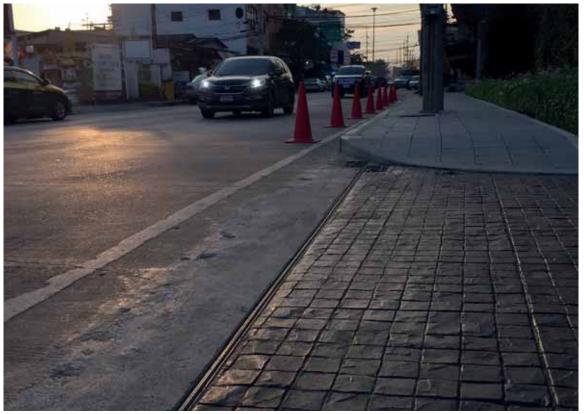
Public areas

Private areas





Mercedes-Benz Arena in Berlin, Germany

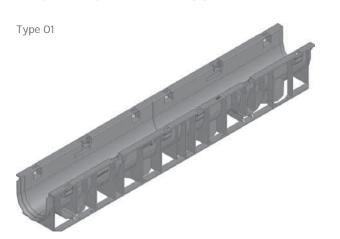


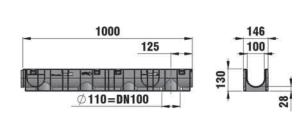
Tycoon Project in Bangkok, Thailand

### **Slotted Channel 100**

### Channels

#### **RECYFIX®STANDARD 100**





|          | Length<br>mm | Width<br>mm | Height<br>mm | Drainage<br>cross-sect.<br>cm² | Weight<br>kg | No.   |
|----------|--------------|-------------|--------------|--------------------------------|--------------|-------|
| Type 01  | 1000         | 146         | 130          | 92                             | 1,9          | 48200 |
| Type 010 | 1000         | 147         | 181          | 142                            | 2,5          | 40321 |

### Gratings

### Slotted Covers 100, neck height 160, class C 250





Asymmetric Access cover asymmetric

|   | Length<br>mm | Width<br>mm | Height<br>mm | Intake<br>cross-sect.<br>cm²/m | Weight<br>kg | Item-No. Item-No. galvanised stainless steel |  |
|---|--------------|-------------|--------------|--------------------------------|--------------|--|--|
| Asymmetric  | 1000         | 160         | 196          | 125                            | 8,2          | 5725 5775                                    |  |
| Access cover asymmetric                               | 500          | 160         | 188          | 7,1                            | 7,1          | 5756 5786                                    |  |
| Extraction bail for access covers (2 pieces required) | -            | 400         | 150          | 0,8                            | 0,8          | 740 -  |  |

Bigger nominal sizes and individual neck heights as tailor-made production possible for more than 30 m. The quality of stainless steel material corresponds to CNS 1.4301.

### **Slotted Channel 100**

#### Accessories

#### **RECYFIX®STANDARD 100 Channels**



End cap, closed

for type 01







End cap closed Mud bucket vertical DN 100, for type 010 black

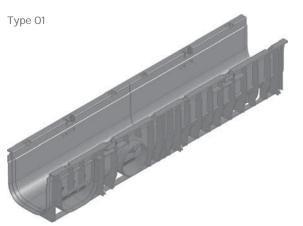
Holesaw, Ø 102 mm, with tool holder for a driller

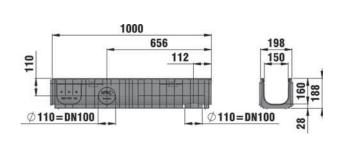
|   | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |   |
|---|--------------|-------------|--------------|--------------|-------------|---|
| End cap, closed for type 01                       | -            | 150         | 108          | -            | 48081       |   |
| End cap closed for type 010                       | -            | 150         | 160          | -            | 40282       | ) |
| Mud bucket vertical DN 100, black                 | 100          | 100         | 85           | -            | 40293       | ) |
| Holesaw, Ø 102 mm, with tool holder for a driller | -            | _           | _            | 0.6          | 980         |   |

### **Slotted Channel 150**

### Channels

#### **RECYFIX**®STANDARD 150





|         | Length<br>mm | Width<br>mm | Height<br>mm | Drainage cross-sect. | Weight<br>kg | Item<br>No. |
|---------|--------------|-------------|--------------|----------------------|--------------|-------------|
|         |              |             |              | cm²                  |              |             |
| Type 01 | 1000         | 198         | 188          | 225                  | 2,7          | 41021       |

### Gratings

### Slotted Covers 150, neck height 160, class C 250





Asymmetric

Access cover asymmetric

|   | Length<br>mm | Width<br>mm | Height<br>mm | Intake<br>cross-sect.<br>cm²/m | Weight<br>kg | Item-No.<br>galvanised | Item-No.<br>stainless<br>steel |
|---|--------------|-------------|--------------|--------------------------------|--------------|------------------------|--------------------------------|
| Asymmetric  | 1000         | 210         | 196          | 125                            | 8,9          | 452                    | 462                            |
| Access cover asymmetric                               | 500          | 210         | 188          | 7,9                            | 7,9          | 476                    | 486                            |
| Extraction bail for access covers (2 pieces required) | -            | 400         | 150          | 0,8                            | 0,8          | 740                    | -                              |

Bigger nominal sizes and individual neck heights as tailor-made production possible for more than 30 m. The quality of stainless steel material corresponds to CNS 1.4301.

