

OPERATION & MAINTENANCE MANUAL

Works Package:	Enabling Works, Groundworks, Drainage & Hard Landscaping
Contractor Name:	Mayo Civil Engineering Limited
Contractor Address:	Unit D, Norman Road, Rochdale, OL11 4HS
Contractor Telephone Number:	0161 654 6099
Contracts Manager:	Nick Allen
Contracts Manager E-Mail:	nick@mayocivils.com
Emergency Contact:	Nick - 07903 686110

Project Name	Christabel Pankhurst Institute
Project Address	323 Oxford Road, Manchester, M13 9PS

Issue:	1	Date:	21/12/2022
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SECTION 1 - SCOPE OF THE WORKS & MAINTENANCE

Enabling Works, Groundworks, Drainage & Hard Landscaping.

The Civil Engineering works contain services and form part of the structural integrity of the building and as such must not be taken down, demobilised or interfered with unless proper considerations have been put into place.

Maintenance for the Civil Engineering works is minimal. All materials are designed to last for the life of the building.

Drainage must form part of the periodic cyclical maintenance programme (12monthly or as required by block-ages).

Flagged, concrete and tarmac areas must be cleaned periodically to remove any moss or algae which may constitute a slipping hazard this operation can be carried out using high pressure water jets (as required when build up is evident) and the appropriate method statements and PPE must be worn by operatives undertaking this operation.

Details of drainage runs and ducting are detailed on the As Fitted & Principal Contractor's final drawings, which are located in Section 5 – As Built Drawings which will be appended upon completion

The Civil Engineering work undertaken on the site require little or no maintenance apart from the periodical inspection and flushing out of drainage (When Required) and manholes which must be carried out by competent and trained personnel as they may have to work in confined spaces (Manholes) or come in to contact with raw sewage and other organic substances.

Faults in the systems will be evident by backing up of drainage tripping and slipping hazards to paving and / or spalling of concrete which must be dealt with immediately.

When entering manholes which require confined space working, suitable arrangements must be in place to comply with the Confined Spaces Regulations 1997 and deep manhole access must also comply with the Work at Height Regulations 2005."

SECTION 2 – LIST OF MATERIALS AND COMPONENTS

	Material	Component	Supplier
1	Ready-mix Concrete	Structural Concrete	Aggregate Industries
2	Steel Reinforcement	Fabric / Cut & Bent	BRC
3	Aggregates	Limestone	Marchingtons
4	Concrete Manholes	Manhole Rings & Ancillary Products	FP McCann Drainage
5	Plastic Drainage	Pipework, Fittings & Bends	Polypipe
6	Ironwork	Triple sealed Manhole Covers	Wrekin Products
7	Ironwork	Recessed Manhole Covers	Burdens
8	Ducting	Underground Ducts	Emtelle UK
9	Scoutmoor & Conservation kerbs	Marshalls paving & conservation kerbs	Civils & Lintels
10	Gulleys	Gatic	Polycon
11	Aquabrake	valves	Alderburgh
12			
13			

SECTION 3 – DIRECTORY OF MANUFACTURERS, SUPPLIERS AND SUB-CONTRACTORS

	Supplier	Address	Contact
1	Stayly Bridge Readymix	Bridge Street, Staylybridge, SK15 1PF	Tel: 0161 3032330
2	BRC	79 Station Road Sutton-In-Ashfield	T: 01623 555 111 E: sales@midlands.brc.ltd.uk
3	Marchington Stone	105 Buxton Road, High Lane, Stockport, SK6 8DX	Tel: 01663 765000
4	FP McCann Drainage	Knockloughrim Quarry 3, Drumard Road Magherafelt Co.L ondonderry BT45 8QA	T: 028 7964 2558 F: 028 7964 4224
5	Polypipe	Broomhouse Lane Doncaster DN12 1ES	T: +44(0)1709770000
6	Wrekin Products Limited	Europa Way Britannia Enterprise Park Lichfield WS14 9TZ	T: 01543 440440 F: 01543 440444 E: sales@wrekinproducts.com
7	Burdens	Wolseley UK Ltd Warwick CV34 6DY	
8	Emtelle UK	Haughead Hawick TD9 8LF	Tel : 01450 364000 Fax: 01450 364001
9	Buildbase Civils & Lintels Ltd	Bloomfield Road, Farnworth, Bolton, BL4 9LP	tel: 01204 862222
10	Polycon	Unit 4-5, Widnes Business Park, Foundry Ln, Widnes WA8 8UB	Tel: 0151 422 9747 sales@polycon.co.uk
11	Alderburgh	Solutions House, Dane St, Rochdale OL11 4EZ	tel: 01706 374416

SECTION 4 – PRODUCT LITERATURE

Structural Concrete	BSI Certification
Reinforcement	CARES Approval
Concrete Manholes	Manhole Rings & Ancillary Products
Plastic Drainage	Pipework, Fittings & Bends
Ducting	Underground Ducts
Scoutmoor Yorkstone	Paving
Aco	Aco

SECTION 5 – INDEX OF 'AS BUILT DRAWINGS'

Drawing Number	Revision	Title

Certificate of Entitlement

to use the

Kitemark

BS EN 206 & BS 8500

in respect of Ready-Mixed Concrete supplied conforming to BS EN 206 and BS 8500-2
under a Quality Management System complying with ISO 9001.

The BSI Kitemark Scheme for Ready-Mixed Concrete is Accredited by UKAS,
the UK Accreditation Service.

KITEMARK CERTIFICATE No. KM 51634

The Kitemark Scheme Certification Technical Manager, BSI, hereby confirms that

Stalybridge Readymix Ltd
Bridge Street
Stalybridge
SK15 1PF
United Kingdom

is entitled to use the Kitemark in accordance with the Conditions governing the use of the Kitemark.



Paul Newby, 01 January 2021

Certificate of Entitlement valid to: 31 December 2021

...making excellence a habit.™

This Certificate remains the property of BSI and shall be returned immediately upon request.

Information and contact: BSI, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PP. Tel: +44 845 080 9000. BSI Assurance UK Limited, registered in England under number 7805321, at 389 Chiswick High Road, London, W4 4AL, UK. A member of the BSI Group of Companies.

CERTIFICATE OF APPROVAL



Product Conformity Certification

Page 1 of 3

This is to certify that

BRC (Mansfield) Limited

at its establishment at

Mansfield

has satisfied the Authority that it operates a quality management system that complies with the requirements of BS EN ISO 9001 and the relevant CARES Quality and Operations Assessment Schedules. Where appropriate, and as listed below, it has further satisfied the Authority that it manufactures and/or supplies products that conform with the stated product standards and is entitled to use the CARES marks on its products using the processes and procedures registered with the Authority.

Scope of certification:

Processing of steel reinforcement as stated on attached appendix

This certificate remains the property of the Authority and is issued subject to the Regulations of the Authority. This certificate is uncontrolled when printed. To check the validity of this certificate please visit www.ukcares.com or contact us on +44 1732 450000.

CERTIFICATE NUMBER

850303

FIRST APPROVAL

March 1985

ISSUE DATE

01 January 2020

EXPIRY DATE

31 December 2020

SIGNED FOR UK CERTIFICATION AUTHORITY FOR REINFORCING STEELS

Lee Brankley,
Chief Executive Officer

The use of the Accreditation Mark indicates accreditation in respect of those activities covered by the accreditation certificate number 002.

UK Certification Authority for Reinforcing Steels, Pembroke House, 21 Pembroke Road, Sevenoaks, Kent, TN13 1XR, UK.

A Company Limited by Guarantee. Registered in England No. 1762448.

Cert. Ref: AIC112010 12809 52



APPENDIX TO CARES CERTIFICATE NO. 850303
BRC (MANSFIELD) LIMITED
MANSFIELD



Product Conformity Certification

Page 2 of 3

Scope of certification:

Processing of steel reinforcement to BS 8666 and BS 4466
Stocking and distribution of BS 4449, BS 4482 and BS 4483

Application of Erico Lenton Taper Threaded standard (A12N) and positional (P13LN and P14LN) mechanical couplers to CARES Appendix TA1-B using BS 4449 grade B500C in the size range 12mm to 50mm for use in accordance with Technical Approval report TA1B - 5029

Application of Erico Lenton Taper Threaded standard (A12) and positional (P13 and P14) mechanical couplers to CARES Appendix TA1-B using BS 4449 grade B500C in the size range 12mm to 50mm (A12) and 12mm to 40mm (P13 and P14) for use in accordance with Technical Approval report TA1-B 5027.

Application of Ancon Taper Threaded Coupler to CARES Appendix TA1-B using BS4449 grade B500C in the size range 12mm to 40mm in accordance with Technical Approval report TA1-B 5015.

This certificate remains the property of the Authority and is issued subject to the Regulations of the Authority. This certificate is uncontrolled when printed. To check the validity of this certificate please visit www.ukcares.com or contact us on +44 1732 450000.

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Cert. Ref: A1IC112010 12809 52



APPENDIX TO CARES CERTIFICATE NO. 850303
BRC (MANSFIELD) LIMITED
MANSFIELD



Product Conformity Certification

Page 3 of 3

Scope of certification:

Application of Ancon Bartec Plus Parallel Threaded Coupler to CARES Appendix TA1-B using BS4449 grade B500C in the size range 16mm to 40mm in accordance with Technical Approval report TA1-B 5055

Application of Ancon Bartec Plus Parallel Threaded Coupler to CARES Appendix TA1-A using BS4449 grade B500C in the size range 16mm to 40mm in accordance with Technical Approval report TA1-A 5050.

Application of Dextra Griptec Swaged Parallel Threaded Coupler to CARES Appendix TA1-B using BS4449 grade B500C in the size range 12mm to 40mm in accordance with Technical Approval report TA1-B 5005.

Any rebar welded at this location is NOT covered by the CARES Steel for the Reinforcement of Concrete Scheme

This certificate remains the property of the Authority and is issued subject to the Regulations of the Authority. This certificate is uncontrolled when printed. To check the validity of this certificate please visit www.ukcares.com or contact us on +44 1732 450000.

CERTIFICATE NUMBER	FIRST APPROVAL	ISSUE DATE	EXPIRY DATE
850303	March 1985	01 January 2020	31 December 2020

SIGNED FOR UK CERTIFICATION AUTHORITY FOR REINFORCING STEELS

Lee Brankley,
Chief Executive Officer

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UK Certification Authority for Reinforcing Steels, Pembroke House, 21 Pembroke Road, Sevenoaks, Kent, TN13 1XR, UK.

A Company Limited by Guarantee. Registered in England No. 1762448.

Cert. Ref: AIC112010 12809 52



CERTIFICATE OF APPROVAL



Environmental Management System Certification

This is to certify that

BRC (Mansfield) Limited

at its establishment at

Mansfield

has been approved by the Authority to the following Management System standard using the processes and procedures registered with the Authority:

BS EN ISO 14001: 2015

Scope of certification:

Processing of steel reinforcement products.

This certificate remains the property of the Authority and is issued subject to the Regulations of the Authority. This certificate is uncontrolled when printed. To check the validity of this certificate please visit www.ukcares.com or contact us on +44 1732 450000.

CERTIFICATE NUMBER

1223

FIRST APPROVAL

December 2009

ISSUE DATE

02 August 2018

EXPIRY DATE

02 August 2021

SIGNED FOR UK CERTIFICATION AUTHORITY FOR REINFORCING STEELS

Lee Brankley,
Chief Executive Officer

The use of the Accreditation Mark indicates accreditation in respect of those activities covered by the accreditation certificate number 002.

UK Certification Authority for Reinforcing Steels, Pembroke House, 21 Pembroke Road, Sevenoaks, Kent, TN13 1XR, UK.

A Company Limited by Guarantee. Registered in England No. 1762448.

Cert. Ref: AIC112010 12809 273





THINKING PRECAST?
THINK FP MCCANN



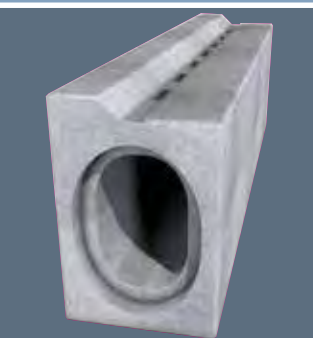
DRAINAGE AND WATER MANAGEMENT

v3.0

**CONCRETE
PIPES**



**EASI-BASE™
MANHOLE
SYSTEM**



**STORM-
CHANNEL™**
HEAVY DUTY PRECAST
DRAINAGE CHANNEL



**STORM-
BRAKE™**
VORTEX FLOW CONTROL
CHAMBER UNIT



**STORM-
STORE™**
TANK & CHAMBER
SYSTEMS

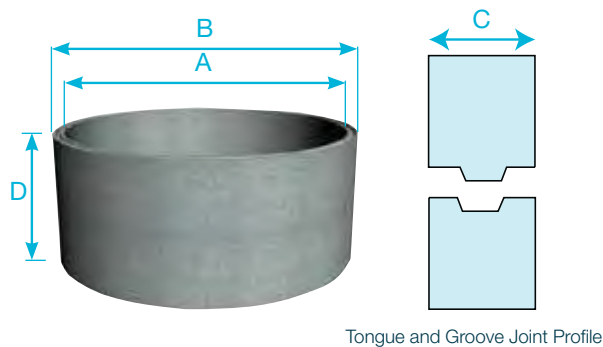


**STORM-
HOLD™**
STORM WATER
MANAGEMENT SYSTEM



MANHOLE CHAMBERS

MANHOLE CHAMBERS (TONGUE & GROOVE JOINT)



Nominal Size (A) (DN) (mm)	Available Depth of Section (D)				Wall Thickness (C) mm	Litres per metre	Barrel Diameter (B) mm	Approx Weight Kg. (per metre)	Approx. Products per load Qty. (metre)	Lifting Hole Qty/Dia. (per /unit) (mm)
	250mm (±25mm)	500mm (±25mm)	750mm (±50mm)	1000mm (±50mm)						
900	✓	✓	✓	✓	70	656	1040	520	38	3 x 45
1050	✓	✓	✓	✓	80	894	1210	690	34	3 x 45
1200	✓	✓	✓	✓	90	1167	1380	880	26	3 x 45
1350		✓	✓	✓	95	1478	1540	1050	22	3 x 45
1500		✓	✓	✓	100	1824	1710	1300	16	3 x 45
1800		✓	✓	✓	115	2544	2030	1750	12	3 x 45
2100		✓	✓	✓	125	3464	2350	2040	10	4 x 50
2400		✓	✓	✓	140	4514	2680	2790	8	4 x 50
2700		✓	✓	✓	150	5725	3000	† 3400	8	4 x 50
3000		✓	✓	✓	190	7069	3380	† 4700	5	4 x 50
3600		✓	✓	✓	185	10179	3970	5400	5	△ 3 x RD30
4000			✓	✓	200	12566	4400	*7200	4	△ 4 x RD36
MOL from 900-1500 / * 2 piece chamber ring - 3600kg per piece (4m diameter) △ 570 long wavy tail anchors † 5% Safety Factor										Dia ± 5mm

PRODUCT INFORMATION

- FP McCann's manhole chamber rings are manufactured with tongue and groove joints and comply with BS EN 1917 / BS 5911-3
- Manhole chambers from DN900 - DN1800 have 3 lifting points.
- Manhole chambers from DN2100 - DN3000 have 4 lifting points.
- DN3600 and DN4000 are outside of the scope of the British Standard (Non-Kitemark), but comply with all relevant provisions of the European Standard. DN4000 is supplied in two halves

NB: NI have 3 lifting points

WARNING
When Lifting ≥45°
Inclined pull only

RECOMMENDED SITE WORK PRACTICE - MANHOLE CHAMBERS

RECOMMENDED LIFTING EQUIPMENT

Nominal Size DN (mm)	Lifting Hole Qty/dia (p/Unit)	36mm lifting pin 3.5 t SWL	42mm lifting pin 3.5 t SWL	3 leg lifting chain 3.1t	4 leg lifting chain SWL 6.7 t
900	3 x 45mm dia	✓		✓	
1050	3 x 45mm dia	✓		✓	
1200	3 x 45mm dia	✓		✓	
1350	3 x 45mm dia	✓		✓	
1500	3 x 45mm dia	✓		✓	
1800	3 x 45mm dia	✓		✓	
2100	4 x 50mm dia		✓		✓
2400	4 x 50mm dia		✓		✓
2700	4 x 50mm dia		✓		✓
3000	4 x 50mm dia		✓		✓
3600	3 x RD30 (Loops)			✓	
4000	4 x RD36 (Loops)				✓

Dia + 5mm

HANDLING & INSTALLING MANHOLES

1. Time and place of off-loading should be agreed before the units arrive at site. The contractor should provide suitable equipment for off-loading. For safety reasons, all chamber sections are loaded and delivered chimney fashion.
2. Off-loading should take place at the nearest hard road to the point of installation. When off-loaded, units should never be stored on their side (on the roll) but always be laid in the 'as installed' upright position.
3. Carefully inspect units during off-loading to verify that products are undamaged and comply with order placed. Note any discrepancies on the delivery docket and advise accordingly.

MANHOLE SOAKAWAYS

MANHOLE SOAKAWAY CHAMBERS

Nominal Size DN (mm)	No. of 75mm holes per chamber			Wall Thickness mm	Litres per metre ring	Barrel Dia. mm	Approx Weight Kg. (p/metre)	Approx. Products per load Qty. (metre)
	500 mm	750 mm	1000 mm					
900	5	8	10	70	656	1040	520	46
1050	6	9	12	80	894	1210	690	34
1200	7	10	14	90	1167	1380	880	26
1350	8	11	15	95	1478	1540	1050	22
1500	8	13	17	100	1824	1710	1300	18
1800	10	15	20	115	2544	2030	1750	12
2100	12	18	24	125	3464	2350	2040	10
2400	14	20	27	140	4514	2680	2790	8
2700	15	23	31	150	5725	3000	+ 3400	6
3000	17	25	34	190	7069	3380	+ 4700	5
*3600	20	31	41	185	10179	3970	5400	5
*4000	23	34	45	200	12566	4400	6800	1.5

* DN3600/4000 see Manhole Chambers / DN3600/4000 Manhole Soakaways made to order
† 5% Safety Factor

CONSTRUCTION

To ensure that the manhole structure is vertical, accurate levelling of the formation or the in-situ concrete foundation is essential. Please note: the depths of each manhole can vary and are subject to tolerances; it is recommended that each unit installed has its depth measured prior to installation, to ascertain if the levelling requirements are satisfactorily met. Tongue and groove joints should be installed with the groove facing upward. Manhole sections fitted with double steps can be used at any depth. However, it is recommended that the deepest section of manhole units should be used whenever possible, in order to minimise the number of joints and costs. Precast cover slabs can be laid directly onto the shaft or chamber rings. To allow for any differential settlement between manhole and pipeline, a flexible joint incorporating short length rocker pipes should be constructed as close as possible to the outside of the manhole or the concrete surround, if used. Extra care must be taken to ensure that joints are properly made.

JOINTING

Precast manhole components are provided with joints formed within the wall section. These are sealed with cement and sand mortar, or with proprietary FP McCann mastic sealants. Precast concrete manhole units, well jointed, provide an adequate seal under normal conditions.

REINSTATEMENT

An in-situ concrete surround to precast concrete manholes is not necessary because a well-constructed precast manhole is a strong, durable structure with its own inherent strength and would only require a surround for exceptional structural reasons. However, under some specifications, a concrete surround is required where the depth from ground level to the base of the concrete chamber ring exceeds 4.5m. In this case, the surround should be of 150mm thickness. Backfilling should take place as each precast manhole section is placed. It must be brought up evenly and compacted around the manhole to prevent displacement.

TESTING

It is generally unnecessary to apply water tests to manholes. In normal working conditions, manholes are not normally full of water. Prevention of infiltration is of more relevance than exfiltration. If infiltration does occur, it can be seen and remedied by sealing using an appropriate method.

Note: When handling precast products on site, it is recommended that the contractor has the correct lifting equipment in place and adheres to the relevant lifting guidelines and standards.

Refer to the BPDA website for further information:

<https://www.precastdrainage.co.uk/page/pipe-laying-lifting>



SEALING STRIP

Nominal Size DN (MM)	Sealant Size (metres)	No. of rolls p/joint (metres)	Rolls required Quantity
900	20 x 20 x 4	0.88	1
1050	20 x 20 x 4	1.00	1
1200	20 x 40 x 4	1.13	2
1350	20 x 40 x 4	1.25	2
1500	20 x 40 x 4	1.38	2
1800	20 x 40 x 4	1.63	2
2100	20 x 40 x 4	1.88	2
2400	20 x 40 x 4	2.13	3
2700	20 x 40 x 4	2.38	3
3000	12 x 120 x 6	1.75	2
3600	12 x 120 x 6	2.08	3
4000	12 x 120 x 6	2.33	3

Please note this is a guideline based on sealant supplied by FP McCann only.

DN4000 MANHOLE CHAMBER



The DN4000 manhole chamber sections can be used in a variety of applications such as:

- Water treatment plants
- Stormwater attenuation systems
- Storage tanks
- Catchpits

The DN4000 chamber ring is supplied with a standard tongue and groove joint, connecting bolts and butyl rubber sealant for jointing purposes. The units are designed for use with the FP McCann ladder system. Single units (half ring) are lifted using 3 no. threaded lifting loops connected into threaded lifting sockets that are cast into the units, all of which must be used. Assembled units (full ring) are then lifted using 4 threaded lifting loops.

The 4 metre chamber section comes as a two part unit, which allows for ease of transport and handling.

DN4000 CHAMBER SECTION

Nominal Size (mm)	Section Depth (mm)	Wall Thickness (mm)	Approx. weight per section (kg)	Approx. weight per section when jointed (kg)
4000	1000	200	3400	6800
4000	750	200	2550	5100

DN4000 COVER SLAB – 2 PIECE UNIT (DETAIL FOR STANDARD 600 & 675 OPENINGS)

Nominal Size (mm)	Section Depth (mm)	Overall Thickness (mm)	Overall Diameter (mm)	Approx. weight of half section (mm)	Approx. weight of combined sections (kg)
4000	300	300	4500	6450	11,700

Cover slabs are manufactured in two sections, supplied with standard openings. Standard cover slabs are designed to withstand 30 units of Type HB loading, applied in accordance with BS 5911. If required, cover slabs can be designed to withstand 45 units of Type HB loading. For special opening cover slabs, an engineering drawing and steel specification may be required in order to achieve the desired loading requirement.

FP McCann will provide a technical installation sheet which must be adhered to when installing DN4000 manhole chambers. This is available online or from our sales team.

DN4000 LIFTING/HANDLING & INSTALLATION GUIDE

1. LIFTING

Single units (half ring) are lifted using 3 no. threaded lifting loops connected into threaded lifting sockets that are cast into the units, all of which must be used. The chain angle should not be less than 60 degrees to the horizontal. In order to lift without tilt, the chain lengths will differ. Refer to the diagram opposite for explanation of minimum chain angle and lengths. Alternatively, a spreader beam may be used. Complete units (full ring) are lifted using 4 threaded lifting loops attached to threaded lifting sockets cast into the units. Refer to the diagram opposite for explanation of the location of the lifting sockets to be used. The chain angle should not be less than 60 degrees to the horizontal. Alternatively, a spreader beam may be used. **Note: Using 3 chains to lift a full ring will put unnecessary stress on the concrete and may cause the concrete around the join to crack.**

Unit weight and identification of lifting points will be marked on each casting for information.

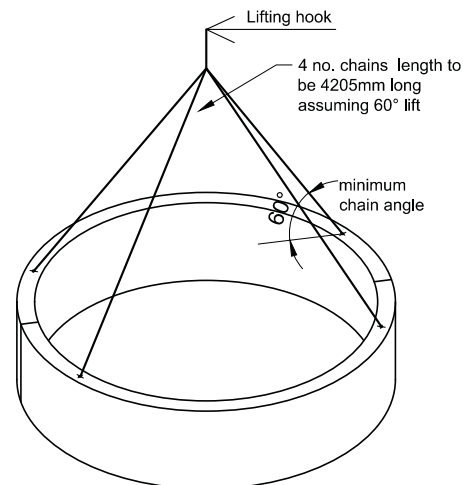
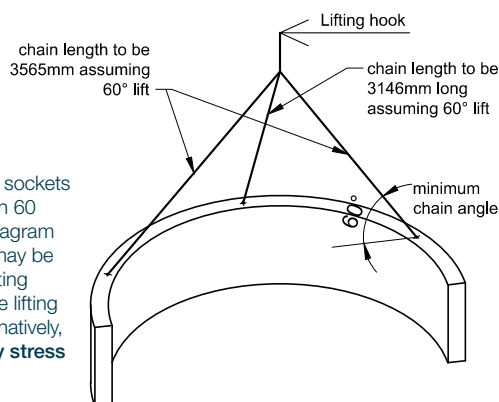
2. HANDLING & INSTALLATION

It is recommended that the two piece chamber ring is jointed before lifting into place:

- Place the two units on a level surface, ideally on 2 skids to reduce resistance when jointing and also to maintain a clean joint
- Place both halves side by side, ensuring both are at the correct orientation i.e. with bolt holes in line with threaded sockets
- Insert the M24x200 threaded pins with the 60mm threaded side placed into the cast-in sockets
- Place a strip of bituminous sealant along the small recess of the vertical joint on both halves of the ring
- Once bolts and sealant are in position, the 2 halves of the unit must be pulled together using a ratchet system e.g. a chain block fixed to the cast-in M24 x 80 sockets on opposite ends of the units. (Do not use the wall end bolting system to pull the units together as this may crack the concrete and damage the joint)
- The completed ring can then be manoeuvred into place, as detailed above

Half-rings can be lifted into final position and the chamber can be built up, a half unit at a time.

Please note it is the end-user's responsibility to ensure safe access and lifting procedures are followed at all times.



WIDE WALL MANHOLE CHAMBER

FP McCann's precast concrete wide wall manholes have been designed with a tongue and groove dimension to accommodate the use of bituminous sealant. FP McCann's approved sealant should be used at all times. The sealant requirement for wide wall manholes is 12mm x 120mm x 6m. When placing the sealing strip into position during installation, the ends of the strips must be overlapped by a minimum of 30mm and cut at an angle of 60 degree. The cut ends must then be pressed together. Full installation guidelines can be provided upon request or obtained from our website www.fpmccann.co.uk

DN1200, 1500 AND 1800MM WIDE WALL MANHOLE CHAMBERS

A 130mm thick wide wall chamber, in combination with the Easi-Base™ unit, provides a sealed watertight manhole system. This robust design means that the requirement for a concrete surround is eliminated.

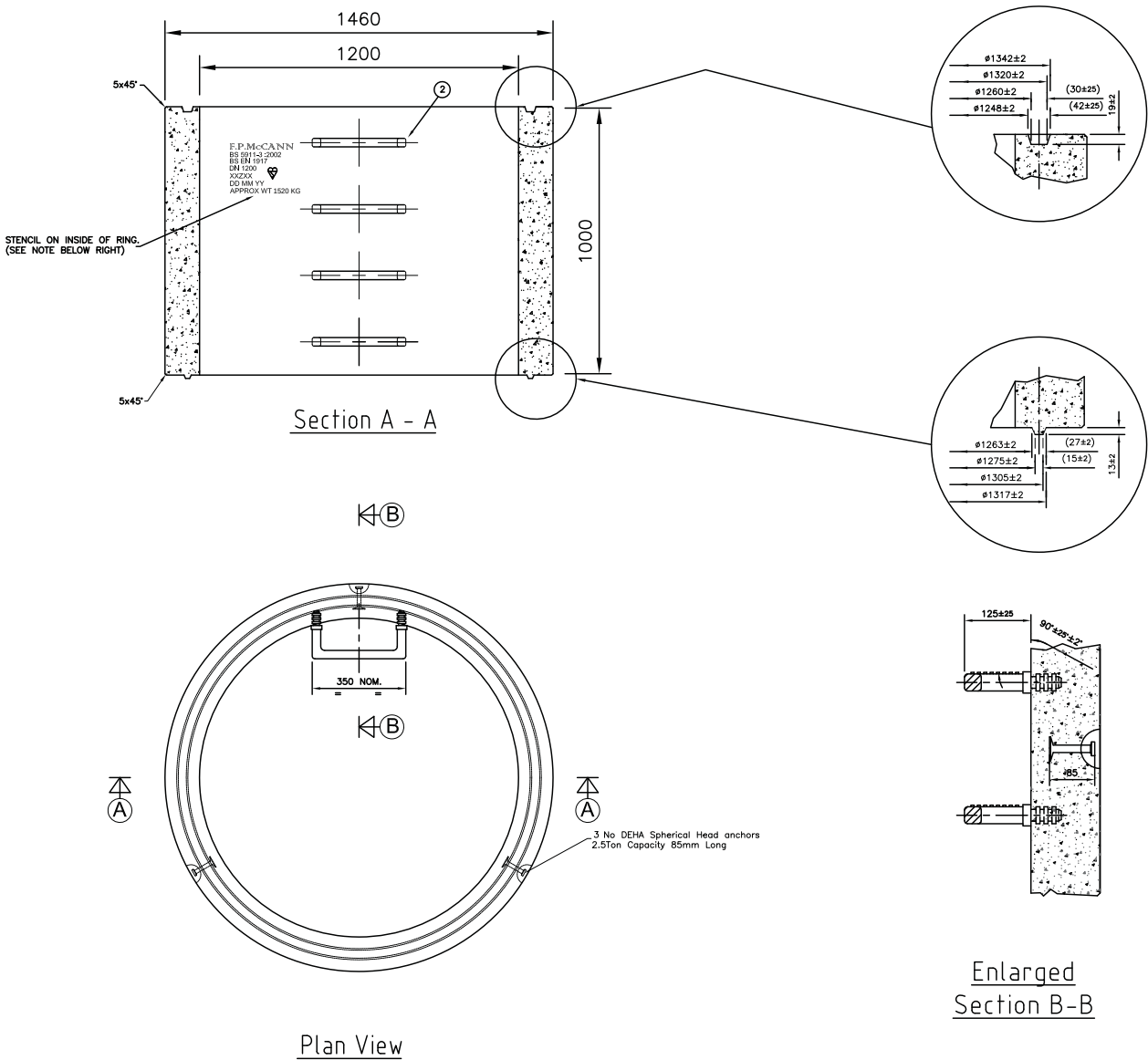
PRODUCT BENEFITS

- Quick and easy installation
- Watertight structure
- Safe anchor lifting system (spherical head lifting system)
- Greater cost savings associated with using precast concrete over a traditional system
- No concrete back fill required, in accordance with 'Sewers for Adoption' 7th edition
- More environmentally friendly than a traditional system, almost 40% less carbon omitted during the concrete casting process
- Significant reduction in health and safety risks associated with using precast concrete

Please note: Wide Wall Manhole Chambers are manufactured with 3 x 45mm diameter lifting points to facilitate the safe anchor lifting system (spherical head lifting system).



