CALA

Appendix B - Goods Reciepts

317446458

CEMEX UK Materials Limited
Regd Office: CEMEX House, Binley Business Park
Harry Weston Rd, Coventry CV3 2TY

STOP AND THINK - DO NOT LET ANYONE WORK UNSAFELY

Job Site Number:	0081759941 ANGMERING, PHS 1B,	**Date**	**Delivery Ticket No.**
Account Number:	[redacted]	15.11.2023	317446458 /
Customer Name:	Lenmark Construction Ltd	**Time Out**	
Ordered By:	Luke	12:36:39	**Delivery Address**
Purchase Order:	H1149	**Req. Deliv. Window**	C/O CALA HOMES
Telephone No.:	[redacted]	15 NOV 23 07:00 to 15 NOV 23	WATER LANE PHS 1B
Radials:	00012M	**Loaded At**	ANGMERING, LITTLEHAMPTON
T Zone:	101697	I541 Portslade Wharf (CEMEX)	BN16 4EJ
			GB

CE Mark & Declaration of Performance available @ www.cemex.co.uk/cemarks CE

Product Code:	10192397	**Gross Weight:**	31.200
Product Description:	0/20 All-in Sand and Gravel	**Tare Weight:**	12.380
DOP No.:	Please visit above website	**Net Weight:**	18.820
Tech. Specification:	EN 12620/13242	**Total Ordered:**	20.000
Source:	Portslade Wharf (CEMEX)	**Total Despatched:**	18.820
Product Code:		**Gross Weight:**	
Product Description:		**Tare Weight:**	
DOP No.:		**Net Weight:**	
Tech. Specification:		**Total Ordered:**	
Source:		**Total Despatched:**	

FULL HEALTH AND SAFETY DATA FOR THIS AND SIMILAR PRODUCTS CAN BE FOUND ON OUR PRODUCT HEALTH AND SAFETY DATA SHEET AND ARE AVAILABLE ON REQUEST VIA OUR WEBSITE - CEMEX.CO.UK

Order Number:	2016146707/001	**Order Observations**
Haulier:	3097820 Manor Transport (Arundel) Ltd	
Driver:	robert rice	
License Plate:	GN65MZZ	
Veh. Class / Type:	8W / Insulated Tipper	

Loaded on behalf of Cemex

Signature

Name Print
Mark Gedling

NO CLAIM FOR DAMAGES IN TRANSIT WILL BE CONSIDERED UNLESS PARTICULARS ARE ENTERED ON THE DELIVERY RECEIPT AND THE CARRIER AND OURSELVES ARE NOTIFIED WITHIN 3 DAYS OF DELIVERY

Customer confirmation of Permission to Unload - I/We confirm that this site is fit for purpose and this vehicle has been given permission to unload subject to CEMEX terms and conditions.

Print

Signature

Returned Load	**Time on site** 13:25:05
Tonnes	**Time off site** 13:25:07
Reason	**Time Claimed**

Customers confirmation of Receipt - I / We hereby accept the goods in good condition subject to CEMEX terms and conditions of sale.

Print [redacted]

Signature

Signature

This material is sold subject to the terms and conditions as shown on our quotation

VAT REG. GB222 8284 72

317448173

CEMEX UK Materials Limited
Regd Office: CEMEX House, Binley Business Park
Harry Weston Rd, Coventry CV3 2TY

STOP AND THINK - DO NOT LET ANYONE WORK UNSAFELY

Job Site Number:	0081759941 ANGMERING, PHS 1B,	**Date**	**Delivery Ticket No.**
Account Number:	[redacted]	15.11.2023	317448173 /
Customer Name:	Lenmark Construction Ltd	**Time Out**	
Ordered By:	Luke	14:04:10	**Delivery Address**
Purchase Order:	H1149	**Req. Deliv. Window**	C/O CALA HOMES
Telephone No.:	[redacted]	15 NOV 23 07:00 to 15 NOV 23	WATER LANE PHS 1B
Radials:	00012M	**Loaded At**	ANGMERING, LITTLEHAMPTON
T Zone:	101697	I541 Portslade Wharf (CEMEX)	BN16 4EJ
			GB

CE Mark & Declaration of Performance available @ www.cemex.co.uk/cemarks CE

Product Code:	10191667	**Gross Weight:**	31.700
Product Description:	0/4 MP Concrete Sand	**Tare Weight:**	12.360
DOP No.:	Please visit above website	**Net Weight:**	19.340
Tech. Specification:	EN 12620/13242	**Total Ordered:**	20.000
Source:	Portslade Wharf (CEMEX)	**Total Despatched:**	19.340
Product Code:		**Gross Weight:**	
Product Description:		**Tare Weight:**	
DOP No.:		**Net Weight:**	
Tech. Specification:		**Total Ordered:**	
Source:		**Total Despatched:**	

FULL HEALTH AND SAFETY DATA FOR THIS AND SIMILAR PRODUCTS CAN BE FOUND ON OUR PRODUCT HEALTH AND SAFETY DATA SHEET AND ARE AVAILABLE ON REQUEST VIA OUR WEBSITE - CEMEX.CO.UK

Order Number:	2016146878/001	**Order Observations**
Haulier:	3097820 Manor Transport (Arundel) Ltd	
Driver:	robert rice	
License Plate:	GN65MZZ	
Veh. Class / Type:	8W / Insulated Tipper	

Loaded on behalf of Cemex

Signature

Name Print
Mark Gedling

NO CLAIM FOR DAMAGES IN TRANSIT WILL BE CONSIDERED UNLESS PARTICULARS ARE ENTERED ON THE DELIVERY RECEIPT AND THE CARRIER AND OURSELVES ARE NOTIFIED WITHIN 3 DAYS OF DELIVERY

Customer confirmation of Permission to Unload - I/We confirm that this site is fit for purpose and this vehicle has been given permission to unload subject to CEMEX terms and conditions.

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Signature

Returned Load	**Time on site** 14:58:52
Tonnes	**Time off site** 14:58:54
Reason	**Time Claimed**

Customers confirmation of Receipt - I / We hereby accept the goods in good condition subject to CEMEX terms and conditions of sale.

Print [redacted]

Signature

Signature

This material is sold subject to the terms and conditions as shown on our quotation

VAT REG. GB222 8284 72

317462583

CEMEX UK Materials Limited
Regd Office: CEMEX House, Binley Business Park
Harry Weston Rd, Coventry CV3 2TY

STOP AND THINK - DO NOT LET ANYONE WORK UNSAFELY

Job Site Number:	0081759941 ANGMERING, PHS 1B,	**Date**	**Delivery Ticket No.**
Account Number:	[redacted]	16.11.2023	317462583 /
Customer Name:	Lenmark Construction Ltd	**Time Out**	
Ordered By:	Luke	15:01:34	**Delivery Address**
Purchase Order:	H1149	**Req. Deliv. Window**	C/O CALA HOMES
Telephone No.:	[redacted]	15 NOV 23 07:00 to 15 NOV 23	WATER LANE PHS 1B
Radials:	00012M	**Loaded At**	ANGMERING, LITTLEHAMPTON
T Zone:	101697	I541 Portslade Wharf (CEMEX)	BN16 4EJ
			GB

CE Mark & Declaration of Performance available @ www.cemex.co.uk/cemarks CE

Product Code:	10191693	**Gross Weight:**	31.600
Product Description:	4/10 Single Size Gravel	**Tare Weight:**	12.360
DOP No.:	Please visit above website	**Net Weight:**	19.240
Tech. Specification:	EN 12620/13242	**Total Ordered:**	20.000
Source:	Portslade Wharf (CEMEX)	**Total Despatched:**	19.240
Product Code:		**Gross Weight:**	
Product Description:		**Tare Weight:**	
DOP No.:		**Net Weight:**	
Tech. Specification:		**Total Ordered:**	
Source:		**Total Despatched:**	

FULL HEALTH AND SAFETY DATA FOR THIS AND SIMILAR PRODUCTS CAN BE FOUND ON OUR PRODUCT HEALTH AND SAFETY DATA SHEET AND ARE AVAILABLE ON REQUEST VIA OUR WEBSITE - CEMEX.CO.UK

Order Number:	2016146709/001	**Order Observations**
Haulier:	3097820 Manor Transport (Arundel) Ltd	
Driver:	robert rice	
License Plate:	GN65MZZ	
Veh. Class / Type:	8W / Insulated Tipper	

Loaded on behalf of Cemex

Signature

Name Print
Mark Gedling

NO CLAIM FOR DAMAGES IN TRANSIT WILL BE CONSIDERED UNLESS PARTICULARS ARE ENTERED ON THE DELIVERY RECEIPT AND THE CARRIER AND OURSELVES ARE NOTIFIED WITHIN 3 DAYS OF DELIVERY

Customer confirmation of Permission to Unload - I/We confirm that this site is fit for purpose and this vehicle has been given permission to unload subject to CEMEX terms and conditions.

Print

Signature

Returned Load	**Time on site** 16:01:29
Tonnes	**Time off site** 16:01:32
Reason	**Time Claimed**

Customers confirmation of Receipt - I / We hereby accept the goods in good condition subject to CEMEX terms and conditions of sale.

