OUR FULL RANGE OF PRODUCTS
For quick access use the colour code below

- WINDOW SILLS / LINTELS
- PADSTONES / WALL & PIER COPING
- CHIMNEY CAPS / CHIMNEY SYSTEMS
- MARKER POSTS, SLABS & PLATES
- JUNCTION BOXES
- GULLYS & LIDS RANGE
- DUCT CHANNELS & LIDS
- KERBS RANGE
- HIGH CONTAINMENT KERBS
- MULTI V SYSTEM
- PRE-FABRICATED DRAINAGE SYSTEMS
- STORMDRAIN SYSTEMS
- GRASS & GRAVEL REINFORCEMENT
- CHANNELS & GRATINGS
- BICYCLE STANDS / SHELTERS
- STAINLESS STEEL BOLLARDS
- BOLLARDS / PLANTERS
- BENCHES
- STREET FURNITURE
- PAVING / TACTILE FLAGS / STUDS / BARS
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- FENCING / WATER TROUGHES
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KILLESHAL’S WINDOW SILLS INSTALLATION DETAILS

- Thermal insulation is necessary around window opening between elements to eliminate the risk of condensation and heat loss.
- Dampproof courses should be provided to the bottom, back and ends of sills. That is a key element in construction to close cavity wall. Also sill must overhand wall beneath to allow water to drip off.
- The upstand part of a sill should insofar as possible stick to specific location as an internal blockwork or corner block in natural stone elevation.
- After dampproof courses provide insulation and concrete backing to protect from heat loss.

Sills are required for cavity wall construction and fire resistance

KILLESHAL’S WINDOW SILLS ARE AVAILABLE IN PRECAST CONCRETE, RECONSTITUTED STONE AND NATURAL STONE SILL

<table>
<thead>
<tr>
<th>STANDARD SIZES</th>
<th>TYPE</th>
<th>REFERENCE</th>
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<tr>
<td>0.440</td>
<td>10/12 SILL</td>
<td>(S/385)</td>
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<tr>
<td>0.552</td>
<td>A SILL</td>
<td>(S/399)</td>
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<tr>
<td>0.665</td>
<td>B SILL</td>
<td>(S/386)</td>
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<td>0.777</td>
<td>C SILL</td>
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<td>1.340</td>
<td>H SILL</td>
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<td>M SILL</td>
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<tr>
<td>1.902</td>
<td>N SILL</td>
<td>(S/531)</td>
</tr>
</tbody>
</table>

Other sizes available contact Killeshal’s customer service on +353 57 9353018
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**TYPE F WINDOW SILL**
This window sill was developed as a slimmer alternative to the "A" Sill. The 75 mm face is more acceptable to some clients. The sill normally overhangs the outer leaf by 50 to 75-mm and rests 35 to 60-mm on the inner leaf.

- 310 x 140 x 75mm*
  To suit String Course Ref: SC/162
- Stock sizes see page 6

---

**TYPE G WINDOW SILL**
This window sill is popular in 215 mm cavity block wall construction where the client wants to see more than the standard size window sill face. The size of the sill allows a certain amount of concrete to be placed behind the sill during construction. The sill normally overhangs the blockwork by 50 to 75-mm.

- 210 x 115 x 60mm*
  To suit String Course Ref: SC/162
- Stock sizes see page 6

---

**TYPE H WINDOW SILL**
This is our heavier timber-frame window sill. (See Type D). The sill normally overhangs the outer leaf by 75-mm and hangs over the cavity by 50 mm. This ensures that it does not contact the timber-frame. Also suitable for traditional build.

- 225 x 140 x 100mm*
  To suit String Course Ref: SC/162
- Stock sizes see page 6

---

***Denotes corners available***
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**TYPE J WINDOW SILL**
This window sill was developed to enable us to supply the growing number of buildings using natural stone cladding on the outside. The sill can be used with a 215 outer leaf contraction. The sill positions the window 210 mm from the outside face of the masonry. The sill normally overhangs the outer leaf by 50 to 75-mm.

- 400 x 140 x 100mm*  
  * Stock sizes see page 6

---

**TYPE K WINDOW SILL**
This window sill is ideal where the client wishes to emphasise the window sill. The height of the window sill ensures it's visibility at a distance. The sill normally overhangs the outer leaf by 50 to 75-mm and rests 25 to 50-mm on the inner leaf. The sill is ideal to prevent people sitting on them.

- 300 x 215 x 100mm*  
  * Stock sizes see page 6

---

**TYPE L WINDOW SILL**
This window sill was developed to enable us to supply the growing number of buildings using natural stone cladding on the outside. The sill can be used with a 300 outer leaf contraction. The sill positions the window 300 mm from the outside face of the masonry. The sill normally overhangs the outer leaf by 50 to 75-mm.

- 365 x 115 x 55mm³  
  * Stock sizes see page 6

---

DOP's available for all lintels. All lintels CE Certified.
TYPE M WINDOW SILL
This window sill was developed to enable us to supply the growing number of buildings using natural stone cladding on the outside. The sill can be used with a 300 outer leaf construction. The sill positions the window 300 mm from the outside face of the masonry. The sill normally overhangs the outer leaf by 50 to 75-mm.

- 490 x 140 x 100mm*
- Stock sizes see page 6

Ref: S/431

TYPE N STONEWRAP WINDOW SILL
This window sill was developed to enable us to supply the growing number of buildings using Stonewrap cladding on the outside. The sill can be used in both traditional and timber frame construction. The sill positions the window behind the external leaf of blockwork. The sill normally overhangs the Stonewrap cladding by 75-mm.

- 265 x 140 x 100*
- Stock sizes see page 6

Ref: S/531

THE A STOOLED WINDOW SILL
Typically used with a 100mm outer leaf, various cavities and 215mm inner leaf. The sill normally overhangs the outer leaf by 75mm and rests 50mm of 215 inner leaf. Stools each side support brickwork and determents one size.

- 325 x 140 x 100mm*
To suit String Course Ref: SC/109
- Stock sizes see page 6

Ref: S/110***

DOP’s available for all lintels. All lintels CE Certified.

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**TYPE F STOOLED WINDOW SILL**
This window sill was developed as a slimmer alternative to the "A" Sill. It's 75 mm face is more acceptable to some clients. The sill normally overhangs the outer leaf by 75-mm and rests 15mm on the inner leaf using this construction. Stools each end support brickwork and determine ope sizes.

- 290 x 140 x 75mm*
  - To suit String Course Ref: SC/182
  - *Stock sizes see page 6

**TYPE H STOOLED WINDOW SILL**
This is our heavier timber-frame window sill. (See Type D). The sill normally overhangs the outer leaf by 75-mm. This ensures that it does not contact the timber-frame. Also suitable for traditional build. Stools each end support brickwork and determine ope sizes.

- 225 x 140 x 100mm*
  - To suit String Course Ref: SC/109
  - *Stock sizes see page 6

**STRING COURSE / BAND COURSE**
String Course is a continuous narrow horizontal course or moulding which projects slightly from the surface of a wall and can be an appropriate decorative accompaniment to Killeshal window sills or used on their own.

**STRING/BAND COURSE AVAILABLE IN PRECAST CONCRETE, RECONSTITUTED STONE AND NATURAL STONE**

**PROJECTION TO MATCH SILLS TYPE:**
- **STANDARD** 10 ½" (Ref: S/385) - Ref: S/C 133
- **A** (Ref: S/399) - Ref: S/C 109
- **A STOOLED** (Ref: S/113) - Ref: S/C 109
- **B** (Ref: S/386) - Ref: S/C 115
- **C** (Ref: S/400) - Ref: S/C 115
- **E** (Ref: S/402) - Ref: S/C 115
- **F** (Ref: S/404) - Ref: S/C 162
- **F STOOLED** (Ref: S/359) - Ref: S/C 162
- **H** (Ref: S/255) - Ref: S/C 109
- **H STOOLED** (Ref: S/422) - Ref: S/C 109

Other sizes available contact Killeshal's customer service on +353 57 9353018

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DOP's available for all lintels. All lintels CE Certified.
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### PRESTRESSED LINTELS, 65mm deep

- **4” Prestressed Standard Concrete Lintel**
  - 100 x 65 x 4267

- **6” Prestressed Standard Concrete Lintel**
  - 150 x 65 x 4267

- **9” Prestressed Standard Concrete Lintel**
  - 215 x 65 x 4267

### PRECAST CONCRETE LINTELS

Other sizes also available.
Killeshal have been working closely with IG SteelLintels for a number of years now and have a dedicated value added engineering contact within IG. This means we can now offer a top class value added engineering service and ensure that the selection and specification of steel lintels and masonry support components for your building project will answer to your specific project requirements.