WIDE WALL MANHOLE CHAMBER DIMENSIONS



Nominal Size DN (mm)	Available Depth of Section				Wall Thickness (mm)	Barrel Diameter (mm)	Approx Weight Kg. (p/metre)	Approx. Products per load Qty. (metre)	36mm Lifting Pin 0.7t SWL	42mm Lifting Pin 3.5t SWL	3 leg lifting chain SWL 3.1t
	250mm (±25mm)	500mm (±25mm)	750mm (±50mm)	1000mm (±50mm)							
1200	✓	✓	✓	✓	130	1460	1520	16	Lifting clutches. FP McCann supplies recommended and approved lifting clutches.		✓
1500	✓	✓	✓	✓	130	1760	1645	14			✓
1800	✓	✓	✓	✓	130	2060	1970	12			✓

MANHOLE COVER SLABS & ACCESSORIES

STANDARD LANDING SLABS				
Chamber Section (DN)	Outside Diameter (A)	Opening Diameter (B)	Slab Thickness (C)	Approx. Weight (Kg)
1500	1730	900	200	826
1800	2050	900	200	1292
2100	2375	900	200	2030
2400	2705	900	200	2600
2700	3025	900	200	3880
3000	3330	900	200	4500

NB: All dimensions are in mm, unless stated otherwise

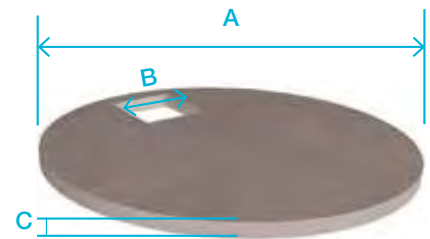
			STANDARD COVER SLABS			STANDARD REDUCING SLABS		
Chamber DN (mm)	Outside Diameter (A) (mm)	Slab Thickness (C) (mm)	Opening Configuration B		Approx. Weight (kg)	Opening Diameter B (mm)	Effective Depth (mm)	Approx. Weight (kg)
			Size (mm)	Location				
900	1080	150	600x600	CENTRAL	215			
			675x675					
1050	1240	150	600x600	ECCENTRIC	315			
			675x675					
			750x750	CENTRAL				
1200	1450	150	600x600	ECCENTRIC	455	900	200	385
			675x675					
			750x600					
1350	1580	170	600x600	ECCENTRIC	650	1050	200	695
			675x675					
			750x600			CENTRAL	1200	200
			1200x675					
1500	1740	175	600x600	ECCENTRIC	980	900 1050 1200	200 200 200	981 835 680
			675x675					
			750x600					
			1200x675	CENTRAL				
1800	2070	175	600x600	ECCENTRIC	1460	900 1050 1200	200 200 200	1495 1350 1220
			675x675					
			750x600					
			1200x675					
2100	2380	200	600x600	ECCENTRIC	2180	900 1050 1200	200 200 200	2130 2690 2540
			675x675					
			750x600					
			1200x675					
2400	2710	200	600x600	ECCENTRIC	2800	900 1050 1200	200 200 200	2815 2690 2540
			675x675					
			750x600					
			1200x675					
2700	3030	230	600x600	ECCENTRIC	3750	900 1050 1200	200 200 250	3695 3550 3410
			675x675					
			750x600					
			1200x675					
3000	3420	200	600x600	ECCENTRIC	4970	900 1050 1200	200 200 200	4970 4970 4970
			675x675					
			750x600					
			1200x675					
*3600 Two Piece	4000	300	600x600	ECCENTRIC	9250	Covers to suit Manholes greater than or equal to 1.5m deep cover level to pipe soffit		
			675x675					
			750x600					
			1200x675					
*4000 Two Piece	4500	300	600x600	ECCENTRIC	11700	*3600mm and 4000mm diameter cover slabs come in a 2 piece unit		
			675x675					
			750x600					
			1200x675					

Note:

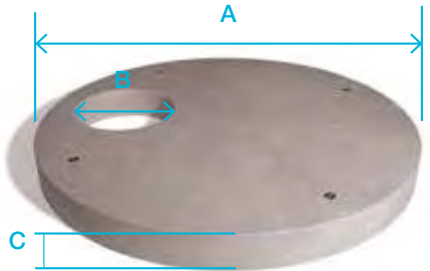
Cover Slab sizes 900-3000 are manufactured in accordance with BS 5911-3. DN3600 and 4000 cover slabs are generally designed in accordance with BS EN 1992-1-1, (for 30 units of Type HB loading, can also be designed to withstand 45 units of Type HB loading).

* Weights for DN3600 and DN4000 are estimated weights based on solid slabs.

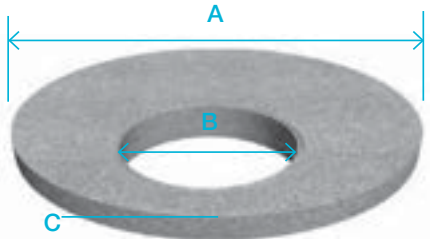
COVER SLABS



LANDING SLABS



REDUCING SLABS



Multiple access/other access sized cover slabs can be made to order

ADJUSTING UNITS & CORBEL SLABS

Manhole Type	Diameter (mm)	Opening Size (mm)	No. per Pack	Thickness (mm)	Weight (kg)
Type 2	1050	600 x 600	15	65	70
Type 2	1050	675 x 675	15	65	55
Type 2	1050	750 x 600	15	65	60
Type 2	1050	750 x 750	10	65	45
Type 2	1575 x 1050	1200 x 675	6	75	160
Type 1	1175 x 1025	600 x 600	10	65	125

Note: A 600 x 600 eccentric corbel slab is also available when using a ladder BS EN 1917 and BS 5911

FP McCann manufactures a full range of adjusting units and corbel slabs that have the following advantages:

- Designed as seating for manhole cover
- Eliminates laying engineering bricks on-site
- Quicker to lay, ensuring reduced labour costs
- 65mm thick – similar to brickwork
- Sits on top of the manhole cover slab
- Eliminates brickwork vertical joint weakspots
- Quality product produced by vibration process
- Comprehensive strength, similar to Class B.Eng bricks

Type 2
600x600



Type 2
675x675



Type 2
750x600



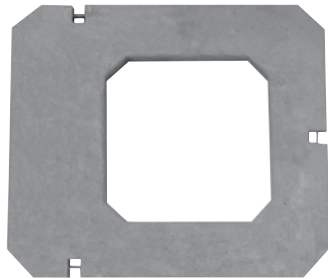
Type 2
750x750



Type 2 1200x675

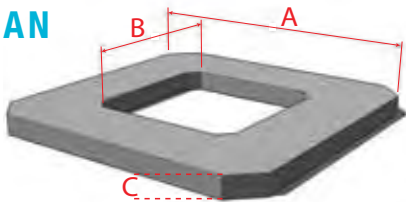


Type 1 600x600 Eccentric (Corbel)



Size (A) (mm)	Slab Thickness (C) (mm)	Openings (B) (mm)	Approx. Weight (kg)
1125x1125	75	600x600/675x675/750x600	140
1125x1125	150	600x600/675x675/750x600	290

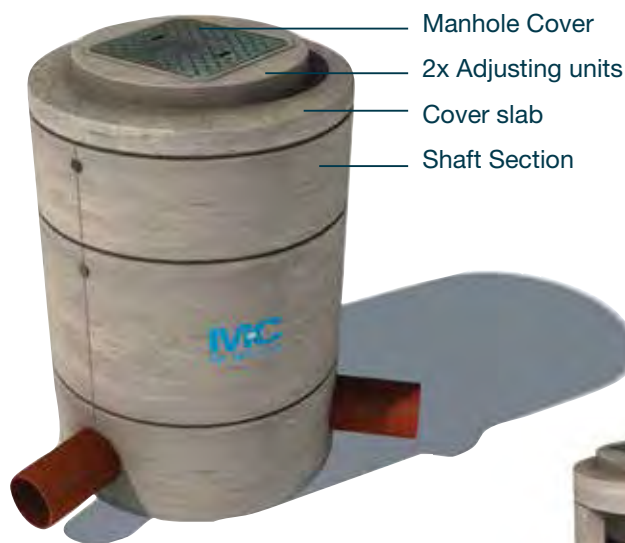
LOTHIAN
SLAB



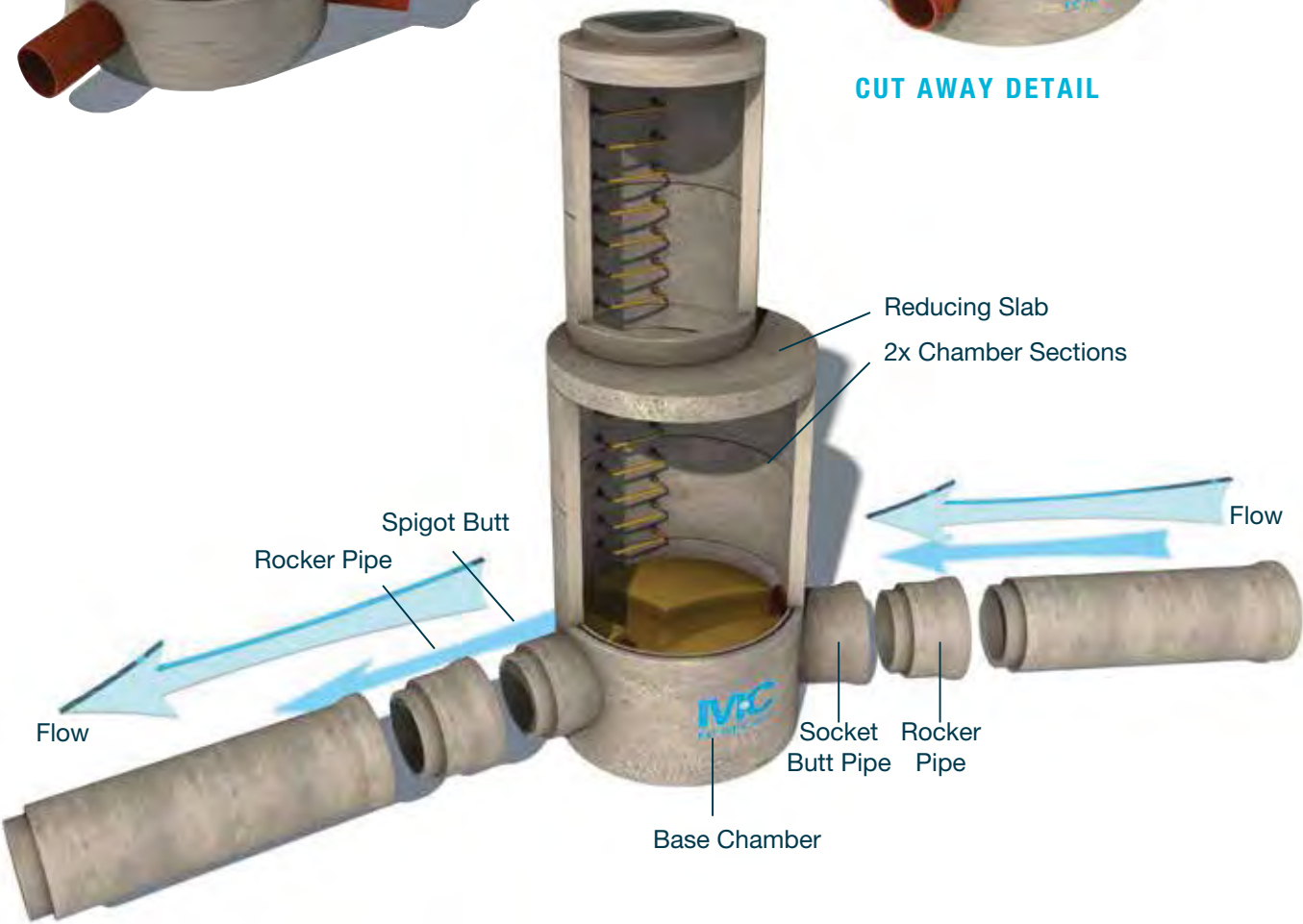
MANHOLE CONSTRUCTION



DETAIL OF MANHOLE CONSTRUCTION



CUT AWAY DETAIL



DN1200 EASI-BASE™

FP McCann's DN1200 Easi-Base™ is a prefabricated manhole base unit with integral benching, channels and connectors, that provides an immediate and long-lasting watertight solution in the management of waste water.

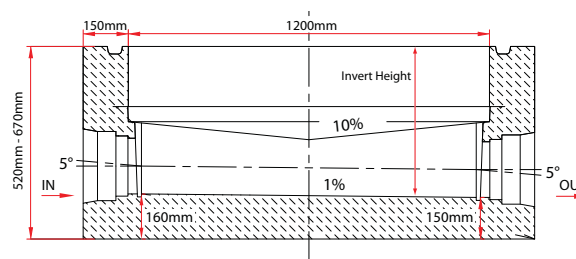
PRODUCT BENEFITS

- An extremely fast, efficient and economical method of constructing manhole bases on-site
- Accepted by all UK water companies
- Significant health and safety benefits
- An immediate watertight structure, allowing other trades to instantly follow on
- Factory prefabrication provides a quality finish to channelling and benching, and enables accurate combinations and variations for entry/exit pipes
- Connects with any type of pipe and is compatible with the DN1200 130mm thick wide wall chamber ring which eliminates the need for backfilling.
- Maintenance of channels and benches are aided by clean access for inspection
- Eliminates the risk of water pollution that is associated with traditional methods of manhole construction, such as concrete base formation integrity failures due to bad weather conditions, which results in groundwater being contaminated with polluted raw sewerage and clean groundwater infiltrating the already overloaded raw sewerage system of pipelines and treatment plants
- The 7th Edition of Sewers for adoption has now been published to include precast bases; Easi-Base™s are in full accordance with the guidance provided.
- Easi-Base™ is a kitemark product, manufactured and tested to BS EN1917
- WRc tested and approved
- An 80 year guaranteed base

The unique DN1200 Easi-Base™ utilises a polypropylene liner with prefabricated benching and channels. Pipe connection bells are pushed into the inlet and outlet points and the liner is then encased and embedded in concrete to provide its structural strength and integrity. The DN1200 Easi-Base™ is manufactured as a monolithic precast unit; it utilises the standard manhole tongue and groove joint and is ready for immediate use, in combination with either a standard 90mm thick manhole chamber or the new 130mm thick wide wall chamber ring.

The Easi-Base™ system connects with most type of pipe including Single wall uPVC, Twin wall, Concrete, Ductile Iron and Clay.

The DN1200 unit allows connection to channel diameters DN150 to DN300. FP McCann has developed a selection of adaptors to increase the range of pipe types accommodated. The type of pipe must be disclosed prior to placing the order, so that the correct adapters and seals are fitted.



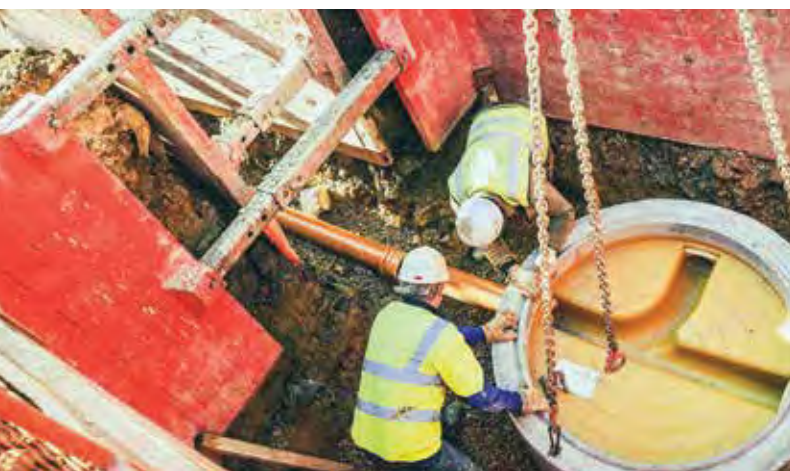
DN1200 EASI-BASE™ UNITS

Diameter	Internal Diameter	Size	Invert Level (for take off)	Depth	Weight
DN1200	150	SMALL	370	520	1.7
DN1200	150	MEDIUM	445	595	1.8
DN1200	150	LARGE	520	670	1.9
DN1200	225	SMALL	470	620	2.2
DN1200	225	MEDIUM	545	695	2.4
DN1200	225	LARGE	620	770	2.5
DN1200	300	SMALL	520	670	2.4
DN1200	300	MEDIUM	595	745	2.5
DN1200	300	LARGE	670	820	2.7

All sizes are in mm

PRODUCT FEATURES

- The DN1200 Easi-Base™ is made to an internal diameter of 1200mm with a tongue and groove joint profile to match standard DN1200 manhole chamber rings
- Wall thickness is 150mm
- The base has a 150mm floor thickness with the outlet invert at approximately 150mm from ground level
- A 1% fall exists across the channel toward the outlet (1:100)
- A gradient of 1:10 is present at the benching with the run-off toward the channel
- The height of the DN1200 Easi-Base™ unit varies in accordance with the diameter of the main channel running through the unit. (Please refer to the above table for heights)



**ELLISTOWN OFFICE:**

Whitehill Road
Ellistown
Leicestershire
LE67 1ET
T 01530 240000
sales@fpmccann.co.uk

MAGHERAFELT OFFICE:

16-18 Quarry Road
Knockloughrim
Magherafelt
BT45 8NR
T 028 7954 9026
sales@fpmccann.co.uk

AGRICULTURE

Lydney 01594 847500 Grantham 01476 562277

ARCHITECTURAL PRECAST

London 020 3905 7640

BOX CULVERTS

Weston Underwood 01335 361269

BUILDING PRODUCTS

Cadeby 01455 290780

DOCK LEVELLER PITS

Weston Underwood 01335 361269

DRAINAGE

Ellistown 01530 240000 (England/Wales) Magherafelt 028 7954 9026 (Scotland/NI)

FENCING

Cadeby 01455 290780

FILTER BED SYSTEMS

Wellesbourne 01789 336960

FLOORING

Weston Underwood 01335 361269 Uddingston 01698 803300

POWER & INFRASTRUCTURE

Littleport 01353 861416

RAIL

Littleport 01353 861416

SPECIALIST PRECAST

Littleport 01353 861416

STRUCTURAL PRECAST

Byley 01606 843500 Grantham 01476 562277

STOMRTANK™ - TANKS & CHAMBERS

Wellesbourne 01789 336960

TUNNELS & SHAFTS

Cadeby 01455 290780

WALLING

Grantham 01476 562277 Lydney 01594 847500
Uddingston 01698 803 300 (Scotland) Magherafelt 028 7954 9026 (NI)

FPMCCANN.CO.UK

POLYPIPE BUILDING PRODUCTS LTD
MATERIAL SAFETY DATA SHEET

Date: 10.01.18
Code: PVC-u Below Ground Products
Page: 1 of 5

1: IDENTIFICATION OF THE SUBSTANCE / MIXTURE

1.1 Product Identity

Product Name: Polypipe Building Products PVC-u Below Ground Products – Underground Drainage, Polysewer, Sewer drain, Ducting, Land Drain and Civils

1.2 Relevant Identified Uses:

Recommended use: Below Ground Systems

1.3 Details of Supplier

POLYPIPE BUILDING PRODUCTS
BROOMHOUSE LANE
EDLINGTON
DONCASTER
DN12 1ES

1.4 Contact details / Emergency contact details

TELEPHONE: 01709 770000
EMERGENCY: 01709 770000 (Mon to Fri 08.00 to 17.30)
EMAIL: bp.datasheets@polypipe.com

The following information is based upon our current knowledge and experience of our products and is not exhaustive. It applies to the product range outlined above. The potential hazards identified, together with the recommended precautions for storage, handling and use, give the basic information for conducting workplace risk assessments and adequate control measures under the Control of Substances Hazardous to Health Regulations 2002, Control of Substances Hazardous to Health (Amendment) Regulations 2004, The CLP Regulations and the Approved Code of Practice

2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Non-Hazardous under normal conditions and use

2.2 Label elements

Not applicable

2.3 Other hazards

Non-Hazardous under normal conditions and use. Fine particles released during cutting may cause irritation to the eyes and respiratory tract.

3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

PVC-u

Calcium hydroxide - Stabilizer

Natural Calcium Carbonate - Filler

**POLYPIPE BUILDING PRODUCTS LTD
MATERIAL SAFETY DATA SHEET**

Date: 10.01.18
Code: PVC-u Below Ground Products
Page: 2 of 5

Chemical Name	EC No	CAS No.	Weight %	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH Registration Number
Poly (vinyl chloride)	-	009002-86-2	>99		-
Natural Calcium Carbonate	215-279-6	1317-65-3	>=85-<100		
Calcium hydroxide	215-137-3	1305-62-0	<20	STOT SE 3; H335 Skin Irrit. 2; H315 Eye Dam. 1; H318	01-2119475151-45-xxxx

4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice

Inhalation:	Not applicable in normal use. If thermal decomposition occurs and vapours have been inhaled, affected person is to be moved to fresh air and seek medical attention.
Skin Contact:	Not applicable under normal use. Fine particles released during cutting - wash with soap and water
Eye contact:	Not applicable under normal use. Fine particles released during cutting – rinse with clean water for up to 10 minutes holding eyelids apart. Seek medical advice.
Ingestion:	Not applicable in normal use. If ingestion of dust occurs during cutting, rinse mouth out with water and seek medical advice. Do not induce vomiting.

5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media	Water, Foam, CO2, Sand or Earth
Unsuitable Extinguishing Media	Do NOT use water

5.2. Special hazards arising from the substance or mixture

Combustible but not readily ignited under normal conditions.

Combustion or thermal decomposition will evolve toxic and irritant vapours – Hydrogen Chloride, Carbon Monoxide & Carbon Dioxide, Smoke & Fire Soot

5.3. Advice for firefighters

With large fires self-contained breathing apparatus and protective clothing must be worn. Combustion will cease on flame removal.

6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal Precautions:	Not applicable under normal conditions. Avoid build of dust during any cutting process
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6.2. Environmental precautions

Not applicable under normal conditions.

**POLYPIPE BUILDING PRODUCTS LTD
MATERIAL SAFETY DATA SHEET**

Date: 10.01.18
Code: PVC-u Below Ground Products
Page: 3 of 5

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Material should be collected in clean containers and recycled where practicable.

6.4. Reference to other sections

Reference to other sections: Sections 8 & 13

7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling

Ensure safe lifting techniques are applied when handling the product.
The use of Personal Protective Equipment (PPE) is recommended when working with this product.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions

Store under cover away from sources of heat and ignition and strong acids
Store in a dry location

8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Chemical Name	CAS No.	LTEL 8 hr TWA ppm	LTEL 8 hr TWA mg/m3	STEL ppm	STEL mg/m3	Note:
PVC Dust (Respirable)	009002-86-2	-	1.5	-	COM	01-2119457290-43-XXXX
Natural Calcium Carbonate (Inhalable) (Respirable)	1317-65-3		10 4			
Calcium hydroxide (Inhalable)	1305-62-0		5			

8.2. Exposure controls

Engineering Controls

Not applicable in normal use.

Personal Protective Equipment

General & hygienic measures

Wash hands before breaks and at the end of work
Avoid contact with the eyes

Eye/Face Protection

Suitable safety goggles should be worn to reduce the potential risk due to cutting swarf and dust

Respiratory Protection

Wear suitable dust mask if cutting operation creates dust

Protection of Hands

Abrasive resistant gloves should be worn to reduce the potential risk of small cuts and abrasions, which may occur during the installation process

POLYPIPE BUILDING PRODUCTS LTD
MATERIAL SAFETY DATA SHEET

Date: 10.01.18
Code: PVC-u Below Ground Products
Page: 4 of 5

9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State:	Solid PVC-u product
Odour:	Slight
Auto ignition Temperature:	450 °C
Explosive properties	Deposited dust is weakly flammable and has no self-sustained flame. This product is not classified as a dust explosive
Solubility (Water):	Insoluble
Solubility (Other):	Soluble in: cyclohexanone, tetrahydrofuran, 1,2 Dichloroethane
Specific Gravity:	1, 4 at 20 Deg C

10: STABILITY AND REACTIVITY

10.1. Reactivity

Stable under normal handling and storage conditions

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

PVC-u

With the exception of sulphuric acid (> 90%) and nitric acid (>50%), PVC is resistant to acids and alkalis up to 60 Deg C. However, above this temperature the polymer is attacked by the stronger acids.

Calcium Carbonate (filler)

Reacts with acids to form carbon dioxide.

10.4. Conditions to avoid

Dust accumulation

10.5 Incompatible materials

PVC-u see 10.3

Calcium Hydroxide – Stabiliser – Strong oxidising agents

10.6. Hazardous decomposition products

PVC-u

Thermal decomposition will evolve toxic vapours. (hydrogen chloride, carbon monoxide, carbon dioxide and fire soot).

11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

PVC-u

Inhalation	PVC products may contain traces of vinyl chloride monomer
Ingestion	High concentrations of dust may be irritant to the respiratory system
Skin	May cause abrasion in contact with skin
Eyes	May cause abrasion on contact with eyes

12: ECOLOGICAL INFORMATION

General information:

There is no risk to the environment from the use of this product. The product is insoluble in water. The product has no mobility in soil. There is no evidence for biodegradability in water or soil. The product is not harmful to organisms.

POLYPIPE BUILDING PRODUCTS LTD
MATERIAL SAFETY DATA SHEET

Date: 10.01.18
Code: PVC-u Below Ground Products
Page: 5 of 5

13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Recover and recycle if possible. Dispose of waste material in accordance with national and local regulations

14. TRANSPORT INFORMATION

These products are not classified as dangerous goods for carriage

15: REGULATORY INFORMATION

Not classified as hazardous for supply

16: OTHER INFORMATION

Training Advice Provide adequate information, instruction, and training for operator

This product should be used in accordance with the manufacturer's instructions

It is the user's responsibility to adhere to both National and Local Safety Regulations.

This safety data sheet complies with the requirements of: Regulation (EC) No. 1907/2006

Disclaimer

The information provided in this Safety Data Sheet was compiled using current safety information supplied by distributors of the component materials. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

This safety data sheet. Recipients of the product must take responsibility for observing existing laws and regulations. This Safety Data Sheet is in REACH Annex II format and supersedes all previous issues, and users are cautioned to ensure it is the current version.

Destroy all previous revisions and refer to the supplier on +44 1709 770000 for queries regarding this data sheet.

Aluminium Access Covers



Applications:

- Schools
- Hospitals
- Leisure facilities
- Retail
- Hotels
- Kitchens



1. Wrekin Products Ltd is continually seeking to improve our products and therefore reserves the right to alter product specifications without prior notice.
2. It is the responsibility of all users to satisfy themselves the above data is current.
3. Installation details are available on request.
4. Version 2 - August 2019 - CT



SCAN QR
CODE FOR
MORE INFO



Recessed access covers – Triple sealed

This range of superior finish recessed covers and frames is designed to accommodate a range of flooring finishes. For areas requiring an aesthetically pleasing finish.