Print [redacted]

Signature

Signature

This material is sold subject to the terms and conditions as shown on our quotation

VAT REG. GB222 8284 72

317472319

CEMEX UK Materials Limited
Regd Office: CEMEX House, Binley Business Park
Harry Weston Rd, Coventry CV3 2TY

STOP AND THINK - DO NOT LET ANYONE WORK UNSAFELY

Job Site Number:	0081723685 ANGMERING, PHS 1A	**Date**	**Delivery Ticket No.**
Account Number:	[redacted]	17.11.2023	317472319 /
Customer Name:	Lenmark Construction Ltd	**Time Out**	
Ordered By:	Luke	14:07:20	**Delivery Address**
Purchase Order:	H11243	**Req. Deliv. Window**	C/O Lenmark Construction Ltd
Telephone No.:	[redacted]	17 NOV 23 07:00 to 17 NOV 23	DAPPERS LANE PHS 1A
Radials:	00012M	**Loaded At**	LITTLEHAMPTON
T Zone:	101696	I541 Portslade Wharf (CEMEX)	BN16 4EN
			GB

CE Mark & Declaration of Performance available @ www.cemex.co.uk/cemarks CE

Product Code:	10192397	**Gross Weight:**	31.540
Product Description:	0/20 All-in Sand and Gravel	**Tare Weight:**	12.360
DOP No.:	Please visit above website	**Net Weight:**	19.180
Tech. Specification:	EN 12620/13242	**Total Ordered:**	20.000
Source:	Portslade Wharf (CEMEX)	**Total Despatched:**	19.180
Product Code:		**Gross Weight:**	
Product Description:		**Tare Weight:**	
DOP No.:		**Net Weight:**	
Tech. Specification:		**Total Ordered:**	
Source:		**Total Despatched:**	

FULL HEALTH AND SAFETY DATA FOR THIS AND SIMILAR PRODUCTS CAN BE FOUND ON OUR PRODUCT HEALTH AND SAFETY DATA SHEET AND ARE AVAILABLE ON REQUEST VIA OUR WEBSITE - CEMEX.CO.UK

Order Number:	2016159484/001	**Order Observations**
Haulier:	3097820 Manor Transport (Arundel) Ltd	
Driver:	robert rice	
License Plate:	GN65MZZ	
Veh. Class / Type:	8W / Insulated Tipper	

Loaded on behalf of Cemex

Signature

Name Print
Mark Gedling

NO CLAIM FOR DAMAGES IN TRANSIT WILL BE CONSIDERED UNLESS PARTICULARS ARE ENTERED ON THE DELIVERY RECEIPT AND THE CARRIER AND OURSELVES ARE NOTIFIED WITHIN 3 DAYS OF DELIVERY

Customer confirmation of Permission to Unload - I/We confirm that this site is fit for purpose and this vehicle has been given permission to unload subject to CEMEX terms and conditions.

Print

Signature

Returned Load	**Time on site**
	15:14:59
Tonnes	**Time off site**
	15:15:01
Reason	**Time Claimed**

Customers confirmation of Receipt - I / We hereby accept the goods in good condition subject to CEMEX terms and conditions of sale.

Print [redacted]

Signature

Signature

This material is sold subject to the terms and conditions as shown on our quotation

VAT REG. GB222 8284 72

Polypipe Ltd
t/a Polypipe Building Products
Broomhouse Lane
Edlington
Doncaster DN12 1ES

[redacted]
e-mail: [redacted]
website: www.polypipe.com

Agrément Certificate
89/2206
Product Sheet 6

POLYPIPE UNDERGROUND DRAINAGE SYSTEM

POLYPIPE INSPECTION CHAMBER SYSTEMS

This Agrément Certificate Product Sheet(1) relates to Polypipe Inspection Chamber Systems, comprising 460 by 610 mm rectangular, 320 and 460 mm diameter polypropylene units and ancillaries for means of access to drains to a depth of 1.2 m in non-roadway applications for the purpose of testing, rodding and removal of debris.

(1) Hereinafter referred to as 'Certificate'.



CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Flow characteristics — the systems have sufficient flow characteristics to prevent blockage (see section 6).

Strength — the systems have adequate strength to resist loads and impact likely to be encountered during transport, installation and use (see section 7).

Performance of joints — the connections between the chamber and the pipelines are watertight, and the traps are airtight (see section 8).

Durability — the material from which the products are manufactured will not deteriorate significantly and the anticipated service life of the products will be in excess of 50 years (see section 13).

The BBA has awarded this Certificate to the company named above for the systems described herein. These systems have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

[redacted]
Paul Valentine
Technical Excellence Director

[redacted]
Claire Curtis-Thomas
Chief Executive

Date of Second issue: 18 June 2019

Originally certificated on 29 March 1989

The BBA is a UKAS accredited certification body – Number 113.
The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk
Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.
Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

British Board of Agrément
Bucknalls Lane
Watford
Herts WD25 9BA

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[redacted]
www.bbacerts.co.uk

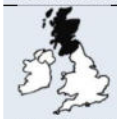
Regulations

In the opinion of the BBA, Polypipe Inspection Chamber Systems, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	**H1(1)**	**Foul water drainage**
Comment:		The systems will convey the flow of foul or surface water and minimise the risk of blockages or leakage. See sections 4.1, 6, 7, 8 and 9 of this Certificate.
Requirement:	**H3(3)**	**Rainwater drainage**
Comment:		The systems will convey the flow of foul or surface water and minimise the risk of blockages or leakage. See sections 4.1, 6, 7, 8 and 9 of this Certificate.
Regulation:	**7**	**Materials and workmanship (applicable to Wales only)**
Regulation:	**7(1)**	**Materials and workmanship (applicable to England only)**
Comment:		The systems are acceptable. See section 13 and the *Installation* part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Durability, workmanship and fitness of materials**
Comment:		The systems satisfy the requirements of this Regulation. See sections 12 and 13 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	3.6	Surface water drainage
Standard:	3.7	Waste water drainage
Comment:		The systems will satisfy the relevant requirements of this Standard, with reference to clauses 3.6.1[(1)(2)] to 3.6.3[(1)(2)], 3.7.3[(1)(2)] and 3.7.4[(1)(2)]. See sections 4.1, 6, 7, 8 and 9 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The systems can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		All comments given for the systems under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1[(1)(2)] and Schedule 6[(1)(2)].

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	**23(a)(i)**	**Fitness of materials and workmanship**
Comment:	**(iii)(b)(i)**	The systems are acceptable. See section 13 and the *Installation* part of this Certificate
Regulation:	**79**	**Drainage systems**
Comment:		The systems are acceptable. See sections 4.1, 6, 7, 8 and 9 of this Certificate.
Regulation:	**81**	**Underground foul drainage**
Comment:		The systems will convey the flow of foul or surface water and minimise the risk of blockages or leakage. See sections 4.1, 6, 7, 8 and 9 of this Certificate.

Regulation:	**82**	**Rainwater drainage**
Comment:		The systems will convey the flow of rainwater and minimise the risk of blockages or leakage. See sections 4.1, 6, 7,8 and 9 of this Certificate.

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.2) of this Certificate.

Additional Information

NHBC Standards 2019

In the opinion of the BBA, Polypipe Inspection Chamber Systems, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relations to *NHBC Standards*, Chapter 5.3 *Drainage below ground*.

Technical Specification

1 Description

1.1 Polypipe Inspection Chamber Systems comprise 460 x 610 mm Rectangular, 320 mm and 460 mm Diameter systems (see Table 1 and 2):

- base unit — black injection-moulded polypropylene with side inlets incorporating seals to BS EN 681-1 : 1996, Type WC, retained by polypropylene snap caps
    - 460 x 610 mm — with integral benching (see Figure 1a)
    - 320 mm — with integral benching, a straight inlet and one outlet (see Figure 1b)
    - 460 mm (see Figure 1c):
        - 110 mm — with open channels, a straight inlet and one outlet
        - 110 mm/160 mm — with a main channel with 160 mm inlet and outlet sockets
- risers — black injection-moulded polypropylene. The maximum invert depth of the chamber is dependent on the number of risers (see Table 3)
- EPDM rubber seals — to BS EN 681-1 : 1996, Type WC, available separately (with exception of the 460 x 610 mm rectangular base). The seals are fitted into grooves on the outside of the risers to make watertight joints between risers and bases/risers. Some SKUs feature one piece integrally moulded seal housing grooves
- cover — supplied with frame.

Table 1 Characteristics of the inspection chambers

Element	Characteristic (unit)	460 x 610 mm	320 mm	460 mm		
Base unit	Number of side inlets	4	2	4 (2 x 45° and 2 x 90°)		
	Inlet dimension (mm)	110	110	110	45° x 110 and 90°x 160	
	Wall thickness (mm)	4	4	4		
	Invert level (mm)	330	170	220	250	
	No of blanking plugs supplied	3	2	3	2 x 110 and 2 x 160	
Riser	Internal dimension (mm)	460 x 610	320	460		
	Wall thickness (mm)	8	4	4		
	Depth (mm)	180	135	215		
Cover	Material	Pressed steel(1)	PP	Cast iron(2)		Concrete
	Dimensions (mm)	470 x 620	320	493		490
Frame	Material	PP	PP	Cast iron(2)	PP	PP

(1) To BS EN 10143 : 2006.
(2) To BS EN 1561 : 2011 coated with cold applied black bitumen to BS 3416 : 1991.