We offer a range of SteelLintels to cover numerous applications (image below is a sample set)

STEEL LINTELS with Built-in Insulation for Better Thermal Efficiency

Our standard range of lintels are manufactured from high quality grade pre-galvanised mild steel to BS EN 10346:2009 DX51D plus Z600 or grade Z275 to BS EN10025-2:2004 with minimised spangle finish and a minimum yield stress of 250N/mm².

Keystone lintels are insulated with expanded CFC free polystyrene and conform to BS 13163: 2008.

These lintels have been subjected to a fire test (ref: WARRES No.101263) in accordance with standard BS 476: Part20: 1987, and achieved a one hour fire performance.
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**BRICK SLIP FEATURE LINTELS**

As illustrated, the Brick Slip Feature Lintel joins seamlessly with the rest of the construction.

Our partner, Keystone, provides a technically advanced solution for an extensive range of brick slip installations. Produced off site as a one piece prefabricated unit, the patented Keystone system ensures maximum performance thanks to the unique adhesion process.

We use a consignment of the brick being used on site. This brick is then tailored to suit the client’s design and fixed to Keystone’s galvanised and powder coated structural steel elements.

Brick Slip Steel Lintels Features:
- Precision Cut Bricks
- Load Bearing Lintel
- Lightweight for fast build programmes
- Optional brick clad soffit
- Optional centrestone feature
- Optional Insulation
- Various shapes available

Brick Slip Feature Steel Lintels are a one piece prefabricated unit, custom manufactured to order, to achieve even the most challenging of architectural designs.

**MASONRY SUPPORTS**

A range of systems suitable for supporting any outer leaf material: brickwork, fairface blockwork, rendered blockwork, cut and reconstituted stone. The systems can be fixed back to reinforced concrete cast-in channel and steel sections.

**INDUSTRY LEADING ADJUSTABILITY**

It has industry leading adjustability - this mitigates for on-site conditions in the most cost effective way possible.

**REQUIRES 25% LESS BRACKETS**

It has the strongest angle section on the market - this means that compared to our next best competitor, up to 25% fewer support brackets are required.

**SUPPLIED EX-STOCK**

All configurations are available ex-stock - this makes it easier to specify and cheaper to source.

We can work with you to engineer solutions to your unique requirements and develop Custom Designs from Gothic Arch to Port hole and Bay Lintels in addition to the standard ranges.
DUAL-PURPOSE GFRP | Wall Ties and Window Sill Supports

Our GFRP Ties have been successfully tested in two applications, as highly thermally efficient wall ties and as window sill supports for sill stabilisation to prevent the sill from tipping back into the wall cavity.

GFRP Wall Ties (Glass Fiber Reinforced Polymer) For Superior U-Values

Our GFRP Wall Ties are thermally insulating, symmetrical, horizontal composite wall ties and comprised of pultruded glass fibres set in a vinyl ester resin. They have a coarse silica finish to ensure a good bond with mortar joints and help prevent moisture crossing the cavity. Available for use in cavity widths ranging from 50mm to 200mm. Nominally 4.8mm thick including silica coating (3mm without), 16mm wide, and they have a chevron-shaped profile.

Table 1: Assuming a 100mm Inner Leaf

<table>
<thead>
<tr>
<th>Cavity Range</th>
<th>Recommended Length</th>
<th>Max Storey Height</th>
<th>Product Code</th>
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</thead>
<tbody>
<tr>
<td>70-120mm</td>
<td>250mm</td>
<td>15</td>
<td>0F-WT-T2-250</td>
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<tr>
<td>120-145mm</td>
<td>275mm</td>
<td>15</td>
<td>0F-WT-T2-275</td>
</tr>
<tr>
<td>150-200mm</td>
<td>325mm</td>
<td>15</td>
<td>0F-WT-T2-325</td>
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Table 2: Assuming a 215mm Inner Leaf

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<th>Cavity Range</th>
<th>Recommended Length</th>
<th>Max Storey Height</th>
<th>Product Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-120mm</td>
<td>250mm</td>
<td>15</td>
<td>0F-WT-T2-250</td>
</tr>
<tr>
<td>125-200mm</td>
<td>325mm</td>
<td>15</td>
<td>0F-WT-T2-325</td>
</tr>
</tbody>
</table>

GFRP Cross-Cavity Window Sill Supports

Killeshal’s GFRP Window Sill Supports have been tested for use in supporting window sills across a wall cavity and carry a manufacturer’s declared load capacity from 75Kg (735N) for the 250mm length to 65Kg (613N) for the 325mm length.

Using the GFRP ties and assuming a maximum cavity width of 150mm for the 250mm ties (embedment of 50mm each side of the cavity) and 200mm for the 350mm ties (embed of 62.5mm), the wall ties were tested to the point of failure.

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Killeshal manufactures a range of Precast Concrete Padstones to match our extensive range of Lintels. These padstones are stronger than a conventional masonry block, made in 40N/Sq mm concrete mix.

Features and Advantages over In-Situ Casting:
- Simple to use – bed in place just like blocks
- Readily available – standard sizes ex-stock
- Reduced labour costs with no on-site casting
- Tough 40N/Sq mm concrete material
- Reduces risk of lintel load transfers crushing blockwork underneath
- Non-standard sizes / custom requirements can be catered for

Our Technical Sales Team are ready to help with advice on specifying the correct PadStone for your application.
FEATHER EDGED WALL COPING

*** External Corner

*** Internal Corner

Feather Edged wall cap section

*** Denotes corners available
Other sizes available, contact Killeshal’s customer service on +353 57 9353018
FEATHER EDGED WALL COPING

Feather Edged wall cap section

*** External Corner

*** Internal Corner

FLAT TOP WALL COPING

Flat Top wall cap section

*** Denotes corners available
Other sizes available, contact Killeshal’s customer service on +353 57 9353018

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WALL AND PIER COPING

---

UK Tel: 0800 0393367   Web: UK www.killeshalprecast.co.uk
SADDLE BACK WALL COPING

Saddle Back wall cap section

For technical details please contact customer service on +353 57 9353018
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Other sizes available, contact Killeshal’s customer service on +353 57 9353018
CHIMNEY SYSTEMS

In addition to our Chimney Flue Gatherings and Chimney Caps, KPC also supply complete Chimney Systems from leading brands, Anki and Schiedel.

**Isokern from Anki**
with natural insulating properties of pumice

**Schiedel Chimney System**
Modular 3-layer insulated chimney system

Schiedel is Europe’s largest supplier of chimney systems and is part of Lafarge Roofing, in keeping with the standards expected from such a prestigious pedigree, the group is certified to EN ISO 9001.

The Schiedel Swift is ideal for Open Fires, Stoves, Cookers and Central Heating Boilers.

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MARKER POSTS AND SLABS

- Marker posts are placed at or behind location points for services such as AV/SV, hydrant chambers, water and gas chambers, electric cable junctions and field markers as markers for emergency services or service engineers.
- Buried hazard warning marker slabs which shadow electricity lines and gas pipes, helping to avoid breaches and health and safety incidents.

**Round Top x 100**
(300x100x1090mm)
Plates, see below

**Flat Top x 75**
(260x75x1220mm)
Plates, see below

**Flat Top**
(100x75x1230mm)
Plates, see below

**Round Top x 75**
(260x75x1205mm)
Plates, see below

**Round Top x 75**
(260x75x1205mm)
Plates, see below

**Flat Top x 75**
(260x75x1100mm)
Plates, see below

**HYDRANT PLATES**
*Made to suit each individual requirements*

**WATER PLATES**
*Full range of plates available*

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Concrete lids are available for all boxes. Cast iron lids are available on some boxes, where indicated. Contact our technical sales team for further information.