Features included as standard are:

- Four locking screws and 3 neoprene seals offering resistance to gas egress and water / grit ingress.
- The standard tray depth is nominally 27 mm unless otherwise indicated.
- They are ideally suited for indoor use in areas where a superior finish is required.
- Surface seal to prevent grit and debris ingress



Manufactured from strong, recyclable, corrosion resistant aluminium



Threaded key available for lifting through screw holes

WREKIN STOCK CODE	CLEAR OPENING SIZE (C x D mm)	OVER FRAME SIZE (A x B mm)	FRAME DEPTH (E mm)	LOAD DUTY	SMWL PNEUMATIC	FACTA CLASS (COMPARABLE)	GLVW
CALPRO40L/030030	300 x 300	390 x 390	40	LIGHT	1.5 Tonne	AA	5 Tonne
CALPRO40L/045045	450 x 450	540 x 540	40	LIGHT	1.5 Tonne	AA	5 Tonne
CALPRO40L/060045	600 x 450	690 x 540	40	LIGHT	1.5 Tonne	AA	5 Tonne
CALPRO40L/060060	600 x 600	690 x 690	40	LIGHT	1.5 Tonne	AA	5 Tonne
CALPRO40L/067067	675 x 675	765 x 765	40	LIGHT	1.5 Tonne	AA	5 Tonne
CALPRO40L/075060	750 x 600	840 x 690	40	LIGHT	1.5 Tonne	AA	5 Tonne
CALPRO40L/075075	750 x 750	840 x 840	40	LIGHT	1.5 Tonne	AA	5 Tonne
CALPRO40L/090060	900 x 600	990 x 690	40	LIGHT	1.5 Tonne	AA	5 Tonne

Dimensions:

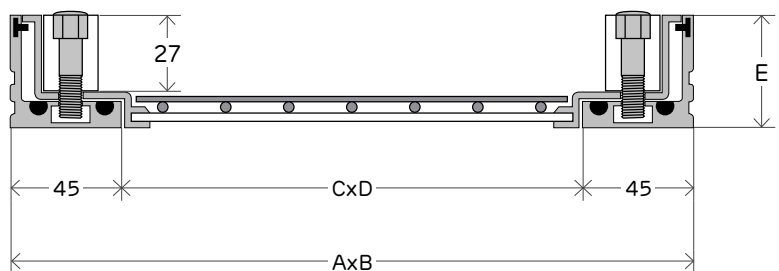
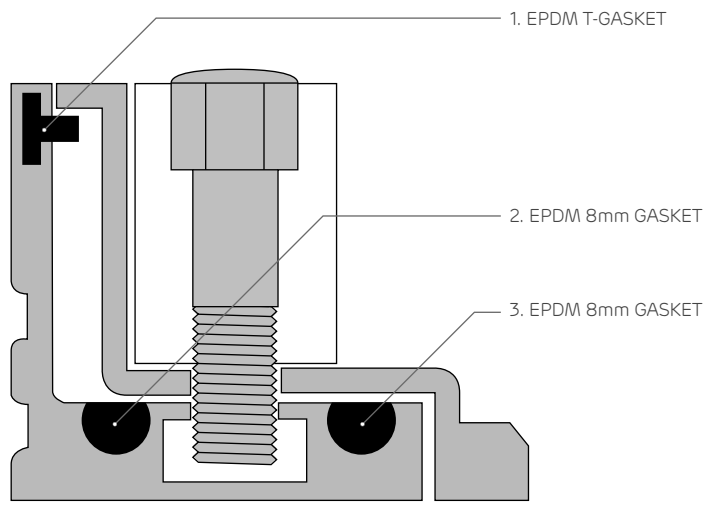
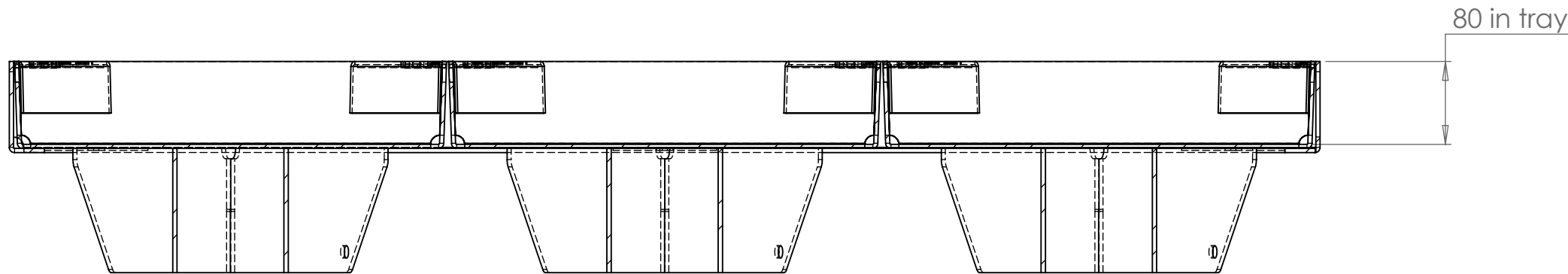


Diagram Key	
A x B	Overall Frame Size
C x D	Clear Opening
E	Frame Depth

Triple sealing explained:

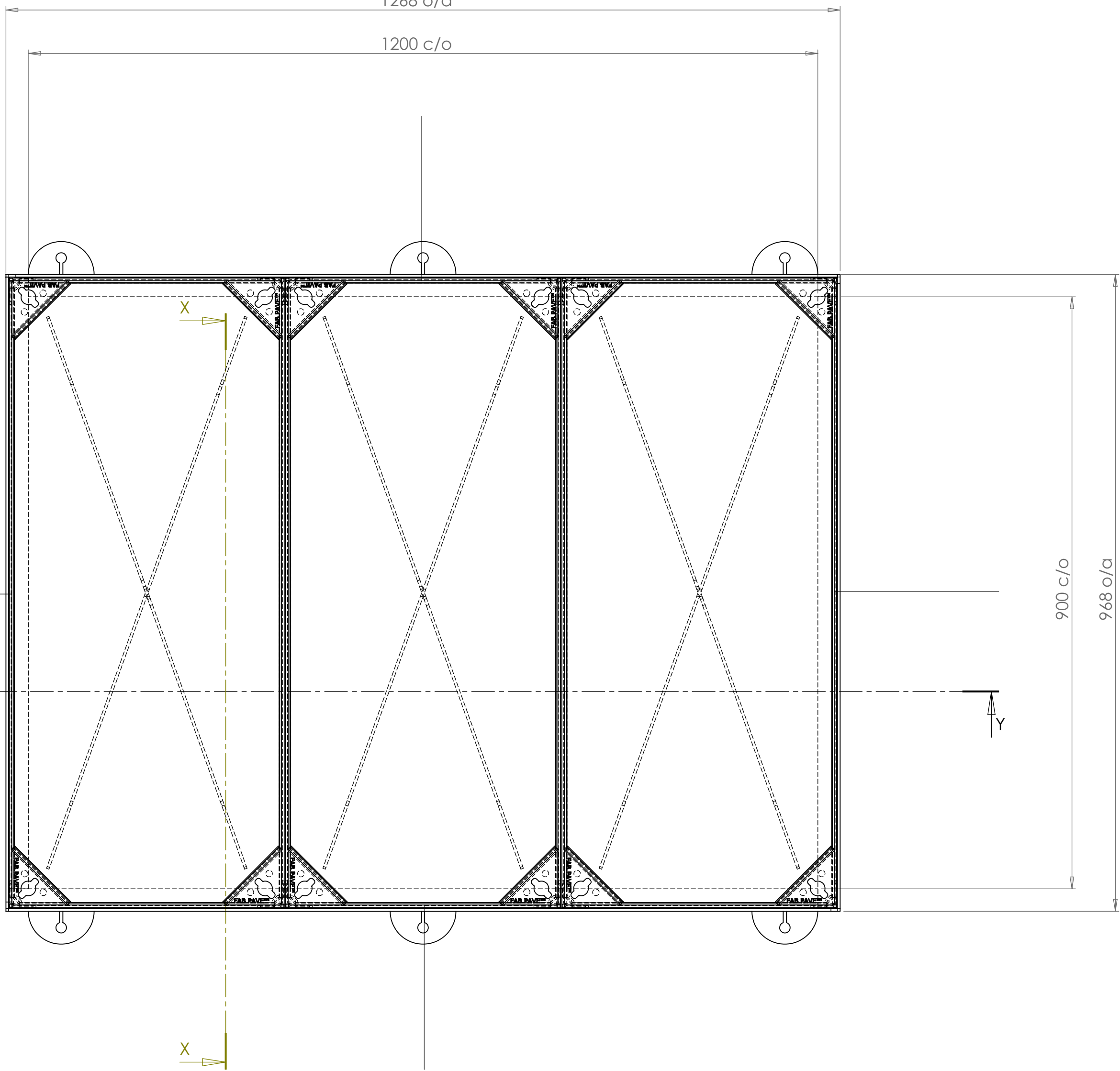


SECTION Y-Y

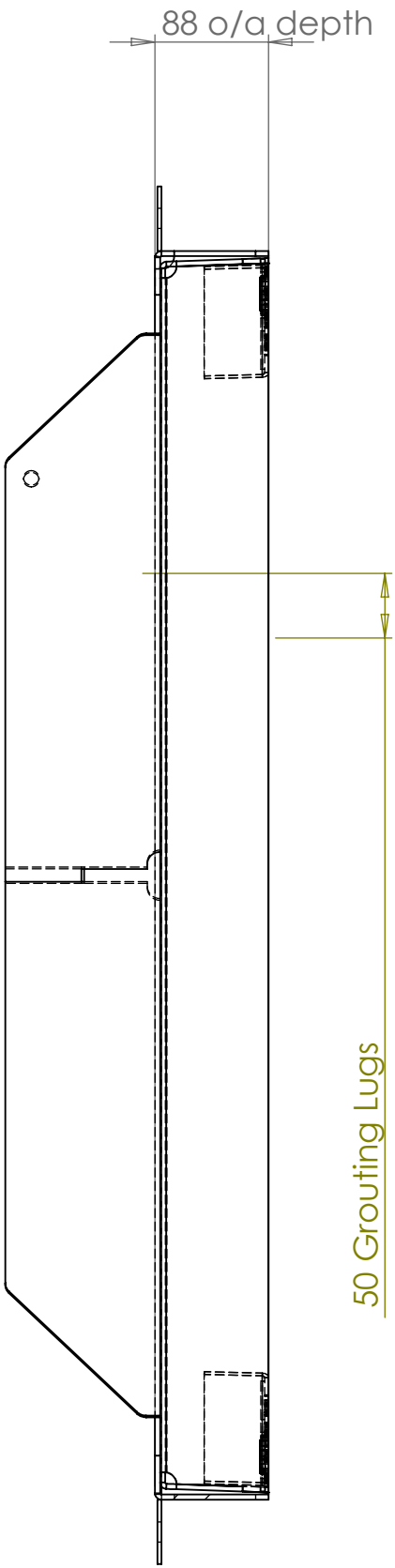


1268 o/a

1200 c/o



88 o/a depth



SECTION X-X

DRAWING NOTES:

WELD NOTES:

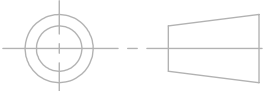
1. Minimum weld length 40mm at a 100mm spacings
2. Fully weld vertical sides of corner boss, do not weld the surface face off the boss or the tabs on the cover.
3. For welds located on outside of rein start weld nearest to centre of cover & weld to end of reinforcing returning the end of the weld around to the other side

Manufacturing Tolerances		
No	Type	Value
1	Length	+/- 2 mm
2	Width	+/- 2 mm
3	Depth	+/- 1 mm
5	Seating faces	<= 2 mm
6	Squareness	<= 3 mm
7	Surface flatness	<= 3 mm

-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
REV:	ALTERATIONS MADE:	DRAWN:	APP'D:	DATE:

ALL DIMENSIONS IN MILIMETERS - DO NOT SCALE

THIRD ANGLE PROJECTION



Fabweld Steel Products Ltd

Value and service for our customers through our people

Fabweld Steel Products Ltd
Units D11-D13 Court 2000
Madeley, Telford, TF7 4JB

Tel: 01952 581430
Fax: 01952 586141
www.manholes.co.uk

PART CODE: AC-NS06648

PART DESCRIPTION:
1200x900mm c/o FAB PAVE S70/Galvanised
Mild Steel/3 Part/FACTA B/80mm in tray

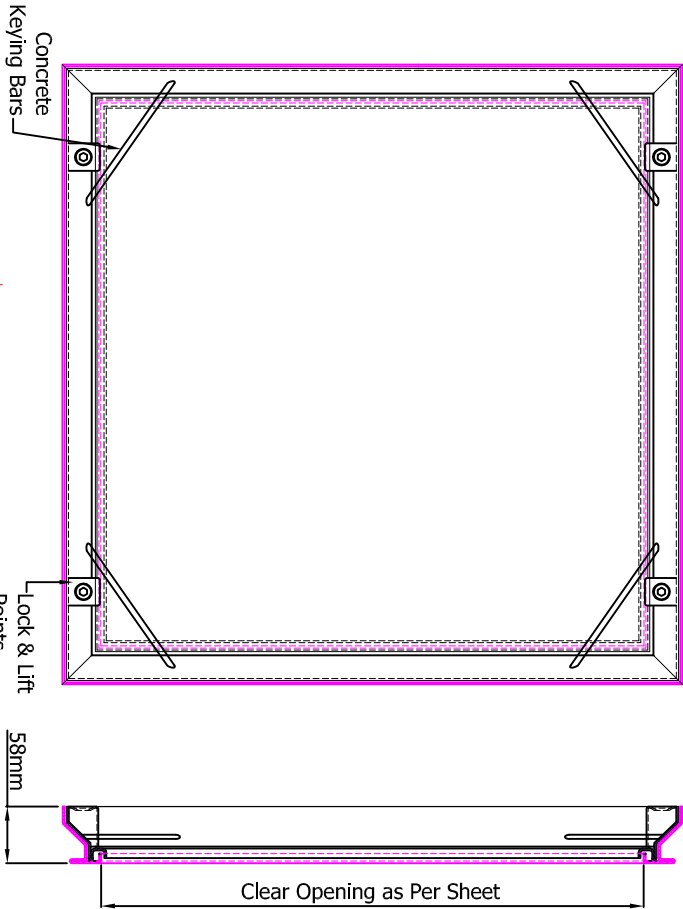
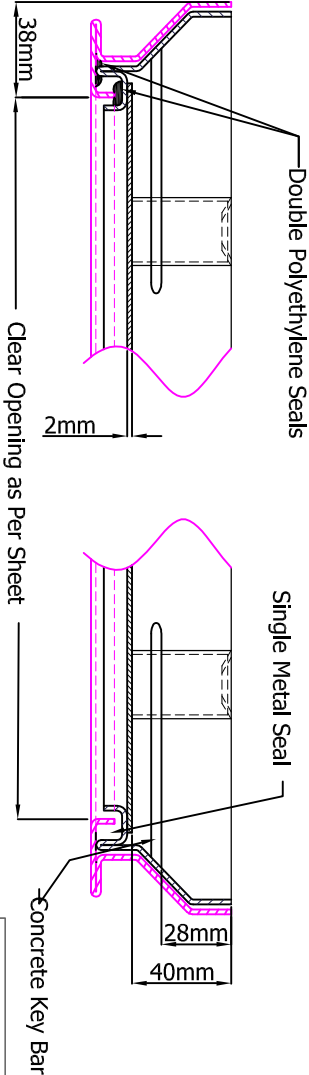
DRAWN BY:	DB	REVISION: 0
APPROVAL REQUIRED:	YES	
APPROVED BY:	JB	
DATE:	02/11/2021	

3100 Series

58mm Deep Medium Duty Recessed
Tray Type Access Cover and Frame.
Recommended Rebate A = 70
 B = 50

Standard Opening Sizes	Single Metal Seal Non Locking	Double Polyethylene Sealed, and Locking
	FACTA Class AAA (10 tonne)	FACTA Class AAA (10 tonne)
300 x 300	PS3100A	PS3104A
450 x 450	PS3100B	PS3104B
600 x 450	PS3100C	PS3104C
600 x 600	PS3100D	PS3104D
750 x 600	PS3100E	PS3104E
750 x 750	PS3100F	PS3104F
900 x 600	PS3100G	PS3104G
900 x 750	PS3100H	PS3104H
900 x 900	PS3100J	PS3104J
1000 x 1000	PS3100K	PS3104K

- Non Standard sizes available.
- Brass and Stainless Steel Edging available.
- Locking Screws Available in M8x25
Slot Head
Allen Head
Hex Pin or MOD



**Product Series Drawing
for Information Only.**

Drawing Number: 3100 Series
Revision: Initial Draft

Project: Product Series Drawings		Initial Draft		22/06/17
Description: 3100 Series		Weight: N/A	 Liberty House, Liberty Business Park Attleborough, Nuneaton Warwickshire, CV11 6RZ Tel: 024 7664 1777 fax: 024 7637 5250	Unless otherwise specified dimensions are in millimetres.
Drawn By: TK	Material: Mild Steel to BS EN 10025: G350 conformed to BS EN ISO 1461:2009	Tolerance: +/- 3mm	This drawing and any information it contains is the property of EJ and is issued on the condition that it is not copied, traced, or published without prior consent or misused in anyway.	Sheet: 1 of 1
Checked By: J. Lee	Loading: N/A			

PVC DUCT POWER


EF450-014 (Rev5)


General

Emtelle PVC Power Duct is designed, manufactured and supplied within an Integrated Management System, incorporating internationally recognised Standards including ISO 9001:2008, ISO 14001:2004 and ISO 18001:2007.

The duct is designed to comply with ENATS 12-24 (Class 1 & 2) Industry Standard.

PVC Power duct is available with 2 socket types; Standard interference Socket (IP4X), and also Emtelle's innovative new Interference Ring Seal (IRS) Socket (IP-57). Additional information on this new socket can be found in specification EF450-019.

Duct systems are printed with standard markings, including any additional information required by the customer, to give durability and traceability after installation.

Standard length of a pipe is 3m or 6m.

The duct is supplied on non-returnable wooden U-frames which are designed to be stored on even, stable ground; they must not be stored more than 3 high. Packaging should be recycled locally.

Colour fastness and UV stability for UK and Ireland only, for 12 months external storage unless otherwise agreed by customer specification.

Physical Characteristics

Raw materials are PVC resin and other additives suitable for the required properties of the finished duct. Standard colours are Black and Red.

Standard Duct sizes & available Socket types

Nominal OD / ID (mm)	Class	Interference Socket	Ring Seal Socket	Interference Ring Seal Socket
38 / 34	1	Available SL=70mm	-	-
38 / 34	2	Available SL=70mm	-	-
42 / 38	1	Available SL=70mm	-	-
42 / 38	2	Available SL=70mm	-	-
50 / 45	1	Available SL=70mm	Available SL=70mm	-
50 / 46	2	Available SL=70mm	Available SL=70mm	-
53.9 / 49	1	Available SL=70mm	-	-
53.9 / 50	2	Available SL=70mm	-	-
63 / 58	1	Available SL=70mm	-	-
63 / 59	2	Available SL=70mm	-	-
75 / 68	1	Available SL=75mm	Available SL=75mm	-
75 / 69	2	Available SL=75mm	Available SL=75mm	-
88.9 / 82	1	Available SL=85mm	-	-
88.9 / 83	2	Available SL=85mm	-	-
96.5 / 89	1	Available SL=100mm	-	-
96.5 / 90	2	Available SL=100mm	-	-
110 / 102	1	Available SL=110mm	-	Available SL=110mm
110 / 103	2	Available SL=110mm	-	Available SL=110mm

Nominal OD / ID (mm)	Class	Interference Socket	Ring Seal Socket	Interference Ring Seal Socket
125 / 116	1	Available SL=125mm	Available SL=125mm	-
125 / 118	2	Available SL=125mm	Available SL=125mm	-
140 / 131	1	Available SL=140mm	-	-
140 / 132	2	Available SL=140mm	-	-
160 / 150	1	Available SL=160mm	-	Available SL=160mm
160 / 151	2	Available SL=160mm	-	Available SL=160mm
168 / 158	1	Available SL=160mm	-	-
168 / 159	2	Available SL=160mm	-	-
180 / 169	1	Available SL=180mm	-	-
180 / 171	2	Available SL=180mm	-	-
200 / 188	1	Available SL=200mm	-	Available SL=200mm
200 / 190	2	Available SL=200mm	-	Available SL=200mm
225 / 213	1	Available SL=225mm	-	-
225 / 215	2	Available SL=225mm	-	-
250 / 237	1	Available SL=250mm	-	Available SL=250mm
250 / 239	2	Available SL=250mm	-	Available SL=250mm

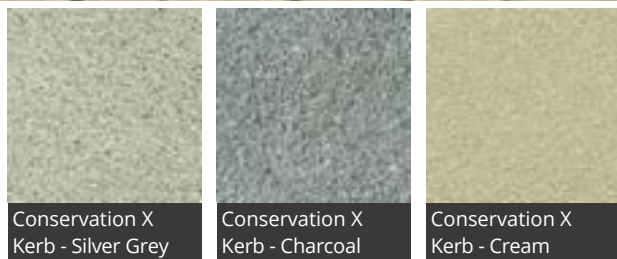
SL = Socket Length (Nominal).

This product specification is intended as a guide only. Whilst the information it contains is believed to be correct, Emtelle can take no responsibility for actions taken based on the information contained in this document. Emtelle reserves the right to make changes to this document without notice. All sales of product are subject to Emtelle's terms and conditions of sale only, which can be found on Emtelle's website. www.emtelle.com

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145 x 145 Conservation X Kerb Centre Stone

Date Created: 13/04/21



*Natural products are manufactured from aggregates sourced locally to the works and contain no pigmentation, therefore colour variation between products from different works is possible.

For a striking and modern kerb system, the **Conservation X Kerb** offers a slightly wider profile than a standard kerb, delivering modern design aesthetics in any application.

Marshall's **Conservation X Kerb** is high in strength and precision-manufactured before going through a unique secondary texturing process, helping it achieve a granite-look finish. This product is manufactured in the UK with up to 48% recycled material content.

The beauty of our **Conservation X Kerb** is the wide range of supporting ancillaries, making it an all encompassing kerb system solution. It can be used in a whole host of projects, including pavements, pedestrian areas within busy urban spaces, car parks and much more.

Available in Charcoal, Silver Grey and our new Cream colour, these kerbs complement the Conservation X Block and Paving ranges perfectly. You can view our full Conservation X range [here](#).

DESCRIPTION	
Appearance	Solid unit with textured surface
Manufacturing Process	Hydraulically pressed concrete
Base Raw Material	Concrete
Governing Manufacturing Standards	All data where relevant to be established in accordance with BS EN 1340 : 2003
Type	Solid unit with textured surface
CE Marking/DOP	https://www.marshalls.co.uk/dop
NBS Specification	Q10 112,Q10 10,Q10 510

145 x 145 Conservation X Kerb Centre Stone

Date Created: 13/04/21

PHYSICAL PROPERTIES

Work Dimensions (mm)	145 x 145 x 915
Nominal Dimensions (mm)	145 x 145 x 915
Tolerances on Work Dimensions (mm)	Width ±3mm, height ±3mm, length ±3mm
Abrasion Resistance (mm)	≤ 23mm (Wide Wheel Abrasion Test)
Durability (Freeze-thaw)	≤ 1.0 kg/m ² as a mean with no individual value > 1.5 kg/m ²
Material Density	2300 kg/m ³ (typically)
Slip/Skid Resistance (polished)	Mean polished skid resistance value (PSRV) : > 45
Slip/Skid Resistance (unpolished)	Mean unpolished skid resistance value (USRV) : > 45.
Thermal Conductivity (K value)	Design data as defined to BS EN 13369 : 2013
Transverse/FlexuralSplit/Breaking	Characteristic bending strength of 3.5 MPa with no individual result less than 2.8 MPa

SPECIFICATION

Approx unit weight (kg)	51
Emission of Asbestos	No content
External Fire Performance	Deemed to satisfy when used for roofing
Reaction to fire	Class A1 when used for internal flooring
Materials Control	CE Marked to BS EN 1340 : 2003 Concrete Kerbs

SUSTAINABILITY

Carbon Footprint	11 kg CO2 lin m
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APPLICATION

Suitability	Laid in accordance with BS7533-6 : 2006
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SUPPLY

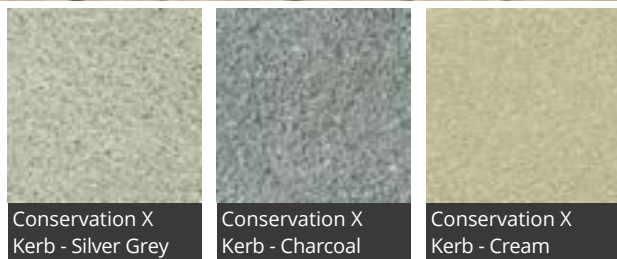
Units Per Pack	21
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FURTHER INFORMATION

Cleaning & Maintenance	Available on request
Efflorescence	Any product containing cement during its early life may exhibit a temporary white discolouration known as efflorescence. This is not a product fault and will gradually disappear with exposure to natural weathering and trafficking
Weathering	It should be appreciated that with all products weathering and site conditions can cause shade variation to appear across the surface of individual units. This does not in any way affect the performance of the units and any such variation will diminish over a period of time as the product matures.
Product Evolution	The evolution of new product design is continuous and information is subject to change without notice. Customers should check with the supplier to ensure that they have the latest details. Marshall's reserve the right to amend the technical information as deemed necessary and in accordance with the relevant national and international standards without notice
Contact Us	For technical information on the design, specification and construction when utilising the product, contact Group Technical Services on 0370 411 2233

255 x 205 x 915 Conservation X Kerb

Date Created: 13/04/21



Conservation X
Kerb - Silver Grey

Conservation X
Kerb - Charcoal

Conservation X
Kerb - Cream

*Natural products are manufactured from aggregates sourced locally to the works and contain no pigmentation, therefore colour variation between products from different works is possible.

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CE Marking/DOP	https://www.marshalls.co.uk/dop
NBS Specification	Q10 112,Q10 10,Q10 510

255 x 205 x 915 Conservation X Kerb

Date Created: 13/04/21

PHYSICAL PROPERTIES

Work Dimensions (mm)	255 x 205 x 915
Nominal Dimensions (mm)	255 x 205 x 915
Tolerances on Work Dimensions (mm)	Width ±3mm, height ±3mm, length ±3mm
Abrasion Resistance (mm)	≤ 23mm (Wide Wheel Abrasion Test)
Durability (Freeze-thaw)	≤ 1.0 kg/m ² as a mean with no individual value > 1.5 kg/m ²
Material Density	2300 kg/m ³ (typically)
Slip/Skid Resistance (polished)	Mean polished skid resistance value (PSRV) : > 45
Slip/Skid Resistance (unpolished)	Mean unpolished skid resistance value (USRV) : > 45.
Thermal Conductivity (K value)	Design data as defined to BS EN 13369 : 2013
Transverse/FlexuralSplit/Breaking	Characteristic bending strength of 3.5 MPa with no individual result less than 2.8 MPa

SPECIFICATION

Approx unit weight (kg)	96
Emission of Asbestos	No content
External Fire Performance	Deemed to satisfy when used for roofing
Reaction to fire	Class A1 when used for internal flooring
Materials Control	CE Marked to BS EN 1340 : 2003 Concrete Kerbs

SUSTAINABILITY

Carbon Footprint	22 kg CO ₂ lin m
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APPLICATION

Suitability	Laid in accordance with BS7533-6 : 2006
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SUPPLY

Units Per Pack	10
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FURTHER INFORMATION

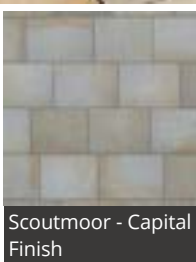
Cleaning & Maintenance	Available on request
Efflorescence	Any product containing cement during its early life may exhibit a temporary white discolouration known as efflorescence. This is not a product fault and will gradually disappear with exposure to natural weathering and trafficking
Weathering	It should be appreciated that with all products weathering and site conditions can cause shade variation to appear across the surface of individual units. This does not in any way affect the performance of the units and any such variation will diminish over a period of time as the product matures.
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Scoutmoor Yorkstone

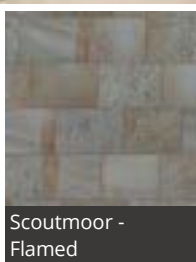
Date Created: 26/07/19



Scoutmoor -
Diamond Sawn



Scoutmoor - Capital
Finish



Scoutmoor -
Flamed

*It should be noted that colour variations and markings are characteristic of Natural Stone. Inherent variations cannot be controlled nor the precise shade of stone guaranteed.

Scoutmoor Yorkstone is a blue grey to brown coloured stone popular in projects across the UK thanks to its impressive technical performance. The strongest type of Yorkstone available in the UK, it is perfect for paved applications thanks to its strength, durability and class-leading slip resistance. Suitable for both pedestrian and trafficked areas, it's a reliable and hardwearing addition to any commercial or public space. As well as paving, Scoutmoor Yorkstone is suitable for setts, kerbs, tactile, steps, water management, special shaped paving and low level masonry veneers for planters and seats.

Textures include Diamond Sawn, Capital finish, and Flamed textured. Fully tested to the appropriate standards and CE marked to the latest legislation, the Scoutmoor quarry and manufacturing works are both ISO9001 accredited, and also meet ISO45001 and ISO14001 standards of health, safety and sustainability.