Table 2 Product codes of the elements covered by this Product Sheet

Element	Product Code				
	460 x 610 mm	320 mm	460 mm		
Base unit	UG490	UG437	UG440 DN110		UG670 DN110/160
Riser	UG491	UG438/UG466	UG431		
Seal	—	UG388(1)/UG388B	UG488(1)		
Cover with frame	UG496	UG501 round UG502 square	UG419 Cast iron with cast iron	UG444 Cast iron with PP	UG497 Concrete with PP

(1) Kitemarked to BS EN 13598-1 : 2010, licence No.KM 585205.

Figure 1 Polypipe Inspection Chamber Systems

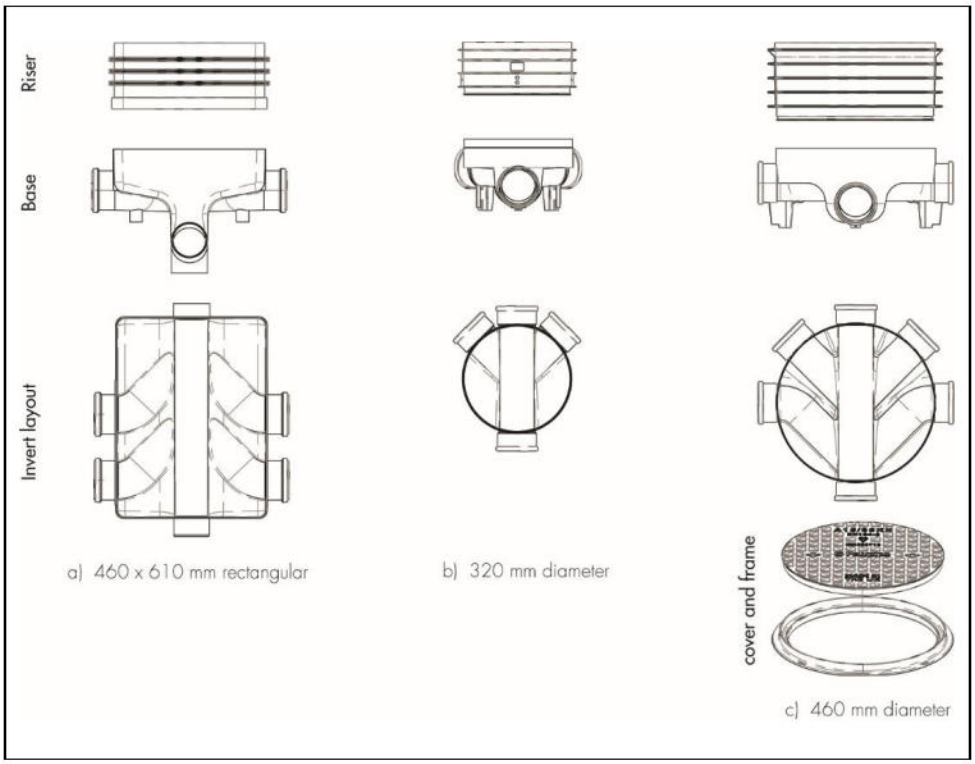


Table 3 Invert depth for the chamber systems

Configuration	Maximum invert depth (mm)			
	460 x 610 mm	320 mm	460 mm	
Base unit only	330	170	220	250
Base plus one riser	450	314	413	443
Base plus two risers	600	457	606	636
Base plus three risers	750	600	799	829
Base plus four risers	900	—	992	1022
Base plus five risers	1050	—	1185	1200

1.2 Sealant (not covered by this Certificate) conforming to BS EN ISO 11600 : 2003 may be used for jointing the riser sections. The Manufacturer's installation instructions must be followed in this case.

2 Manufacture

2.1 Base units, risers, frames and covers (as detailed in Table 1) are injection-moulded from polypropylene.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of Polypipe Building Products has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by BSI (Certificate FM00318) and BS EN ISO 14001 : 2015 by DNV GL (Certificate 84861-2010-AE-GBR-UKAS).

2.4 BSI Kitemark licence No. KM 585205 has been issued to Polypipe Building Products, Broomhouse Lane, Edlington, Doncaster DN12 1ES, for the manufacturing of shallow inspection chambers certified to BS EN 13598-1 : 2010.

3 Delivery and site handling

3.1 The inspection chamber bases, risers, seals, and covers/frames are delivered to site unprotected, and therefore reasonable care in handling and storage is required to avoid damage or distortion.

3.2 Handling, storage and transportation should be in accordance with BS 8000-14 : 1989, BS EN 1610 : 2015 and the recommendations of this Certificate.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Polypipe Inspection Chamber Systems.

Design Considerations

4 Use



4.1 Polypipe Inspection Chamber Systems provide means of access to drains for testing, rodding and removal of debris. They are satisfactory for use in domestic underground drains and public and private sewers for the conveyance, by combined or separate systems, of surface water or domestic sewage, as is permitted to be discharged into public sewers by the Water Industry Act 1991, and surface water and sewage as is permitted and defined by the Sewerage (Scotland) Act 1968 and the Water and Sewerage Services (Northern Ireland) Order 2006.

4.2 The inspection chambers are for use at depths of up to 1.2 m in areas restricted to pedestrians and pedal cyclists, where Group 1 covers to BS EN 124-1 : 2015 would be suitable. The inspection chamber bases and risers can also be used at depths of up to 1.2 m in footways, pedestrian areas and comparable areas, car parks and car parking decks if a cover and frame Kitemarked to BS EN 124-1 : 2015, Group 2[(1)] is used (see the *Installation* part of this Certificate).

(1) Not supplied by the Certificate holder.

4.3 The systems are for use with 110 mm and/or 160 mm PVC-U pipes and fittings to BS EN 1401- 1: 2009, BS EN 13476-1 : 2018 and BS EN 13476-2 : 2018, or with other products covered by the other Product Sheets of this Certificate.

4.4 110 mm and 110 mm/160 mm base units can also be used as preformed bases in conventional manholes of depths up to 6 m, constructed in accordance with BS EN 752 : 2017 (see the *Installation* part of this Certificate).

4.5 The inspection chambers have not been assessed for the conveyance of trade effluent and such use is outside the scope of this Certificate.

5 Practicability of installation

The systems are designed to be installed by a competent general builder, or a contractor, experienced in below-ground drainage work.

6 Flow characteristics



The dimensions of the inspection chamber bases will minimise the risk of blockages providing the drainage layout is designed in accordance with BS EN 752 : 2017.

7 Strength



7.1 When used with the specified covers and frames, the systems have adequate strength for use in areas where Group 1 covers to BS EN 124-1 : 2015 can be used.

7.2 The systems have adequate strength to withstand the loads associated with normal site handling, installation and drain cleaning operations.

8 Performance of joints



8.1 The performance of joints, when correctly made, will not be adversely affected by thermal expansion or contraction.

8.2 Joints with the pipeline remain watertight under conditions of pipeline movement in excess of those expected to occur in normal good drainage practice.

9 Watertightness



The assembled inspection chambers and correctly made connections between the inspection chamber and the drain run will not allow seepage of water into or from the surrounding soil.

10 Resistance to chemicals

10.1 The systems have adequate resistance to the type and quantity of chemicals likely to be found in domestic sewage.

10.2 Details of the chemical resistance of EPDM rubber are given in PD ISO/TR 7620 : 2005.

11 Resistance to elevated temperatures

The inspection chambers and covers have adequate resistance to the normal temperature range of domestic sewage. The resistance will be similar to that of the PVC-U drainage system to which they are connected.

12 Maintenance



12.1 Normal rodding of the drain can be carried out using polypropylene rods or similar flexible systems, but care must be taken to avoid damaging the inspection chambers.

12.2 The chambers provide access to the drain for the installation of test equipment.

13 Durability



The systems will have a life equivalent to that of the PVC-U drainage system to which it is connected, ie in excess of 50 years.

14 Reuse and recyclability

The systems components are made of polypropylene, or EPDM materials, which can be recycled.

Installation

15 General

15.1 Polypipe Inspection Chamber Systems must be installed in accordance with BS EN 752 : 2017, BS EN 1610 : 2015 and the Certificate holder's installation instructions. Typical installations are shown in Figure 2.

15.2 Precautions must be taken to protect the inspection chambers, covers and frames from damage by construction site traffic.

16 Procedure

16.1 The inspection chamber bases must be installed horizontally and bedded on a 100 mm layer of granular material or selected as-dug material. If concrete is used, the inspection chamber should be bedded into position whilst the concrete is still wet, so that the concrete takes the shape of the inspection chamber base.

16.2 The inspection chamber bases are supplied with removable blanking caps which are used to seal off any unused connections. Blanking caps are also available separately, should it be necessary to blank-off more sockets in the 460 mm diameter or the 460 mm by 610 mm chambers.