### **Slotted Channel 150**

#### Accessories

#### **RECYFIX®STANDARD** 150 channels





End cap combined made of PP with outlet DN 70/100, Type 01

Mud bucket DN 150

|  | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |   |
|--|--------------|-------------|--------------|--------------|-------------|---|
| End cap combined made of PP with outlet DN 70/100, Type 01 | -            | 210         | 203          | 0,1          | 40191       | 1 |
| Mud bucket DN 150  | -            | -           | 180          | 0,6          | 2191        |   |
| Holesaw, Ø 102 mm, with tool holder for a driller          | -            | -           | -            | 0,6          | 980         |   |

### **RECYFIX**<sup>®</sup>NC





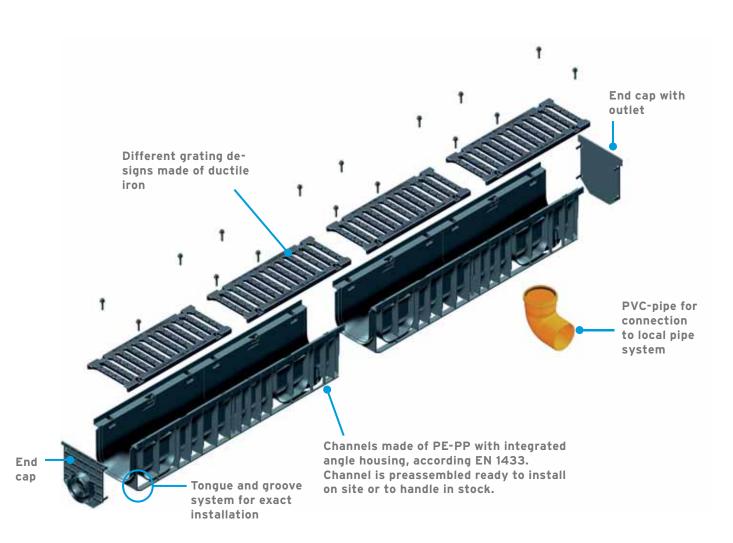
Linear drainage channels for public and commercial area.



Industrial yards

Streets (alongside)

Commercial areas





Mega Yard project Johor in Johor, Malaysia



Industrial hall, Poland

AQUA

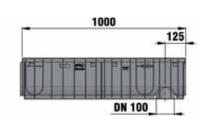


### RECYFIX®NC 100

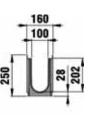
### Combi article

#### RECYFIX®NC 100, class D 400 and E 600





Intake Weight



|   | mm   | mm  | mm  | cross-<br>sect. cm <sup>2</sup> | cross-<br>sect.<br>cm²/m | kg   | No.<br>D 400 | No.<br>E 600 |
|---|------|-----|-----|---------------------------------|--------------------------|------|--------------|--------------|
| Type 01 with ductile iron grating, black,<br>SW 10 mm, 8-fold bolted  | 1000 | 160 | 150 | 92                              | 427                      | 10,7 | 48771        | 48770        |
| Type 010 with ductile iron grating, black,<br>SW 10 mm, 8-fold bolted | 1000 | 160 | 200 | 142                             | 427                      | 11,6 | 48773        | 48772        |
| Type 020 with ductile iron grating,<br>SW 10 mm, black, 8-fold bolted | 1000 | 160 | 250 | 192                             | 427                      | 12,5 | 48777        | 48776        |
| Type 75 with ductile iron grating, black,<br>SW 10 mm, 8-fold bolted  | 1000 | 160 | 75  | 35                              | 427                      | 10,2 | 48775        | 48774        |

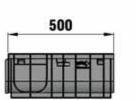
### RECYFIX®NC 150

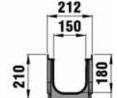
### Combi article

#### RECYFIX®NC 150, class D 400 and E 600

Type 0105 with ductile iron grating, black, SW 18 mm, 4-fold bolted







| 3  | Length<br>mm | Width<br>mm | Height<br>mm | Drainage<br>cross-<br>sect. cm² | Intake<br>cross-<br>sect.<br>cm²/m | Weight<br>kg | ltem<br>No.<br>D 400 | ltem<br>No.<br>E 600 |  |
|--|--------------|-------------|--------------|---------------------------------|------------------------------------|--------------|----------------------|----------------------|--|
| Type 01 with ductile iron grating, black,<br>SW 18 mm, 8-fold bolted | 1000         | 212         | 210          | 230                             | 702                                | 15,7         | 48871                | 48870                |  |
|  |              |             |              |                                 |                                    |              |                      |                      |  |