DESCRIPTION

Appearance	Blue Grey to Brown fine grained Yorkstone
Manufacturing Process	Sawn
Geological Type	Millstone Grit series, Carboniferous sandstone
Quarry of Origin	Scoutmoor Quarry, Lancashire
Governing Manufacturing Standards	All data where relevant to be established in accordance with BS EN 1341 : 2012, BS EN 1342 : 2012 & BS EN 1343 : 2012
Petrographical Description	Pale greenish grey fine grained sandstone
CE Marking/DOP	https://www.marshalls.co.uk/dop



Scoutmoor Yorkstone

Date Created: 26/07/19

PHYSICAL PROPERTIES

Work Dimensions (mm)	400 x 300 x 63 450 x 450 x 50 450 x 450 x 63 450 x 450 x 75 900 x 450 x 50 900 x 450 x 63 900 x 450 x 75 600 x 600 x 50 600 x 600 x 63 600 x 600 x 75 900 x 600 x 50 900 x 600 x 63 900 x 600 x 75 200 x 100 x 50 200 x 100 x 63 200 x 100 x 75 300 x 100 x 50 300 x 100 x 63 300 x 100 x 75 300 x 150 x 50 300 x 150 x 63 300 x 150 x 75 300 x 200 x 50 300 x 200 x 63 300 x 200 x 75
Tolerances on Work Dimensions (mm)	Paving Class 1 tolerances to all dimensions as standard Setts Class 2 tolerances to all dimensions as standard Kerbs Class 2 tolerances to all dimensions as standard Others by agreement
Abrasion Resistance (mm)	20.5mm (Mean value to EN 14157 : 2004 (Hev = 21.6mm))
Durability (Freeze-thaw)	24/21.9 MPa (Mean values to EN 12371 : 2006)
Material Density	2538 kg/m ³ (Mean value to EN 1936 : 2006)
Open Porosity (%)	5.6% (Mean value to EN 1936 : 2006)
Compressive Strength (MPa)	182 MPa (Mean value to EN 1926 : 2006 (Lev = 178 MPa))
Water Absorption (%)	1.86% (Mean value to EN 13755 : 2008 (Hev = 1.82%))
Transverse/FlexuralSplit/Breaking	22.2 MPa (Mean value to EN 12372 : 2006 (Lev = 18.71 MPa))

TEXTURE SPECIFIC PROPERTIES

	Diamond Sawn	Capital	Fine Sawn	Flamed
Light Reflectance Value (LRV)	27.83	28.98	27.83	34.97
Surface Roughness (Rz-µm)	41	>75	38	52

MANUFACTURING

Materials Control	CE Marked to BS EN 1341 Paving, 1342 Setts, 1343 Kerbs
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SUSTAINABILITY

ERI Score	Our Score: 4.8 Cluster Score: 3.8
Carbon Footprint	
Scoutmoor Yorkstone Paving 300 x RL x 50	25 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 300 x RL x 63	31.5 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 300 x RL x 75	37.5 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 450 x 450 x 50	25 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 450 x 450 x 63	31.5 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 450 x 450 x 75	37.5 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 450 x 900 x 50	25 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 450 x 900 x 63	31.5 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 450 x 900 x 75	37.5 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 450 x RL x 50	25 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 450 x RL x 63	31.5 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 450 x RL x 75	37.5 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 600 x 600 x 50	25 kg CO ₂ m ²
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Scoutmoor Yorkstone Paving 600 x 600 x 75	37.5 kg CO ₂ m ²
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Scoutmoor Yorkstone Paving 600 x 900 x 63	31.5 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 600 x 900 x 75	37.5 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 600 x RL x 50	25 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 600 x RL x 63	31.5 kg CO ₂ m ²
Scoutmoor Yorkstone Paving 600 x RL x 75	37.5 kg CO ₂ m ²
Scoutmoor Yorkstone	25 kg CO ₂ m ²



Scoutmoor Yorkstone

Date Created: 26/07/19

TEXTURE SPECIFIC PROPERTIES

Slip Resistance (BS 14231) (Dry)	99	102	88	103
Slip Resistance (BS 14231) (Wet)	85	86	70	69.9

SUSTAINABILITY

Setts 200 x 100 x 50	25 kg CO2 m ²
Scoutmoor Yorkstone Setts 200 x 100 x 63	31.5 kg CO2 m ²
Scoutmoor Yorkstone Setts 200 x 100 x 75	37.5 kg CO2 m ²
Scoutmoor Yorkstone Setts 300 x 100 x 50	25 kg CO2 m ²
Scoutmoor Yorkstone Setts 300 x 100 x 63	31.5 kg CO2 m ²
Scoutmoor Yorkstone Setts 300 x 100 x 75	37.5 kg CO2 m ²
Scoutmoor Yorkstone Setts 300 x 150 x 50	25 kg CO2 m ²
Scoutmoor Yorkstone Setts 300 x 150 x 63	31.5 kg CO2 m ²
Scoutmoor Yorkstone Setts 300 x 150 x 75	37.5 kg CO2 m ²
Scoutmoor Yorkstone Setts 300 x 200 x 50	25 kg CO2 m ²
Scoutmoor Yorkstone Setts 300 x 200 x 63	31.5 kg CO2 m ²
Scoutmoor Yorkstone Setts 300 x 200 x 75	37.5 kg CO2 m ²

FURTHER INFORMATION

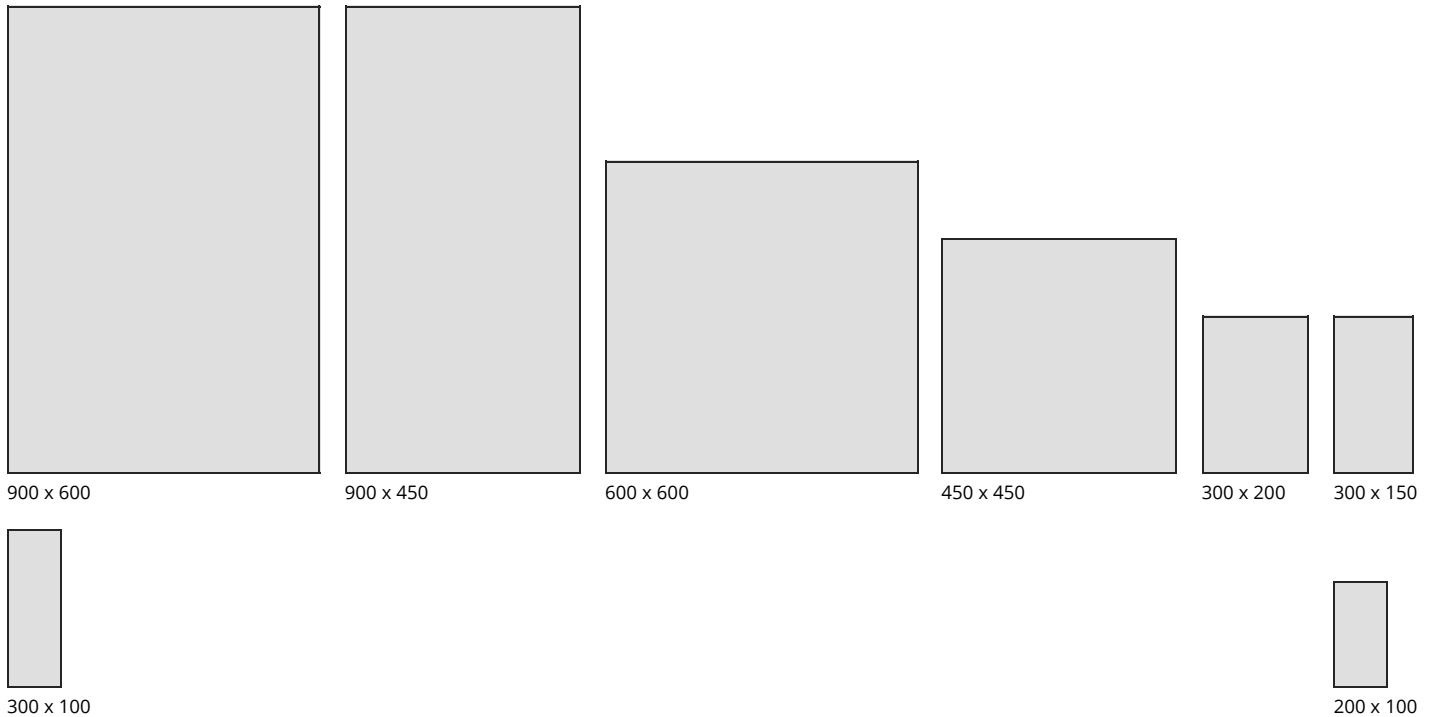
Contact Us	For technical information on the design, specification and construction when utilising the product, contact the Technical Advisory Services Department on 0370 411 2233
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Scoutmoor Yorkstone

Date Created: 26/07/19

Suggested Plan Sizes



The plan sizes shown above illustrate popular sizes of our Natural Stone. Bespoke sizes are available upon request.



GATIC®

DRAINAGE & ACCESS COVERS

Uniclass

C731

CI/SfB

(52.5)

h1

August 2019

Surface Water Drainage - Technical Guide



ALUMASC

WATER MANAGEMENT SOLUTIONS





Alumasc is a UK-based supplier of premium building products. The majority of the group's business is in the area of sustainable building products which enable customers to manage energy and water use in the built environment.



Alumasc Water Management Solutions provide 'Rain to Drain' solutions, that set the standard for urban water management. They include: **Skyline** Fascias, Soffit & Copings; **Alumasc Rainwater** Gutters & Downpipes; **Harmer** Building Drainage; **Wade** Building Drainage & **Gatic** Civil Drainage & Access Covers.

Under the AWMS banner, customers benefit from rainwater and drainage products that capture, retain and control the flow of rainwater in the most effective way inside and outside buildings.



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Best Service

Technical Support

Gatic’s wide range of slot drains is backed by the fastest technical response and the most extensive support. Our hands-on approach ensures customers get the best support every step of the way, from technical design through to installation. Our technical team is also accessible for site visits.

Rapid response design service

We aim to turn around the design of drainage systems based on your drainage layout, complete with quantities and delivery time scales, within 24 hours.

FREE Drainage Design Software

This interactive software allows you to design your own drainage system using the same programme as our in-house technical team. For a USB containing this free software, simply register your details with us. You can do this on the Knowledge section of our website, or by emailing / phoning us.



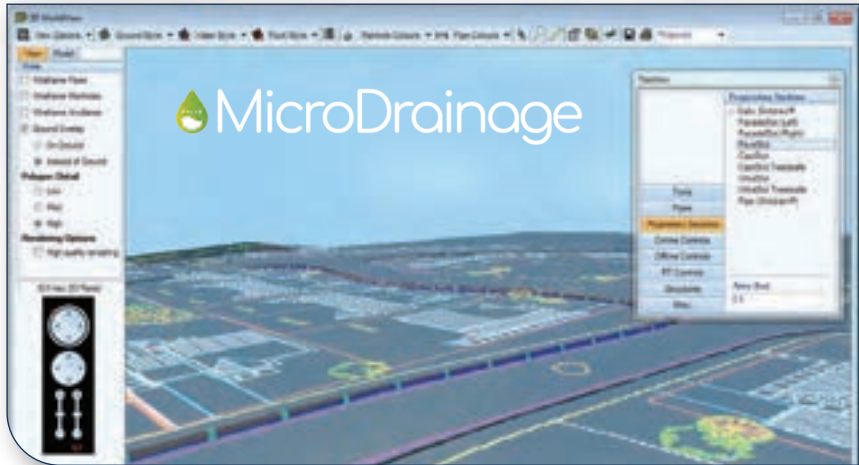
Gatic Slotdrains designed in DrawNet using graphical user interface in 3D worldview

BIM Compliance with MicroDrainage Software

We have added our highly specified range of Slotdrain channels to Innovyze’s MicroDrainage software.

MicroDrainage is a well-recognised tool for civil engineers working on surface water and external drainage calculations. It is the industry standard software for the detailed design of fully integrated storm-water and foul-water drainage systems. Users of MicroDrainage benefit from a user-friendly interface, auto-design and optimisation as well as formal reporting and outputs.

Along with the usual functionality, MicroDrainage can be embedded within Autodesk’s Civil 3D software through the DrawNet(CAD) interface. This enables MicroDrainage to conduct intelligent data exchange through the use of Parts Lists, include Gatic Slotdrain Civil 3D, providing engineers with an ability to quickly, accurately and confidently exchange information between models, helping to achieve BIM Level 2 compliance.



Designing Gatic Slotdrains in System 1 using spreadsheet format

CPDs

We also offer CPD presentations at your premises covering all aspects of surface water drainage and attenuation. Our presentations are accredited by the CPD Certification Service and count towards the continuing personal and professional development of attendees. It’s a factor worth bearing in mind for those individuals seeking professional membership.

The CPD presentations currently available are Innovative Surface Water Drainage Design and Access Covers.

Visit www.gatic.com for more information or to book your place.



NBS Plus

Our technical product information is included in this dedicated library of manufacturers’ product information, contained within the UK’s industry leading specification products NBS Building, NBS Landscape, NBS Engineering Services and NBS Scheduler.

Products listed in NBS Plus are directly linked to specific clauses and can be imported instantaneously into a specification. NBS Plus contains over 20,000 product specifications and is updated regularly, so designers can be confident that they are always referencing the very latest product information.

Links of all Gatic products on the NBS Plus Product Register are available on our website.

www.gatic.com

Our website now contains even more technical information and guidance than before. We have increased our online resources and improved the website design so you can now find all the technical information you need for your projects easily and quickly.

Within each product range, you can explore features and benefits, technical details, graphics, diagrams, and case studies.

By setting up a MyGatic account (registering your name and email address), you can store all the literature, technical specifications and images that you have collected while browsing, and access them again anytime from your MyGatic page simply by logging in.





Our products have been tested in accordance with recognised standards, providing reassurance to industry professionals that our channel systems have proven performance. These include:

- Quality Management Systems **ISO 9001** - the recognised standard for the improvement of product, process and service quality.
- **European Standard EN 1433 ‘Drainage Channels for Vehicular and Pedestrian Areas’** - the only internationally recognised standard written specifically for trench drainage and slot drain systems. This uses the load classifications between A15 and F900.
- **BS EN 877** - Cast iron pipes and fittings, their joints and accessories for the evacuation of water from buildings. Requirements, test methods and quality assurance.

Quality Assurance

Gatic Slotdrain channels have been tested in accordance with recognised standards, providing reassurance to industry professionals that the system is fit for purpose. The system has proven performance, having been used successfully for many years on a variety of project types in many locations around the world.

Load Testing Standards

The only internationally recognised standard written specifically for trench drainage and slot drain systems is the European Standard BS EN 1433:2002 ‘Drainage Channels for Vehicular and Pedestrian Areas’. This uses the load classifications between A15-F900, aslisted in the table below.

Load Tests

Gatic Slotdrain channels have been independently load tested up to F900 load class (depending on the system type) in compliance with the European Standard BS EN 1433. Certificates of conformity are available upon request.

Watertight Slot Channels

Gatic Slotdrain has been independently tested for ‘watertightness’ and complies with the European Standard EN 1433 ‘Drainage Channels for Vehicular and Pedestrian Areas’ – when installed within a channel concrete encasement/surround according to manufacturer’s details.

Sustainability and the environment

Gatic is focused on providing effective solutions that enhance sustainability in the built environment. We are committed to adopting environmentally sound business practices throughout our operations and are well positioned to benefit from environmentally-driven changes in policy and regulation. In particular, the growing awareness of sustainability and life-cycle cost among building and construction specifiers.

We work to the following standards:

- **Environmental Management Standard ISO 14001** - our programme of environmental audits, carried out by external consultants, are designed to highlight areas in which we can improve, and form a basis for us achieving this standard.
- **BREEAM** - the world’s foremost environmental assessment method and rating system for buildings. Design teams use BREEAM as a method to improve the performance of their buildings and their own experience and knowledge of environmental aspects of sustainability. Gatic’s channels have been used on a number of projects associated with BREEAM.



Slotdrain - Highly efficient surface water drainage for all applications, from airports to shopping centres and urban landscaping.

Applications

Our market leading range of surface water drainage ensures we can provide the best solution for your commercial or domestic projects. Below is a summary of the various applications our range covers.

In a climate where we are experiencing more frequent and extreme rainfall, it is increasingly important our roads, pavements, motorways and other similar infrastructure are protected from the build up of excess rainwater. All our products are designed to manage the discharge of surface water efficiently and effectively.

Landscaping and Pedestrian Schemes

Landscaping and pedestrian schemes include domestic driveways and paved areas. For these projects the aesthetics and design of the slot drain is important to ensure it is discreet and fits seamlessly with the surrounding environment.



Car Parks

In car parks, slow turning traffic and a constant flow of vehicles make for a demanding and harsh environment for any surface water drainage system. Strength and durability of the slot or channel drain are essential in these high traffic areas.



Highways and Motorways

Highways and motorways are under constant strain from heavy traffic and vehicles of various sizes. It's important the surface drainage can manage large volumes of rainfall so that the road remains free and safe from excess water.



Distribution Yards and Industrial Units

Distribution yards and industrial units typically have large surface areas to drain and must cope with heavy loads manoeuvring on a daily basis.



Shopping Centres and Retail Parks

Shopping centres and retail parks need unobtrusive but effective drainage to maintain an attractive environment. Looks, style and performance are all important characteristics for these projects.



Petrol Stations and Forecourts

Petrol stations and forecourts mean wide open spaces and constant weight of traffic. Robustness of the slot or channel drain is essential.



Bus Terminals

Bus terminals and public transport facilities place heavy demands on surfaces and infrastructure. Strength and reliability are key criteria.



Container Ports and Distribution Yards

Container ports and distribution yards are extremely hostile environments, pounded continuously by tractor and trailer units. Our robust range of slotdrain systems have been specifically developed with this in mind.



Ports and Docks

Large ports and dock facilities are occupied by heavy, slow moving cranes that place high demands on the surface drainage. Only products with the highest specification are fit for this purpose.



Airports

Airports around the world are seeing movements increase year-on-year and aircraft weights reaching new heights. With super jumbos like the Airbus A380, airside drainage is ever more of a challenge.

The GATIC logo is displayed in white capital letters on a blue rectangular background.

DRAINAGE & ACCESS COVERS

GATIC® Slotdrain

A highly efficient surface water drainage for all applications, from airports to shopping centres and urban landscaping.



Overview

Our core business has traditionally been driven by our success in meeting the heavy demands of the world's major ports and airports. Gatic's Slotrain* hexagonal channel profile was originally developed in conjunction with industry professionals from the airport sector.

The concept has proved infinitely scalable and has been developed into a comprehensive range of products suitable for smaller projects such as landscaping schemes, shopping developments and parking facilities.

The current Slotrain range consists of **CastSlot**, **UltraSlot**, **PaveSlot** and **FacadeSlot** for total design flexibility, and includes complementary accessories. All channels are manufactured in 3 metre, 1 metre and 0.5 metre lengths of galvanised steel, benefitting from fewer joints and improved flow performance.

Bespoke units are available on request to suit specific design requirements and are also available in stainless steel grades 304 & 316

Gatic Slotrain channels are suitable for applications up to F900 (depending on the system type). The hexagonal profile ensures our systems can handle everything from a rain drop to a rainstorm with similar efficiency. The V-shaped channel base aids a self-cleansing flow, and a tapered throat helps prevent blockages.

*Patented

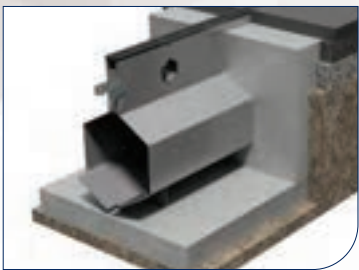
Discreet PaveSlot Top
Neat aesthetics

Tapered Throat
Helps prevent blockages

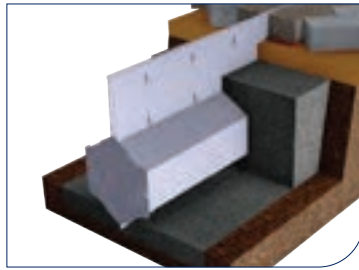
End Caps
Available with preformed circular outlet knock-outs



UltraSlot



CastSlot



PaveSlot



FacadeSlot

Sustainable

Gatic Slotrain is mechanically assembled, which eliminates welding and minimises energy usage in the manufacturing process. A significant proportion of the raw materials used are from recycled sources. Slotrain is manufactured from sheet steel and is 100% recyclable.

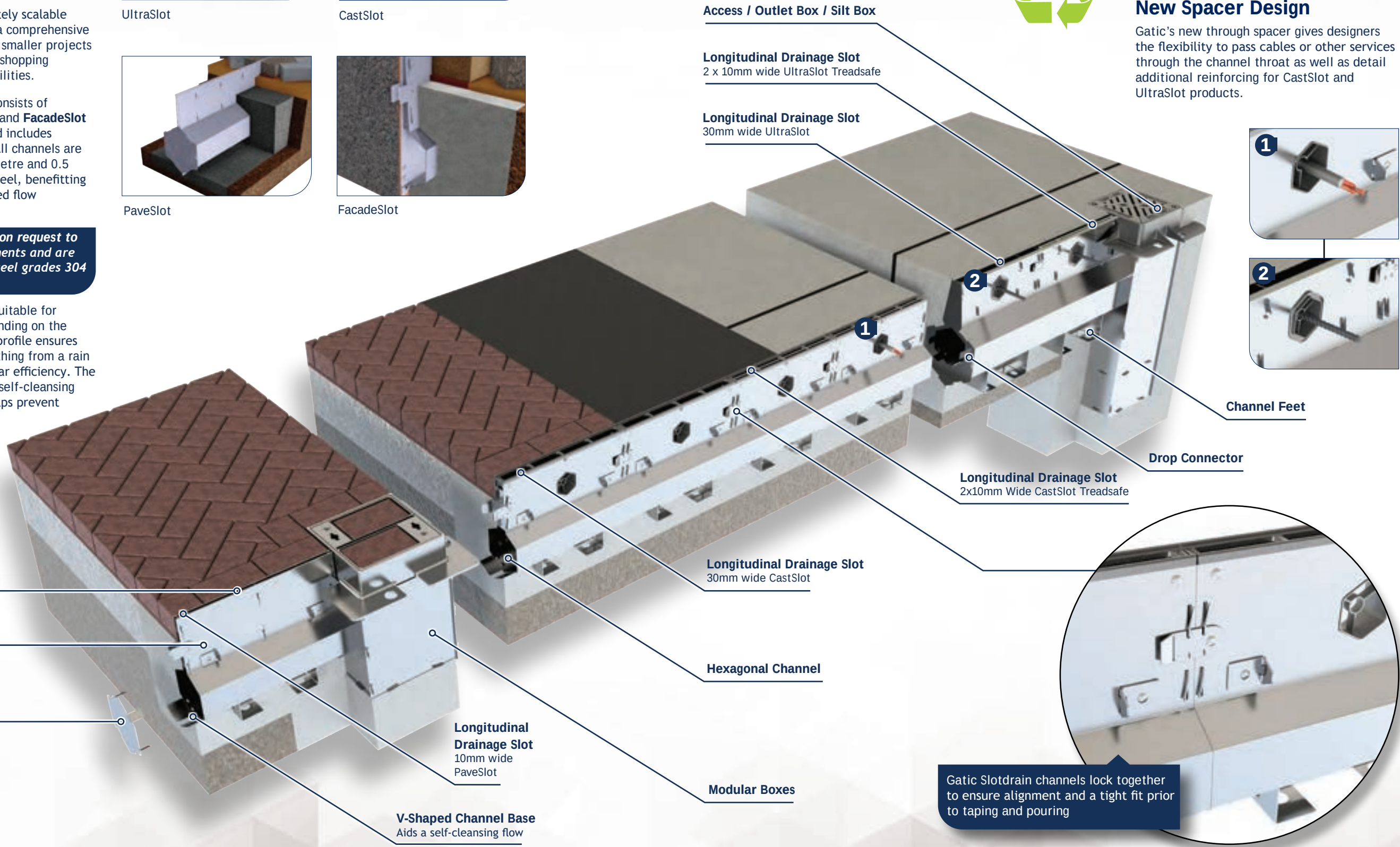


Site Work and Maintenance Guide

Our illustrated literature includes advice and general information on safe handling, installation and maintenance of our Slotrain products. **This can be downloaded from our website www.gatic.com. Alternatively, email or phone us to request a copy.**

New Spacer Design

Gatic's new through spacer gives designers the flexibility to pass cables or other services through the channel throat as well as detail additional reinforcing for CastSlot and UltraSlot products.



Gatic Slotrain channels lock together to ensure alignment and a tight fit prior to taping and pouring

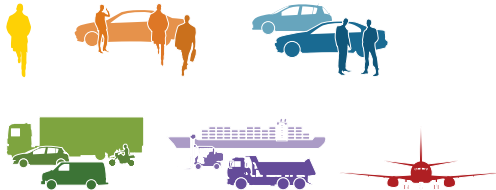
Gatic CastSlot and CastSlot Treadsafe

The unobtrusive profile of CastSlot sits neatly within concrete, asphalt and block surface finishes.

CastSlot features an electro painted ductile iron throat section, which is securely fixed to the galvanised steel channel body to provide an exceptionally robust yet discreet drainage system.

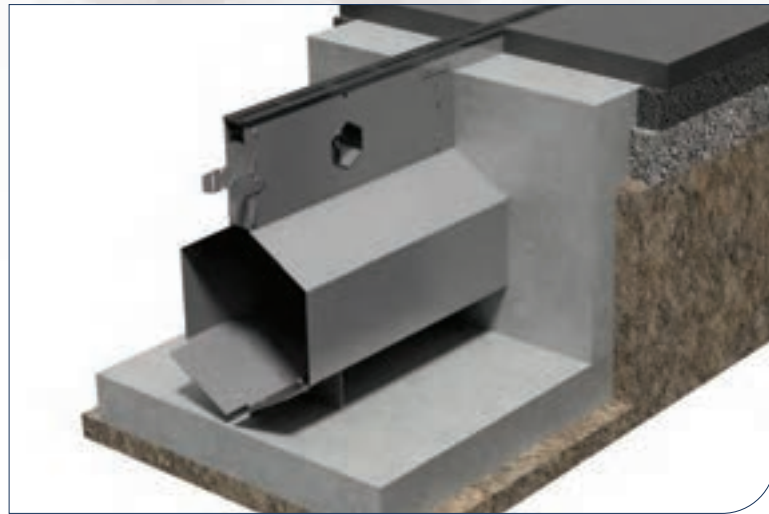
CastSlot is ideal for areas of vehicular traffic such as car parks and industrial units where there is slow turning traffic. Available with a 30mm opening and a Treadsafe option, which reduces the slot opening from 30mm wide to 2 x 10mm wide slots. *Protection Strips Provided.*

Load classification A15 to F900



Applications:

- Landscaping and Pedestrian Schemes
- Car Parks
- Highways and Motorways
- Distribution Yards & Industrial Units
- Petrol Stations and Forecourts
- Bus Terminals
- Container Ports and Distribution Yards
- Ports and Docks
- Airports



Gatic UltraSlot and UltraSlot Treadsafe

UltraSlot is used in external pavement areas such as airports, ports, highways and similar areas. The system is designed to withstand infrequent ultra heavy-duty loads.

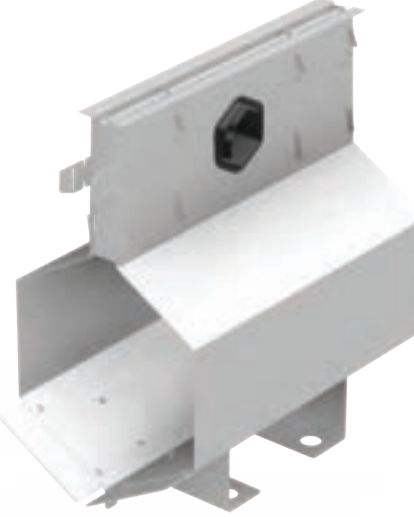
A Treadsafe option is available, which reduces the slot opening from 30mm wide to 2 x 9mm wide slots. This has no effect on the intake capacity of the system but will make the channel safe to cross for pedestrians.

Load classification: A15 to F900
(Protection strips available)



Applications:

- Highways and Motorways
- Airports



Slotdrain product selector

Gatic PaveSlot

PaveSlot is used to drain external hard surface areas where a neat, unobtrusive aesthetic is required. The system is used with paving units laid against the top edge of the channel.

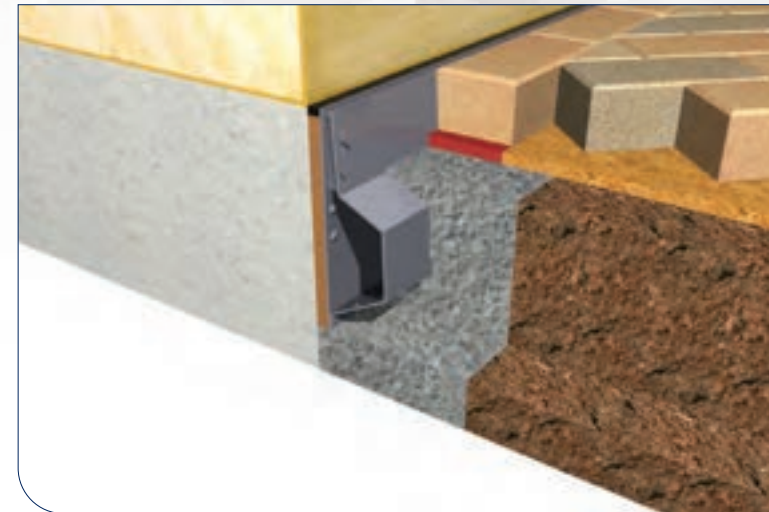
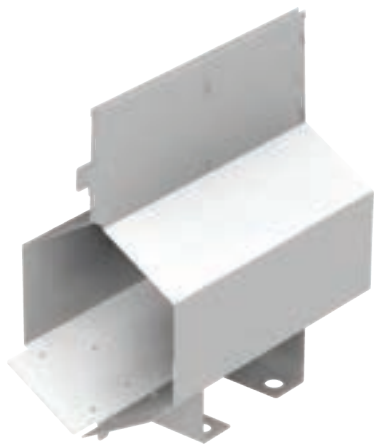
The system is suitable for all paved areas, in public and commercial projects.