16.3 PVC-U pipe of 110 or 160 mm diameter, as appropriate, with spigot suitably chamfered, deburred, cleaned and lubricated with silicone lubricant, is pushed fully into the socket of the inspection chamber then withdrawn by 10 mm to allow for expansion movement.

16.4 For the 460 by 610 mm rectangular chamber, it is essential that a continuous bead of silicone sealant to BS EN ISO 11600 : 2003 is applied to the groove of the riser prior to assembly, to ensure a watertight joint is obtained.

16.5 For the 460 mm diameter chamber, seals are fitted into the riser grooves, and the socket of the inspection chamber/riser is lubricated with silicone lubricant to obtain a watertight joint.

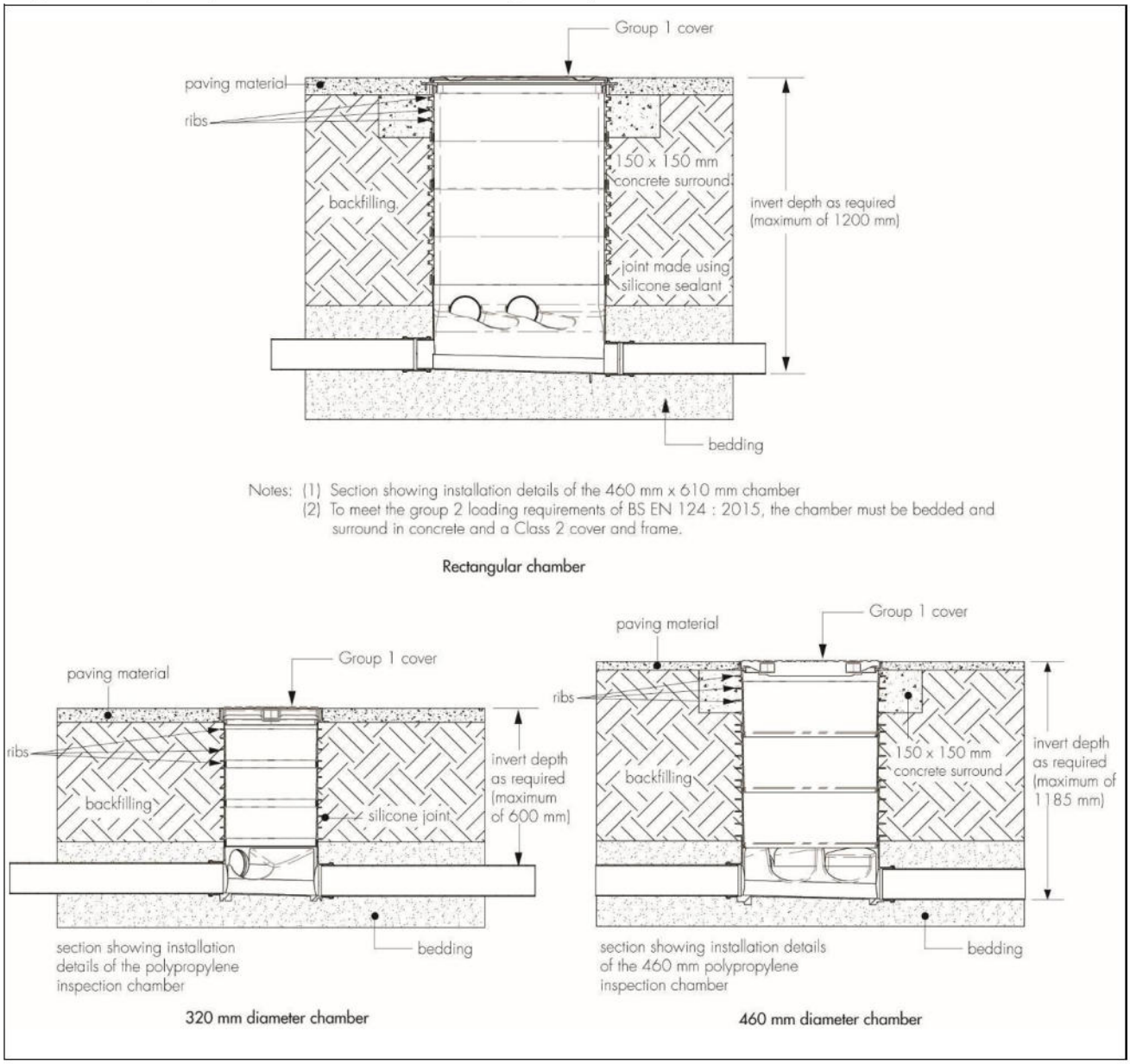
16.6 The maximum number of riser pieces fitted to the chamber bases and the maximum invert depths are given in Table 3.

16.7 The top of the uppermost riser may be cut to the required levels.

16.8 Backfilling is carried out using granular material as described in section 16.1, around and up to a level 100 mm above the inlet and outlet pipes. Thereafter, selected site material free from stones larger than 25 mm and clay lumps larger than 75 mm should be placed and consolidated around the chamber. During backfilling, the chamber should be covered to prevent the ingress of foreign matter into the drain.

16.9 For Group 1 load situations, the inspection chamber assembly is fitted with one of the Polypipe cover and frame options (see section 1.3) and installed as shown in Figures 2 and 3. For Group 2 load situations, the inspection chamber assembly is installed as shown in Figure 4, using a Group 2 cover and frame Kitemarked to BS EN 124-1 : 2015 (not supplied by the Certificate holder).

Figure 2 Group 1 inspection cover installation details for the systems



16.10 The rectangular and 460 mm diameter chamber base units may be used as preformed bases in conventional manholes up to 6 m deep and constructed in accordance with BS EN 752 : 2017. The units should be bedded on, and surrounded with, concrete suitably designed to support the shaft, which may be of brickwork or standard concrete sections.

16.11 If the inspection chamber is to be installed in ground where the water table may rise above the invert level of the chamber, it must be completely surrounded in concrete.

Figure 3 Group 1 inspection cover installation details for the Polypipe 460 mm Diameter Inspection Chamber

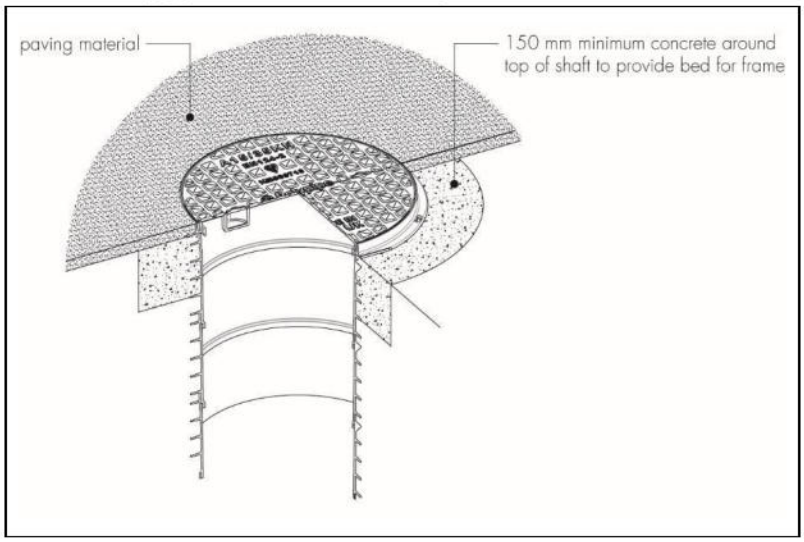
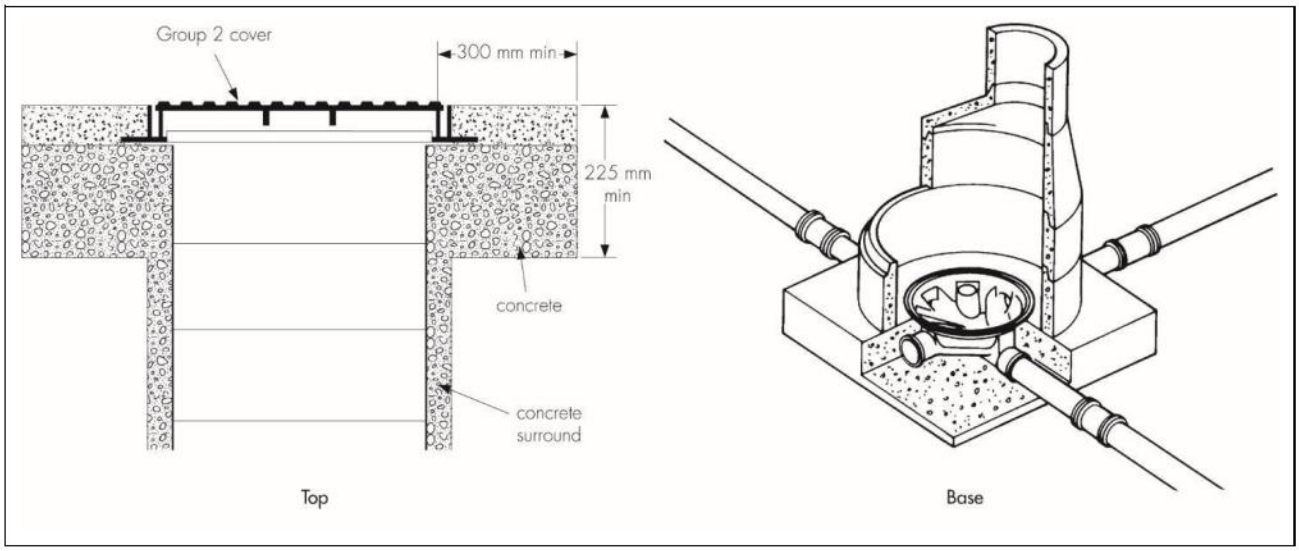


Figure 4 Typical installation detail of inspection chamber



Technical Investigations

17 Tests

17.1 Tests were carried out on the Polypipe 460 mm and 610 mm Rectangular Inspection Chamber System to determine:

- effect of thermal cycling
- practicability of rodding the chamber using polypropylene drain rods with various rodding heads
- practicability of drain testing using screw expanding and inflatable stoppers at maximum permitted depth
- dimensional accuracy
- watertightness of joints under conditions of deformation
- effect of loads on cover and frame assembly
- angular movement, ie rocking of cover within frame.