#### Accessories

### End caps and further accessories







End cap made of PP with outlet DN 100 for type 01



Mud bucket vertical DN 100, black



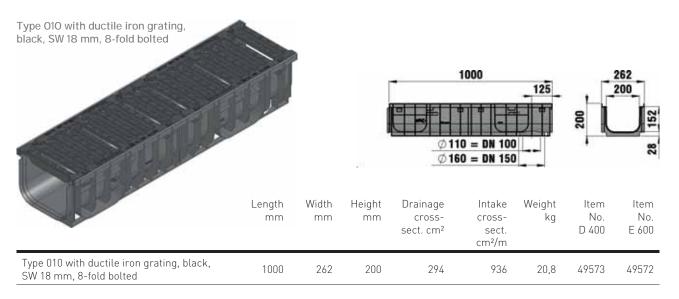
Holesaw, Ø 102 mm, with tool holder for a driller

|   | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | ltem<br>No. |
|---|--------------|-------------|--------------|--------------|-------------|
| End cap closed for type 01  | -            | 160         | 124          | -            | 48681       |
| End cap closed for type 010   | -            | 160         | 176          | 0,1          | 47082       |
| End cap made of PP with outlet DN 100 for type 010                                    | -            | 160         | 201          | 0,1          | 47093       |
| End cap made of PP, type 020  | -            | 160         | 250          | 0,1          | 48683       |
| End cap made of PP with outlet DN 100, type 020                                       | =            | 160         | 250          | 0,1          | 48695       |
| End cap Type 75   | -            | 160         | 61           | -            | 47097       |
| End cap combined, PP with outlet DN/OD 75/110 for type 01                             | =            | 210         | 218          | 0,1          | 40591       |
| Mud bucket vertical DN 100, black   | 100          | 100         | 85           | -            | 40293       |
| Step Fall Adapter for step slope, from type 01 to type 010, from type 010 to type 020 | 174          | 98          | 92           | 0,2          | 48790       |
| Holesaw, Ø 102 mm, with tool holder for a driller                                     | -            | -           | _            | 0,6          | 980         |

### **RECYFIX®NC 200**

### Combi article

#### RECYFIX®NC 200, class D 400 and E 600



#### Accessories

### End caps and further accessories



End cap combined made of PP closed / with outlet DN 100, Type 010



Mud bucket DN 150



Holesaw, Ø 102 mm, with tool holder for a driller

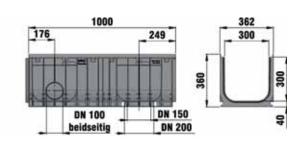
|   | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |  |
|---|--------------|-------------|--------------|--------------|-------------|--|
| End cap combined made of PP closed / with outlet DN 100, Type 010 | -            | 258         | 217          | 0,2          | 41387       |  |
| Mud bucket vertical DN 100, black                                 | 100          | 100         | 85           | -            | 40293       |  |
| Mud bucket DN 150   | =            | -           | 180          | 0,6          | 2191        |  |
| Holesaw, Ø 102 mm, with tool holder for a driller                 | -            | _           | _            | 0,6          | 980         |  |

### **RECYFIX®NC 300**

### Combi article

#### RECYFIX®NC 300, class D 400 and E 600



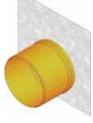


|   | Length<br>mm | Width<br>mm | Height<br>mm | Drainage<br>cross-<br>sect. cm² | Intake<br>cross-<br>sect.<br>cm²/m | Weight<br>kg | Item<br>No.<br>D 400 | Item<br>No.<br>E 600 |
|---|--------------|-------------|--------------|---------------------------------|------------------------------------|--------------|----------------------|----------------------|
| ype 010 with ductile iron grating, black,<br>W 18 mm, 8-fold bolted | 1000         | 362         | 360          | 873                             | 1293                               | 35,0         | 49873                | 49872                |

#### Accessories

#### End caps and further accessories







End cap closed, galvanised, type 010

End cap with horizontal UPVC-outlet DN 200, galvanised, Type 010

Mud bucket DN 150

|  | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |
|--|--------------|-------------|--------------|--------------|-------------|
| End cap closed, galvanised, Type 010                             | -            | 360         | 360          | 1,9          | 49783       |
| End cap with horizontal UPVC-outlet DN 200, galvanised, Type 010 | -            | 360         | 360          | 2,6          | 49791       |
| Mud bucket DN 150  | -            | -           | 180          | 0,6          | 2191        |

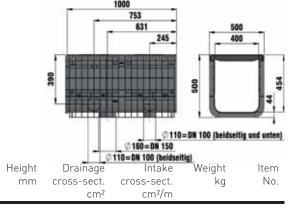
#### RECYFIX®NC 400, class D 400

RECYFIX®NC 400

Type 010 with ductile iron grating, black, SW 18 mm, 8-folt bolted

Combi article





|  |      |     |     | CITI | CIII-/III |      |       |
|--|------|-----|-----|------|-----------|------|-------|
| Type 010 with ductile iron grating, black, SW 18 mm, 8-folt bolted | 1000 | 500 | 500 | 1640 | 1753      | 57,2 | 42421 |