Load classification: A15 to C250



Applications:

- Landscaping and Pedestrian Schemes
- Shopping Centres and Retail Parks



Gatic FacadeSlot

A discreet surface drainage channel that can be installed against a building, wall or other external landscape feature, to provide effective drainage from vertical surfaces, door thresholds and adjacent pavement areas.

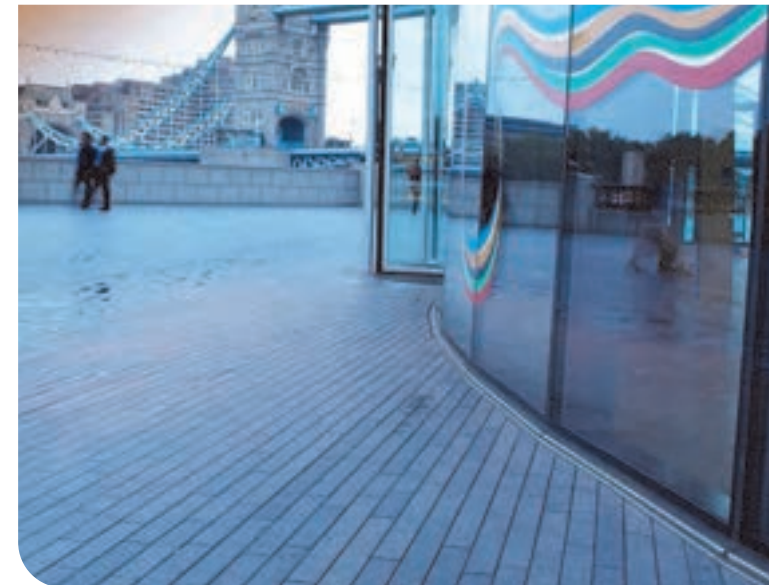
FacadeSlot channels can be made to follow the building perimeter whether straight or curved. The system can accommodate rainwater downpipes which, when positioned over a simple rainwater inlet box, can eliminate the need for a separate drainage network for the roof area, achieving a more efficient drainage system.

Load classification A15



Applications:

- Landscaping and Pedestrian Schemes
- Shopping Centres and Retail Parks



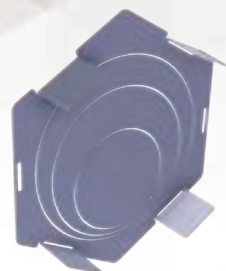
Slotdrain product selector

Accessories

A comprehensive range of accessories is available to suit every conceivable system design.

The range of standard accessories (shown here) is available to suit all types and sizes of Slotdrain channels.

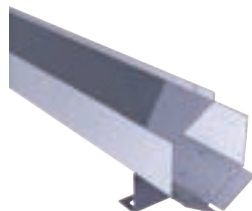
- Cover and gratings are delivered with locking bolts.



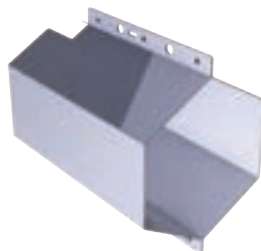
Universal end caps



Drop Connector



Channel pipes



Catchpit connectors



Flow regulators



Access box -
shown with grating



Access box -
shown with recessed cover



Outlet box -
shown with grating



Outlet box -
shown with recessed cover



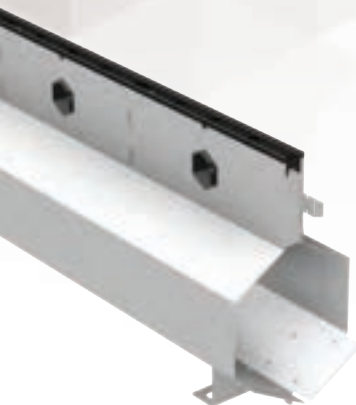
Silt box -
shown with grating



Silt box -
shown with recessed cover

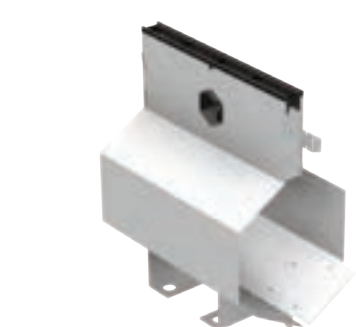
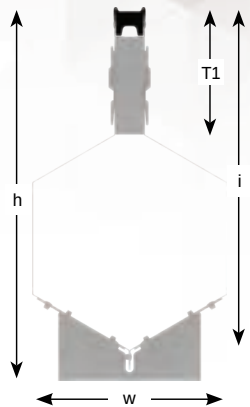


Slotdrain product selector - CastSlot



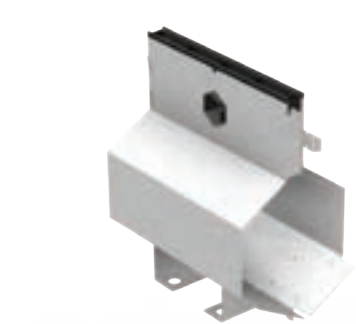
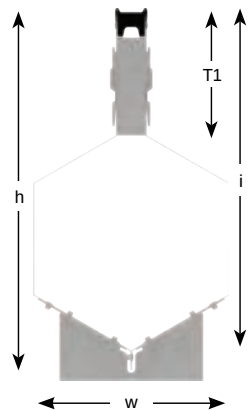
CastSlot 3m Channels

Code	Description	Load Rating	Surface Finish	Length (mm)		Width (w) (mm)	Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/ Metre (mm ²)	Weight (kg)
CA00225	100mm CastSlot - 3m	Up to F900	Concrete / Asphalt / Paving	3000		100	357	308	200	51	30	26350	43.3
CA00226	150mm CastSlot - 3m	Up to F900	Concrete / Asphalt / Paving	3000		150	415	366	200	51	30	26350	49.5
CA00227	225mm CastSlot - 3m	Up to F900	Concrete / Asphalt / Paving	3000		225	501	452	200	51	30	26350	59.7
CA00228	300mm CastSlot - 3m	Up to F900	Concrete / Asphalt / Paving	3000		300	587	538	200	51	30	26350	68.9
CA00229	350mm CastSlot - 3m	Up to F900	Concrete / Asphalt / Paving	3000		350	645	596	200	51	30	26350	75.1
CA00230	400mm CastSlot - 3m	Up to F900	Concrete / Asphalt / Paving	3000		400	712	652	200	51	30	26350	124.8
CA00231	500mm CastSlot - 3m	Up to F900	Concrete / Asphalt / Paving	3000		500	828	768	200	51	30	26350	145.4
CA00232	600mm CastSlot - 3m	Up to F900	Concrete / Asphalt / Paving	3000		600	1091	1031	200	51	30	26350	215.1



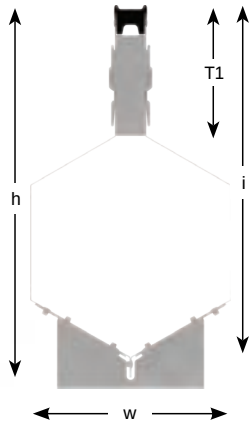
CastSlot 1m Channels

Code	Description	Load Rating	Surface Finish	Length (mm)		Width (w) (mm)	Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/ Metre (mm ²)	Weight (kg)
CA00233	100mm CastSlot - 1m	Up to F900	Concrete / Asphalt / Paving	1000		100	357	308	200	51	30	26350	15.2
CA00234	150mm CastSlot - 1m	Up to F900	Concrete / Asphalt / Paving	1000		150	415	366	200	51	30	26350	17.3
CA00235	225mm CastSlot - 1m	Up to F900	Concrete / Asphalt / Paving	1000		225	501	452	200	51	30	26350	21.5
CA00236	300mm CastSlot - 1m	Up to F900	Concrete / Asphalt / Paving	1000		300	587	538	200	51	30	26350	24.6
CA00237	350mm CastSlot - 1m	Up to F900	Concrete / Asphalt / Paving	1000		350	645	596	200	51	30	26350	26.7
CA00238	400mm CastSlot - 1m	Up to F900	Concrete / Asphalt / Paving	1000		400	712	652	200	51	30	26350	45.2
CA00239	500mm CastSlot - 1m	Up to F900	Concrete / Asphalt / Paving	1000		500	828	768	200	51	30	26350	52.2
CA00240	600mm CastSlot - 1m	Up to F900	Concrete / Asphalt / Paving	1000		600	1091	1031	200	51	30	26350	75.5



CastSlot 500mm Channels

Code	Description	Load Rating	Surface Finish	Length (mm)		Width (w) (mm)	Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/ Metre (mm ²)	Weight (kg)
CA00241	100mm CastSlot - 500mm	Up to F900	Concrete / Asphalt / Paving	500		100	357	308	200	51	30	26350	8.1
CA00242	150mm CastSlot - 500mm	Up to F900	Concrete / Asphalt / Paving	500		150	415	366	200	51	30	26350	9.2
CA00243	225mm CastSlot - 500mm	Up to F900	Concrete / Asphalt / Paving	500		225	501	452	200	51	30	26350	11.8
CA00244	300mm CastSlot - 500mm	Up to F900	Concrete / Asphalt / Paving	500		300	587	538	200	51	30	26350	13.4
CA00245	350mm CastSlot - 500mm	Up to F900	Concrete / Asphalt / Paving	500		350	645	596	200	51	30	26350	14.5
CA00246	400mm CastSlot - 500mm	Up to F900	Concrete / Asphalt / Paving	500		400	712	652	200	51	30	26350	25.3
CA00247	500mm CastSlot - 500mm	Up to F900	Concrete / Asphalt / Paving	500		500	828	768	200	51	30	26350	28.9
CA00248	600mm CastSlot - 500mm	Up to F900	Concrete / Asphalt / Paving	500		600	1091	1031	200	51	30	26350	40.6

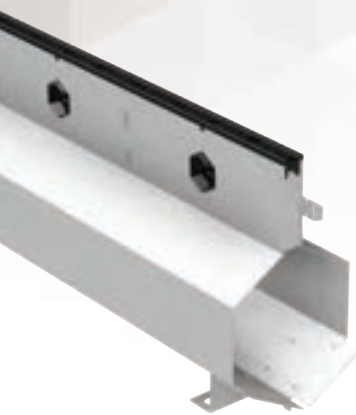


CastSlot Drop Connectors

Code	Description		From Channel Width (mm)	To Channel Width (mm)	Weight (kg)
00155	100-150mm Drop Connector		100	150	0.4
00156	150-225mm Drop Connector		150	225	0.7
00157	225-300mm Drop Connector		225	300	1
00158	300-350mm Drop Connector		300	350	0.9
00159	350-400mm Drop Connector		350	400	1.7
00160	400-500mm Drop Connector		400	500	2.7
00161	500-600mm Drop Connector		500	600	5.9

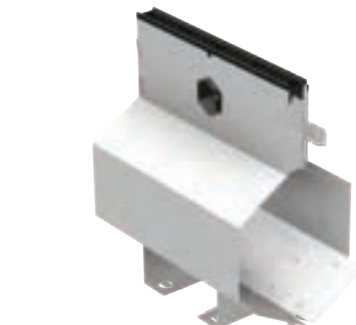
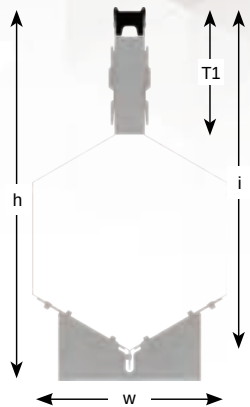


Slotdrain product selector - CastSlot (Treadsafe)



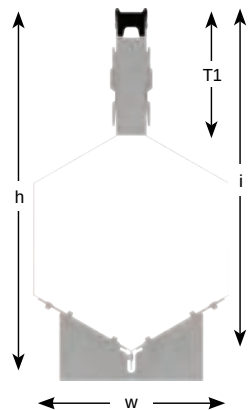
CastSlot Treadsafe 3m Channels

Code	Description	Load Rating	Surface Finish	Length (mm)		Width (w) (mm)	Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/ Metre (mm ²)	Weight (kg)
CAT00225	100mm CastSlot Treadsafe - 3m	Up to F900	Concrete / Asphalt / Paving	3000		100	357	308	200	51	2 X 10	17467	44.7
CAT00226	150mm CastSlot Treadsafe - 3m	Up to F900	Concrete / Asphalt / Paving	3000		150	415	366	200	51	2 X 10	17467	51
CAT00227	225mm CastSlot Treadsafe - 3m	Up to F900	Concrete / Asphalt / Paving	3000		225	501	452	200	51	2 X 10	17467	61.1
CAT00228	300mm CastSlot Treadsafe - 3m	Up to F900	Concrete / Asphalt / Paving	3000		300	587	538	200	51	2 X 10	17467	70.3
CAT00229	350mm CastSlot Treadsafe - 3m	Up to F900	Concrete / Asphalt / Paving	3000		350	645	596	200	51	2 X 10	17467	76.6
CAT00230	400mm CastSlot Treadsafe - 3m	Up to F900	Concrete / Asphalt / Paving	3000		400	712	652	200	51	2 X 10	17467	126.2
CAT00231	500mm CastSlot Treadsafe - 3m	Up to F900	Concrete / Asphalt / Paving	3000		500	828	768	200	51	2 X 10	17467	146.9
CAT00232	600mm CastSlot Treadsafe - 3m	Up to F900	Concrete / Asphalt / Paving	3000		600	1091	1031	200	51	2 X 10	17467	216.6



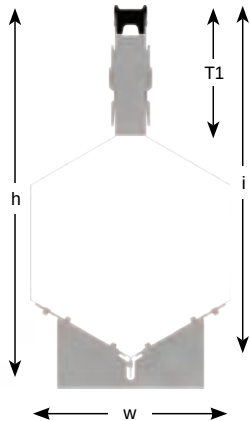
CastSlot Treadsafe 1m Channels

Code	Description	Load Rating	Surface Finish	Length (mm)		Width (w) (mm)	Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/ Metre (mm ²)	Weight (kg)
CAT00233	100mm CastSlot Treadsafe - 1m	Up to F900	Concrete / Asphalt / Paving	1000		100	357	308	200	51	2 X 10	17467	15.6
CAT00234	150mm CastSlot Treadsafe - 1m	Up to F900	Concrete / Asphalt / Paving	1000		150	415	366	200	51	2 X 10	17467	17.8
CAT00235	225mm CastSlot Treadsafe - 1m	Up to F900	Concrete / Asphalt / Paving	1000		225	501	452	200	51	2 X 10	17467	21.8
CAT00236	300mm CastSlot Treadsafe - 1m	Up to F900	Concrete / Asphalt / Paving	1000		300	587	538	200	51	2 X 10	17467	25
CAT00237	350mm CastSlot Treadsafe - 1m	Up to F900	Concrete / Asphalt / Paving	1000		350	645	596	200	51	2 X 10	17467	27.1
CAT00238	400mm CastSlot Treadsafe - 1m	Up to F900	Concrete / Asphalt / Paving	1000		400	712	652	200	51	2 X 10	17467	45.7
CAT00239	500mm CastSlot Treadsafe - 1m	Up to F900	Concrete / Asphalt / Paving	1000		500	828	768	200	51	2 X 10	17467	52.7
CAT00240	600mm CastSlot Treadsafe - 1m	Up to F900	Concrete / Asphalt / Paving	1000		600	1091	1031	200	51	2 X 10	17467	76



CastSlot Treadsafe 500mm Channels

Code	Description	Load Rating	Surface Finish	Length (mm)		Width (w) (mm)	Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/ Metre (mm ²)	Weight (kg)
CAT00241	100mm CastSlot Treadsafe - 500mm	Up to F900	Concrete / Asphalt / Paving	500		100	357	308	200	51	2 X 10	17467	8.4
CAT00242	150mm CastSlot Treadsafe - 500mm	Up to F900	Concrete / Asphalt / Paving	500		150	415	366	200	51	2 X 10	17467	9.5
CAT00243	225mm CastSlot Treadsafe - 500mm	Up to F900	Concrete / Asphalt / Paving	500		225	501	452	200	51	2 X 10	17467	12
CAT00244	300mm CastSlot Treadsafe - 500mm	Up to F900	Concrete / Asphalt / Paving	500		300	587	538	200	51	2 X 10	17467	13.7
CAT00245	350mm CastSlot Treadsafe - 500mm	Up to F900	Concrete / Asphalt / Paving	500		350	645	596	200	51	2 X 10	17467	14.8
CAT00246	400mm CastSlot Treadsafe - 500mm	Up to F900	Concrete / Asphalt / Paving	500		400	712	652	200	51	2 X 10	17467	25.5
CAT00247	500mm CastSlot Treadsafe - 500mm	Up to F900	Concrete / Asphalt / Paving	500		500	828	768	200	51	2 X 10	17467	29.1
CAT00248	600mm CastSlot Treadsafe - 500mm	Up to F900	Concrete / Asphalt / Paving	500		600	1091	1031	200	51	2 X 10	17467	40.9



CastSlot Treadsafe Drop Connectors

Code	Description		From Channel Width (mm)	To Channel Width (mm)	Weight (kg)
00155	100-150mm Drop Connector		100	150	0.4
00156	150-225mm Drop Connector		150	225	0.7
00157	225-300mm Drop Connector		225	300	1
00158	300-350mm Drop Connector		300	350	0.9
00159	350-400mm Drop Connector		350	400	1.7
00160	400-500mm Drop Connector		400	500	2.7
00161	500-600mm Drop Connector		500	600	5.9

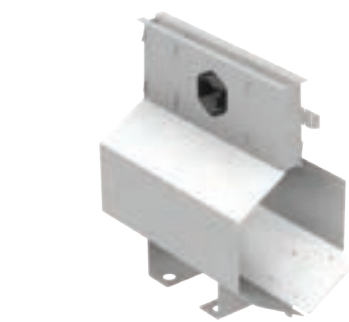
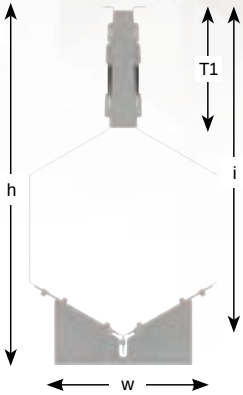


Slotdrain product selector - Gatic UltraSlot



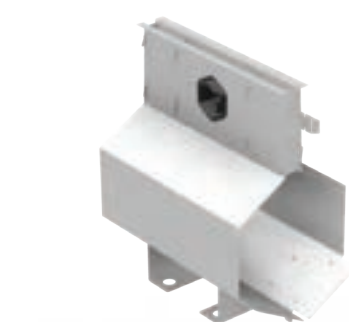
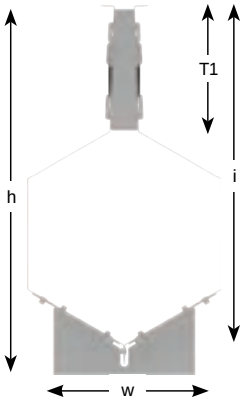
UltraSlot 3m Channels

Code	Description	Load Rating	Surface Finish	Length (mm)	Width (w) (mm)		Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/ Metre (mm²)	Weight (kg)
UA00325	100mm UltraSlot - 3m	Up to F900	Concrete	3000	100		357	308	200	70	30	30083	31.7
UA00326	150mm UltraSlot - 3m	Up to F900	Concrete	3000	150		415	366	200	70	30	30083	37.9
UA00327	225mm UltraSlot - 3m	Up to F900	Concrete	3000	225		501	452	200	70	30	30083	48.1
UA00328	300mm UltraSlot - 3m	Up to F900	Concrete	3000	300		587	538	200	70	30	30083	57.3
UA00329	350mm UltraSlot - 3m	Up to F900	Concrete	3000	350		645	596	200	70	30	30083	63.6
UA00330	400mm UltraSlot - 3m	Up to F900	Concrete	3000	400		713	653	200	70	30	30083	114.4
UA00331	500mm UltraSlot - 3m	Up to F900	Concrete	3000	500		829	769	200	70	30	30083	135
UA00332	600mm UltraSlot - 3m	Up to F900	Concrete	3000	600		1091	1031	200	70	30	30083	205.4



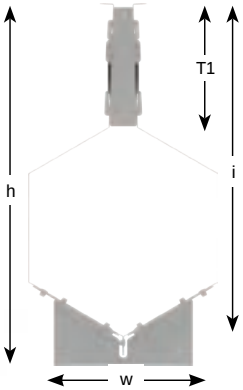
UltraSlot 1m Channels

Code	Description	Load Rating	Surface Finish	Length (mm)	Width (w) (mm)		Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area Metre (mm²)	Weight (kg)
UA00333	100mm UltraSlot - 1m	Up to F900	Concrete	1000	100		357	308	200	70	30	30083	11.2
UA00334	150mm UltraSlot - 1m	Up to F900	Concrete	1000	150		415	366	200	70	30	30083	13.3
UA00335	225mm UltraSlot - 1m	Up to F900	Concrete	1000	225		501	452	200	70	30	30083	17.4
UA00336	300mm UltraSlot - 1m	Up to F900	Concrete	1000	300		587	538	200	70	30	30083	20.6
UA00337	350mm UltraSlot - 1m	Up to F900	Concrete	1000	350		645	596	200	70	30	30083	22.7
UA00338	400mm UltraSlot - 1m	Up to F900	Concrete	1000	400		713	653	200	70	30	30083	41.6
UA00339	500mm UltraSlot - 1m	Up to F900	Concrete	1000	500		829	769	200	70	30	30083	48.6
UA00340	600mm UltraSlot - 1m	Up to F900	Concrete	1000	600		1091	1031	200	70	30	30083	72.2



UltraSlot 500mm Channels

Code	Description	Load Rating	Surface Finish	Length (mm)	Width (w) (mm)		Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area Metre (mm²)	Weight (kg)
UA00341	100mm UltraSlot - 500mm	Up to F900	Concrete	500	100		357	308	200	70	30	30083	6
UA00342	150mm UltraSlot - 500mm	Up to F900	Concrete	500	150		415	366	200	70	30	30083	7.1
UA00343	225mm UltraSlot - 500mm	Up to F900	Concrete	500	225		501	452	200	70	30	30083	9.7
UA00344	300mm UltraSlot - 500mm	Up to F900	Concrete	500	300		587	538	200	70	30	30083	11.3
UA00345	350mm UltraSlot - 500mm	Up to F900	Concrete	500	350		645	596	200	70	30	30083	12.4
UA00346	400mm UltraSlot - 500mm	Up to F900	Concrete	500	400		713	653	200	70	30	30083	23.4
UA00347	500mm UltraSlot - 500mm	Up to F900	Concrete	500	500		829	769	200	70	30	30083	27
UA00348	600mm UltraSlot - 500mm	Up to F900	Concrete	500	600		1091	1031	200	70	30	30083	38.8



UltraSlot Drop Connectors

Code	Description		From Channel Width (mm)	To Channel Width (mm)	Weight (kg)
00155	100-150mm Drop Connector		100	150	0.4
00156	150-225mm Drop Connector		150	225	0.7
00157	225-300mm Drop Connector		225	300	1
00158	300-350mm Drop Connector		300	350	0.9
00159	350-400mm Drop Connector		350	400	1.7
00160	400-500mm Drop Connector		400	500	2.7
00161	500-600mm Drop Connector		500	600	5.9

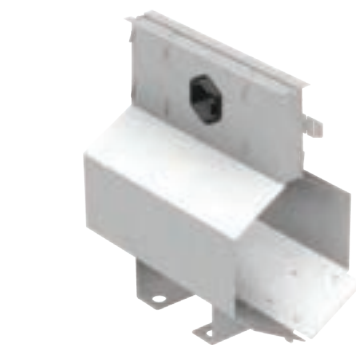
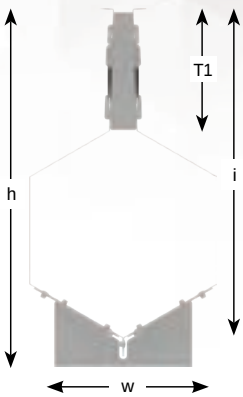


Slotdrain product selector - Gatic UltraSlot (Treadsafe)



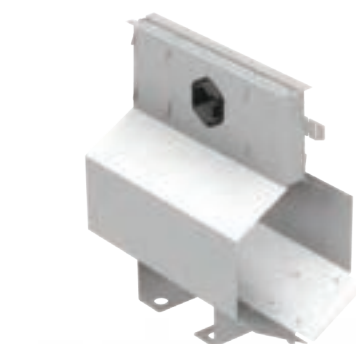
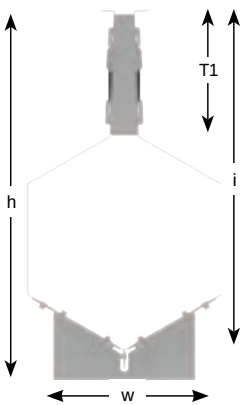
UltraSlot Treadsafe 3m Channels

Code	Description	Load Rating	Surface Finish	Length (mm)	Width (w) (mm)		Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/ Metre (mm²)	Weight (kg)
UAT00325	100mm UltraSlot Treadsafe - 3m	Up to F900	Concrete	3000	100		357	308	200	70	2 X 9	18079	34.5
UAT00326	150mm UltraSlot Treadsafe - 3m	Up to F900	Concrete	3000	150		415	366	200	70	2 X 9	18079	40.7
UAT00327	225mm UltraSlot Treadsafe - 3m	Up to F900	Concrete	3000	225		501	452	200	70	2 X 9	18079	50.8
UAT00328	300mm UltraSlot Treadsafe - 3m	Up to F900	Concrete	3000	300		587	538	200	70	2 X 9	18079	60.1
UAT00329	350mm UltraSlot Treadsafe - 3m	Up to F900	Concrete	3000	350		645	596	200	70	2 X 9	18079	66.3
UAT00330	400mm UltraSlot Treadsafe - 3m	Up to F900	Concrete	3000	400		713	653	200	70	2 X 9	18079	117.1
UAT00331	500mm UltraSlot Treadsafe - 3m	Up to F900	Concrete	3000	500		829	769	200	70	2 X 9	18079	137.8
UAT00332	600mm UltraSlot Treadsafe - 3m	Up to F900	Concrete	3000	600		1091	1031	200	70	2 X 9	18079	208.2



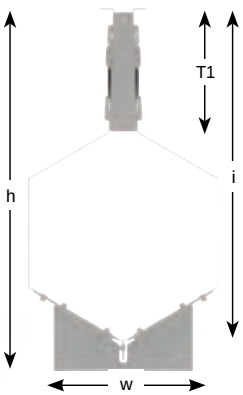
UltraSlot Treadsafe 1m Channels

Code	Description	Load Rating	Surface Finish	Length (mm)	Width (w) (mm)		Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/ Metre (mm²)	Weight (kg)
UAT00333	100mm UltraSlot Treadsafe - 1m	Up to F900	Concrete	1000	100		357	308	200	70	2 X 9	18079	12.1
UAT00334	150mm UltraSlot Treadsafe - 1m	Up to F900	Concrete	1000	150		415	366	200	70	2 X 9	18079	14.2
UAT00335	225mm UltraSlot Treadsafe - 1m	Up to F900	Concrete	1000	225		501	452	200	70	2 X 9	18079	18.3
UAT00336	300mm UltraSlot Treadsafe - 1m	Up to F900	Concrete	1000	300		587	538	200	70	2 X 9	18079	21.5
UAT00337	350mm UltraSlot Treadsafe - 1m	Up to F900	Concrete	1000	350		645	596	200	70	2 X 9	18079	23.6
UAT00338	400mm UltraSlot Treadsafe - 1m	Up to F900	Concrete	1000	400		713	653	200	70	2 X 9	18079	42.6
UAT00339	500mm UltraSlot Treadsafe - 1m	Up to F900	Concrete	1000	500		829	769	200	70	2 X 9	18079	49.6
UAT00340	600mm UltraSlot Treadsafe - 1m	Up to F900	Concrete	1000	600		1091	1031	200	70	2 X 9	18079	73.1



UltraSlot Treadsafe 500mm Channels

Code	Description	Load Rating	Surface Finish	Length (mm)	Width (w) (mm)		Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width	Slot Orifice	Intake Area/ Metre (mm²)	Weight (kg)
UAT00341	100mm UltraSlot Treadsafe - 500mm	Up to F900	Concrete	500	100		357	308	200	70	2 X 9	18079	6.4
UAT00342	150mm UltraSlot Treadsafe - 500mm	Up to F900	Concrete	500	150		415	366	200	70	2 X 9	18079	7.6
UAT00343	225mm UltraSlot Treadsafe - 500mm	Up to F900	Concrete	500	225		501	452	200	70	2 X 9	18079	10.1
UAT00344	300mm UltraSlot Treadsafe - 500mm	Up to F900	Concrete	500	300		587	538	200	70	2 X 9	18079	11.8
UAT00345	350mm UltraSlot Treadsafe - 500mm	Up to F900	Concrete	500	350		645	596	200	70	2 X 9	18079	12.9
UAT00346	400mm UltraSlot Treadsafe - 500mm	Up to F900	Concrete	500	400		713	653	200	70	2 X 9	18079	23.8
UAT00347	500mm UltraSlot Treadsafe - 500mm	Up to F900	Concrete	500	500		829	769	200	70	2 X 9	18079	27.4
UAT00348	600mm UltraSlot Treadsafe - 500mm	Up to F900	Concrete	500	600		1091	1031	200	70	2 X 9	18079	39.3