17.2 Tests were carried out on the Polypipe 320 mm and 460 mm Diameter Inspection Chamber System to determine:

- effect of combination of hot and cold water discharges through the chamber whilst the cover was subjected to a 250 kg load
- practicability of rodding the chamber using polypropylene drain rods with various rodding heads

- practicability of drain testing using screw expanding and inflatable stoppers at maximum permitted depth
- dimensional accuracy
- watertightness of joints under conditions of deformation and angular deflection.
- effect of loads on each cover and frame assembly (460 mm only)
- angular movement, ie rocking of cover within frame
- specific tangential initial stiffness of risers (460 mm only).

17.3 Tests were carried out and the results assessed to determine material properties:

- melt flow index
- density
- tensile strength
- environmental stress cracking resistance
- long-term creep.

18 Investigations

18.1 An evaluation was made of existing data to determine:

- resistance to chemicals
- environmental stress cracking resistance
- ease of jointing
- durability.

18.2 An assessment was made of the flow characteristics, ease of cleaning and resistance to blockage.

18.3 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

18.4 Site visits were conducted to assess the practicability of installation and rodding.

Bibliography

BS 3416 : 1991 *Specification for bitumen-based coatings for cold application, suitable for use in contact with potable water*

BS EN 124-1 : 2015 *Gully tops and manhole tops for vehicular and pedestrian areas. Definitions, classification, general principles of design, performance requirements and test methods*

BS EN 681-1 : 1996 *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Vulcanized rubber*

BS EN 752 : 2017 *Drain and sewer systems outside buildings*

BS EN 1401-1 : 2009 *Plastics piping systems for non-pressure underground drainage and sewerage — Unplasticized poly(vinylchloride) (PVC-U) — Specifications for pipes, fittings and the system*

BS EN 1561 : 2011 *Founding — Grey cast irons*

BS EN 1610 : 2015 *Construction and testing of drains and sewers*

BS EN 10143 : 2006 *Continuously hot-dip coated steel sheet and strip — Tolerances on dimensions and shape*

BS EN 13476-1 : 2018 *Plastics piping systems for non-pressure underground drainage and sewerage — Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) — General requirements and performance characteristics*
BS EN 13476-2 : 2018 *Plastics piping systems for non-pressure underground drainage and sewerage — Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) — Specifications for pipes and fittings with smooth internal and external surface and the system, Type A*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*
BS EN ISO 14001 : 2015 *Environmental management systems — Requirements with guidance for use*

BS EN ISO 11600 : 2003 + A1 : 2011 *Building construction — Jointing products — Classification and requirements for sealants*

BS EN 13598-1 : 2010 *Plastics piping systems for non-pressure underground drainage and sewerage. Unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE). Specifications for ancillary fittings including shallow inspection chambers*

PD ISO/TR 7620 : 2005 *Rubber materials — Chemical resistance*

19 Conditions

19.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

19.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

19.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

19.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

19.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

19.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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Drainage



■ Water ■ Roads ■ Rail ■ Housing ■ Commerical ■ Airports ■ Power

Welcome to Stanton Precast

Stanton Precast is one of the longest established precast producers in the UK.

Precast concrete drainage, rail, highways and bespoke products that are the **backbone of Britain's** water, power and transport networks have been produced at our 65 acre site in Stanton-By-Dale, Derbyshire for over 100 years.

At the **heart of England,** this facility is perfectly placed to service projects the length and breadth of the country with timely deliveries through our network of heavyside merchants or direct to site.

Keeping everything in one place – from consultation and product design to manufacture and distribution – has other benefits too. Shorter lines of communication between Sales, Design and Technical teams mean closer collaboration, quicker responses and higher levels of customer service. Meaning you get a product that's a more fitting answer to your problem.

Whether supplying a small local project or a fast moving multi-million pound project with complex delivery arrangements or working to challenging design and manufacturing demands, Stanton Precast have the experience to meet the needs of all our customers.

Our Sales team comes from the '**big enough to cope, small enough to care**' tradition. Enthusiastic, personable and ready to go the extra mile to help you get what you need.

This, together with being part of **Sateba, a European specialist** in precast concrete rail and infrastructure, gives you confidence that our knowledge and experience of precast concrete products can be trusted.

Sateba's aim is to be the **leaders in sustainability** within our industry and ensure precast concrete will play its part in the **circular economy**.

While we're proud of our achievements to date, we're even more excited about what lies ahead.



Precast concrete drainage products are contained in this brochure. For details of Highways or Rail products please see seperate brochures on our website at www.stantonprecast.co.uk.

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Keep up-to-date with the latest Stanton Precast news on industry, projects, innovations, sustainability and much more!

CARBON CUTTING CONCRETE

The Responsible Concrete Precaster



Stanton Precast takes the environmental impact of its production processes seriously and continues to implement numerous initiatives to reduce the carbon footprint in the manufacture and supply of precast concrete products.

As well as achieving industry accreditation we are also committed to actively improving ways of working, processes and general everyday habits to help reduce waste and improve efficiency in a responsible way. Some of these include:

Recycle and Reuse Materials

Stanton Precast currently replace a proportion of virgin aggregate with a recycled variant obtained via the crushing and grading of the organisation's waste product. The crushing process is performed on the Stanton Precast site, thereby limiting the carbon emissions generated by the transportation of the waste and crushed material.

Using the recycled aggregate reduces the need to purchase virgin material, with the associated impact on carbon emissions, environment exploitation (e.g. material extraction) and the carbon generated by additional processes and transportation.

Progress is monitored via a weekly graph sent to key managers detailing target versus actual usage percentages.

Our systems for reducing energy, materials and waste have been awarded ISO 14001 certification, demonstrating our commitment to the environment and care for the communities around us.

Reduced Energy Consumption

The site energy tariff procured from our energy supplier is generated via **100% renewable energy**, reducing our carbon footprint.

Stanton Precast has introduced initiatives related to the reduction of its energy use, associated with the production process, including a project on electricity consumption reduction assisted by an energy consultancy.

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This includes changing site lighting systems from older halogen and strip lighting to LED lighting systems. The newer systems also have motion detection, which allows the lights to automatically dim or deactivate after a certain amount of time with no motion.

This will ensure a reduction in electricity used across site. This is being monitored via tracking ongoing usage (normalised as KwH/Tonne) and benchmarking against the equivalent figure from 12 months previous on a rolling 12-month basis to ensure a like-for-like comparison on reduction.

Capture and Reuse Rainwater

Stanton Precast have **two rainwater-harvesting systems** on the batching plant and wet cast shed. Each system captures rainwater from the roofs and stores it in tanks. The rainwater is then used in the concrete production process in place of "town's water".



Waste

93% of waste generated at Stanton is **diverted from landfill**. In the most part, the material is recycled. All timber is reused where possible (i.e. bearers are returned via the hauliers after delivery and used again until beyond economical repair) and where not possible is sent via a waste carrier for recycling.

Research and Innovations

An ongoing program of improvements including carbon reducing initiatives are being investigated, researched and trialled together both at Stanton Precast and with our parent company Sateba.

These include, but not limited to, carbon negative aggregate substitutes, cement alternatives and fibre reinforcements. Find out more about our continual improvement program by following us on social media or see our website news page for further updates as they happen.

Sustainability Charter

As well as our own company commitments, we have been members of the MPA Precast **Sustainability Charter** for around 15 years and have been leading the construction industry in sustainability while reducing our carbon footprint.

Being a full member of the charter means we signed up to a series of key environmental targets. These include reducing our water and energy consumption, bringing down our carbon footprint, limiting levels of waste and adopting responsible sourcing systems.

You can read more about the achievements in the latest Sustainability Matters Report available on our website or on the MPA Precast website.

Sustainability Supply Chain School

We are proud to confirm we are a Silver Member of the Sustainability Supply Chain School and we will be striving to get to gold!

Quality and Standards

In addition to enhanced product testing regimes, the company operate a Third Party Certified Quality Assurance Scheme complying with BS EN ISO 9001.