**JUNCTION BOX 3**
- 640 x 1110 x 800mm
- Hole Size: 150
- Reinforced walls
- Easily knockout polystyrene cable entry point / can be supplied with 12/no x 150mm dia. straight through entry points (4/no or 1, no side wall, 4/no on each cable end).
- Easily manoeuvred with lifting eyes.

**JUNCTION BOX 4**
- 640 x 1110 x 800mm
- Large Hole Size: 114
  - Small Hole Size: 60
- Reinforced walls
- Easily manoeuvred with lifting eyes.

**ESB MINI PILLAR JUNCTION BOX 5**
- 960 x 1270 x 896mm
- 960
- 960
- 875
- 395
- 960
- 620
- 895
- 140
- 875
- 730
- Reinforced walls.
- ESB approved.
- 100mm shoulder to facilitate increasing the depth.
- Drainage Sump.
- Easily manoeuvred.
- Multiple cable entry points.
- Integrated, reinforced base.

Holes can be adjusted to suit requirements. Cast iron lid available on this model.

DOP's available for all lintels. All lintels CE Certified.

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**JUNCTION BOX 9**
- HEAVY DUTY VALVE CHAMBER
- 440 x 590 x 400mm

**JUNCTION BOX 10**
- HEAVY DUTY VALVE CHAMBER
- 440 x 590 x 200mm

Cast iron lids available for model SV, H, AV

**JUNCTION BOX 11**
- LIGHT DUTY VALVE CHAMBER
- 420 x 540 x 220mm

**JUNCTION BOX 12**
MAN HOLE BOX 850 x 850 x 950mm

**JUNCTION BOX 24**
NTL/UPC BOX
- 450 x 700 x 650mm

Holes can be adjusted to suit requirements. Cast iron lid available on this model.

**JUNCTION BOX 25**
CCTV BOX
- 1000 x 1600 x 1040mm

Holes can be adjusted to suit requirements. Cast iron lid available on this model.

DOP’s available for all lintels. All lintels CE Certified.
JUNCTION BOX 26 / EIRCOM JB 4A
NRA RCD/500/54
- 1290 x 1310 x 1150mm
- Reinforced concrete walls
- Preformed cable entry points
- Integrated reinforced base
- Splayed base to aid stability
- Easily manoeuvred
- Base incorporating sump

Holes can be adjusted to suit requirements. Cast iron lid available on this model.

JUNCTION BOX 27
- 1190 x 1210 x 870mm

Holes can be adjusted to suit requirements. Cast iron lid available on this model.

JUNCTION BOX 28
- 740 x 1210 x 900mm

Holes can be adjusted to suit requirements. Cast iron lid available on this model.

JUNCTION BOX 29
- 740 x 1210 x 900mm

Large Hole Size: 114
Small Hole Size: 60

Holes can be adjusted to suit requirements. Cast iron lid available on this model.
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**JUNCTION BOX 30**
- 1075 x 1150 x 1050mm
  - For J/B 30 without base see J/B 31
  - High adjusting riser to suit see J/B 601
  - Hole Size: 114

Holes can be adjusted to suit requirements.

**JUNCTION BOX 31**
- 875 x 950 x 900mm
  - For J/B 31 with base see J/B 30
  - High adjusting riser to suit see J/B 501
  - Hole Size: 114

Holes can be adjusted to suit requirements.

**JUNCTION BOX 33**
- 800 x 1400 x 895mm
  - For J/B 33 with base see J/B 25
  - High adjusting to suit see J/B 502

Holes can be adjusted to suit requirements. Cast iron lid available on this model.

**JUNCTION BOX 34**
- 1090 x 1110 x 1000mm
  - For J/B 34 with base see J/B 26
  - High adjusting to suit see J/B 502

Holes can be adjusted to suit requirements. Cast iron lid available on this model.

**JUNCTION BOX 35**
- 1110 x 1090 x 7700mm
  - For J/B 35 with base see J/B 27
  - High adjusting to suit see J/B 502

Holes can be adjusted to suit requirements. Cast iron lid available on this model.
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**JUNCTION BOX 49**

- **Hole Size:** 114
- **Dimensions:** 600 x 600 x 750

Holes can be adjusted to suit requirements. Cast iron lid available on this model.

**JUNCTION BOX 57**

LARGE JUNCTION BOX

- **Dimensions:** 800 x 800 x 1140
- **Holes:** 4

Our Large Junction Boxes are available with 1, 2, 3 or 4 holes and various options for hole size and configuration.

**JUNCTION BOX LIDS**

Holes can be adjusted to suit requirements.

**JUNCTION BOX RISER J/B 501**

- **Dimensions:** 875 x 950 x 150mm
- **Suitable for:** J/B 31, J/B 30

Riser if required for high adjustment

**JUNCTION BOX RISER J/B 502**

- **Dimensions:** 1090 x 1110 x 100mm
- **Suitable for:** J/B 26, J/B 27, J/B 34, J/B 35

Riser if required for high adjustment

---

* Enquiries UK: T: 0800 0393367 E: info@killeshalprecast.co.uk
* Rol: T: 057 9353018 E: sales@killeshal.com

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Rep. Irl Tel: 057 9353018 Web: www.killeshal.com
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HEADWALLS 1.0m, 1.5m, 2.0m

<table>
<thead>
<tr>
<th>Headwall No.</th>
<th>Height (Mtrs)</th>
<th>Hole Options (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M125</td>
<td>1.0m</td>
<td>350 / 550</td>
</tr>
<tr>
<td>M126</td>
<td>1.5m</td>
<td>350 / 550 / 800</td>
</tr>
<tr>
<td>M127</td>
<td>2.0m</td>
<td>350 / 550 / 800</td>
</tr>
</tbody>
</table>

**Variable Dimensions Table**

**DUCT CHANNEL 114**
- 170 x 440 x 1000mm
- DUCT COVER Ref: D/C 260

**SPILLWAY CHANNEL 116**
- 343 to 450 x 710 x 896 x 1000mm
- Ref: D/CH 116

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Killeshal’s Bus Stop Kerb Design Features include:

- Height fixed to suit easy access to modern buses.
- Curved profile to enable accurate bus positioning at the stop.
- Curved profile reduces lateral impact between wheel and Killeshal’s kerb, increasing the life span of bus wheel ad kerbs.
- Textured top face aids bus entry for the visually impaired.

**STANDARD** (297x462x297x1000mm)

- Weight: 280 kgr

**TRANSITION** (297x462x255x1000mm)

- Foundation details

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KILLESHAL’S KERBS RANGE ARE MANUFACTURED TO RELEVANT STANDARDS:
- IS EN 1340 - Concrete Kerb Units - Requirements and Test Methods.
- IS146 - Precast Concrete Kerbs, Channels, Edgings and Quadrants.

Cut kerbs available in 301 and 457 for radii

## HALF BATTER PRESSED KERBS

- **10” x 5” x 3’** (254x116x914mm)
  - Reference: K/142

- **7” x 5” x 3’** (178x116x914mm)
  - To suit Ref: K/176

- **12” x 6” x 3’** (300x150x914mm)
  - Reference: K/143

- **6” x 5” x 3’** (155x116x914mm)
  - Reference: K/196

## FULL BATTER PRESSED KERBS

- **10” x 6” x 3’** (255x150x914mm)
  - Reference: K/159

- **10” x 6” x 3’** (255x125x914mm)
  - Reference: K/155

- **7” x 5” x 3’** (175x125x914mm)
  - Reference: K/183

<table>
<thead>
<tr>
<th>HALF BATTER PRESSED KERBS</th>
<th>REFERENCE</th>
<th>914mm</th>
<th>457mm</th>
<th>301mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>10” x 5” x 3’ (254x116x914mm)</td>
<td>K/142</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>7” x 5” x 3’ (178x116x914mm)</td>
<td>K/143</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>12” x 6” x 3’ (300x150x914mm)</td>
<td>K/160</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>6” x 5” x 3’ (155x116x914mm)</td>
<td>K/196</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
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</tbody>
</table>