UltraSlot Treadsafe Drop Connectors

Code	Description		From Channel Width (mm)	To Channel Width (mm)	Weight (kg)
00155	100-150mm Drop Connector		100	150	0.4
00156	150-225mm Drop Connector		150	225	0.7
00157	225-300mm Drop Connector		225	300	1
00158	300-350mm Drop Connector		300	350	0.9
00159	350-400mm Drop Connector		350	400	1.7
00160	400-500mm Drop Connector		400	500	2.7
00161	500-600mm Drop Connector		500	600	5.9

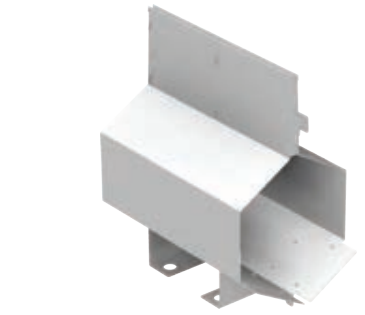
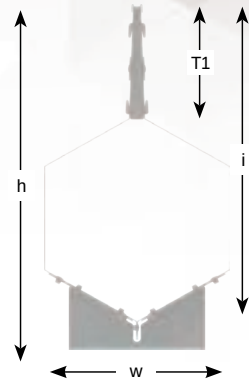


Slotdrain product selector - Gatic PaveSlot



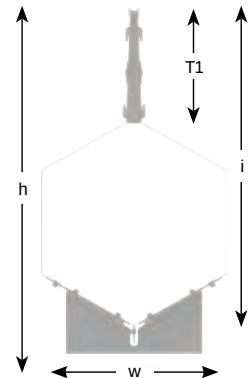
PaveSlot 3m Channels

Code	Description	Load Rating	Surface Finish	Length (mm)	Width (w) (mm)		Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/ Metre (mm²)	Weight (kg)
PA00025	100mm PaveSlot - 3m	Up to C250	Paving	3000	100		357	308	200	16	10	10261	30.3
PA00026	150mm PaveSlot - 3m	Up to C250	Paving	3000	150		415	366	200	16	10	10261	36.5
PA00027	225mm PaveSlot - 3m	Up to C250	Paving	3000	225		501	452	200	16	10	10261	46.7
PA00028	300mm PaveSlot - 3m	Up to C250	Paving	3000	300		587	538	200	16	10	10261	55.9
PA00029	350mm PaveSlot - 3m	Up to C250	Paving	3000	350		645	596	200	16	10	10261	62.1
PA00192	400mm PaveSlot - 3m	Up to C250	Paving	3000	400		712	652	200	16	10	10261	111.9
PA00193	500mm PaveSlot - 3m	Up to C250	Paving	3000	500		828	768	200	16	10	10261	132.5
PA00194	600mm PaveSlot - 3m	Up to C250	Paving	3000	600		1091	1031	200	16	10	10261	202.8



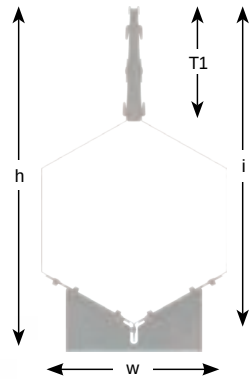
PaveSlot 1m Channels

Code	Description	Load Rating	Surface Finish	Length (mm)	Width (w) (mm)		Height (h) (mm)	Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/ Metre (mm²)	Weight (kg)
PA00033	100mm PaveSlot - 1m	Up to C250	Paving	1000	100		357	308	200	16	10	10261	10.7
PA00034	150mm PaveSlot - 1m	Up to C250	Paving	1000	150		415	366	200	16	10	10261	12.8
PA00035	225mm PaveSlot - 1m	Up to C250	Paving	1000	225		501	452	200	16	10	10261	16.9
PA00036	300mm PaveSlot - 1m	Up to C250	Paving	1000	300		587	538	200	16	10	10261	20
PA00037	350mm PaveSlot - 1m	Up to C250	Paving	1000	350		645	596	200	16	10	10261	22.2
PA00195	400mm PaveSlot - 1m	Up to C250	Paving	1000	400		712	652	200	16	10	10261	40.8
PA00196	500mm PaveSlot - 1m	Up to C250	Paving	1000	500		828	768	200	16	10	10261	47.8
PA00197	600mm PaveSlot - 1m	Up to C250	Paving	1000	600		1091	1031	200	16	10	10261	71.3



PaveSlot 500mm Channels

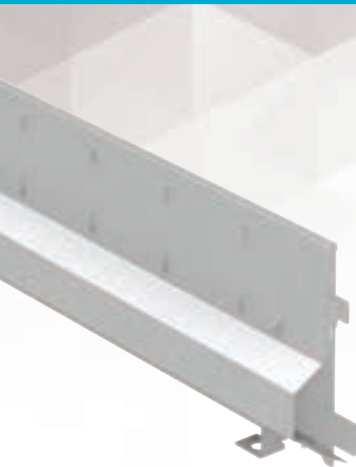
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PA00041	100mm PaveSlot - 500mm	Up to C250	Paving	500	100		357	308	200	16	10	10261	5.7
PA00042	150mm PaveSlot - 500mm	Up to C250	Paving	500	150		415	366	200	16	10	10261	6.8
PA00043	225mm PaveSlot - 500mm	Up to C250	Paving	500	225		501	452	200	16	10	10261	9.4
PA00044	300mm PaveSlot - 500mm	Up to C250	Paving	500	300		587	538	200	16	10	10261	11
PA00045	350mm PaveSlot - 500mm	Up to C250	Paving	500	350		645	596	200	16	10	10261	12.1
PA00198	400mm PaveSlot - 500mm	Up to C250	Paving	500	400		712	652	200	16	10	10261	22.9
PA00199	500mm PaveSlot - 500mm	Up to C250	Paving	500	500		828	768	200	16	10	10261	26.5
PA00200	600mm PaveSlot - 500mm	Up to C250	Paving	500	600		1091	1031	200	16	10	10261	38.3



PaveSlot Drop Connectors

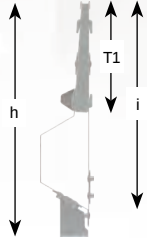
Code	Description		From Channel Width (mm)	To Channel Width (mm)	Weight (kg)
00155	100-150mm Drop Connector		100	150	0.4
00156	150-225mm Drop Connector		150	225	0.7
00157	225-300mm Drop Connector		225	300	1
00158	300-350mm Drop Connector		300	350	0.9
00159	350-400mm Drop Connector		350	400	1.7
00160	400-500mm Drop Connector		400	500	2.7
00161	500-600mm Drop Connector		500	600	5.9





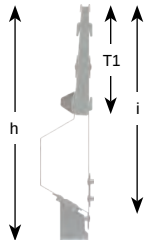
FacadeSlot 3m Channels

Code	Description	Load Rating	Surface Finish	Length (mm)	Width (w) (mm)	Height (h) (mm)		Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/Metre (mm²)	Weight (kg)
FA00025	50mm FacadeSlot - 3m	A15	Paving	3000	50	357		308	200	16	10	10470	28.2
FA00026	75mm FacadeSlot - 3m	A15	Paving	3000	75	415		366	200	16	10	10470	33.4
FA00027	115mm FacadeSlot - 3m	A15	Paving	3000	115	501		452	200	16	10	10470	41.5



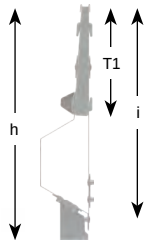
FacadeSlot 1m Channels

Code	Description	Load Rating	Surface Finish	Length (mm)	Width (w) (mm)	Height (h) (mm)		Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/Metre (mm²)	Weight (kg)
FA00033	50mm FacadeSlot - 1m	A15	Paving	1000	50	357		308	200	16	10	10470	9.8
FA00034	75mm FacadeSlot - 1m	A15	Paving	1000	75	415		366	200	16	10	10470	11.6
FA00035	115mm FacadeSlot - 1m	A15	Paving	1000	115	501		452	200	16	10	10470	14.6



FacadeSlot 500mm Channels

Code	Description	Load Rating	Surface Finish	Length (mm)	Width (w) (mm)	Height (h) (mm)		Invert (i) (mm)	Throat Depth (T1) (mm)	Throat Width (mm)	Slot Orifice (mm)	Intake Area/Metre (mm²)	Weight (kg)
FA00041	50mm FacadeSlot - 500mm	A15	Paving	500	50	357		308	200	16	10	10470	5.1
FA00042	75mm FacadeSlot - 500mm	A15	Paving	500	75	415		366	200	16	10	10470	6.1
FA00043	115mm FacadeSlot - 500mm	A15	Paving	500	115	501		452	200	16	10	10470	7.8



FacadeSlot System End Caps

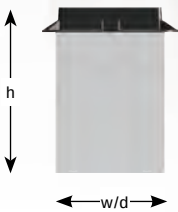
Code	Description		To suit channel widths	Weight (kg)
00170	FacadeSlot End Cap 50mm		50mm	0.1
00171	FacadeSlot End Cap 75mm		75mm	0.2
00172	FacadeSlot End Cap 115mm		115mm	0.4





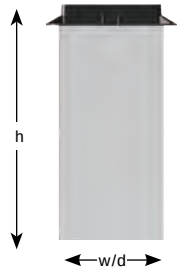
Access Box C/W Treadsafe Double Triangular Grating (CastSlot/UltraSlot)

Code	Description	To Suit Channels	Load Rating	Surface Finish		Height (h) (mm)	Width (w) (mm)	Depth (d) (mm)	Intake Area (mm²)	Pipe Outlet Sizes (mm)	Box Weight (kg)	Cover/Grate Weight (kg)	Total Weight (kg)
ADD00116	Access Box c/w Double Triangular Grating	Up to 225	Up to D400	Asphalt / Paving		475	308	308	9008	N/A	6.7	38.4	45.1
ADD00119	Access Box c/w Double Triangular Grating	From 225 to 400	Up to D400	Asphalt / Paving		675	485	485	33486	N/A	26.7	67.6	94.3
ADD00122	Access Box c/w Double Triangular Grating	From 400 to 600	Up to D400	Asphalt / Paving		1055	686	686	82845	N/A	73.1	122.9	196.1
ADF00118	Access Box c/w Double Triangular Grating	Up to 225	Up to F900	Concrete		475	308	308	9008	N/A	6.7	40.1	46.8
ADF00121	Access Box c/w Double Triangular Grating	From 225 to 400	Up to F900	Concrete		675	485	485	33486	N/A	26.7	76.7	103.4
ADF00124	Access Box c/w Double Triangular Grating	From 400 to 600	Up to F900	Concrete		1055	686	686	82845	N/A	73.1	146.2	219.3



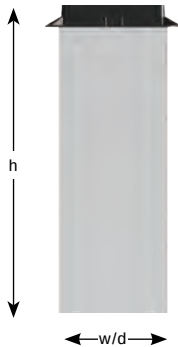
Outlet Box C/W Treadsafe Double Triangular Grating (CastSlot/UltraSlot)

Code	Description	To Suit Channels	Load Rating	Surface Finish		Height (h) (mm)	Width (w) (mm)	Depth (d) (mm)	Intake Area (mm²)	Pipe Outlet Sizes (mm)	Box Weight (kg)	Cover/Grate Weight (kg)	Total Weight (kg)
TDD00116	Outlet Box c/w Double Triangular Grating	Up to 225	Up to D400	Asphalt / Paving		740	308	308	9008	115/ 165/ 205/ 255	10.6	38.4	49.1
TDD00119	Outlet Box c/w Double Triangular Grating	From 225 to 400	Up to D400	Asphalt / Paving		1125	485	485	33486	205/ 255/ 320/ 360/ 440	44	67.6	111.6
TDD00122	Outlet Box c/w Double Triangular Grating	From 400 to 600	Up to D400	Asphalt / Paving		1495	686	686	82845	320/ 360/ 440	101.7	122.9	224.7
TDF00118	Outlet Box c/w Double Triangular Grating	Up to 225	Up to F900	Concrete		740	308	308	9008	115/ 165/ 205/ 255	10.6	40.1	50.7
TDF00121	Outlet Box c/w Double Triangular Grating	From 225 to 400	Up to F900	Concrete		1125	485	485	33486	205/ 255/ 320/ 360/ 440	44	76.7	120.7
TDF00124	Outlet Box c/w Double Triangular Grating	From 400 to 600	Up to F900	Concrete		1495	686	686	82845	320/ 360/ 440	101.7	146.2	247.9



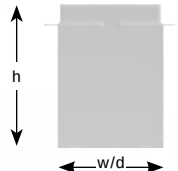
Silt Box C/W Treadsafe Double Triangular Grating (CastSlot/UltraSlot)

Code	Description	To Suit Channels	Load Rating	Surface Finish		Height (h) (mm)	Width (w) (mm)	Depth (d) (mm)	Intake Area (mm²)	Pipe Outlet Sizes (mm)	Box Weight (kg)	Cover/Grate Weight (kg)	Total Weight (kg)
SDD00116	Silt Box c/w Double Triangular Grating	Up to 225	Up to D400	Asphalt / Paving		930	308	308	9008	115/ 165/ 205/ 255	14.1	38.4	55.3
SDD00119	Silt Box c/w Double Triangular Grating	From 225 to 400	Up to D400	Asphalt / Paving		1415	485	485	33486	205/ 255/ 320/ 360/ 440	57.1	67.6	136.5
SDD00122	Silt Box c/w Double Triangular Grating	From 400 to 600	Up to D400	Asphalt / Paving		1935	686	686	82845	320/ 360/ 440	133.8	122.9	287.8
SDF00118	Silt Box c/w Double Triangular Grating	Up to 225	Up to F900	Concrete		930	308	308	9008	115/ 165/ 205/ 255	14.1	40.1	55.3
SDF00121	Silt Box c/w Double Triangular Grating	From 225 to 400	Up to F900	Concrete		1415	485	485	33486	205/ 255/ 320/ 360/ 440	57.1	76.7	145.6
SDF00124	Silt Box c/w Double Triangular Grating	From 400 to 600	Up to F900	Concrete		1935	686	686	82845	320/ 360/ 440	133.8	146.2	311



Access Box C/W Galvanised Recessed Cover (PaveSlot)

Code	Description	To Suit Channels	Load Rating	Surface Finish		Height (h) (mm)	Width (w) (mm)	Depth (d) (mm)	Intake Area (mm²)	Pipe Outlet Sizes (mm)	Box Weight (kg)	Cover/Grate Weight (kg)	Total Weight (kg)
AFC00125	Access Box c/w Galvanised Recessed Cover	Up to 225	Up to C250	Paving		475	308	308	2710	N/A	6.7	28.7	35.4
AFC00127	Access Box c/w Galvanised Recessed Cover	From 225 to 400	Up to C250	Paving		675	485	485	4460	N/A	26.7	50.5	77.2
AFC00129	Access Box c/w Galvanised Recessed Cover	From 400 to 600	Up to C250	Paving		1055	686	686	6460	N/A	73.1	78	151.1



Outlet Box C/W Galvanised Recessed Cover (PaveSlot)

Code	Description	To Suit Channels	Load Rating	Surface Finish		Height (h) (mm)	Width (w) (mm)	Depth (d) (mm)	Intake Area (mm²)	Pipe Outlet Sizes (mm)	Box Weight (kg)	Cover/Grate Weight (kg)	Total Weight (kg)
TFC00125	Outlet Box c/w Galvanised Recessed Cover	UP TO 225	UP TO C250	Paving		740	308	308	2710	115/ 165/ 205/ 255	10.6	28.7	39.3
TFC00127	Outlet Box c/w Galvanised Recessed Cover	FROM 225 TO 400	UP TO C250	Paving		1125	485	485	4460	205/ 255/ 320/ 360/ 440	44	50.5	94.5
TFC00129	Outlet Box c/w Galvanised Recessed Cover	FROM 400 TO 600	UP TO C250	Paving		1495	686	686	6460	320/ 360/ 440	101.7	78	179.7

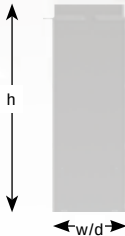


Slotdrain product selector - Boxes



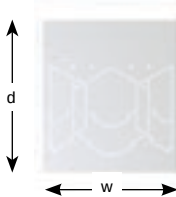
Silt Box C/W Galvanised Recessed Cover (PaveSlot)

Code	Description	To Suit Channels	Load Rating	Surface Finish		Height (h) (mm)	Width (w) (mm)	Depth (d) (mm)	Intake Area (mm²)	Pipe Outlet Sizes (mm)	Box Weight (kg)	Cover/Grate Weight (kg)	Total Weight (kg)
SFC00125	Silt Box c/w Galvanised Recessed Cover	Up to 225	Up to C250	Paving		930	308	308	2710	115/ 165/ 205/ 255	14.1	28.7	45.4
SFC00127	Silt Box c/w Galvanised Recessed Cover	From 225 To 400	Up to C250	Paving		1415	485	485	4460	205/ 255/ 320/ 360/ 440	57.1	50.5	119.4
SFC00129	Silt Box c/w Galvanised Recessed Cover	From 400 To 600	Up to C250	Paving		1935	686	686	6460	320/ 360/ 440	133.8	78	242.8



Facade Access Box C/W Galvanised Recessed Covers (FacadeSlot)

Code	Description	To Suit Channels	Load Rating	Surface Finish		Height (h) (mm)	Width (w) (mm)	Depth (d) (mm)	Intake Area (mm²)	Pipe Outlet Sizes (mm)	Box Weight (kg)	Cover/Grate Weight (kg)	Total Weight (kg)
FBA00140	Facade Access Box c/w Galvanised Recessed Cover	115	A15	Paving		475	253	253	N/A	N/A	7.1	2.5	9.8



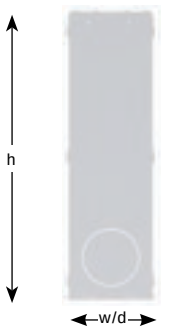
Facade Outlet Box C/W Galvanised Recessed Covers (FacadeSlot)

Code	Description	To Suit Channels	Load Rating	Surface Finish		Height (h) (mm)	Width (w) (mm)	Depth (d) (mm)	Intake Area (mm²)	Pipe Outlet Sizes (mm)	Box Weight (kg)	Cover/Grate Weight (kg)	Total Weight (kg)
FBA00144	Facade Outlet Box c/w Galvanised Recessed Cover	115	A15	Paving		675	253	253	N/A	115, 165, 205	9.5	2.5	12.2



Facade Combined Access/Outlet VBox (FacadeSlot)

Code	Description	To Suit Channels	Load Rating	Surface Finish		Height (h) (mm)	Width (w) (mm)	Depth (d) (mm)	Intake Area (mm²)	Pipe Outlet Sizes (mm)	Box Weight (kg)	Cover/Grate Weight (kg)	Total Weight (kg)
FBA00146	Facade Combined Access / Outlet Box	115	A15	Paving		575	168	333	7511	115, 165, 250	N/A	N/A	9.9

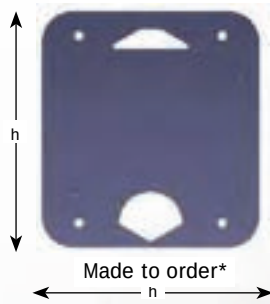


Flow Regulators



Available for all Slotdrain
(for use with Chambers formed on site)

Code	Description		To suit Channel	Height (h)	Width (w)	Weight (kg)
00217	225mm Flow Regulator		225	295	275	1.9
00218	300mm Flow Regulator		300	380	350	3.1
00219	350mm Flow Regulator		350	440	400	4.1
00220	400mm Flow Regulator		400	495	450	5.4
00221	500mm Flow Regulator		500	610	550	8.1
00222	600mm Flow Regulator		600	875	650	13.7



*Made to order outlet size on all regulators

CastSlot / CastSlot Treadsafe / UltraSlot / UltraSlot Treadsafe / PaveSlot
Catchpit Connector

Code	Description		To Suit Channel	Length (mm)	Effective Length (mm)	Weight (kg)
CCA00173	100mm Catchpit Connector		100	375	300	1.9
CCA00174	150mm Catchpit Connector		150	375	300	2.6
CCA00175	225mm Catchpit Connector		225	375	300	3.9
CCA00176	300mm Catchpit Connector		300	375	300	5
CCA00177	350mm Catchpit Connector		350	375	300	5.8
CCA00178	400mm Catchpit Connector		400	375	300	10.9
CCA00179	500mm Catchpit Connector		500	375	300	13.5
CCA00180	600mm Catchpit Connector		600	375	300	21.9

CastSlot / CastSlot Treadsafe / UltraSlot / UltraSlot Treadsafe / PaveSlot
Channel Pipes

Code	Description		To Suit Channel	Length (mm)	Weight (kg)
SPA00181	100mm Channel Pipe – 3m		100	3000	17.1
SPA00182	150mm Channel Pipe – 3m		150	3000	23.3
SPA00183	225mm Channel Pipe – 3m		225	3000	33.5
SPA00184	300mm Channel Pipe – 3m		300	3000	42.7
SPA00185	350mm Channel Pipe – 3m		350	3000	49
SPA00186	400mm Channel Pipe – 3m		400	3000	91.4
SPA00187	500mm Channel Pipe – 3m		500	3000	112
SPA00188	600mm Channel Pipe – 3m		600	3000	178.6

CastSlot / CastSlot Treadsafe / UltraSlot / UltraSlot Treadsafe /
PaveSlot / FacadeSlot End Caps / End Cap Outlets

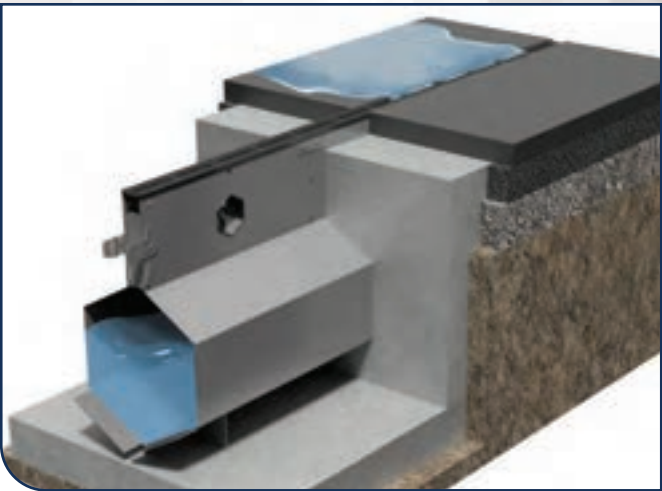
Code	Description		To Suit Channel	Pipe Outlet Sizes (mm)	Weight (kg)
00162	100mm End Cap / Outlet		100	92	0.2
00163	150mm End Cap / Outlet		150	115	0.4
00164	225mm End Cap / Outlet		225	115/165/205	0.7
00165	300mm End Cap / Outlet		300	115/165/205/255	1.2
00166	350mm End Cap / Outlet		350	115/165/205/255/320	1.6
00167	400mm End Cap / Outlet		400	115/165/205/255/320/360	3.3
00168	500mm End Cap		500	N/A	4.9
00169	600mm End Cap		600	N/A	10.6
00170	FacadeSlot End Cap 50mm		50	N/A	0.1
00171	FacadeSlot End Cap 75mm		75	N/A	0.2
00172	FacadeSlot End Cap 115mm		115	N/A	0.4



Tests undertaken by an independent hydraulics consultant indicated that the intake capacity of slot channel systems compares favourably with that of surface channel systems with conventional slotted gratings. Test results are available on request.

Rainfall Intensity

When designing a drainage scheme, professional engineers will most often choose a worst case rainfall intensity rate experienced over a period of 10 years or longer. This ensures that the system can accommodate the most severe storm event.



Slotdrain Intake Capacity

The intake capacity of each type of Gatic Slotdrain system is much greater than would be required in almost all realistic situations, despite the fact it only appears as a very neat 10 or 30mm wide slot in the pavement. The table right shows intake capacities for Gatic Slotdrain with surface water flowing to both sides, or from one side only (flow interception on a slope).

Intake capacity (l/s per linear metre)*				
Width of Slot	Feed Both Sides	Feed one side only at cross slope		
		1:40	1:80	1:200
10mm	8.5	2.6	3.5	3.2
30mm Treadsafe	14	3.5	4.1	4.2
30mm Standard	14	5.0	5.5	5.5



Introduction

The design and requirements of a surface drainage system will vary according to geographic location. Some regions may experience very low levels of rainfall throughout the year, so drainage systems can be designed to capture and conserve water, which may be viewed as a valuable commodity. Other regions may experience long periods of adverse weather conditions, with high and prolonged rainfall rates. In these areas, drainage systems can be designed to quickly and efficiently dispose of surface water. However, the flow of water away from the channel system or site may have to be regulated in order to reduce the flood risk of rivers downstream of the site.

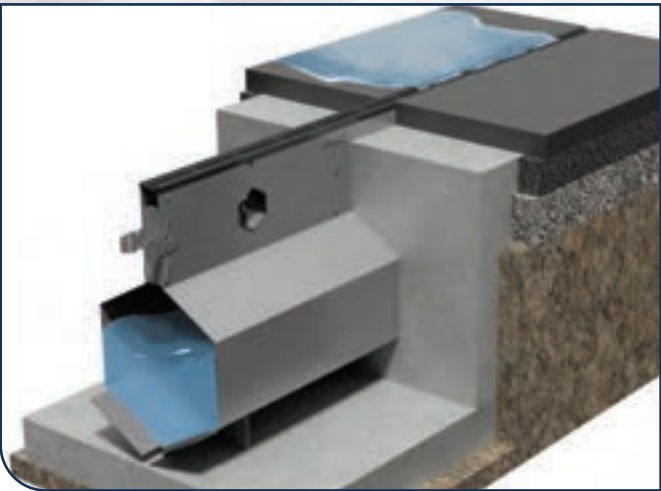
Gatic Slotdrain can be incorporated within the drainage scheme of urban projects to assist with the efficient collection and re-use of water. This provides construction industry professionals with a simple and effective method of water storage and flow regulation.

Water Storage

Gatic Slotdrain channels are available up to 600mm wide, the largest unit having a water storage capacity of 405 l/m. By including larger Slotdrain channels in a surface drainage design, individual channel runs can be used to store higher volumes of water immediately after rainfall occurs. Stormwater may then be diverted to a larger water storage facility on site to conserve water. The flow of water away from the channel may be controlled to meet regulations regarding stormwater discharge from sites. Gatic Slotdrain provides the greatest advantage when 'close to source' water storage is required.

Examples are:

- A. Depth restrictions on site for pipe inverts, or no space to install a deep water attenuation tank.
- B. Water storage required at a shallow invert.
- C. Rocky ground so deep excavation is restricted.
- D. High water-table.
- E. Areas of site infill.



Gatic Slotdrain Channel	Capacity
100mm	9 l/m
150mm	20 l/m
225mm	44 l/m
300mm	78 l/m
350mm	108 l/m
400mm	139 l/m
500mm	217 l/m
600mm	405 l/m

Flow Regulation

The easiest and most cost effective way to control water flow away from a slot drain channel system is through the use of an orifice plate, fitted to the catch pit of the channel system or to access units along the channel run. The methodology and hydraulic performance of the orifice plate is well proven and well understood. By designing the size of the orifice within a blanking end plate, maximum flow levels can be established and controlled.

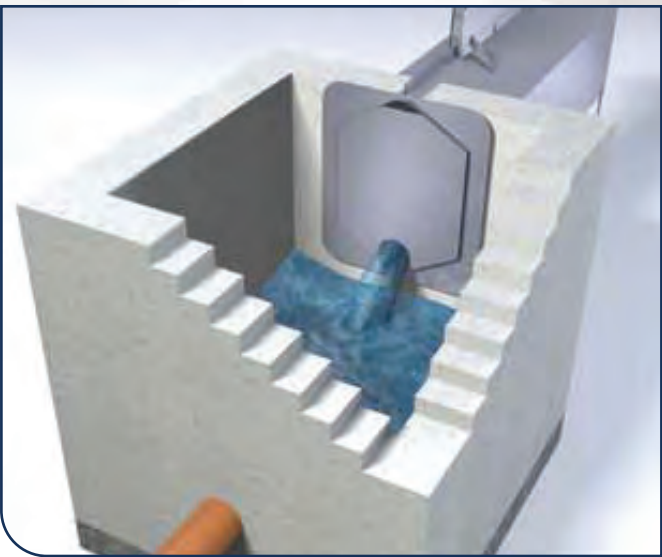
If you are considering using Gatic Slotdrain for water storage, or if you wish to design a slot drain system where the flow will be regulated, please use the Hydraulic Design Software, or contact our technical department who can provide details of the size of orifice required to achieve the flow rates requested.

Flow Regulator:
In order to control the flow of water away from the Gatic Slotdrain channel, a Flow Regulator accessory must be used.

Flow Regulators are supplied by Gatic in Grade 304 stainless steel, and are available in a variety of sizes to fit specific channel widths. There are two types of Flow Regulator available; used with the standard range of boxes and an alternative design used for catch pits formed from concrete on site.

Flow Regulator Performance & Maintenance

The Flow Regulator accessory supplied by Gatic incorporates a semi-circular sharp edged orifice, which is located at the invert level of the nearest slot drain channel, to ensure that there are no restrictions to flow in normal operational conditions. If the orifice becomes blocked with debris, the Flow Regulator also incorporates an overflow weir at the top of the unit. This ensures that the channel system will not become totally blocked, which could cause surface flooding.