Products are manufactured in accordance with the relevant British standards and kitemarked and/or UKCA Marked accordingly.

The service life of virtually all of our products are expected to exceed 100 years providing they are correctly installed and maintained.

SERIOUS ABOUT SAFETY



Stanton Precast has a number of initiatives designed to work closely with our people to ensure they understand the importance of health, safety and wellbeing of their daily tasks.

Our Near Miss Hazard Alert (NMHA) scheme has reduced accident levels by 90% since 2008.

Stanton Precast workers are encouraged to fill in a NMHA card if they see or experience anything they feel is hazardous. These are reviewed, assessed and actioned on a regular basis.

As well as regular training, the company also holds an annual Safety Event which helps embed a culture of Health & Safety across the organisation through education, training and employee engagement.

We are proud to confirm we have the ISO 45001 for Occupational Health & Safety, which was developed to help organizations improve employee safety, reduce workplace risks and create better, safer working conditions. Another confirmation of how much we take safety seriously.

In addition to our commitment to our own people at Stanton Precast we also care about contractors who offload our products.

Our Quality Control team have created helpful guides and designed and created industry approved offloading and handling equipment, which are used by contractors across the UK.



Our lifting and handling products regularly win prestigious Health and Safety awards. Examples include: the Gully Grab, for safer offloading of precast gullies; the award winning Pipe Pusher, which allows pipe lengths to be joined in the trench without exposing workers to the risk of injury; and the Pipe Lifter, a popular and again, award winning attachment that comes in three sizes for use with all diameters of pipe.

Further details of each can be found later in this brochure or on our website.

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For contractors and operators reducing man hours can significantly lower costs. Stanton Precast products add up to a **huge increase in productivity and profitability** thanks to the added value they bring to every programme stage.

From raw materials processing, through manufacturing and distribution, to installation, maintenance and end of life, precast concrete components impact positively on sustainability, construction and operating costs.

One of those key benefits is a significant reduction in installation time, for example:

Our precast Watertight Manhole System is often installed without concrete surround **within an hour**; Up to 300m of our Aqua-SlotTM drains for highways can be offloaded and **laid in a day**; and in rail, our High Attenuation sleepers provide comparable acoustic performance as floating slab track products, but with **ten times faster installation**.

. . . and don't forget, precast concrete also plays an increasingly important part in the sustainable circular economy thanks to it's **longevity, reusability and 100% recyclability**.



Precast Concrete. Shaping the Future of Offsite

For many years now, offsite design and manufacture has taken precedence in infrastructure development. In fact, it's now so much an accepted practice that it's perhaps worth recapping why precast concrete components are rapidly displacing more traditional methods in many cases.

For the duration of a construction project, and for the whole life of building or infrastructure development, offsite manufacture offers a wealth of benefits, including:

- **Reduced waste** and more efficient use of raw materials
- **Improved quality** management in a controlled factory environment
- **Increased accuracy** and tolerances in product design
- Added **certainty on costs** and **completion dates**
- Better **traceability** and supply chain management
- Less mess and **lower environmental impact** through reduced reliance on wet trades
- **Higher standards** of Health & Safety with modern transport and offloading methods
- Reduced reliance on specialist labour
- **Consistency and repeatability**

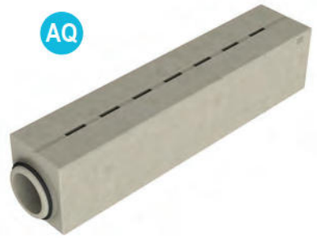
OFFSITE SOLUTION MAP

Stanton Precast products provide solutions at the heart of any building project from airports, road, rail and water management networks to industrial developments and urban planning programmes across the UK. Use the key below to discover which products can provide effective offsite solutions to your project needs. This brochure contains products for Water Network. Other product details can be found in relevant brochures and the website at www.stantonprecast.co.uk.







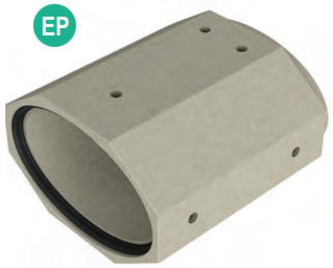


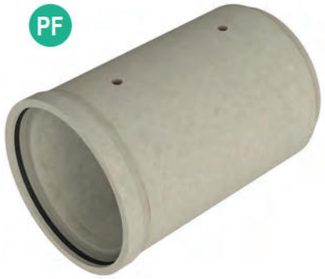














WATER NETWORKS

- **AC** Aqua-Culvert
- **CC** Compact Culverts
- **CS** Cover Slabs
- **DW** Drinking Water Pressure Pipe
- **EP** Elliptical Pipe
- **FL** Flow Control
- **HW** Headwall
- **JP** Jacking Pipe
- **MH** Standard Manhole
- **PF** Pipe & Fittings
- **RG** Road Gully
- **SG** Super Gully
- **SK** Soakaways
- **SM** Side Entry Manhole
- **WT** Watertight Manhole System

HIGHWAYS

- **AB** AMI Base
- **AQ** Aqua-Slot™ Drain
- **AK** Aqua-Kerb Drain
- **CE** Cascade Embankment Channel
- **CP** Catchpit
- **CT** Cable Troughs
- **ES** Embankment Access Stairs
- **HS** Chamber Slab and Hard Standing
- **MX** MaxumStone Retaining Wall
- **NB** Noise Barrier
- **PS** Places of Relative Safety
- **SG** Super Gully
- **SP** 610 Plinth
- **VC** V Channel Slab

RAIL

- **BC** Bearers for Switches & Crossings
- **BT** Ballasted Track Sleepers
- **CP** Cable Passage Bearer
- **CT** Cable Troughs
- **DC** Derailment Containment System
- **ES** Embankment Access Stairs
- **GT** Grass Track
- **HC** Harmelen Level Crossing
- **MF** MOFIX Catenary Pole Foundation
- **NB** Noise Barriers
- **MX** MaxumStone Retaining Wall
- **NV** Noise & Vibration Mitigation Sleepers
- **PT** Perforated Drainage Trough
- **SS** Smart Sleeper
- **ST** Slab Track Sleepers
- **TS** Transition Slab

POWER

- **CT** Cable Troughs & Service Ducts
- **CW** Cooling Water Pressure Pipe
- **HW** Headwall
- **SO** Sea Outfall Pressure Pipe

AIRPORTS

- **AQ** Aqua-Slot™ Drain

PIPES AND FITTINGS



Circular concrete pipes are available in an extensive range from DN 300 to DN 2400 with a full range of fittings including bends, fixed branch and universal junctions, rocker and butt pipes.

Pipes are available with integrated gasket (IG) joint for DN 300-1800 and sliding gasket (SG) joint for DN 2000-2400.

- Products are resistant to DC4 of sulfate attack, as defined in BRE Digest SD1 2001.
- IG joint pipes employ an integrated gasket cast into the pipe socket.
- SG joint pipes employ a sliding gasket fitted onto the pipe spigot.
- Contact our Technical Team for information on compatability with other makes of pipe.
- Gaskets are manufactured in SBR or EPDM and comply with BS EN 681-1.
- Nitrile gaskets are available upon request for the majority of sizes.
- Pipes are vertically cast using vibration to compact a semi-dry concrete mix into the mould.
- Circular pipes and fittings are manufacturing to BS 5911-1 and BS EN 1916.

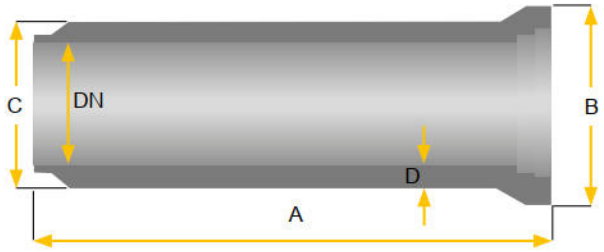
Items in this section include:

- Pipes, P11.
- Pipe Lifter, P12.
- Pipe Pusher, P13.
- Dry Weather Flow Channel, P14.
- Side Entry Manhole, P14.
- Uni Junctions, P15.
- Fixed Branch Junctions & Bends, P16.
- Pressure Pipe for drinking water, page 17.
- Elliptical pipes for foul and surface water drainage applications, stream diversions, culverting and attenuation tanks, page 18.

Details on handling and installation can be found on the website at www.stantonprecast.co.uk.



Nominal size	Pipe dimensions				Delivery details			Maximum crushing load class 120 Fn
	Effective length	External diameter		Wall thickness	Approx. weight of pipe		Maximum products per load**	
		Socket	Barrel		Full length	Rocker		
DN (mm)	'A' mm	'B' mm	'C' mm	'D' mm	Kg	Kg	No.	kN/m
300	2500	487	410	55	425	135	67	36
375	2500	504	496	55	505	155	56	45
450	2500	591	595	64	710	225	38	54
525	2500	792	669	72	950	300	29	63
600	2500	788	782	84	1215	375	22	72
675	2500	968	830	75	1275	650	22	81
750	2500	1056	920	80	1500	750	19	90
800*	2500	1130	975	85	1650	775	17	96
900	2500	1088	1086	90	2025	925	13	108
1050	2500	1436	1260	105	2700	1250	10	126
1200	2500	1616	1440	120	3500	1550	8	144
1400	2500	1740	1680	140	4550	2275	6	168
1500	2500	1950	1799	150	5300	2700	5	180
1600*	2500	1980	1920	160	5580	2830	5	192
1800	2500	2220	2160	180	7600	3600	3	216
2100	2500	2550	2440	170	7800	-	3	252
2400	2400	2840	2840	220	11200	-	2	288



All dimensions and weights are approximate, customers should ensure that lifting equipment has sufficient capacity to allow for variations.