<table>
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<th>FULL BATTER PRESSED KERBS</th>
<th>REFERENCE</th>
<th>914mm</th>
<th>457mm</th>
<th>301mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>10” x 6” x 3’ (255x150x914mm)</td>
<td>K/159</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>10” x 6” x 3’ (255x125x914mm)</td>
<td>K/155</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>7” x 5” x 3’ (175x125x914mm)</td>
<td>K/183</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>
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Killeshal Precast Concrete Ltd are capable of producing 4.5 km of concrete kerbs per day using the hydraulic press manufacturing technique.
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### SPECIAL WETCAST KERBS

<table>
<thead>
<tr>
<th>Size</th>
<th>Reference</th>
<th>1000mm</th>
<th>914mm</th>
<th>900mm</th>
<th>300mm</th>
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</thead>
<tbody>
<tr>
<td>380 x 90 x 900mm</td>
<td>K/165</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>300 x 225 x 1000mm</td>
<td>K/188</td>
<td>-</td>
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### NATURAL GRANITE KERBS

<table>
<thead>
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<th>Size</th>
<th>Reference</th>
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<th>914mm</th>
<th>900mm</th>
<th>300mm</th>
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</thead>
<tbody>
<tr>
<td>175 x 100 x 1000mm</td>
<td>K/189</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>250 x 125 x 1000mm</td>
<td>K/190</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>250 x 145 x 1000mm</td>
<td>K/191</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
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HIGH CONTAINMENT KERBS (TRAFFIC MANAGEMENT KERBS)

Advantages of Killeshal's High Containment Kerbs:
- Used in a wide array of traffic control applications.
- Killeshal's Traffic Management is designed to re-direct vehicles in their objective course without extreme jolting or loss of control.
- As the aim is to redirect vehicles along their desired path, there is less risk of injury to drivers and passengers. This is achieved by the profile of the kerb. There is less likelihood of a sudden halt, which allows following traffic time to slow down or stop.
- Killeshal's High Containment Kerb is designed to reduce damage by vehicles more successfully than typical impact obstacles.
- The purpose of the Killeshal's High Containment Kerb is to redirect vehicles back onto their intended route and to reduce potential damage to vehicles.
- Prevent mounting onto pavements.
  - 420 x 375 x 914mm
  - STANDARD LENGTHS:
    - 914 mm
    - 510 / 582 mm
    - 457 mm
    - 420 / 430 mm
    - 301 mm
- Other sizes available on request

LAYING RECOMMENDATIONS

New Construction:
- Foundation to be 215mm thick (minimum).
- Construct foundation 625mm wide from carriageway edge.
- Haunching re-bar (350mmx16mm dia.) at 425mm centers.
- Re-bar to be 160mm from outside edge of foundation and project 150mm vertically from concrete.
- Re-bar not required if there is haunching or backfill on top of the Traffic Management Kerbs.
- Traffic Management Kerbs should be laid at 20 to 70mm above road level.
- Bedding material - 1:3 cement and sand mortar.
- Backing concrete - C 7.5 concrete extended at least to 100mm from top edge of the kerbs.

Minimum compressive strength 40N/mm² at 28 days

Existing Carriageway:
- Remove kerbs or road edge.
- Foundation to be 215mm thick (minimum).
- Construct foundation 625mm wide from carriageway edge.
- Haunching re-bar (350mmx16mm dia.) at 425mm centers.
- Re-bar to be 160mm from outside edge of foundation and project 150mm vertically from concrete.
- The concrete foundations should be scored to assist bonding with the mortar.
- Bedding and concrete specifications as opposite.
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To allow Killeshal’s High Containment Kerbs to return to the normal lower profile of the roadside kerb, a taper unit has been developed. Tapering the Traffic Management Kerb profile to normal roadside kerb is completed in two units. The High Containment Kerbs match to half batter and splayed roadside kerb.

- 250 x 125 x 914mm
- 340 x 250 x 914mm

Other sizes available on request

**SPECIFICATION FOR HIGH CONTAINMENT KERBS**

The table below shows the radii which can be accomplished using both standard and short lengths. The radii are obtained by adjusting the joint width. These radii would more often be used to form the outer boundaries of roundabouts.

**INTERNAL RADIUS**

<table>
<thead>
<tr>
<th>RADIUS (M)</th>
<th>JOINT DIM 514 UNIT</th>
<th>JOINT DIM 457 UNIT</th>
<th>JOINT DIM 351 UNIT</th>
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<td>N/A</td>
<td>N/A</td>
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<td>9</td>
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<td>9</td>
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<td>12</td>
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<td>33</td>
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<td>36</td>
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<td>10</td>
<td>2</td>
</tr>
<tr>
<td>39</td>
<td>4</td>
<td>9</td>
<td>2</td>
</tr>
</tbody>
</table>

For technical details please contact Killeshal’s customer service on +353 57 9353018

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External Radius
The table below shows the radii which can be accomplished using both standard, special and short lengths. The radii are obtained by adjusting the joint width. These radii would more often be used to form the inner boundaries of roundabouts.

<table>
<thead>
<tr>
<th>RADIUS (M)</th>
<th>JOINT DIM 914 UNIT</th>
<th>JOINT DIM 457 UNIT</th>
<th>JOINT DIM 420/430 UNIT</th>
<th>JOINT DIM 301 UNIT</th>
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<tbody>
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<td>AT C</td>
<td>AT B</td>
<td>AT C</td>
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<td>AT C</td>
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<td>10</td>
<td>3</td>
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<tr>
<td>39</td>
<td>5</td>
<td>9</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

WHEEL STOPS

- 140 x 290 x 1560mm

SLEEPING POLICEMAN

- 200 x 220 x 200mm
DRAINAGE EVOLUTION

The evolution of R&D processes and our 20+ years of experience in drainage solutions has enabled us to develop a new line of products better suited to market needs, providing in a single system the advantages of our other lines: the economy of the SELF system, the reduced heights of the MINI range, the 8-point fastening of the F line and the option of cascaded slopes provided for by the U and UK systems.

We introduce the optimised solution:-

multiV+

- Optimised V-Shaped section
- Rapidblock® fastening system
- Mechanical stability, with 8 fastening points
- Multiple fastening options

The multiV+ is available in different heights, and up to a load class of D400.
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MULTI V+ SYSTEM

TECHNICAL DESCRIPTION
ULMA Linear Drainage Channel, type multiV+® R100G; External width 136mm, Internal width 100mm, with overall heights between 80 and 300mm; suitable for cascade-type slopes to collect rainwater; sections 1 LM in length; optimised V-shape with self-cleaning effect; especially designed for channel runs with no longitudinal slope; galvanised steel edges for lateral protection: RapidLock®, fast, boltless fastening system with 8 fastening points per LM; suitable for use with the following gratings:

GRILLES / GRATINGS

<table>
<thead>
<tr>
<th>MATIERE MATERIAL</th>
<th>DESIGN DESIGN</th>
<th>RESIST RESIST</th>
<th>CODE CODE</th>
<th>L (mm) L (mm)</th>
<th>CARACT. CARACT.</th>
<th>HAUTEUR HAUTEUR</th>
<th>UNITES x ML UNITES x ML</th>
</tr>
</thead>
<tbody>
<tr>
<td>FONTE D'CASTING</td>
<td>NERF / SLOTED</td>
<td>G360 C360</td>
<td>R100G</td>
<td>100</td>
<td>120</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>ACIER GALVANISE</td>
<td>FENTE SLOTTED</td>
<td>D 400</td>
<td>R100GD</td>
<td>100</td>
<td>130</td>
<td>10</td>
<td>1</td>
</tr>
</tbody>
</table>

(1) La hauteur de la grille correspond à la partie non recouvert du fond supérieur de la fente. 
The grating height corresponds to the part that extends out from the top edge of the fente.