Width

mm

Length

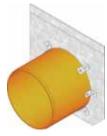
### Accessories

#### End caps and further accessories



type 010





End cap with horizontal UPVC - outlet DN 300, type 010

Mud bucket DN 150

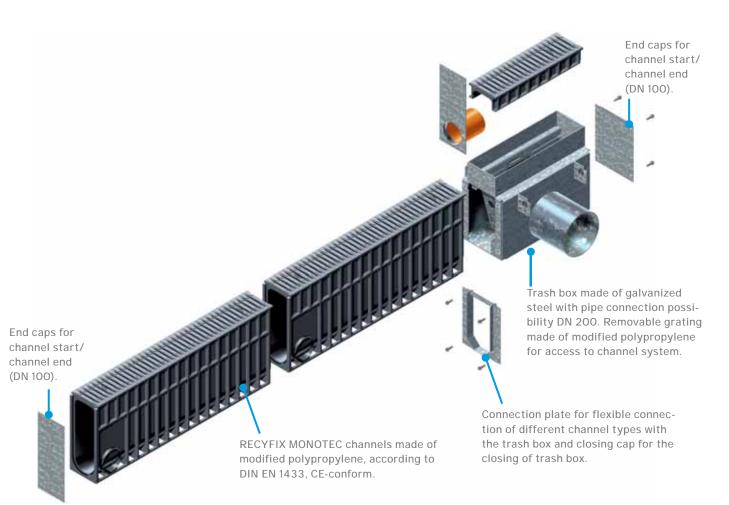
|  | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |   |
|--|--------------|-------------|--------------|--------------|-------------|---|
| End cap closed, galvanised, type 010   | -            | 500         | 498          | 3,1          | 42481       |   |
| End cap closed, stainless steel, type 010                                      | -            | 500         | 498          | 3,2          | 42482       |   |
| End cap with horizontal PVC-U pipe outlet DN/OD 315, galvanised, type 010      | -            | 500         | 498          | 4,9          | 42487       |   |
| End cap with horizontal PVC-U pipe outlet DN/OD 315, stainless steel, type 010 | -            | 500         | 498          | 4,9          | 42488       |   |
| Mud bucket vertical DN 100, black  | 100          | 100         | 85           | -            | 40293       | 0 |
| Mud bucket DN 150  | -            | -           | 980          | 0,6          | 2191        |   |
| Holesaw, Ø 102 mm, with tool holder for a driller                              | -            | -           | -            | 0,6          | 980         |   |

### **RECYFIX**®MONOTEC

Highly stable and lightweight - linear drainage made of PP for Civils engineering