Nominal size DN 675 and above are reinforced.

The nominal size is also the internal diameter in mm except for the DN 800 which is 805mm.

*DN 800 and DN 1600 have a rolling ring joint.

**Based on a 28T load, exact quantity per load to be confirmed with our Sales Team.

Joint Deflection Data*

Nominal Diameter	Minimum Angle Deflection	Minimum Angle Deflection
DN	Degrees	mm
300 - 600	2.4 - 1.2	12.5
675 - 1200	1.1 - 0.6	12.5
1400 - 2400	0.5 - 0.3	12.5

*As defined in BS 5911-1 & BS EN 1916. During installation, joint gaps should be kept to minimum whilst allowing for post installation deflection. The finished joint gap must be between 5 and 25mm.

Rocker & Butt Pipes

Nominal Diameter	Effective Length	
	Rocker Pipe	Butt Pipe
DN	mm	mm
300 - 600	600	600
675 - 1200	1000	1250
1400 - 1800	1250	1250

All dimensions are approximate. Rocker pipes above DN 1800 are not recommended due to potential over-deflection of the pipe joint under settlement. DN 1400 to 1800 Socket Butt pipes will be supplied as Rockers unless otherwise requested.

Pipe Lifters

Stanton Precast Pipe Lifters are **Tried, Tested and Trusted** Offloading Systems. They can be used to handle and offload concrete pipes, rockers and butt pipes in multiples, and some junctions and bends. See table below for size and weight of products relevant to each specific model.

Improving the safety of operatives and increasing efficiency during offloading while minimising product damage, were the key drivers in developing a lifting system that is safe, cost-effective and easy to use.

Importantly, each Stanton Precast Pipe Lifter is **UKCA marked**, complies with current lifting regulations and offers an effective offloading solution.

Key benefits include:

- **SAFER** for operatives as it overcomes the need to work at height on a lorry trailer and removes the need for air bags, fall arrest systems or platforms.
- **PROTECTS** pipes, as the replaceable rubber sleeve and buffers minimise the risk of damage.
- **AFFORDABLE** – this cost effective innovative solution saves time and money through quicker unloading and minimal manpower – 2 to 3 times faster than traditional methods e.g. 50 x DN 375's unloaded in 30 mins. Plus no operatives on the back of the lorry for slinging.
- **EASY TO USE** with a Quick Hitch system for attaching to excavators plus maintenance free as there are no moving parts. Can be used to off load full length pipes lifting from either the socket or spigot end or off load multiple short length pipes.



Pipe Lifter T.4-80-A offloading pipe fittings



Pipe Lifter T12-100-A offloading large diameter pipes



For a cost effective rate, the Pipe Lifter can be supplied with a delivery, as shown above, with no delivery or collection charge and no minimum usage period.

Pipe DN (mm)	300	375	450	525	600	675	750	800	900	1050	1200	1400	1500	1600	1800	2000	2100	2400
Full Length (kg)	425	505	710	950	1215	1275	1500	1650	2025	2700	3500	4550	5300	5580	7100	8700	10400	11200
Rocker (kg)	135	155	225	300	375	650	750	775	925	1250	1550	2275	2700	2800	3600	-	-	-
Model T2-i-A	■	■	■	■	■	■	■											
Model T4-80-A		■	■	■	■	■	■	■	■	■	■							
Model T8-90-A					■	■	■	■	■	■	■	■	■	■	■			
Model T12-100-A						■	■	■	■	■	■	■	■	■	■	■	■	■

■ Recommended Pipe Lifter for specific pipe sizes

Contact us to discuss your offloading and handling requirements.

[redacted]

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The Pipe Pusher was developed to ensure **Safer Jointing** of a pipeline during installation but also has the added benefit of making it quicker and easier too.

There are now three sizes available in the Pipe Pusher family:

- Pipe Pusher A horizontal for installation of 1600mm to 2400mm diameter pipes
- Pipe Pusher B horizontal for installation of 900mm to 1500mm diameter pipes
- Pipe Pusher C vertical for installation of 300mm to 900mm diameter pipes

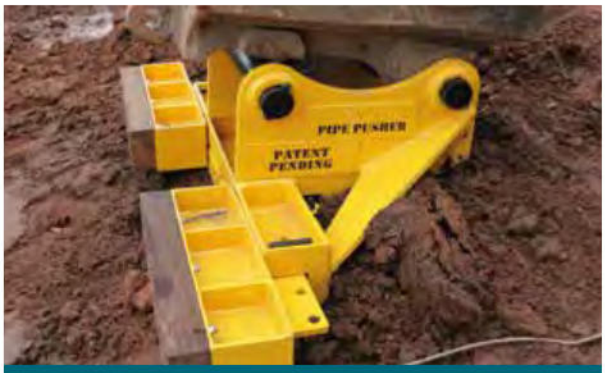
Pipe pushers can also be used with culverts and elliptical pipes, ask for further details.

Key benefits include:

- **ELIMINATES** manual handling of heavy timber buffers
- **REDUCES** risk of accidents
- **REDUCES** time in trench
- **EASY** quick hitch system
- **FASTER** installation
- Tighter and more **CONTROLABLE** joint gaps
- Can use the full force of the excavator without fear of something breaking or being damaged
- Applies jointing load just where it is needed (around the springing level point)

This innovative system also **overcomes dangerous techniques** that utilise excavator arms. For example when large pieces of wood are man-handling into position and then held in place by hand this gives a high risk of hands and fingers becoming trapped. It has also been known for the wood to break causing injury.

The Stanton Precast Pipe Pusher was developed to provide a safer working environment by reducing the need for manual intervention while installing a pipeline.



Easy quick hitch set up



Eliminates manual handling of heavy timber buffers



Tighter and more controllable joint gaps

For further information on attaching the quick hitch system and jointing instructions, go to the website and find in the Services section.

You can also watch a video of an installation using the Pipe Pusher in the Videos section.

Dry Weather Flow Channels

As pipeline designers and contractors seek more innovation, efficient components and installation methods, Stanton Precast have developed the dry weather flow channel and side entry manhole as additional off site pipe solutions with the following major benefits:

- Quality controlled production.
- Project specific channel profile.
- Safer, faster and cost effective.



Dry Weather Flow Channel

Side Entry Manhole

Side entry manholes offer a safer, faster and more cost effective method of providing man entry into pipelines of DN1200 – 2400.

Instead of installing a traditional large diameter manhole to provide man entry, side entry manholes can be installed directly into the pipeline which offers the following key benefits:

Safer

- Reduced work in open excavation.
- Eliminates wet trades work.

Faster

- Can be installed in the pipeline trench with same bedding.
- Eliminates need for a large diameter manhole base, rings, slabs, excavation and associated costs.
- Factory made units ensure quality and reduces on site labour time.

Cost Effective

- Reduces excavation, trench protection, muck away, imported backfill, vehicle movements and plant.
- Reduces materials, labour and plant costs as the large diameter manhole construction is eliminated.
- Side entry manholes are bespoke to each project and can be supplied complete with end walls, with or without steps and with inlet/outlet connection points.
- Surrounded in insitu concrete.



DN 2400 Side Entry Manhole with dry weather flow channel and end-wall



Elliptical Pipe with Side Entry Manhole and end-wall

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An alternative to full length fixed branch junction pipes, the universal junction provides users with three major benefits:

Easier Installation

Quick push and twist installation of the branch pipe into the universal junction seal.

Easier to transport, handle and install because of its shorter length and reduced weight.

Allows more flexibility when positioning the branch along the pipeline.

Increased Damage Resistance

No more damage to fixed branches during storage, handling and installation.

No more branch intrusion into the main pipe during on-site branching.

The flexible universal junction seal allows for ground movement.

Greater Flexibility

SuperSleve DN 150 clay branches fit directly, and branches in other materials can be fitted with a suitable adaptor.

The universal junction seal can accommodate either straight pipes or a full range of fittings.

Branch pipes may be deflected up to 3° without loss of watertightness of the joint.

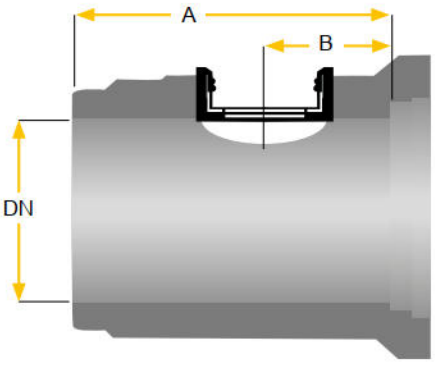
- The universal junction is made in accordance with, and the unit is tested for watertightness to BS EN 1916.
- Plastic caps are available to protect and blank off the universal junction seal.