SYSTEME DE FIXATION / LOCKING SYSTEM
RapidLock® FERMETURE RAPIDE DE SECURITE SANS BOULONS, 8 fixations par mètre linéaire. FAST, BOLTLESS SAFETY LOCKING: 8 fastening points per linear meter

AVALOR ET ACCESSOIRES / SLIMP UNITS AND ACCESSORIES TABLE

<table>
<thead>
<tr>
<th>CODE CODE</th>
<th>L (mm) L (mm)</th>
<th>H (mm) H (mm)</th>
<th>LARGEUR WIDTH (mm)</th>
<th>LARGEUR WIDTH (mm)</th>
<th>Ø SORTIE / OUTLET (mm)</th>
<th>Ø SORTIE / OUTLET (mm)</th>
<th>CORPS SLIMP UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR100G</td>
<td>500</td>
<td>400</td>
<td>130</td>
<td>110</td>
<td>110</td>
<td>110</td>
<td>1</td>
</tr>
</tbody>
</table>

TYPES DE PENTE / SLOPE DESIGNS

[Diagram showing different types of slopes and designs]
### TECHNICAL DESCRIPTION

ULMA Linear Drainage Channel, type multiV⁺ R150G; External width 186mm, Internal width 150mm, with overall heights between 80 and 320mm; suitable for cascade-type slopes to collect rainwater; sections 1 LM in length; optimised V-shape with self-cleaning effect; especially designed for channel runs with no longitudinal slope; galvanised steel edges for lateral protection; RapidLock®, fast, boltless fastening system with 8 fastening points per LM; suitable for use with the following gratings:

#### GRILLES / GRATINGS

<table>
<thead>
<tr>
<th>CODE</th>
<th>L (mm)</th>
<th>H (mm)</th>
<th>LARGEUR/ WIDTH (mm)</th>
<th>Ø SORTIE/OUTLET (mm)*</th>
<th>HÉRAUL. SECTION (cm²)</th>
<th>UNITÉS x PALLETTE PCS x PALLET</th>
</tr>
</thead>
<tbody>
<tr>
<td>R150GH1**</td>
<td>1000</td>
<td>80</td>
<td>166</td>
<td>150</td>
<td>160</td>
<td>60</td>
</tr>
<tr>
<td>R150GH2**</td>
<td>1000</td>
<td>120</td>
<td>166</td>
<td>150</td>
<td>160</td>
<td>60</td>
</tr>
<tr>
<td>R150GSR0R</td>
<td>1000</td>
<td>170</td>
<td>166</td>
<td>150</td>
<td>160</td>
<td>60</td>
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<tr>
<td>R150GSR1R</td>
<td>1000</td>
<td>220</td>
<td>166</td>
<td>150</td>
<td>160</td>
<td>60</td>
</tr>
<tr>
<td>R150GSR2R</td>
<td>1000</td>
<td>270</td>
<td>166</td>
<td>150</td>
<td>160</td>
<td>60</td>
</tr>
<tr>
<td>R150GSR3R</td>
<td>1000</td>
<td>320</td>
<td>166</td>
<td>150</td>
<td>160</td>
<td>60</td>
</tr>
</tbody>
</table>

*Sorties vert. sur commandes / Vert. outlets on order  
**Section en forme de U / U shaped section.

### SYSTEME DE FIXATION / LOCKING SYSTEM

FERMETURE RAPIDE DE SÉCURITÉ SANS BOULONS. 8 fixations par mètre linéaire. FAST, BOLTLESS SAFETY LOCKING 8 fastening points per linear meter.

### AVALOIR ET ACCESSOIRES / SUMP UNITS AND ACCESSORIES TABLE

<table>
<thead>
<tr>
<th>CODE</th>
<th>L (mm)</th>
<th>H (mm)</th>
<th>LARGEUR WIDTH (mm)</th>
<th>Ø SORTIE / OUTLET (mm)</th>
<th>CORPS SUMP UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR150G</td>
<td>500</td>
<td>500</td>
<td>186</td>
<td>166/200</td>
<td>110</td>
</tr>
</tbody>
</table>

### TYPES DE PENTE / SLOPE DESIGNS

- SANS PENTE / SMOOTH SLOPE
- PENTE EN CASCADE / CASCADE SLOPE
**MULTIV+ 200**

ULMA Linear Drainage Channel, type MULTIV**, R200G; External width 236mm, Internal width 200mm, with overall heights between 60 and 370mm; suitable for cascade-type slopes to collect rainwater, sections 1 LM in length optimized V-shape with self-cleaning effect; especially designed for channel runs with no longitudinal slope; galvanized steel edges for lateral protection; fast, boltless fastening system with 8 fastening points per LM.

<table>
<thead>
<tr>
<th>Channel (Rinne)</th>
<th>L (mm)</th>
<th>H (mm)</th>
<th>Width/Breite (mm)</th>
<th>Outlet* / Auslass* (mm)</th>
<th>Hydraul. Section</th>
<th>Pcs. / Pallet Stick/Einlauffadern</th>
</tr>
</thead>
<tbody>
<tr>
<td>R200GH1**</td>
<td>1000</td>
<td>60</td>
<td>236 200</td>
<td>140</td>
<td>-</td>
<td>79</td>
</tr>
<tr>
<td>R200GH12**</td>
<td>1000</td>
<td>236</td>
<td>200</td>
<td>200</td>
<td>-</td>
<td>159</td>
</tr>
<tr>
<td>R200G000R</td>
<td>1000</td>
<td>170</td>
<td>236 200</td>
<td>200</td>
<td>-</td>
<td>204</td>
</tr>
<tr>
<td>R200G001R</td>
<td>1000</td>
<td>220</td>
<td>236 200</td>
<td>200</td>
<td>-</td>
<td>284</td>
</tr>
<tr>
<td>R200G010R</td>
<td>1000</td>
<td>220</td>
<td>236 200</td>
<td>200</td>
<td>-</td>
<td>360</td>
</tr>
<tr>
<td>R200G020R</td>
<td>1000</td>
<td>320</td>
<td>236 200</td>
<td>200</td>
<td>-</td>
<td>450</td>
</tr>
<tr>
<td>R200G030R</td>
<td>1000</td>
<td>370</td>
<td>236 200</td>
<td>200</td>
<td>-</td>
<td>542</td>
</tr>
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</table>

**Vert. outlets in order / Senkrecht auslauf auf Anfrage**

**U-shaped section / U-form**

---

**GRATINGS / ROSTE**

<table>
<thead>
<tr>
<th>Material / Material</th>
<th>Design / Design</th>
<th>Load / Belastung</th>
<th>Code</th>
<th>L (mm)</th>
<th>Width Breite (mm)</th>
<th>Height / Höhe B (mm)</th>
<th>Units (x / L.M)</th>
<th>Laufmeter / Meter</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUCTILE IRON RUSSEDEN</td>
<td>HEELPROOF SLANTED / DIKKEL SCHUTZ (HEERFRAHRT)</td>
<td>C250</td>
<td>GRRL00RDM</td>
<td>500</td>
<td>220</td>
<td>101 (1)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SLOTTED / STEIROST</td>
<td>D400</td>
<td>GPZ2000RDM</td>
<td>500</td>
<td>227</td>
<td>-</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCESS UNIT / REVISIONSÖFFNUNG</td>
<td>D400</td>
<td>GRL00RDMA</td>
<td>500</td>
<td>226</td>
<td>101 (2)</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SINGLE SLOT / SCHLITZRAHREN</td>
<td>D400</td>
<td>GRL00RDM</td>
<td>500</td>
<td>226</td>
<td>101 (3)</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCESS UNIT / REVISIONSÖFFNUNG</td>
<td>D400</td>
<td>GRL00RDM</td>
<td>500</td>
<td>226</td>
<td>101 (4)</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEELPROOF MESH / STICKEL SCHUTZ MASCHENRIST</td>
<td>C250</td>
<td>GRRL00RC</td>
<td>1000</td>
<td>227</td>
<td>-</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1] Available range in Stainless Steel / Produktionssortiment aus Edelstahl
2] The grating height corresponds to the part that extends out from the top edge of the profile / Die Schlitzhöhe ist das Maß, um das das Teil über den oberen Kante des Profils überzieht

---

**LOCKING SYSTEM / BEFESTIGUNGSSYSTEM**

FAST, BOLTLESS SAFETY LOCKING 8 fastening points per linear meter / SCHNELLER, SCHRAUBENLOSE SICHERHEITSBEFESTIGUNG.Schneises Stecksystem mit 8 Befestigungspunkten pro laufender Meter

---

**SUMP UNITS AND ACCESSORIES TABLE**

<table>
<thead>
<tr>
<th>Code</th>
<th>L (mm)</th>
<th>H (mm)</th>
<th>Width/Breite (mm)</th>
<th>Outlet / Auslass (mm)</th>
<th>Sump Units Einlauffadern</th>
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<tbody>
<tr>
<td>AR2006</td>
<td>500</td>
<td>500</td>
<td>236</td>
<td>100/200</td>
<td>100/200</td>
</tr>
</tbody>
</table>