Parking areas
Residential areas
Commercial areas

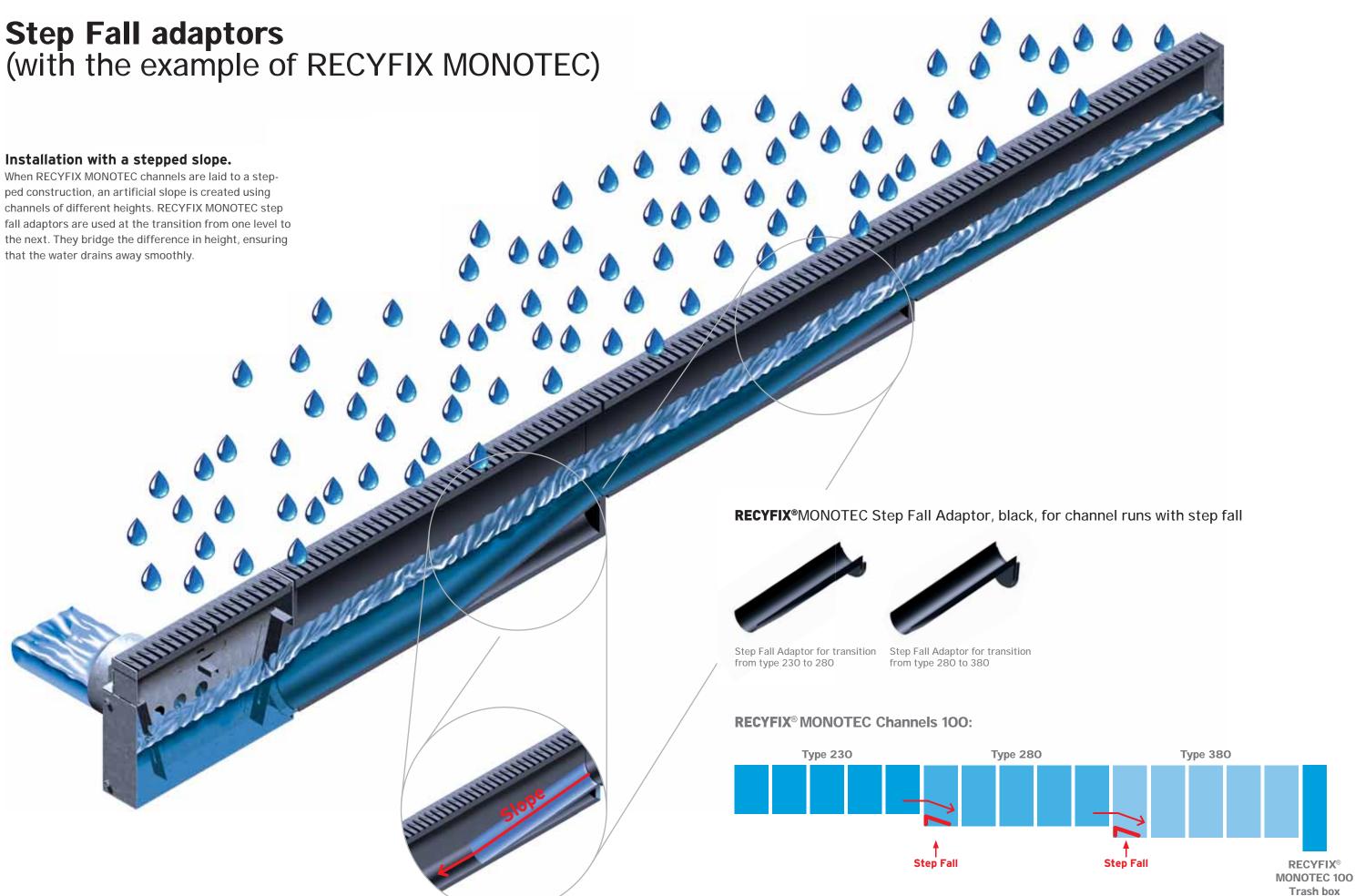










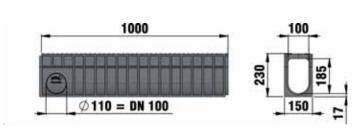


### **△ASTRAL** Hauraton

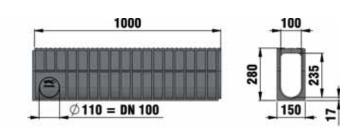
### **RECYFIX®MONOTEC 100**

#### **RECYFIX®MONOTEC 100, class D 400**

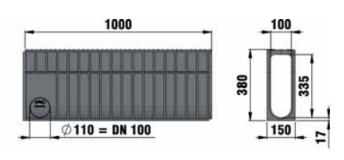












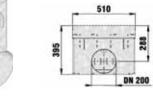
|          | Length<br>mm | Width<br>mm | Height<br>mm | Intake<br>cross-sect.<br>cm²/m | Drainage<br>cross-sect.<br>cm² | Weight<br>kg | Item<br>No. |   |
|----------|--------------|-------------|--------------|--------------------------------|--------------------------------|--------------|-------------|---|
| Type 230 | 1000         | 150         | 230          | 372                            | 190,5                          | 7,85         | 36000       | 0 |
| Type 280 | 1000         | 150         | 280          | 372                            | 245,5                          | 8,63         | 36005       |   |
| Type 380 | 1000         | 150         | 380          | 372                            | 355,5                          | 10,25        | 36015       |   |

### **RECYFIX®MONOTEC 100**

#### Accessories

#### Trash box









Trash box with galvanised bucket

Technical drawing, trash box with galvanised bucket

Connection plate with screw set, galvanised, channel type 230

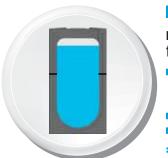
Closing cap with screw set, galvanised

|   | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |
|---|--------------|-------------|--------------|--------------|-------------|
| Trash box with galvanised bucket  | 510          | 160         | 395          | -            | 36045       |
| Looking handle with screw for protection against vandalism                        | -            | -           | -            | -            | 36098       |
| Connection plate with screw set, galvanised, channel type 230                     | -            | 216         | 283          | -            | 36032       |
| Connection plate with screw set, galvanised, channel type 280                     | -            | 216         | 283          | -            | 36037       |
| Connection plate with screw set, galvanised, channel type 380                     | -            | 216         | 283          | -            | 36047       |
| Closing cap with screw set, galvanised, for trash box/inspection box              | -            | 216         | 283          | -            | 36021       |
| Hexagon Bolt with Flange DIN 6921M8x 30 with serration 8.8 galvanized steel black | =            | -           | -            | =            | 99925       |
| Clip with thread M8   | -            | -           | -            | -            | 91135       |

- All trash and inspection boxes are factory-made with the end face open to enable a modular use for all application situations:

  Option 1: one-sided channel connection: You will need 1 connection plate with the same channel height (= same type) and an closing cap.

  Option 2: two-sided channel connection: You will need 2 connection plates with the same channel height (= same type).



#### monolithic drainage channel for highest stability

- manufactured with two parts, which are put together to a monolithic channel in a mirror welding process.\*
- vandalism proof
- withstands frequently traffic permanently
- = Security
- \* In the mirror welding process the joining surfaces are heated with heating elements (= mirror) and finally pressed together.
- All this is done without any additional connecting material.
- The connections are afterwards extremely reliable.

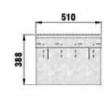
### ASTRAL Hauraton

### **RECYFIX®MONOTEC 100**

#### Accessories

### Inspection box











Inspection box Technical drawing, inspection box

Connection plate with screw set, galvanised, channel type 280

Closing cap with screw set, galvanised

|  | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. | _ |
|--|--------------|-------------|--------------|--------------|-------------|---|
| Inspection box   | 520          | 160         | 388          | -            | 36035       | • |
| Looking handle with screw for protection against vandalism           | -            | -           | -            | -            | 36098       | 0 |
| Connection plate with screw set, galvanised, channel type 230        | -            | 216         | 283          | -            | 36032       | • |
| Connection plate with screw set, galvanised, channel type 280        | -            | 216         | 283          | -            | 36037       | _ |
| Connection plate with screw set, galvanised, channel type 380        | -            | 216         | 283          | -            | 36047       |   |
| Closing cap with screw set, galvanised, for trash box/inspection box | =            | 216         | 283          | =            | 36023       | 0 |

All trash and inspection boxes are factory-made with the end face open to enable a modular use for all application situations:

Option 1: one-sided channel connection: You will need 1 connection plate with the same channel height (= same type) and an closing cap.
 Option 2: two-sided channel connection: You will need 2 connection plates with the same channel height (= same type).