A Flow Regulator can be installed at any point along the channel run where there is an access unit or catch pit, thus water flow can be regulated at any point along the channel run. This is particularly useful on sloping sites, where water can be retained at all levels of the site, rather than just at the bottom of the channel run. The Flow Regulator is in all cases bolted neatly onto the inside wall of the catch pit or concrete chamber. This allows easy inspection and removal, for cleaning and maintenance purposes.

Design Formulae

The common equation used by professional engineers for the design of surface channel drainage is Manning's formula for flow calculation. This relates to the steady, uniform flow found in open channels such as culverts or irrigation trenches. This formula does not allow for the effects of lateral intake of water along the full length of a grated trench drain or slot drain system.

HR Wallingford

The established and universally accepted methodology for calculating the hydraulic performance of linear drainage systems is the formula derived from the research carried out by HR Wallingford in the Report SR581 "Hydraulic Capacity of Drainage Channels With Lateral Inflows".

As the name suggests, the formula derived from this research takes into account the flow of liquid carried through the slot channel, as well as the lateral intake of liquid through the slot along the full length of the channel. The liquid entering the slot along the length of the channel will have a disrupting effect on the flow of water through the channel, which leads to nonuniform flow within the channel.

Gatic Slotdrain 'Hydraulic Design Software' successfully incorporates the formula determined by HR Wallingford, so achieves very accurate results regarding the sizing of slot drain channels. These have been confirmed by manual calculations undertaken by professional engineers on many projects where Gatic Slotdrain has been installed. For further information regarding the formulae used in the design software, please refer to the 'Help' section within the software.

Alternative Formulae

There are other formulae that have been used by some surface drainage manufacturers to size and design channel schemes. One such is the Saint-Venant methodology and equation. When required, our technical department can provide an alternative design using this methodology, in order to provide a comparison with competing systems where their design has been based on this formula.

The Hydraulic Design Software provided by Gatic also has the option to calculate channel sizes using this methodology at the press of a button in order to avoid the necessity of manual calculations.

Gatic Slotdrain Channel Sizing - Manual Procedure

Gatic Slotdrain is proven over hundreds of projects in the UK and overseas, however some professional engineers may wish to understand the formulae used within the software and calculate the channel hydraulics manually. Below are the manual procedures for sizing Gatic Slotdrain channels for a given project. Procedure for the design of Gatic Slotdrain

1. Calculate the total area of the catchment drainage area for a specific channel; in square metres.
2. Apply a permeability factor to that area to achieve an impermeable area (Ap) in square metres. Suitable figures for area multipliers are shown in the table below:

Material	Run-off coefficient
Concrete	1.0
Roofing Materials	0.95
Tarmac	0.90
Asphalt	0.85
Block / Stone paving - Cement joints	0.80
Block / Stone paving - Open joints	0.60
High permeability materials (Gravel etc)	<0.60

3. Decide upon a design rainfall rate (r) in l/s/m².
4. Calculate required flow from the impermeable area x rainfall rate (Ap.r) in l/s.
5. If the slotdrain is to be used for conveyance of flow from other sources, such as roof drainage downpipes, then add the sum of the point inflows to the required flow.
6. Determine the required length of channel (L) in m.
7. Determine the ground slope along the length of the channel (S) as a %. The maximum value for S should not exceed 3.3% and S should not be adverse to the direction of flow along the channel.
8. Decide upon the design loading for the channel. If F900 loading is used, decide upon the slot type (Standard or Treadsafe). Select a channel range that is to be used for the design.
9. Decide if a stepped channel design can be incorporated; if so, proceed to Step 16 in the list.

Single Size Channel

10. Calculate the slope factor b using the following rules:

for $S \leq 0.5\%$ $b = 0.132S - 0.00022$
for $0.5\% < S \leq 3.33\%$ $b = 0.00044$

11. Select a suitable channel from the range. When full, the water in the channel will be just below the section. Determine the maximum depth (h) in m, and the channel cross sectional area (A) in m for the chosen channel.

12. If L/h exceeds 1000 then select a larger channel and repeat from Step 11, or reduce the channel length and repeat from Step 6.

13. Calculate the channel capacity from:

$$Q = 2.66 A^{1.25} (6.74 S^{0.7} + 0.4 + \frac{L}{h} b)$$

14. If the required flow; calculated at step 5, is larger than the channel capacity calculated at Step 13, then select a larger channel and repeat from Step 11.

15. If the required flow; calculated at Step 5, is smaller than 40% of the channel capacity calculated at Step 13, it may be possible to use a smaller channel. To check this, select a smaller channel size and repeat from Step 11.

Stepped Fall Channel Design

16. First time through, use the smallest channel in the range and perform the calculations as the previous Steps 10-13.

17. If the required flow; calculated at Step 5, is less than the channel capacity calculated at Step 16, then proceed to Step 20, otherwise select the next size of channel in the range.

18. Calculate the imposed slope given by the sum of the drops (steps) in the invert, divided by the channel length ($\Sigma \text{step} \times 100 / L$) as a %.

19. Add the channel slope calculated at Step 7 to the imposed slope calculated at Step 18, to give S, and repeat the calculations from Step 16.

20. Calculate the required flow from the impermeable area x rainfall rate:

21. First time through, use a 3m length of channel (Lx =

3m) or any other length that the designer considers may be close to the finished design length.

22. Calculate the flow in the channel, from Lx times the flow per unit length, calculated at Step 20. Add any point inflows that occur in channel length Lx from the upstream end, to achieve the design flow.

23. Using the slope calculated at Step 19; and hence the last calculated value of b, and the values of A and h for the size of channel being considered, calculate the flow in the channel using:

$$Q = 2.66 A^{1.25} (6.74 S^{0.7} + 0.4 + \frac{L}{h} b)$$

24. If the required flow, calculated at Step 22, is less than the channel capacity, calculated at Step

23, then increase Lx by 3m (or any other length that the designer considers may be close to the finished design length) and repeat from Step 22.

25. Determine the length of channel at the current size, by subtracting the previous length of channel from Lx.

26. Use the next size unit in the design until all sizes set at step 17 have been allocated. Increase Lx by 3m (or any other length that the designer considers may be close to the finished design length) and repeat from Step 22.

Key:

Ap impermeable area (m²).

r rainfall rate {l/s/m²}.

L length of channel run (m).

S ground slope along length of channel

b coefficient.

h depth from invert to bottom of slotdrain throat (channel body) (m).

A cross-sectional area of channel body (excluding throat) (m²).

Q flow capacity of channel (m³/s).

Lx part length

Slotdrain Design Software: We produce software that allows you to design your own Slotdrain system using the same programme as our in-house design engineers. To be sent a USB or digital download containing this free software, simply register your details with us. You can do this on the MyGatic section of our website, or by emailing/ phoning us using the contact information at the back of this brochure.



Stepped Fall Channel Layout

Gatic Slotdrain channels are available in various sizes ranging from a small and compact 100mm wide channel through to an extremely high capacity 600mm wide channel. Whilst single size channel runs may at times prove to be more suitable, there are significant improvements in hydraulic performance, invert depths and total installed cost where Slotdrain designs incorporate stepped falls.



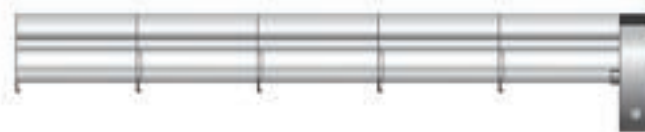
Benefits

- Creates an installed gradient within the channel, achieving a positive flow towards the outlet even if there is a 0% longitudinal ground slope along which the channel is laid. Often the installed gradient is greater than 0.6%.
- Large surface areas can be drained with a single Slotdrain run, which reduces the number of Slotdrain runs required in a given area.
- Longer runs can be formed by interconnecting channel sizes, greatly reducing the requirement for underground pipe-work, manhole chambers and outlets and significantly reducing installation time and costs.
- Achieves higher water flow velocity within the channel to improve the self-cleansing capabilities of the system.
- Increased flow velocity reduces the channel sizes required in the channel run.
- Optimises the use of smaller channel units at the head of the channel, therefore reducing installation costs.
- Minimises invert depths at the outlet end.
- Reduces the amount of excavation, by using the smallest channels available.

Same Depth Channel Layout

Channel runs formed from same depth channel units may prove more practical and easier to install in some projects. These are generally used when the channel is laid along a positive gradient. Same depth channel layouts can also be used when there is no ground slope, usually if the channel run is short. In such instances, water will find its way to the outlet point, due to the effect of gravity on the body of water, which achieves a natural installed gradient regarding the water line within the channel.

When using Slotdrain as a storage medium, a same depth channel layout also provides storage volume for surface water.



Drop Connectors

These system components provide a smooth transition between different sizes of channel, whilst the surface detail of the channel run remains the same.



Gatic Slotdrain modular drainage system as manufactured by Gatic

www.gatic.com

The channel system should have a continuous, single, horizontal slot design to ensure maximum intake and to resist 'wash-over' of surface liquids. Channels to be a single unit design, with no removable parts. Units should have a hexagonal profile with v-shaped channel base for improved self-cleansing and optimum flow. Channels to have a *10mm/ 30mm (*insert appropriate dimension - 10mm/30mm) wide intake slot and a tapered throat. Throat walls can be designed to incorporate weep holes to allow for drainage of subsurface water if this is required.

Channels should be impact-resistant and manufactured from galvanised sheet steel to BS EN 10346: DX51D+Z275-NA-C. Channel material should have 0% water absorption. All materials used in manufacture of channel units should be heatresistant and recyclable. The manufacturer should ideally operate in accordance with the European Environmental Standard BS EN ISO 14001. Channel units should be level invert and supplied in 3.0m, 1.0m or 0.5m lengths.

A stepped fall channel configuration can be achieved if required by using varying depths of Gatic Slotdrain channel in combination, towards the outlet. Channels should be fitted with socket and spigot joints, support feet and concrete anchors that are integral within the design of each unit. Anti-lift channel stabilisers will be fitted to Gatic Slotdrain channels that are 300mm, 350mm, 400mm, 500mm and 600mm wide.

Channels are to be fitted with a removable plastic throat protection strip or tape to prevent debris from entering the slot and throat area during installation. The system shall be supplied with appropriate 'End Caps' and 'Drop Connectors' relevant to the channels specified. Please refer to the manufacturer's product literature for reference numbers of relevant End Caps/ Drop Connectors to be specified and installed. All components within the scope of this system shall be obtained from the manufacturer.

The system shall be installed in accordance with the manufacturer's guidelines and the work carried out as specified by the structural/mechanical engineer and in accordance with recognised good practice. Standards of workmanship should generally be as specified in BS EN 752 and BS 8000 - 0.

Outlets - D400 Channel

The system is to be supplied with a range of Access, Silt and Outlet Boxes designed to withstand a load of D400, complete with recessed covers or gratings as supplied by Gatic.

Outlets - F900 Channel

Ultra Heavy Duty Outlet Boxes will be used to terminate all Gatic UltraSlot runs. Alternatively, purpose made 'Catch Pit Connectors' are available from Gatic to provide simple connection of channel units to Catch Pits/Manhole Chambers. Gatic also provides a range of Ultra Heavy Duty (F900) grated or solid covers for Catch Pits/Manhole Chambers.

The system shall be supplied with in line Access Units where required. These should be fitted with solid or grated covers up to F900 loading, as available from Gatic.

Specific Channel Types

The channel type(s) should be the following: List product reference and characteristics for each channel type to be specified - please refer to product catalogue for relevant details.

Gatic Slotdrain Ref: (*Insert Channel Reference)

Where Gatic UltraSlot is specified, if the 'Treadsafe' option is required, the relevant product reference number should be selected.

Channel Width: mm
Channel Invert Depth: mm
Channel Overall Depth: mm
Throat Depth: mm

NB: Where possible, please attach data sheets from the Slotdrain software programme for each channel run.

These contain all of the specific information referred to above

Drawings are available in both 'AutoCAD' or 'pdf' formats. Drawings are included in the Hydraulic Design Software package, can be downloaded from the website (www.gatic.com), or can be supplied on a USB Stick. Please contact Gatic or complete an enquiry form on the website.

Manufactured from high quality galvanised sheet steel, and with an innovative design incorporating special features to enhance the structural integrity of the installation, the Gatic Slotdrain system is strong and durable. When specified and installed according to manufacturers' recommendations, the system is fit for purpose and will meet the performance requirements of the client and specifying engineer.

Load Testing

Gatic Slotdrain channels comply with BS EN 1433, Load classes A15 to F900.

Installation Details

A comprehensive set of standard construction installation details are available for each channel type and size, relating to a variety of surface materials (flexible asphalt, paving units, concrete pavement). Installation details and product drawings are also available for the system accessories (modular boxes, drop connector, end caps, flow regulators, etc) supplied with Gatic Slotdrain.

Durability

Impact Resistant

Gatic Slotdrain is manufactured from pre-galvanised sheet steel. Channel units are impact resistant, and will not break during transport, site storage, installation and when the facility is in operation. This reduces replacement costs for the contractor, and lowers long term maintenance costs for the client.



Extreme Temperatures

The system can be used in regions where temperatures may fall well below freezing point. Gatic can supply a much deeper modular outlet to special order (for D400 and F900 load applications), for regions subject to perma-frost, to ensure that underground pipes running from these boxes are located beneath the perma-frost layer.



Longevity

Specified and installed in accordance with manufacturers' recommendations, Gatic Slotdrain should perform and be 'fit for purpose' for the lifetime of an appropriate site.

Gatic Slotdrain can be considered as a concrete trench drainage system, with a durable steel lining along the inner wall of the channel. The system is therefore likely to be more durable compared with a 'cast in place' trench drainage system formed from concrete on site. For performance information regarding more extreme environmental conditions and/or resistance to specific chemicals, please refer to Gatic.

Gatic Slotdrain can also be supplied in stainless steel.

To meet the strength requirements of BS EN 1433, the following has been concluded:

A15 - C250 Loading:

All channel sizes - Steel reinforcing is not required within the channel concrete encasement/surround.

D400 - 600mm Requires reinforcement.

E600 Loading:

*UltraSlot channel sizes 150-350mm wide - Steel reinforcing is not required within the channel concrete encasement/surround.

F900 - Loading

UltraSlot & CastSlot channel sizes 100 - 600mm wide - Steel reinforcing is required within the channel concrete encasement/surround.

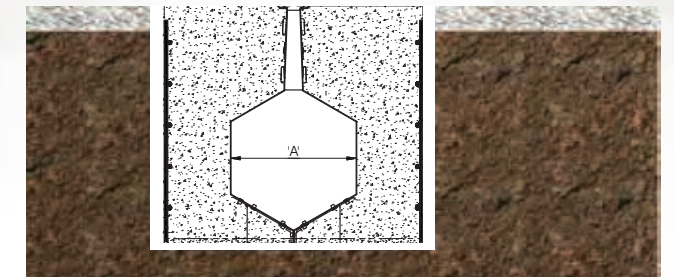
The project engineer may decide to install steel reinforcing around all sizes of Gatic Slotdrain where the traffic is heavy and constant, or where ground conditions dictate.

Installing Steel Reinforcing

Steel reinforcement installation details are available from Gatic on request for all UltraSlot channels and for chambers formed from concrete on site. These drawings can be supplied to provide an indication of the steel reinforcing for an F900 loading application. Each project has a unique and diverse combination of ground conditions and traffic movements that are beyond the control of Gatic.

As such the Slotdrain product may be required to withstand vertical and horizontal loads outside the scope of the load class and testing criteria specified within BS EN 1433.

We therefore advise that the specifying engineer departs from our standard installation details and adds reinforcement or other applicable construction details where necessary.



Fitting of the steel reinforcement cage can be carried out away from the trench, making the task easier for the contractor. The completed unit can then be lifted into the trench.



In some projects there may be a requirement to install the slot drain system to follow a given radius, for example around the perimeter of a taxi-way on an airport project, or following the curve of a landscape feature.

Gatic Slotdrain channel units are available in straight lengths of 500mm, 1m or 3m.

Gradual Radius

These can be formed using standard units, with each consecutive channel unit positioned at a slight angle in relation to the previous channel. Please refer to the table below for the achievable radius for standard channels in the range. When positioning channel units, the gap formed between channels on the outside edge of the radius should not exceed 5mm.

All gaps between the channel joints, on both sides of the channel, should be sealed with a strong construction tape prior to concreting.



Slotdrain Type and Length	Channel Width (mm)									
	50	75	100	115	150	225	300	400	500	600
FacadeSlot System 3m Channels	32m	48m	70m							
FacadeSlot System 1m Channels	13m	17m	25m							
FacadeSlot System 500mm Channels	6m	8m	12m							

Slotdrain Type and Length	Channel Width (mm)									
	50	75	100	115	150	225	300	400	500	600
Other Slotdrain Systems 3m Channels			64m	94m	139m	183m	244m	304m	363m	
Other Slotdrain Systems 1m Channels			23m	32m	46m	62m	82m	103m	123m	
Other Slotdrain Systems 500mm Channels			11m	16m	23m	31m	41m	51m	61m	

A slot drain channel system will require access units to be placed in strategic locations along the channel run, to provide access into the system for cleaning and maintenance.

The position of access units should be determined by the client and project engineer, taking into account the maintenance equipment that will be used. Specifiers may consider the following:

- Access units should be placed at the start of every channel run.
- Access units should be placed at every corner, or at the point where the channel changes direction.
- 100-300mm Wide Channels: Mid-run access units should be placed every 30-50m.
- 400-600mm Wide Channels: Mid-run access units should be placed every 75-100m.
- For short channel runs of 10m long or less, then channel end-caps may be sufficient at the start of the channel run, as cleaning can be carried out from the catch pit end.

Further advice and information is available from Gatic regarding the positioning of access units.



An access unit should always be placed in corner positions

Midpoint access unit (in line)

Catch pit can be used as an access point for cleaning and rodding

An access unit is always positioned at the start of channel

Access units should always be placed whenever a channel changes direction

These are guidelines only - each project should be individually assessed regarding placement of access units.

An access unit is always positioned at the start of channel

GATIC®

DRAINAGE & ACCESS COVERS

www.gatic.com

GATIC
3rd Avenue
Halstead
Essex
CO9 2SX

+44 (0)1787 475 151
info@gatic.com

ALUMASC

WATER MANAGEMENT SOLUTIONS





Lite prem Specification Brochure

Channel Drainage

The Lite prem - 100 Drainage System

What is the Lite prem?

Like the Eco, the **Lite Prem** system is manufactured from **High Density Polyethylene (HDPE)**. A very light-weight, long lasting material that can take strong impacts. It has a high chemical & mechanical resistance, making it also resistant to biological waste which could damage the channel.

The smooth waterproof surface allows for quick waterflow drainage and the ribbed exterior improves the anchoring between the concrete and the HDPE, which is designed for enhanced strength and rigidity whilst being light and easy to carry.

A **full range of Gratings** are available for this versatile system and the use of a **Bolt & Bar** lock makes it safe & secure. There is a complete set of **accessories** available including a Sump Unit and connectors.

Applications:

- Bus Terminals
- Landscaping & Pedestrian Schemes
- Shopping Centres
- Car Parks
- Petrol Stations

● Load Classes A15 - C250

The Lite Prem 100 can withstand up to C250 loading



A15



B125



C250



Conformity

Manufactured in compliance with ISO 9001:2000

Certified in compliance with EN1433

Fully CE Certified with declaration of performance certificate

The Lite prem - 100

Strong, flexible, light-weight, the Lite prem 100 is one of the most versatile drainage systems out there. Allowing up to **C250** loading and coming with a choice of **10+ gratings** there's plenty of options for your projects.

Load classes: **A, B, C** Overall width: **130mm**

Heights: **65mm, 100mm, 150mm**



100mm depth

3 Depth Options

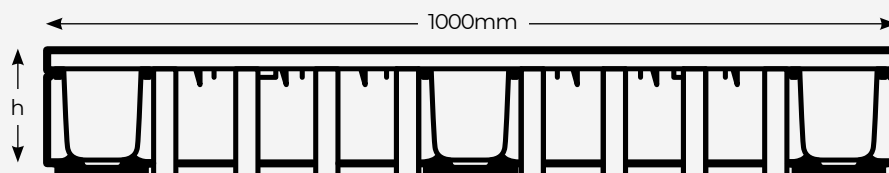
The Lite prem 100 is available in 3 depths: **65mm, 100mm or 150mm** - suitable for a variety of applications - all three have a fixed width of 130mm and can connect with the full range of Lite Prem 100 Accessories



Product Specs

Please see the diagram and table below for specific measurements on the **Lite Prem 100 System**

*Note the diagram used in the example below is for the Lite Prem 100 - 150mm version



Ref	Description	Height (h)	Invert Depth	Overall Width	Weight (kg)	Load Class	Vertical Outlet
LITE.P.100.65.CH	Lite Prem 100.65 Channel 1m	65mm	50mm	130mm	0.5	A,B,C,	110mm
LITE.P.100.100.CH	Lite Prem 100.100 Channel 1m	100mm	85mm	130mm	1	A,B,C,	110mm
LITE.P.100.150.CH	Lite Prem 100.150 Channel 1m	150mm	145mm	130mm	1.4	A,B,C,	110mm

The Lite prem - 100 Accessories

The **full range of accessories** for the Lite Prem 100 System.

Complete with measurements and diagrams below*

Sump Unit

Excellent for collecting debris and waste that can get into the system. Comes with a silt bucket inside for easy cleaning

Foul Air Trap / Leaf Trap

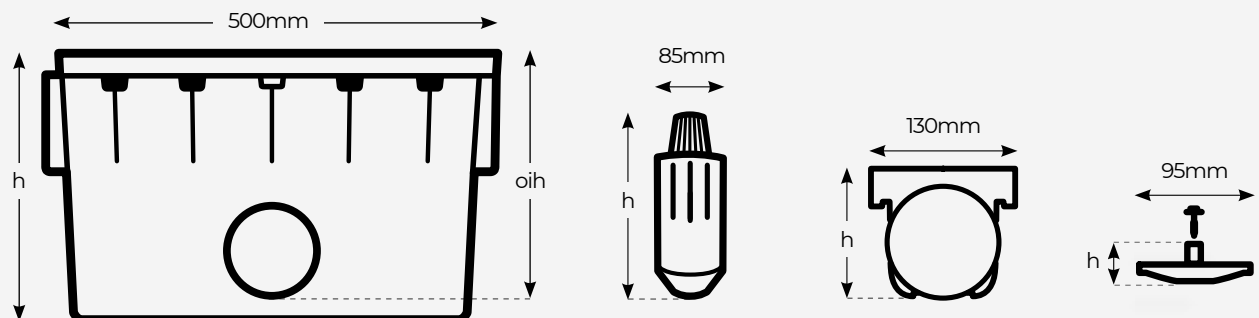
This device acts as both a blocker of foul air coming from drains and as a filter for debris such as leaves

End Cap / Outlet

Doubling up as an end cap for the channel or by knocking out the centre it converts into an outlet

Bolt & Bar

A simple but strong locking device for securing down the gratings on this Lite Prem 100 System



Ref	Description	Height (h)	Invert Height	Overall Width	Weight (kg)	Load Class	Outlet Invert Height (oih)	Outlet
LITE.P.100.SUMP	Lite Prem 100 Sump 0.5m	280mm	260mm	130mm	1.2	A,B,C,	250mm	110mm
LITE.P.100.EC	Lite Prem 100 End Cap	150mm	n/a	130mm	0.4	A,B,C,	n/a	110mm
LITE.P.100.O	Lite Prem 100 Outlet	150mm	n/a	130mm	0.6	A,B,C,	n/a	110mm
LITE.P.100.FAT	Lite Prem 100 Foul Air Trap	90mm	n/a	85mm	0.4	A,B,C,	n/a	110mm
LITE.P.100.BB	Lite Prem 100 Bolt & Bar	11mm	n/a	95mm	0.1	A,B,C,	n/a	n/a

The Lite prem - 100 Gratings

The Lite Prem 100 has a huge range of gratings to choose from which are shown below. With a variety of materials, load classes, and designs available there is something to suit every project

Composite Gratings

Composite Diamond



Load A



Composite Mesh



Load A, B



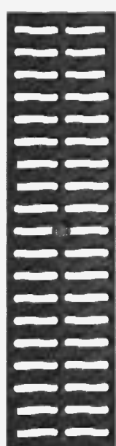
Composite Longitudinal



Load A



Composite Oval



Load A, B, C



Composite Slotted



Load A, B, C



Composite Gratings
● Also Available in
Grey



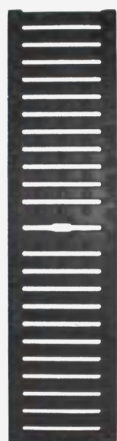
Ductile Iron & Stainless Steel Gratings

Ductile Iron Longitudinal



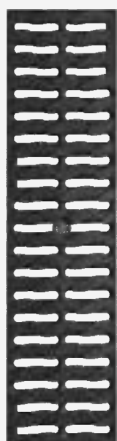
Load A, B, C

Ductile Iron Slotted



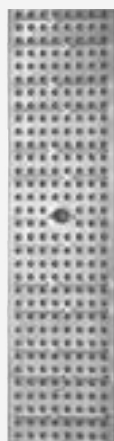
Load A, B, C

Ductile Iron Oval



Load A, B, C

Galvanised or Stainless Steel Perforated



Load A, B, C

Galvanised or Stainless Steel Mesh

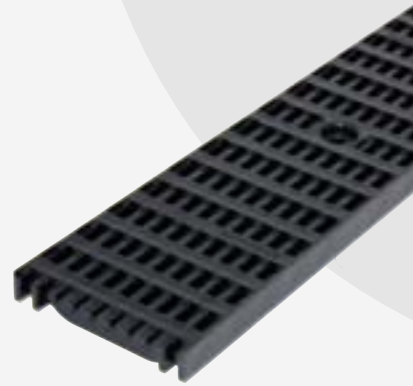


Load A, B, C

Galvanised or Stainless Steel Slotted



Load A, B, C



The Lite prem - 100 Gratings

Find the **measurements** below for our complete range of Lite Prem 100 gratings.
If any additional information is needed our technical team can help on **0151 422 9747**

A15 Gratings *Available in Metre & Half Metre lengths*

Ref	Description	Overall Width	Slot Width	Weight (kg)	Length	Load Class
GR.100.D.C	Diamond Grating, Composite	123mm	6mm	0.9	1000mm	A
GR.100.L.C	Longitudinal Grating, Composite	123mm	7mm	1	1000mm	A

B125 Gratings *Available in Metre & Half Metre lengths*

Ref	Description	Overall Width	Slot Width	Weight (kg)	Length	Load Class
GR.100.M.C	Mesh Grating, Composite	123mm	7mm	0.7	500mm	A, B

C250 Gratings *Available in Metre & Half Metre lengths*

Ref	Description	Overall Width	Slot Width	Weight (kg)	Length	Load Class
GR.100.S.C	Slotted Grating, Composite	123mm	8mm	1.1	500mm	A, B, C
GR.100.O.C	Oval Grating, Composite	123mm	8mm	1.0	500mm	A, B, C
GR.100.L.DI	Longitudinal Grating, Ductile Iron	123mm	8mm	3.2	500mm	A, B, C
GR.100.S.DI	Slotted Grating, Ductile Iron	123mm	8mm	3.1	500mm	A, B, C
GR.100.O.DI	Oval Grating, Ductile Iron	123mm	8mm	3.2	500mm	A, B, C
GR.100.P.SS	Perforated Grating, Stainless Steel	123mm	6mm	4.4	1000mm	A, B, C
GR.100.M.SS	Mesh Grating, Stainless Steel	123mm	10/30mm	4.6	1000mm	A, B, C
GR.100.S.SS	Slotted Grating, Stainless Steel	123mm	8mm	4.2	1000mm	A, B, C
GR.100.P.G	Perforated Grating, Galvanised	123mm	6mm	4.1	1000mm	A, B, C
GR.100.M.G	Mesh Grating, Galvanised	123mm	10/30mm	4.7	1000mm	A, B, C
GR.100.S.G	Slotted Grating, Galvanised	123mm	8mm	4.6	1000mm	A, B, C

The Lite prem - 100 PaveSlot

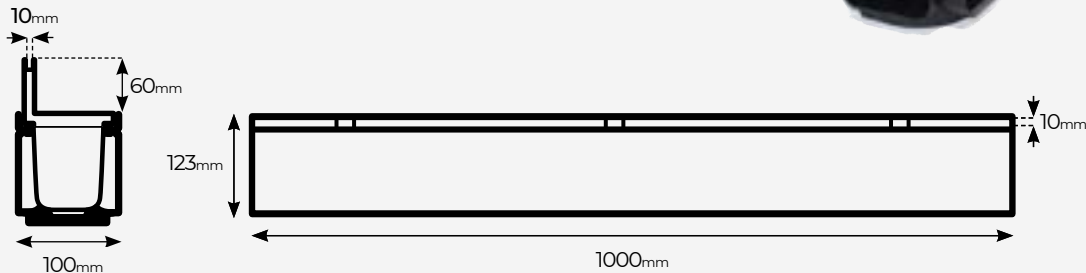
Paveslots are specifically designed for intergration in high quality natural stone and paving surfaces. The discrete inlet slot enables effecient drainage without compromising the ground design. We offer both single & twin slotted paveslots aswell as an access tray for cleaning purposes.