---

**SLOPE DESIGN / GEFAHLE TYPEN**

---

**END CAPS / STEINPLATZEN**

<table>
<thead>
<tr>
<th>Channel Code</th>
<th>Type / Typ</th>
<th>Code</th>
<th>C (mm)</th>
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<tbody>
<tr>
<td>R200G0H8</td>
<td>CLOSED</td>
<td>CER200</td>
<td></td>
</tr>
<tr>
<td>R200G0H12</td>
<td>CLOSED</td>
<td>CER200</td>
<td></td>
</tr>
<tr>
<td>R200G000R</td>
<td>CLOSED</td>
<td>CER200</td>
<td></td>
</tr>
<tr>
<td>R200G001R</td>
<td>OPEN / OPEN</td>
<td>CER200</td>
<td>110</td>
</tr>
<tr>
<td>R200G010R</td>
<td>CLOSED</td>
<td>CER200</td>
<td>140</td>
</tr>
<tr>
<td>R200G020R</td>
<td>CLOSED</td>
<td>CER200</td>
<td>140</td>
</tr>
<tr>
<td>R200G030R</td>
<td>CLOSED</td>
<td>CER200</td>
<td>160</td>
</tr>
<tr>
<td>R200G030R</td>
<td>OPEN / OPEN</td>
<td>CER200</td>
<td>160</td>
</tr>
</tbody>
</table>

---

**STEP UNITS / ÜBERGANGSSTÜCK**

---

**GALVANIZED STEEL BUCKET useRouter Verzinkte Schlammemmer**

---

**CASCADED SLOPE STUFENGEFÄLLE**

---

**Enquiries UK** T: 0800 0393367 E: info@killeshalprecast.co.uk **Rep. Irl Tel:** 057 9353018 **Web:** www.killeshal.com
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With Stainless Steel Inlet

STORMDRAIN RANGE
Killeshal Precast Concrete Ltd are proud to introduce STORMDRAIN
- Manufactured from “Long Fibre GRC” to incorporate greater strength to weight ratios and enhanced resistance to damage.
- High Capacity allows STORMDRAIN to be laid level.
- The High Capacity of STORMDRAIN aids the design of schemes that require attenuation.
- Longer channel runs, reduced underground pipe work and excavation, reduces site costs.
- Single unit gives a quick and simple installation.
- Stainless Steel Slotted top gives a neat appearance with no lids or gratings to install and maintain.
- Offers all the benefits of GRC including resistance to frost, chemical attack, and road salts.
- Full range of accessories including access ports, silt pits and transition units.
- Easily adapted to different load classes and surface finishes.

STORMDRAIN offers “less cost and less time, every time”
TYPICAL CONSTRUCTION DETAILS

SD250

Surface finish to be above channel, see separate detail.
200mm Concrete Slab Thickness
A193 Filled Full Frame Plate with 50mm cover from Stormdrain
Inlet unit to structural engineers specifications
Hardcore Base
Minimum 200mm Concrete bed & surround, (minimum grade C35)

All dimensions are for guidance purposes only. We operate a policy of continuous product development and reserve the right to modify products and specifications where appropriate.

For details on the requirements for larger sizes and higher loadings please contact Killeshal’s sales team on +353 (0)57 9353018.

STORMDRAIN ACCESSORIES

SILTPIT / MANHOLE UNIT
These universal units can be used as either a siltpit outlet or as a mid-run siltpit. All the channel entry holes are pre-cut in the factory, with a manhole adaptor added to the end of the channel, to ensure easy and accurate installation of the STORMDRAIN.

They are designed to take a D400 cover and frame which can be supplied separately.

ACCESS PORTS
These are available in all the STORMDRAIN channel sizes.

They are manufactured as either midrun access ports or end access ports with end caps included.

The inclusion of a factory cut transition plate turns an access port into a transition unit. D400 cover and frame to suit are available separately.
SCS ENVIRONMENTAL 50mm Porous Paving

The Concept

SCS ENVIRONMENTAL is a key product within a sustainable urban drainage system (SUDS), whereby the porous paving effects the efficient attenuation, infiltration and treatment of stormwater runoff at or near its source - in accordance with current Best Management Practices (BMP’s). It is also an ideal product for grass and gravel reinforcement.

The Product

Made in the EU from recycled high/low density polyethylene SCS ENVIRONMENTAL is a modular unit which works in conjunction with its neighbouring units to create an exceptionally durable, permanently porous, high load bearing structure.

Infilled with either grass or natural aggregate in completed form, SCS ENVIRONMENTAL remains in harmony with current environmental considerations whilst complying with increased governing legislation.

Applications

SCS ENVIRONMENTAL is a heavy duty grass and gravel reinforcement system and is therefor ideal for:

- Emergency Access Roads
- Car Parks
- Pedestrian areas
- Grass verges
- Vehicular hard-standings
- Cycle ways
- Helicopter Landing Pads
- Sport & Leisure Facilities
- Holiday Complexes
- Sheltered accommodation
- Domestic driveways
- Caravan sites

Product Data

<table>
<thead>
<tr>
<th>NOMINAL SIZE (500x500)</th>
<th>495mm x 495mm x 50mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVERAGE RATE</td>
<td>4 blocks / m²</td>
</tr>
<tr>
<td>UNIT WEIGHT</td>
<td>1.2kg</td>
</tr>
<tr>
<td>INFILTRATION RATE</td>
<td>&gt; 5,000 mm/hour</td>
</tr>
<tr>
<td>RUN OFF COEFFICIENT RANGE</td>
<td>0.05 - 0.25</td>
</tr>
<tr>
<td>LATERAL DRAINAGE VOID RATIO</td>
<td>&gt; 20%</td>
</tr>
<tr>
<td>INFILL SURFACE AREA</td>
<td>&gt; 90%</td>
</tr>
<tr>
<td>COMPRRESSIVE STRENGTH (FILLED)</td>
<td>2,240 kN/m² (228 t/m²)</td>
</tr>
</tbody>
</table>

SUDS - The Principle

SUDS are physical structures built to receive water runoff, being located as close as possible to where the rainwater falls, providing the option of infiltration and attenuation stormwater source control solutions. They also provide treatment for surface water using the natural processes of sedimentation, filtration, absorption and bio-degradation.

Recent research shows that typically up to 80% of sediment; 60% of phosphorous; and 80% of nitrogen can be removed from rainwater through porous paving, together with substantial levels of heavy metals and hydrocarbons. This natural treatment provides the ideal opportunity for rainwater conservation and re-use for a variety of non-potable applications e.g. toilet/urinal flushing, irrigation, laundry, process water, vehicle washing, refrigeration, coolant use, etc.

Design Details - SUDS

Within the concept of porous paving there exists two, more commonly specified, systems constructions:

The (patented) Attenuation System

Utilised when direct infiltration is not appropriate and when water storage is required. Figure 1 shows SCS ENVIRONMENTAL, containing either grass or natural aggregate, installed on a layer of clean stone overlying an appropriate SCS GT geotextile separation/filtration layer. Beneath this is a voided sub-base which is encased within an appropriate SCS GM Geomembrane.

Collected runoff is discharged via an appropriate SCS storage device (SCS Aquavoid) positioned within or below the sub-base and sealed where it exits the geomembrane storage reservoir.

The Infiltration System

Utilised whenever possible, subject to appropriate soil conditions and environmental considerations. Figure 2 shows SCS ENVIRONMENTAL, containing either grass or natural aggregate, installed on a layer of clean stone overlying an appropriate SCS GT geotextile separation/filtration layer. Beneath this is a sub-base which is encapsulated within an appropriate SCS GT geotextile separation/filtration layer.

Collected runoff is allowed to permeate naturally, through the geotextile separation/filtration layer, into the sub-grade obviating the need for a positive discharge facility.
SCS INTEGRA 70mm
Porous Paving

The Concept
SCS INTEGRA is a key product within a sustainable urban drainage system (SUDS), whereby the porous paving effects the efficient attenuation, infiltration and treatment of stormwater runoff at or near its source - in accordance with current Best Management Practices (BMP’s). It is also an ideal product for grass and gravel reinforcement.