### **RECYFIX®MONOTEC 100**

#### End caps





End cap closed, galvanised, type 230

End cap with horizontal UPVC-outlet DN 100, galvanised, type 280

|  | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |
|--|--------------|-------------|--------------|--------------|-------------|
| End cap closed, galvanised, type 230                             | -            | 150         | 225          | 0,5          | 36080       |
| End cap closed, galvanised, type 280                             | -            | 150         | 275          | 0,6          | 36082       |
| End cap closed, galvanised, type 380                             | -            | 150         | 375          | 0,8          | 36086       |
| End cap with horizontal UPVC-outlet DN 100, galvanised, type 230 | -            | 150         | 225          | =            | 36090       |
| End cap with horizontal UPVC-outlet DN 100, galvanised, type 280 | -            | 150         | 275          | =            | 36092       |
| End cap with horizontal UPVC-outlet DN 100, galvanised, type 380 | -            | 150         | 375          | -            | 36096       |

#### Further accessories





Step Fall Adapter for step slope, from type 230 to 280

Step Fall Adapter for step slope, from type 280 to 380

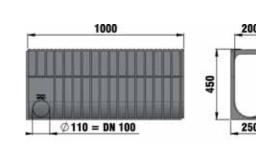
|  | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |
|--|--------------|-------------|--------------|--------------|-------------|
| Step Fall Adapter for step slope, from type 230 to 280 | 510          | 125         | 112,5        | 0,7          | 36070       |
| Step Fall Adapter for step slope, from type 280 to 380 | 510          | 125         | 162,5        | 0,8          | 36071       |

### **RECYFIX®MONOTEC 200**

#### RECYFIX®MONOTEC 200, class D 400



Type 450



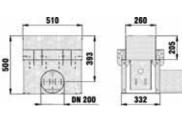
| ngth<br>mm | Width<br>mm | Height<br>mm | Intake<br>cross-sect.<br>cm²/m | Drainage<br>cross-sect.<br>cm² | Weight<br>kg | Item<br>No. |
|------------|-------------|--------------|--------------------------------|--------------------------------|--------------|-------------|
| 1000       | 250         | 450          | 656                            | 746,1                          | 16,2         | 36215       |

### **RECYFIX®MONOTEC 200**

### Accessories

#### Trash box





Trash box with galvanised bucket

Technical drawing, trash box with galvanised bucket

|  | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |
|--|--------------|-------------|--------------|--------------|-------------|
| Trash box with galvanised bucket                                     | 510          | 260         | 500          | -            | 36245       |
| Looking handle with screw for protection against vandalism           | -            | -           | -            | -            | 36298       |
| Connection plate with screw set, galvanised, channel type 450        | =            | 316         | 283          | =            | 36247       |
| Closing cap with screw set, galvanised, for trash box/inspection box | -            | 316         | 283          | -            | 36223       |

All trash and inspection boxes are factory-made with the end face open to enable a modular use for all application situations:

Option 1: one-sided channel connection: You will need 1 connection plate with the same channel height (= same type) and an closing cap.

Option 2: two-sided channel connection: You will need 2 connection plates with the same channel height (= same type).

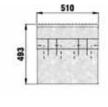


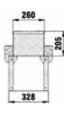
### **RECYFIX®MONOTEC 200**

#### Accessories

### Inspection box











Inspection box Technical drawing, inspection box

Connection plate with screw set, galvanised, channel type 450

Closing cap with screw set, galvanised, for trash box/inspection box

|  | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |
|--|--------------|-------------|--------------|--------------|-------------|
| Inspection box   | 510          | 260         | 493          | -            | 36235       |
| Looking handle with screw for protection against vandalism           | -            | -           | -            | -            | 36298       |
| Connection plate with screw set, galvanised, channel type 450        | -            | 316         | 283          | -            | 36247       |
| Closing cap with screw set, galvanised, for trash box/inspection box | -            | 316         | 283          | =            | 36223       |

All trash and inspection boxes are factory-made with the end face open to enable a modular use for all application situations:

Option 1: one-sided channel connection: You will need 1 connection plate with the same channel height (= same type) and an closing cap.

Option 2: two-sided channel connection: You will need 2 connection plates with the same channel height (= same type).

#### End caps







End cap closed, galvanised, type 450

End cap with horizontal UPVC-outlet DN 150, galvanised, type 450

|  | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |
|--|--------------|-------------|--------------|--------------|-------------|
| End cap closed, galvanised, type 450                             | -            | 250         | 445          | 1,7          | 36286       |
| End cap with horizontal UPVC-outlet DN 150, galvanised, type 450 | -            | 250         | 445          | -            | 36296       |

#### Maximum hydraulic capacity

The fiber-reinforced polypropylene material enables a slim channel design. As a result, a maximum hydraulic capacity is achieved.







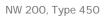


NW 100, Type 230

NW 100, Type 380

NW 200, Type 450







Lower drainage capacity, up to 45%, with monolithic channels made from other materials



### **TOP X**

The drainage channel for private driveways, courtyards, patios and gardens.

### 1 R

### Requirements

Drainage channels in private areas must

- withstand the daily loadings continually.
- be easy to transport and simple to install.be resistant to environmental effects
- (frost, heat and moisture).
- be visually pleasing.