*Galvanised or stainless steel is available upon request.

60mm Galvanised PaveSlot Available in Stainless Steel*

The B125 paveslot has a 10mm slot with an upstand of **105mm**. Paving stones can be positioned flush against the slots for a discreet look.

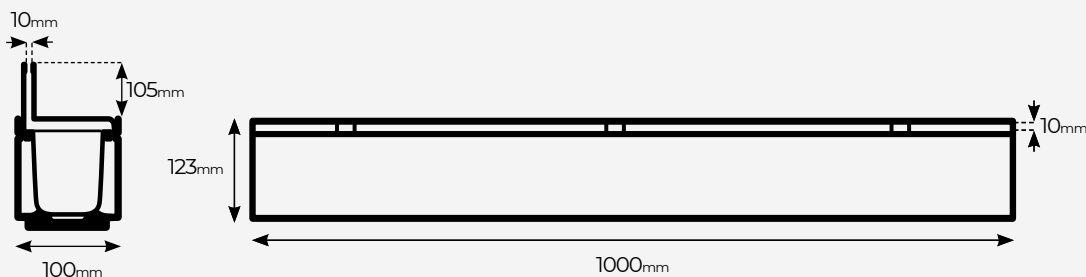
Loading **B125** Width **123^{mm}** Upstand **60^{mm}**



105mm Galvanised PaveSlot Available in Stainless Steel*

The C250 paveslot has a 10mm slot with an upstand of **60mm**. Paving stones can be positioned flush against the slots for a discreet look.

Loading **C250** Width **123^{mm}** Upstand **105^{mm}**



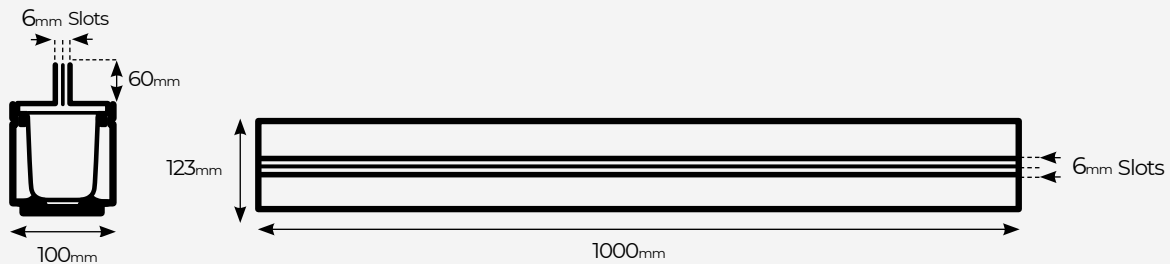
The Lite prem - 100 PaveSlot

60mm Galvanised Twin PaveSlot

Available in Stainless Steel*

The twin c250 paveslot has two 6mm slots positioned parallel to each other with an upstand of **60mm**. Paving stones can be positioned flush against the slots for a discreet look.

Loading **C250** Width **123^{mm}** Upstand **60^{mm}**

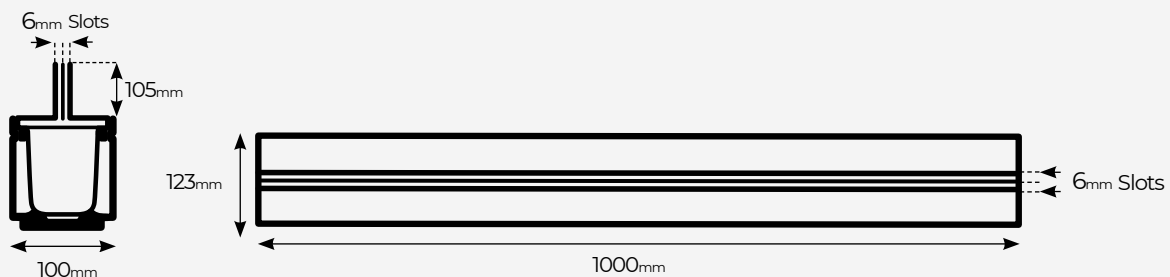


105mm Galvanised Twin PaveSlot

Available in Stainless Steel*

The twin c250 paveslot has two 6mm slots positioned parallel to each other with an upstand of **105mm**. Paving stones can be positioned flush against the slots for a discreet look.

Loading **C250** Width **123^{mm}** Upstand **105^{mm}**

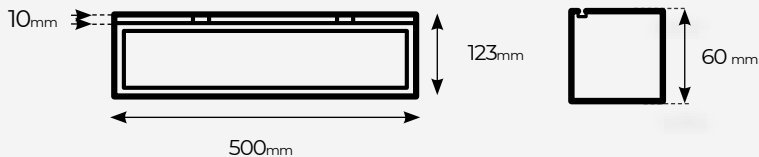


Lite Prem - Access Trays

Galvanised Access Tray 60mm Available in Stainless Steel*

The Polycon Access tray is to be used in conjunction with the paveslot system of the same size. Half a metre in length and sits perfectly in either the metre length channel or the sump unit giving you easy access to cleaning and maintenance of the paveslot and channel system.

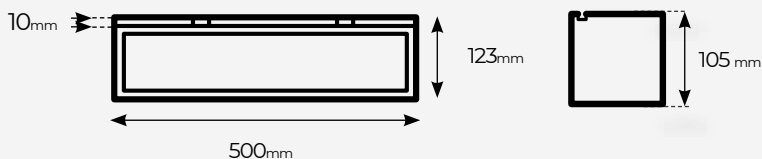
Loading **C250** Upstand **60**^{mm} Width **123**^{mm}



Galvanised Access Tray 105mm Available in Stainless Steel*

The Polycon Access tray is to be used in conjunction with the paveslot system of the same size. Half a metre in length and sits perfectly in either the metre length channel or the sump unit giving you easy access to cleaning and maintenance of the channel system.

Loading **C250** Upstand **105**^{mm} Width **123**^{mm}



The Lite prem - 100 PaveSlot

Measurements for the Paveslot gratings & Access Trays available on the Lite Prem 100.

B125 Paveslot Available in Metre & Half Metre lengths

Ref	Description	Upstand Height (h)	Overall Width	Slot Width	Weight (kg)	Length	Load Class
GR.PS.100.G.OS.1	Galvanised Paveslot Offset Single - 1m	60mm	123mm	10mm	4.3	1000mm	A,B
GR.PS.100.G.OS.5	Galvanised Paveslot Offset Single - 0.5m	60mm	123mm	10mm	2.1	500mm	A,B
GR.PS.100.G.AT	Galvanised Offset Access Tray - 0.5m	60mm	123mm	10mm	4.6	500mm	A,B
GR.PS.100.SS.OS.1	Stainless Steel Paveslot Offset Single - 1m	60mm	123mm	10mm	4.2	1000mm	A,B
GR.PS.100.SS.OS.5	Stainless Steel Paveslot Offset Single - .5m	60mm	123mm	10mm	2.1	500mm	A,B
GR.PS.100.SS.AT	Stainless Steel Offset Access Tray - 0.5m	60mm	123mm	10mm	4.5	500mm	A,B

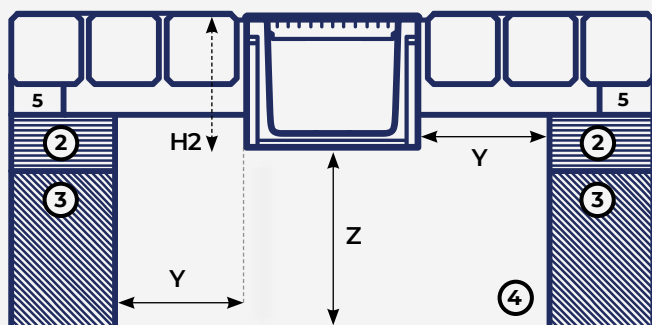
C250 Paveslot Available in Metre & Half Metre lengths

Ref	Description	Upstand Height (h)	Overall Width	Slot Width	Weight (kg)	Length	Load Class
GR.PS.100.G.OS.1.C	Galvanised Paveslot Offset Single - 1m	105mm	123mm	10mm	6.4	1m	A,B,C
GR.PS.100.G.OS.5.C	Galvanised Paveslot Offset Single - 0.5m	105mm	123mm	10mm	3.3	500mm	A,B,C
GR.PS.100.G.CT.1.C	Galvanised Paveslot Centre Twin - 1m	105mm	123mm	10mm	6.9	1m	A,B,C
GR.PS.100.G.CT.5.C	Galvanised Paveslot Centre Twin - 0.5m	105mm	123mm	10mm	3.8	500mm	A,B,C
GR.PS.100.G.AT.C	Galvanised Offset Access Tray - 0.5m	105mm	123mm	10mm	6.2	500mm	A,B,C
GR.PS.100.SS.OS.1.C	Stainless Steel Paveslot Offset Single - 1m	105mm	123mm	10mm	6.3	1m	A,B,C
GR.PS.100.SS.OS.5.C	Stainless Steel Paveslot Offset Single - 0.5m	105mm	123mm	10mm	3.1	500mm	A,B,C
GR.PS.100.SS.CT.1.C	Stainless Steel Paveslot Centre Twin - 1m	105mm	123mm	10mm	6.8	1m	A,B,C
GR.PS.100.SS.CT.5.C	Stainless Steel Paveslot Centre Twin - 0.5m	105mm	123mm	10mm	3.4	500mm	A,B,C
GR.PS.100.SS.AT.C	Stainless Steel Offset Access Tray - 0.5m	105mm	123mm	10mm	6.5	500mm	A,B,C

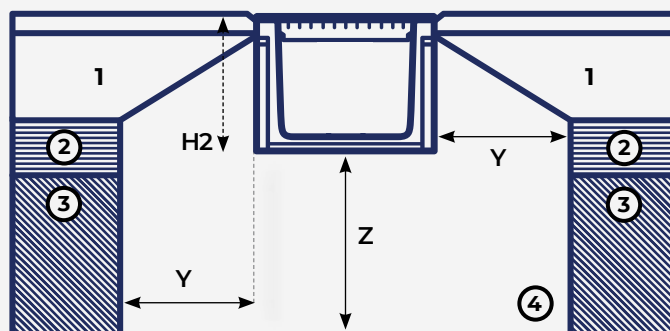
Installation Guide

Grounds conditions must be suitable and all dimensions shown are the minimum requirement. Engineering advice should be taken where necessary and any questions should be directed to Polycon's technical team through emailing us at technical@polycon.co.uk or by calling us on **0151 422 9747**

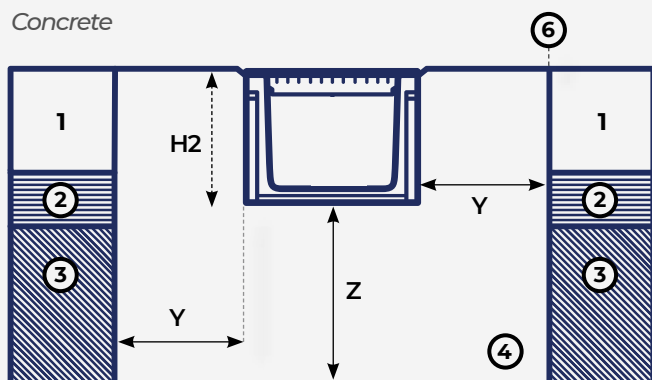
BlockPaving



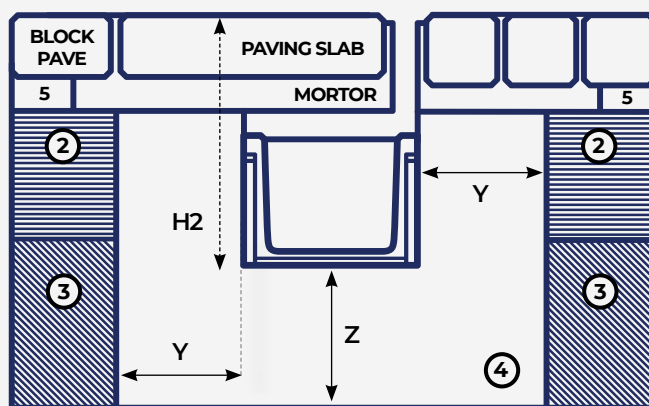
Tarmac



Concrete



PaveSlot



Load Class	A15	B125	C250
H2 - Channel Height	Channel Height	Channel Height	Channel Height
Y - Minimum Surround	100mm	150mm	150mm
Z - Minimum Surround	100mm	150mm	150mm
T1 - Minimum Depth	40mm	40mm	40mm
T2 - Maximum Depth	95mm	55mm	55mm

1	2	3	4	5	6	** Minimum Concrete Haunch 25 N/mm ²
Concrete	Sub Base	Earth	Concrete Haunch	Sand Layer	Expansion Joint	Detail A Allow for overbuild of 3mm to 5mm above the grating surfaces



Polycon Surface Water Drainage

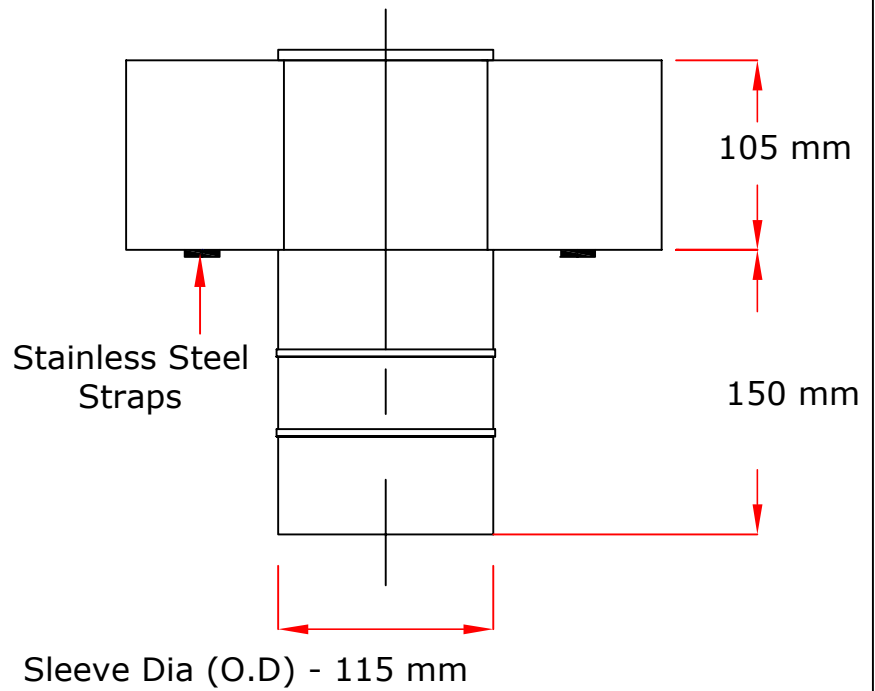
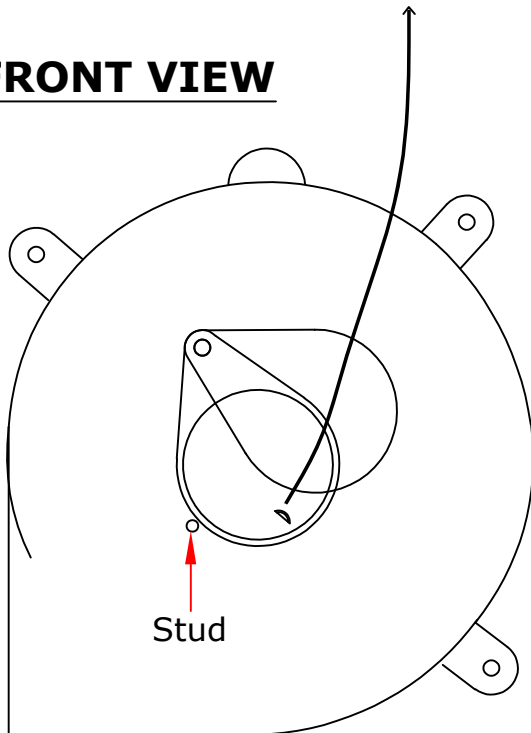
Widnes Business Park, Foundry Lane, Widnes, WA8 8UB, England

Email: info@polycon.co.uk

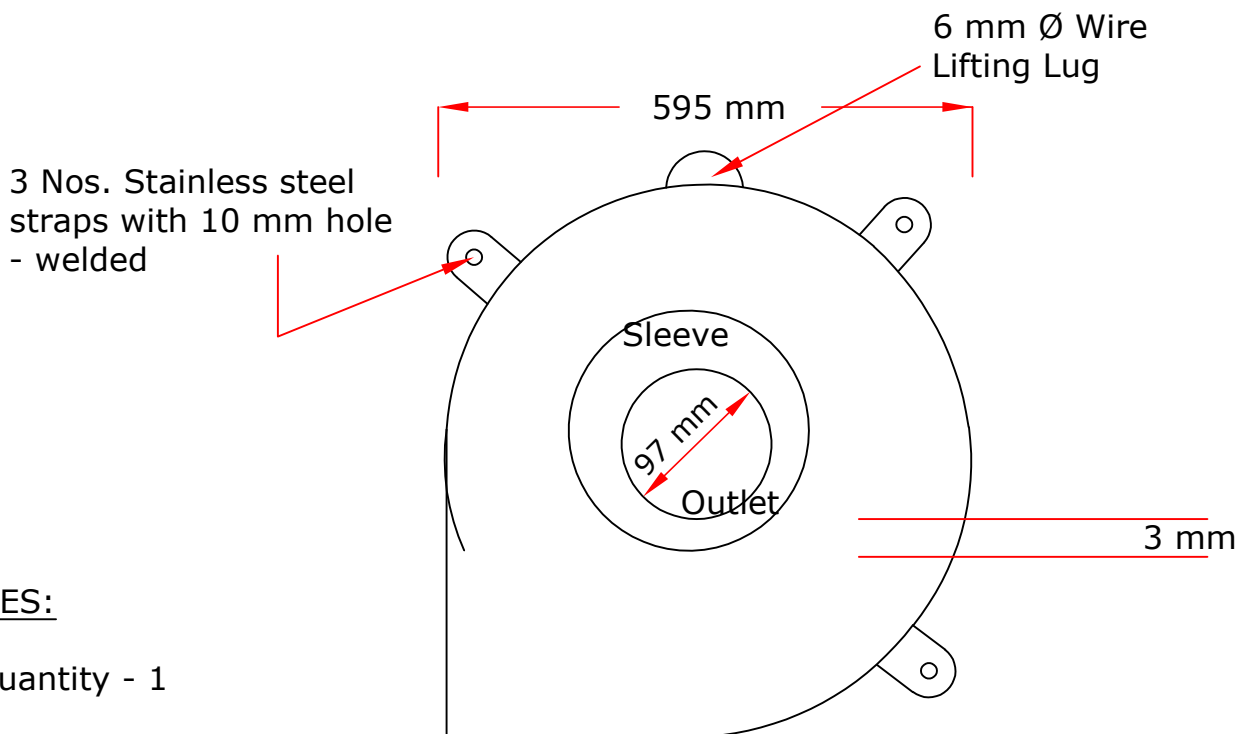
Tel: 0151 422 9747

Visit our website for our full range of products at www.polycon.co.uk

FRONT VIEW



TOP VIEW



SECTION VIEW

NOTES:

1. Quantity - 1
2. Outlet - 97 mm
3. All welds continuous, unless otherwise noted



FLUIDIC-AMP AQUABRAKE STAINLESS STEEL STRAP ATTACHMENT FABRICATION DRAWING

HEAD	1.55	m
DISCHARGE	5.0	lts/sec (ESS-TYPE3)

SOLUTIONS HOUSE
DANE STREET
ROCHDALE
OL11 4EZ
TEL: 01706 374416
FAX 01706 376785

DATE
10/11/2021

DRAWN
MI

NAME:

SCALE
N.T.S.

CHECKED
AY

JOB No.

REVISION No.
R0

ESS AquaBrake Flow Control



Sustainable Drainage Systems
Roof Gardens, Water Re-cycling
ECOSOIL – Filtration, Porous Surfacing
Solar Power, Geo-Thermal System
Contaminated Remediation

Project :-

Technical Information :-

AquaBrake Type : 97 mm ORIFICE ESS-TYPE3

Head = 1.55 m/s Flow = 5.0 l/s

Primary Design Point (A)

Control Points	Head (m)	Flow (l/s)
Wash-Flo (B)	0.500	4.80
Hit-Flo ©	1.000	4.10

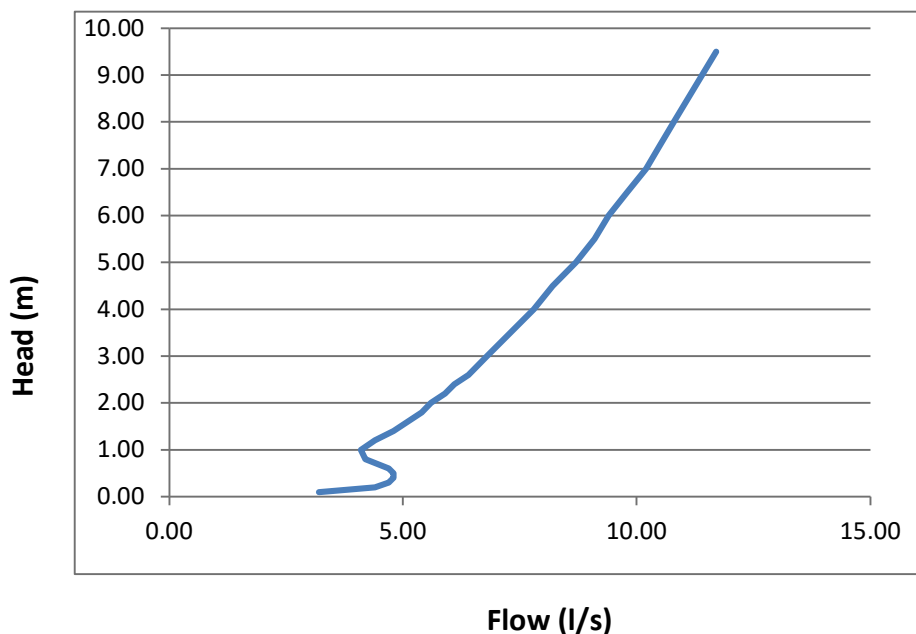
Wash-Flo (B)

The point at which the vortex begins to initiate and have a throttling effect. This point on the AquaBrake curve is usually much nearer to the maximum design flow (Design Point) than other vortex flow controls leading to more water passing through the unit during the earlier stages of a storm, thus reducing the amount of water that needs to be stored upstream.

Hit-Flo (C)

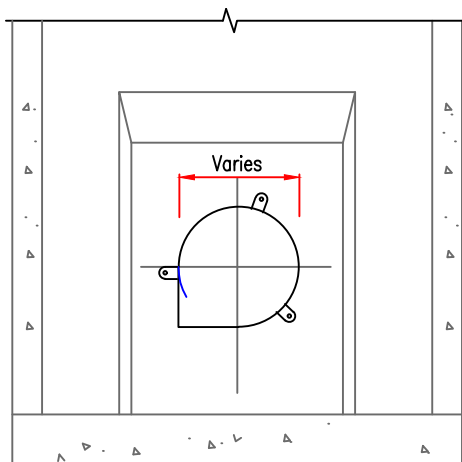
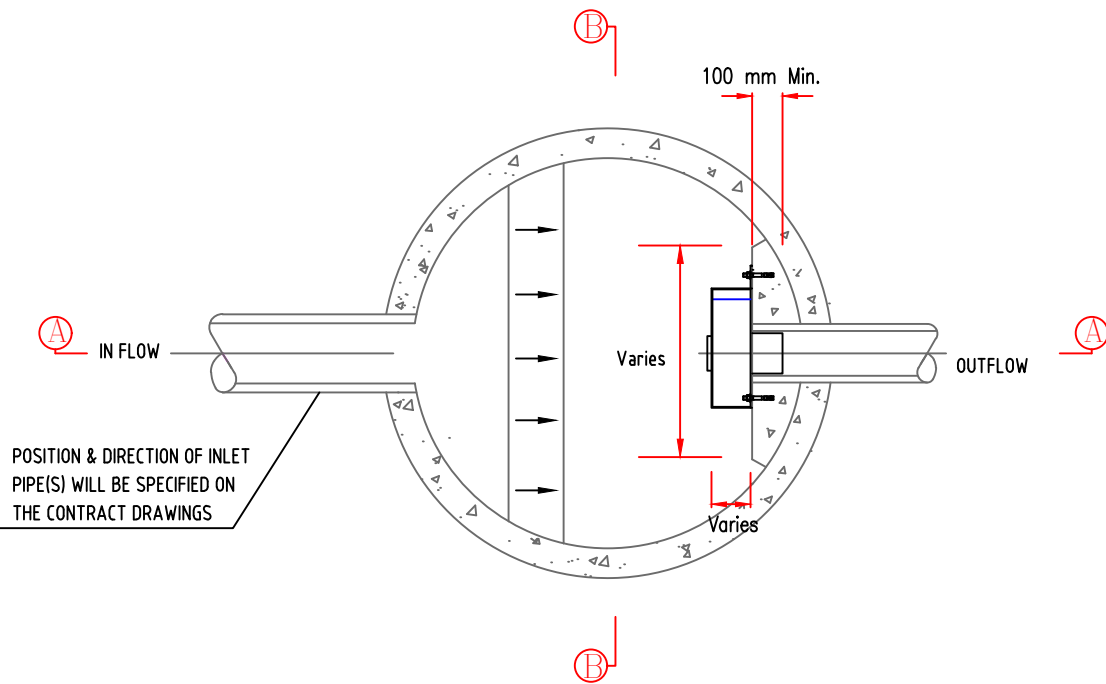
The point at which the vortex has initiated and at which the curve begins to return back to follow the orifice curve and reach the same design point or desired head / flow condition.

Head / Flow characteristic

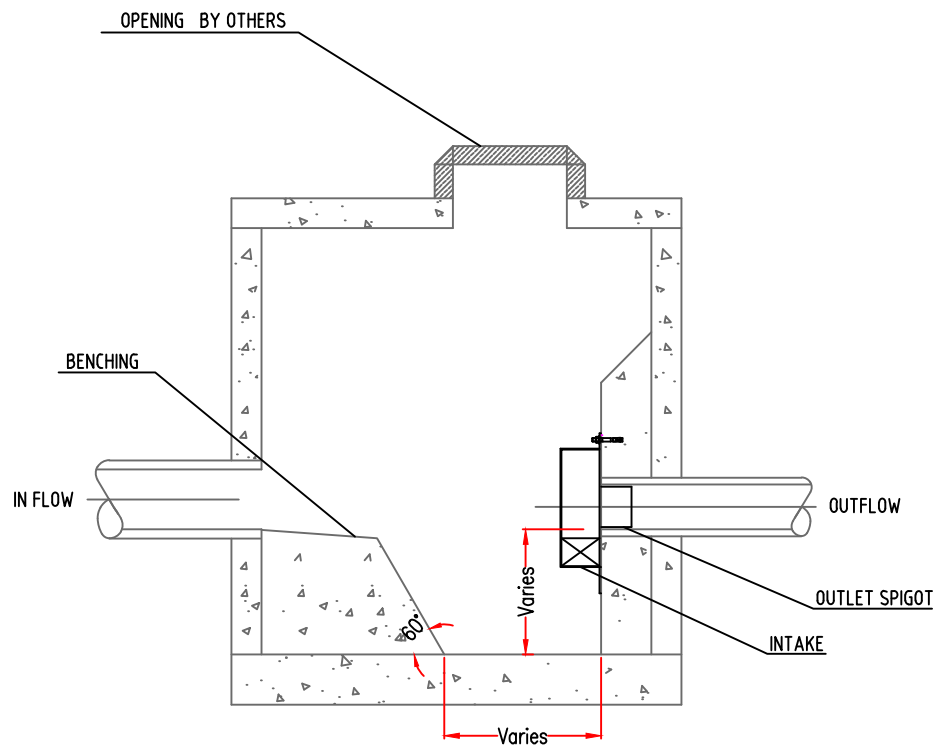


Flow (l/s)	Head (m)
3.20	0.10
4.40	0.20
4.70	0.30
4.80	0.40
4.80	0.50
4.70	0.60
4.20	0.80
4.10	1.00
4.40	1.20
4.80	1.40
5.10	1.60
5.40	1.80
5.60	2.00
5.90	2.20
6.10	2.40
6.40	2.60
6.80	3.00
7.30	3.50
7.80	4.00
8.20	4.50
8.70	5.00
9.10	5.50
9.40	6.00
9.80	6.50
10.20	7.00
10.50	7.50
10.80	8.00
11.10	8.50
11.40	9.00
11.70	9.50

Environmental
Sustainable Solutions
Ltd. Solutions House,
Dane Street,
Rochdale, OL11 4EZ
Tel: 01706 374416
Fax: 01706 376785



SECTION B-B



SECTION A-A



SOLUTIONS HOUSE,
DANE STREET
ROCHDALE
OL11 4EZ
TEL: 01706 374416
FAX 01706 376785

TYPICAL DETAILS FOR AQUABRAKE CHAMBER - CONCRETE

HEAD m
DISCHARGE lts/sec

DATE
24/06/2019

DRAWN
VH

PROJECT:

SCALE
N.T.S.

CHECKED
PD

JOB No.

REVISION No.