The Product
Made in the EU from recycled high/low density polyethylene SCS INTEGRA is a modular unit which works in conjunction with its neighbouring units to create an exceptionally durable, permanently porous, high load bearing structure.

Infilled with either grass or natural aggregate in completed form, SCS INTEGRA remains in harmony with current environmental considerations whilst complying with increased governing legislation.

Applications
SCS INTEGRA is a heavy duty grass and gravel reinforcement system and is therefore ideal for:
• Emergency Access Roads
• Car Parks
• Pedestrian areas
• Grass verges
• Vehicular hard-standings
• Cycle ways

Helicopter Landing Pads
• Sport & Leisure Facilities
• Holiday Complexes
• Sheltered accommodation
• Domestic driveways
• Caravan sites

Product Data

<table>
<thead>
<tr>
<th>NOMINAL SIZE</th>
<th>500mm x 500mm x 70mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVERAGE RATE</td>
<td>4 blocks / m²</td>
</tr>
<tr>
<td>UNIT WEIGHT</td>
<td>1.9kg</td>
</tr>
<tr>
<td>INFILTRATION RATE</td>
<td>&gt; 5,000 mm/hour</td>
</tr>
<tr>
<td>RUN OFF COEFFICIENT RANGE</td>
<td>0.05 - 0.25</td>
</tr>
<tr>
<td>LATERAL DRAINAGE VOID RATIO</td>
<td>20.8%</td>
</tr>
<tr>
<td>INFILL SURFACE AREA</td>
<td>&gt; 90%</td>
</tr>
<tr>
<td>COMpressive STRENGTH (FILLED)</td>
<td>2,240 kN/m²</td>
</tr>
</tbody>
</table>

The above data indicates typical values - further details of structural and hydraulic properties of the system are available on request.

Design Details - SUDS
Within the concept of porous paving there exists two, more commonly specified, system constructions:

The Attenuation System
- utilised when direct infiltration is not appropriate and when water storage is required.

Figure 1 shows SCS INTEGRA, containing either grass or natural aggregate, installed on a layer of clean stone overlying an appropriate SCS GT geotextile separation/filtration layer.

Beneath this is a voided sub-base which is encased within an appropriate SCS GM geotextile.

Collected runoff is discharged via an appropriate SCS storage device (SCS Aquavoids®) positioned within or below the sub-base and sealed where it exits the geotextile storage reservoir.

The Infiltration System
- utilised whenever possible, subject to appropriate soil conditions and environmental considerations.

Figure 2 shows SCS INTEGRA, containing either grass or natural aggregate, installed on a layer of clean stone overlying an appropriate SCS GT geotextile separation/filtration layer.

Beneath this is a sub-base which is encapsulated within an appropriate SCS GT geotextile separation/filtration layer.

Collected runoff is allowed to permeate naturally, through the geotextile separation/filtration layer, into the sub-grade obviating the need for a positive discharge facility.

SUDS - The Principle
SUDS are physical structures built to receive water runoff, being located as close as possible to where the rainwater falls, providing the option of infiltration and attenuation stormwater source control solutions. They also provide treatment for surface water using the natural processes of sedimentation, filtration, absorption and bio-degradation.

Recent research shows that typically up to 80% of sediment; 60% of phosphorous; and 80% of nitrogen can be removed from rainwater through porous paving, together with substantial levels of heavy metals and hydrocarbons. This natural treatment provides the ideal opportunity for rainwater conservation and re-use for a variety of non-potable applications e.g. toilet/urinal flushing, irrigation, laundry, process water, vehicle washing, refrigeration, coolant use, etc.

Such source control principles and techniques are now inherent within best practice and are increasingly becoming the norm within development projects.

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PAVING SURFACES - INSTALLATION

Subgrade
Excavate to formation level as indicated on the drawing, providing a minimal (1: 30 - 1: 100) fall to the drainage system. Compact subgrade, using either a vibrating roller or plate, making good soft spots with suitable material.

Sub-base for Infiltration Surfaces
Use granular material (crushed gravel, rock or concrete) as specified - for SUDS schemes this must be free draining. Install the designed depth of sub-base as specified, in 200mm layers compacting each layer (vibratory plate, type DVP 75/22”). Overlay the sub-base with the specified SCS GT 1900 geotextile (essential to prevent migration), overlapping joints by 200mm.

Bedding Layer
Lay, screed and compact to a 30mm depth of appropriate bedding layer material (sharp sand or 5mm grit). Selection of the bedding layer material is dependent upon the application. For grass reinforcement mix the bedding layer 4:1 with a good quality top soil to ensure good root growth.

Wearing Course
SCS INTEGRA & AGRABLOCK should be laid on a 45 degree face such that each modular unit abuts its neighbouring units, with the triangular locating lugs fitting within the corresponding slots. As laying progresses, each unit should be pinned (4 per unit) together with the pins supplied and the specified root zone/grass seed infill material or natural aggregate should be used to infill each cell such that a continuous, permanently porous, high load bearing structure is created.

Infill Materials (sand and soil mix/aggregate)
The selected infill material should be specified on a project specific basis based on the application and design, but the following could act as a guide:

For Sand Bed:
A good quality compacted silica sharp sand should be used, of approximately 30mm thickness after compaction; alternatively a 5mm grit is also suitable if required.

For Gravel Fill:
Aggregate size should be 5 - 15mm angular gravel and if adjacent to schools should ideally be 10mm single sized crushed rock. The use of an angular gravel rather than a river washed gravel will aid compaction and prevent migration from the units.

For Grass Fill:
A good quality topsoil should be used to infill the units to the top and allowed to settle (5 - 7 mm); grass seeding followed by a top dressing of a good quality fertiliser should ensure adequate grass growth. Seeded areas must be watered regularly for a period of 6 weeks following installation and traffic kept off the area until grass growth is established.

Maintenance:
For gravel areas; an occasional sweeping of any overfill back into the units. If gravel appears to be sinking check for the installation of the geotextile.

For grass areas; once grass is established the area can be trafficked and a normal mowing regime resumed. If infill appears to be sinking top up with loam mix and check for presence of geotextile.

Overflow & Temporary Parking
Driveways and Gravel Areas
Park & Rides & General Parking

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TURFSTONE

Turfstone is a ground reinforcement grass paving system ideally suited to projects where a hard surface capable of supporting vehicles is required within a grass area or other space where a naturalistic appearance is preferred. It functions as a SUDS permeable pavement, controlling surface water at source by directing it to the sub-layers.

Turfstone provides a low cost paving option with minimum visual impact. Its honeycombed cavities are designed to facilitate the growth of grass within a supporting concrete matrix, allowing grass to be cut in the conventional manner.

Each element weighs approximately 25kg and so we recommend machine-aided installation to comply with manual handling regulations. Special lifting aids that can be attached to excavators, tele-handlers and cranes are readily available.

Product Specifications

<table>
<thead>
<tr>
<th>Product type</th>
<th>Concrete paving block</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufactured to</td>
<td>BS EN 1338:2003</td>
</tr>
<tr>
<td>Efflorescence</td>
<td>Minimum 12 hour vapour curing to significantly reduce the possibility of efflorescence</td>
</tr>
<tr>
<td>Strength</td>
<td>&gt; 3.5MPa</td>
</tr>
<tr>
<td>Slip/Shock resistance</td>
<td>Extremely Low (&lt;75 USTR)</td>
</tr>
<tr>
<td>Installed to</td>
<td>DD-SP plus</td>
</tr>
<tr>
<td>BB 7350-82006</td>
<td>0.25-000</td>
</tr>
<tr>
<td>Applications</td>
<td>Residential and Commercial when used in conjunction with the correct sub-base design in accordance with the latest TPSIL standards.</td>
</tr>
<tr>
<td>Energy used</td>
<td>100% renewable energy</td>
</tr>
<tr>
<td>Water used</td>
<td>100% water used from rainwater harvesting system</td>
</tr>
<tr>
<td>Carbon Footprint</td>
<td>24kg/CO₂e/m²</td>
</tr>
<tr>
<td>Recyclable</td>
<td>100% of this product can be recycled</td>
</tr>
<tr>
<td>Manufacturing location</td>
<td>Produced in the UK with locally sourced materials</td>
</tr>
<tr>
<td></td>
<td>A* (can be achieved when used with recycled sub-base, in accordance with the Green Guide to Specification, 2nd edition 2005) <a href="http://www.bre.co.uk">www.bre.co.uk</a></td>
</tr>
<tr>
<td>Complementary kerbs</td>
<td>Country Kerbs, Half Blistered</td>
</tr>
</tbody>
</table>

Typical uses include:

- Off street residential parking
- Vehicular access for occasional usage, ie. fire lanes, utility access
- Overspill commercial or retail parking
- Occasional parking for cricket clubs, schools, churches, caravan parks, cemeteries, etc
- Nature reserves, sensitive heritage sites and country parks
- Environmental erosion control areas, such as riverbanks and waterways
- Road verges
- Field entrances and farm tracks
- SUDS schemes

For installation guidelines please go online or contact the Tobermore Sales Office.