### 3

#### Solution

Because of this the new TOP X channels are very suitable for the drainage of private areas

- high stability and functionality
- low weight
- preformed supports for simple pipe connection
- gratings made of recycled composite, galvanised steel or stainless steel



- predominately private areas
- garage entrances
- courtyard areas
- terraces
- gardens
- parks













AQUA

### ▲ ASTRAL Hauraton

### TOP X

### **TOP X,** Combined article, composite channel with grating







|   | Length<br>mm | Width<br>mm | Height<br>mm | Drainage<br>cross secti-<br>on cm² | Intake cross<br>section<br>cm²/m | Weight<br>kg | Item<br>No. |   |
|---|--------------|-------------|--------------|------------------------------------|----------------------------------|--------------|-------------|---|
| black, with slotted grating, galvanised                 | 1000         | 119         | 89           | 45                                 | 256                              | 2,0          | 44300       | 0 |
| black, with mesh grating MW 8/21,<br>made of PP, black  | 1000         | 119         | 89           | 45                                 | 505                              | 1,6          | 44320       | 0 |
| silver, with mesh grating MW 8/2,<br>made of PP, silver | 1000         | 119         | 89           | 45                                 | 505                              | 1,6          | 44325       |   |
| black, with slotted cover,<br>made of PP, black         | 1000         | 119         | 147          | 45                                 | 118                              | 1,5          | 44335       |   |

#### **TOP X, Accessories**

Connection set for channel with end caps, leaf trap, adapter, foul air trap, black, including assembly instruction.



|  | Length<br>mm | Width<br>mm | Height<br>mm | Weight<br>kg | Item<br>No. |   |
|--|--------------|-------------|--------------|--------------|-------------|---|
| Connection set for channel with end caps, leaf trap, adapter, foul air trap, black, including assembly instruction | -            | -           | -            | 0,5          | 44343       | 0 |



= The product is available in India

All other products are available on request.

### TOP X

### Quick and easy installation



Produce trench in which to lay channel with frost resistant sub base.



Fill with concrete and compress to foundation.



Produce connection openings.



Fit accessories.



Lay channels.



haunch the concrete.



Install surface coating.

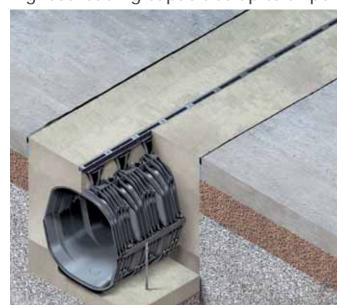


TOP X installation videos.

## Additional drainage systems

### **RECYFIX**®HICAP®F

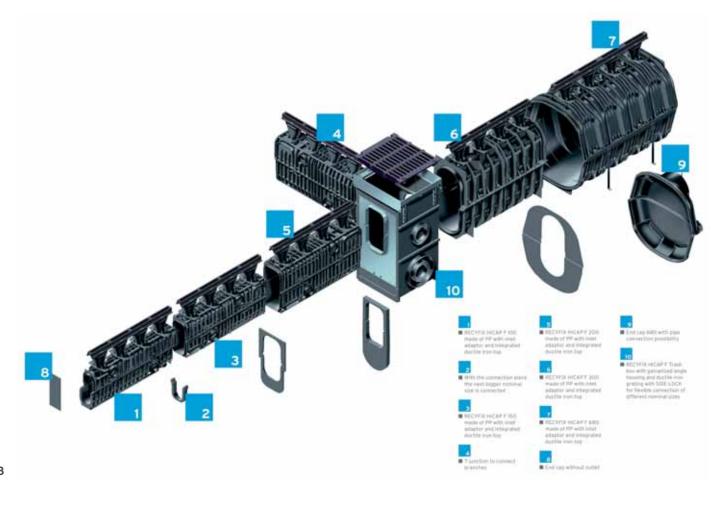
Drainage and retention system for larger areas and highest loading capacities up to airports.



- high capacity drainage channel
- suitable for heavy load areas
- no expensive crane or machine hours for installation required



Class F







### **RECYFIX**<sup>®</sup>HICAP<sup>®</sup>F

High capacity drainage system for the highest load category

### 1 Requirements

Drainage system for extreme conditions with

- high hydraulic requirements
- high loads
- large areas
- ailing sewer systems

### 2 Application areas

- parking areas
- supermarkets/shopping centres
- pedestrian areas
- airports
- industrial estates
- container terminals
- ports
- circuits and test tracks

### 3 Solutions

Special features of RECYFIX HICAP:

- drainage and retention in one component
- large selection of nominal widths
- for all loading classes and all common road surface finishes
- less manholes and outlets
- provides a uniform visual appearance also in lage projects
- no separate gratings
- no expensive pipe installations required
- high hydraulic capacity
- easy to maintain



Airport Newquay, England

### International references with **RECYFIX®HICAP®F**



Airbase Abu Dhabi - United Arab Emirates



Toyota test track Brussels, Belgium



Industrial estate, England



Teesport Container Terminal, UK

AQUA



### **RECYFIX**®HICAP®F

High capacity drainage system for the highest load category

### Sample calculation:

#### **RECYFIX**<sup>®</sup>HICAP<sup>®</sup>**F** with mesh 13/28 mm grating

The hydraulic advantages of RECYFIX HICAP channels can be demonstrated by the following calculation:

Inlet capacity of a

mesh 13/28 mm grating, determined at Prague

Technical University:

4.0 I/s per metre

Frequently occurring yield

150.0 I/s per hectare from rain events:

 $150 \text{ l/s ha} = 0.015 \text{ l/s m}^2$ 

4.0 l/s m

 $0.015 \text{ l/s m}^2 = 266.67 \text{ m}$ 

### Result of this example:

1 m RECYFIX HICAP channel with mesh 13/28 mm grating can discharge the rainwater from 266.67 m² when the yield is 150 litres per second and hectare.