PRECAST GRASS BLOCKS

<table>
<thead>
<tr>
<th>product</th>
<th>size (mm)</th>
<th>colours available</th>
</tr>
</thead>
<tbody>
<tr>
<td>TURFSTONE</td>
<td>600 x 400 x 100</td>
<td>Natural</td>
</tr>
</tbody>
</table>

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KILLESHAL PRECAST CONCRETE ARE PLEASED TO OFFER A VERY COMPETITIVE PRICED POLYPROPYLENE ALTERNATIVE IN LINE DRAINAGE CHANNELS AND GRATINGS

**Polypropylene Channel**
- Length: 1000m
- Overall Width: 130mm
- Overall Height: 110mm
- Internal Width: 100mm
- Inernal Height: 90mm
- Weight: 1200g

**Polypropylene Grating**
- Length: 1000m
- Overall Width: 130mm
- Overall Height: 110mm
- Internal Width: 100mm
- Inernal Height: 90mm
- Weight: 1200g

**Load Class**
- A15

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**Please read the following instructions thoroughly before proceeding with the installation of your system.**

**Fig. 1**
Prepare a trench of sufficient depth. To ensure reliable drainage into the channel, the finished ground surface level, including paving should be 2 - 3 mm higher than the upper edge of the grating. Use a stretched line to assist accurate workmanship. Fill in with an even bed of good quality concrete 80 - 100mm depth.

**Fig. 2**
Before installation, tap out the pre-formed outlet on the channel unit as required.

**Fig. 3**
Assemble, interlock and align channels on the concrete bed and either connect to the underground drainage or soak away. Ensure gratings are placed in channels during installation. Protect the grating’s finish at this stage by placing them upside down in the channels during installation.

**Fig. 4**
When the channels are in position fill the trench either side of the channel with good quality concrete 80 - 100mm width. Ensure correct depth of concrete so that finished ground surface level, including paving, is 2 – 3mm higher than the top of the grating.

**Fig. 5**
Once the concrete has set, remove the gratings and place back into the channels the right way up, firmly tapping to ensure grating lug properly locate into slots on channel. Locking bars can be supplied as an optional extra with metal gratings that locate into slots in the channel wall.

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Standard benches illustrated below can be produced in fair faced precast concrete with an optional exposed aggregate finish, or in reconstituted cast stone with an acid etched finish. Sockets for accurate fixing of timber slats may also be provided on request. An extremely versatile and hard wearing option, these seats are of a manageable size for the purposes of delivery, off-loading and movement around site.

Please Note: We are happy, as always, to quote for bespoke requirements.

**Ref: SEAT 216**
- 450 x 450 x 2500mm

**Ref: SEAT 221**
- 450 x 450 x 2000mm

**Ref: SEAT 222**
- 475 x 513 x 2000mm
Our Star Bench creates a very striking feature and is a stylish addition to any public concourse, parkland or streetscape.

It is available in fair-faced precast concrete and also two colour options for reconstituted stone - white granite and buff.
City Design

Quality and durability with Italian style in three collections...

Cima, ZTL and Corten

This exclusive Italian-designed range of street furniture is characterised by quality, durability and style.

Three distinct steel and timber collections, Cima ZTL and Corten offer the designer excellent customisable options for use in mid/high-end urban and leisure applications.

Cima Collection

The Cima family of street furniture is a minimalist range of quality benches, tables, bins, illuminated bollards, planters, cycle racks and signage. The galvanised and powder coated steel elements can be customised with laser cut lettering or logos and the oiled Sapele hardwood slats soften the furniture into the landscape. This is a mid-range family of street furniture, great for general application and is priced affordably.

Erne

Long Seat: C-109
Long Bench: C-109

Dodder

C-119
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StoneWrap / stone cladding

StoneWrap Stone Cladding

See our StoneWrap video on www.killeshalprecast.co.uk or www.killeshal.com

KPC are pleased to offer StoneWrap, one of the most innovative and increasingly popular cladding/veneer systems in Europe. Stonewrap Manufactured Stone has several advantages over natural stone, it is lighter and easier to work with than natural stone and it comes in a wide range of finishes and colours to suit any location, interior or exterior. We have a number of different stone ranges for internal and external applications.

Stone is a beautiful material, and so much a natural part of our environment that it never looks out of place. But while stone can be expensive and difficult to work with, Stonewrap manufactured stone is not. Now you will be amazed at how easy it is to add the beauty, elegance and durability of stone to your property with Stonewrap Cladding from KPC.

We have Stone Wrap in a style and colour to suit every requirement. If you’re unsure about how best to match the right style and colour for your requirements just call our experienced staff and they will be happy to advise.

Stonewrap Manufactured Stone, from KPC is a fantastic product that combines the best qualities of a modern easy to use material with those sought-after qualities of natural stone. Stonewrap is pre-formed into shapes, including corner pieces, that are easy to work with, requiring little or no alteration before fitting in place and its lightweight nature means it can be added to existing buildings without the need for additional support or enhancement to foundations.

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HAZARD WARNING / CORDUROY (BS EN 1339: 2003)

APPLICATION
• warns of a hazard and to proceed with caution
• for use at: top and bottom of stair flights, level crossing, intersections of shared cycle/pedestrian routes
• installation: at 90° and 400mm away from the hazard
• 400 x 400 x 50mm*

PLATFORM EDGE (BS EN 1339: 2003)

APPLICATION
• to indicate the presence of a heavy rail system (either surface or underground rail systems) platform edge
• off-street applications
• installation: along the entire length of the platform, install parallel to the platform edge, position 600-700mm away from the platform edge

• 400 x 400 x 50mm*  

LOZENGE (BS EN 1339: 2003)

APPLICATION
• warns users of on-street platform edges of: Light Rapid Transport system, supertram schemes
• installation lay in a single 400mm wide strip, lozenges running parallel to the platform edged, no closer than 500mm away from the platform edge

• 400 x 400 x 50mm*

PEDESTRIAN CROSSING PELISTUDS

STAINLESS STEEL ROADSTUDS
Available with either a fishtail or chisel shank designed and shaped to prevent twisting after installation. To assist skid resistance a serrated face is also available (Chisel shank only). A superior quality roadstud appropriate for any type of road surface, its durability provides excellent cost effectiveness.

PLAIN FACE STEEL
(100x100mm)
Ref: M/119

SERRATED STEEL
(100x100mm)
Ref: M/120

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We stock Plastic Coated or Galvanised Chain Link Wire, Line Wire, Tying Wire with Galvanised Ratchets and Eyebolts.
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POST & PANEL FENCING

H-POST

STANDARD LENGTHS
- 6ft - 1.8m
- 7ft - 2.1m
- 8ft - 2.4m
- 9ft - 2.7m
- 10ft - 3.0m
- 11ft - 3.3m
- 12ft - 3.6m
- 8ft for 3 way corner post 2.4m

To suit plain panels, rock faced panels and timber panels

PLAIN PANELS

STANDARD LENGTHS
- 1800 PANEL
- 1830 PANEL

To suit H-Post

ROCK FACED PANELS

STANDARD LENGTHS
- 1830 ROCK FACED PANEL

To suit H-Post

CATTLE DRINKING TROUGHS

WATER TROUGH 101

WATER TROUGH 102
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