#### **RECYFIX**®HICAP®**F Items Available**

RECYFIX®HICAP®F 1000 RECYFIX®HICAP®F 2000 RECYFIX®HICAP®F 3000 RECYFIX®HICAP®F 5000 RECYFIX®HICAP®F 8000 RECYFIX®HICAP®F 10000 RECYFIX®HICAP®F Trash Boxes

> Rain event 150 I/s per hectare

#### Inlet capacity of RECYFIX®HICAP®F

(applies to all nominal widths)

| Slot 6 mm     | 3.80 |
|---------------|------|
| Mesh 13/28 mm | 4.00 |
| Slot 28 mm    | 3.60 |

\* measured with a water head of 10 mm

Flow capacity of a mesh 13/28 mm grating 4 I/s per metre

Area to be drained 133 m<sup>2</sup>

Area to be drained 133 m<sup>2</sup>



### **DACHFIX®**

Reliable water retention system for terraces, facades and flat roofs.

### ▶ Requirements

- fast and reliable removal of surface water on facades, flat roofs and terraces
- compliance with the guidelines and the flat roof relevant DIN standards
- backwater reserve for sudden accumulation of rainwater rainwater

### Solutions

- powerful backwater reserve for abruptly accumulated water quantities
- horizontal and vertical drainage
- effective protection of walls, doors and windows
- open channel systems: channel bodies have drainage possibility on all sides
- barrier-free transitions on terraces
- easy assembling kit

### 2 Application areas

- flat roof green areas
- passable roof areas and terraces
- facade channels
- terraces

- in front of entrances of balconies and





Europa Shopping Centre in Bystrica, Slovakia



Holiday Inn in Bydgoszcz, Poland

#### **RECYFIX®GREEN STANDARD**

Turf honeycomb for infiltration of rainwater in parking areas.



- the product is light and strong making it quick and easy to install
- helps to directly drain the rainfall
- the product when laid gives more than 90% of the

#### **SPORTFIX®**

The comprehensive range for all Sports Facilities.



- Migh quality systems for track and field drainage
- water jump, longjump, sand traps and soft kerb compliment the product range
- all products met the IAAF Standards



### 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 as a saw or core drill bit with little effort



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#### 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.

Look up our current installation instructions on the internet under www.hauraton.in

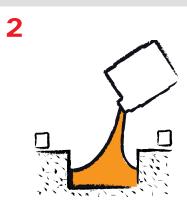
### **Step by step installation instructions**



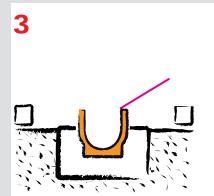
An example for paving installation



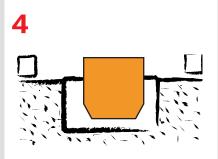
Dig a trench.



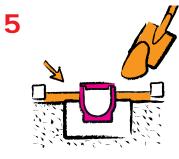
Fill with concrete and space it out evenly.



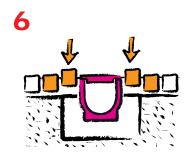
Stretch a line along the installation line. Lay the channel along this line. Connection to the sewage pipe: with trash boxes or endcap with outlet.



Place the closed end cap at the start of the channel run.



Prepare a lateral backing structure made of concrete



Lay paving. Fill joints. Important: adjoining surface finishes are laid to finish permanently 3 to 5 mm higher than the top edge of the channel.

All current and detailed installation instructions online on www.hauraton.in

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### **△ASTRAL** Hauraton

# At a glance:

✓ 10 mm wall thickness for highest security 

✓ pure, high quality raw material is used in the optimised production process

Series "10 PE" made of polyethylene Light solutions for strong requirements.

#### **Features**

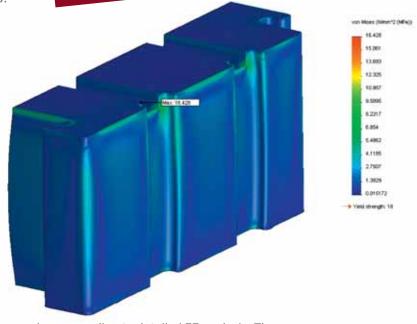
■ 10 mm wall thickness

**AQUAFIX**®Separators

- stop rings to handle
- computer aided design
- according to standards EN 858 or EN 1825
- wide openings
- for light liquid separators:
- automatic closing device easy to remove
- colescence cell easy to remove
- sample taking device can be integrated

#### **Extensions**

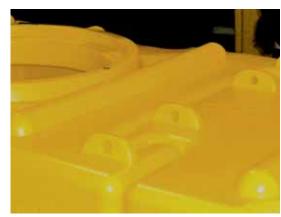
Extension pipes in every length can be supplied. Covers in class A or D available.



The construction of AQUAFIX 10 PE separators was done according to detailed FE analysis. The combination of high quality material, optimised production process and at least 10 mm wall thickness guarantee highest stability.









### **AQUAFIX**®Separators

One system for all cases.

#### **Features**

- 6 to 12 mm wall thickness
- stop rings to handle in horizontal and vertical position
- according to standards EN 858 or EN 1825
- wide openings

#### **Extensions**

Extension 500 mm included, adjustment rings 500 mm can be supplied. Covers in class A or D available.

Series "PP" made of polypropylene

- buoyancy protection

- for light liquid separators:
- automatic closing device easy to remove
- colescence cell easy to remove
- sample taking device can be integrated





- ✓ light installation on site is possible without crane
- high stability (self standing construction)