Universal junctions are not designed as load bearing structures and should be encased in a suitably designed in-situ concrete surround.

Prevent axial loading of seal by not connecting vertically or near vertically into the universal junction.



Nominal Size of Main Pipe	Effective Length of Uni. Junc	Distance to Seal Centre
DN	'A' mm	'B' mm
300	600	225
375	600	225
450	600	225
525	600	260
600	600	250
675	1000	450
750	1000	450
800	1000/2500	570
900	1000/2500	550
1050	1000/2500	550
1200	1000/2500	550
1400	1250/2500	525
1500	1250/2500	550
1600	1250/2500	505
1800	1250/2500	505
2000	2400	505
2100	2500	505
2400	2400	505



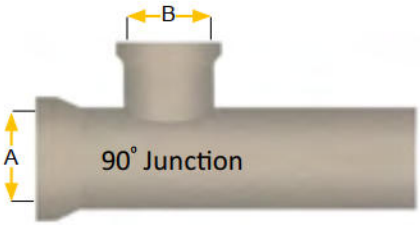
Fixed Branch Junctions

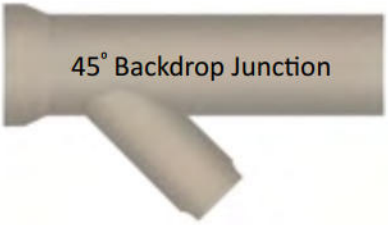
- Fixed branch junctions are provided with DN 100,150 and 225 Densleeve clay branches to BS EN 295.
- DN 300 and above are provided with concrete socket or spigot branches.
- Branches are fitted to full length pipes using cementitious or resin mortars.
- Full dimension details of junctions and backdrop junctions are available on our website to view or download.

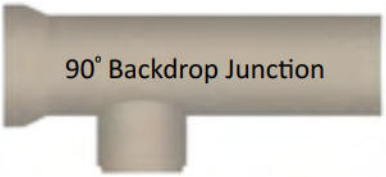
Fixed branch junctions are not designed as load bearing structures and should be encased in a suitably designed in-situ concrete surround.

Nominal Size of Main Pipe	Concrete Branch Size
'A' DN	'B' DN
300	300
375	300 - 375
450	300 - 450
525	300 - 525
600	300 - 600
675	300 - 675
750	300 - 750
800	300 - 800
900	300 - 900
1050	300 - 1050
1200	300 - 1200
1400 - 1800	300 - 1400











Bends

- Standard bends are available at angles of 11¼° and 22½°. Bends of 45° and 90° are available dependent upon diameter (see table below).
- Bends having non-standard angles up to 90° can be manufactured on request dependent upon diameter.
- Bends are of polygonal construction (cut and stuck from two or three pipe pieces). Dimensions and leg lengths available below in dimensional data guide.

Bends are not designed as load bearing structures and should be encased in a suitably designed in-situ concrete surround.



Nominal Size	Nominal Angles
DN	Degrees
300 - 1800	11¼, 22½, 45, 90
2000 - 2400	11¼, 22½, 45

Large diameter drinking water pipes also called potable water pipes are now available, as Stanton Precast Pressure Pipes have been approved for use in public water supplies in the UK.

This product is widely used throughout Europe as it's ideal for drinking water pipeline diversions and benefits from the unique ability (for drinking water pipes) to be used as a no-dig option for jacking under roads, rail, housing and industrial developments.

Key benefits include:

- Largest diameter range in the UK, from DN 250 – 4000
- The ONLY UK drinking water pipe that can be jacked
- Saves time during installation as no grouting required
- Installation by open cut, jacking
- Span Pipe options available
- Underwater installation by float and lower, bottom tow or jacking.
- No thrust block required
- Joints can be welded, flanged, gasketed or custom made.
- A wide range of factory produced fittings are available, to virtually any configuration.

The strength and durability of the Stanton Precast Pressure Pipe provides an ideal solution for potable water on resilience schemes.

Some schemes have been supplied up to 24Bar pressure.

Stanton Precast Pressure Pipes (DWI56/4/1375) are approved under regulation 31 of the Water Supply (Water Quality) Regulations 2000 .

Specification & Quality Assurance

All pipes and fittings are designed and manufactured to BS EN 639 and BS EN 641 and manufactured in accordance with a Third Party Certified Quality System complying with BS EN ISO 9001.



Jacking Pressure Pipe for Drinking Water



Pressure Span Pipe ideal for resilience schemes

Elliptical Pipe



Vertical installation with bend



Elliptical Attenuation Tank installed at Talbot Green

Clients list includes:

- Twickenham Stadium.
- Rolls Royce.
- Baglan Energy Park.
- Thames Water.
- Crossrail.

Elliptical pipes are used for foul and surface water drainage applications, stream diversions, culverting and attenuation storage tanks.

The pipe's elliptical internal profile is hydraulically efficient and the external polygonal profile is structurally efficient. Complete with an elastomeric captive gasket joint they provide a watertight, unique, highly cost-effective, reinforced concrete solution.

This system offers significant advantages over alternatives by providing superior hydraulic performance. In addition, most sizes of standard elliptical pipes are held as stock items, helping to minimise delivery and installation times.

Specifier benefits:

- Free design consultation available.
- Pipes can be designed to withstand full highway loadings.
- Where loadings permit, minimum cover depths of 200mm may be accommodated.
- In situ secondary inverting is not required for dry weather flows.
- Where pipes are laid in either the vertical or horizontal plane, the elliptical profile permits self cleansing velocities at low flow rates, subject to ground conditions.
- Improved flow rates mean pipes can be laid at shallower gradients thereby reducing trench excavation costs.
- Where ground levels and invert levels only permit minimal cover, pipes can be laid in the horizontal plane and still provide an excellent hydraulic capacity.
- Compaction of backfill is required only to prevent surface settlement, therefore special backfill materials are rarely required.

Contractor benefits:

- Pipes have a high performance elastomeric captive gasket for quick easy jointing and watertight joint.
- Installation costs further reduced as joints do not require priming or sealing with separate compound.
- An in-wall joint and flat polygonal sides enable pipes to be laid on a flat bed without socket holes.
- Optional cast in lifting anchors enable safe and rapid handling.

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Fittings

A range of elliptical fittings can be manufactured to order including junctions, precast manhole access shafts, end walls and chambers.



Quality & Specification

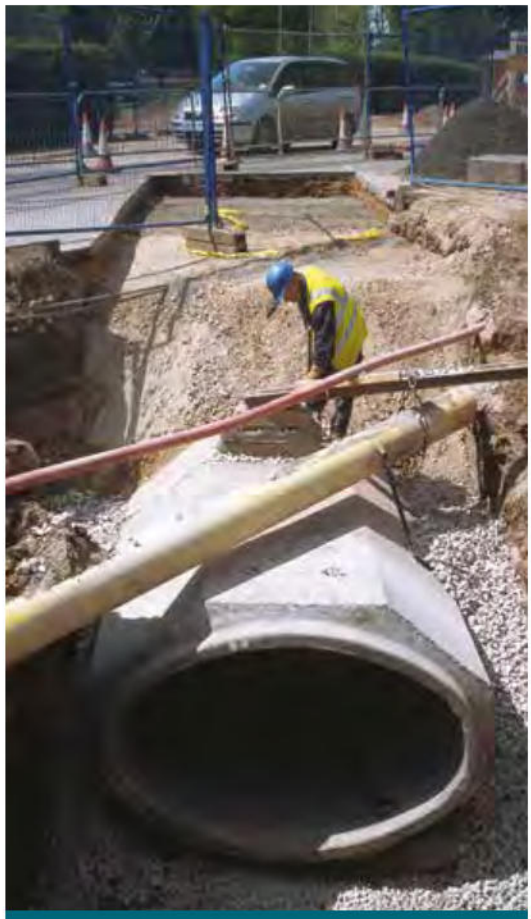
Elliptical pipes are manufactured using modern computerised concrete batching equipment to achieve consistently high quality products with sharply defined joint profiles.

Elliptical pipes are supplied under a Quality System complying with ISO 9001 and the relevant parts of BS 5911-1 Precast concrete pipes, fittings and ancillary products.

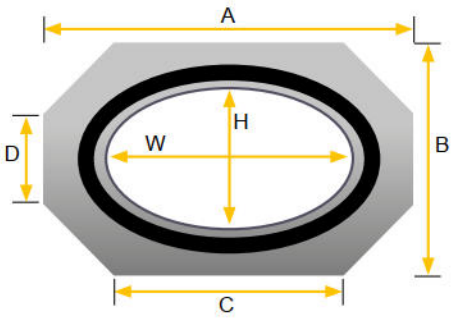
Elliptical Pipe Data

Each pipe has an effective length of 2.4 metres.

Internal W x H	External A x B	End Face Lengths		Approx. Weight	Full Flow Cross Section Area
		C	D		
mm	mm	mm	mm	kg	m^2
1000 x 650	1250 x 900	520	370	2600	0.51
1150 x 750	1400 x 1000	600	430	3000	0.68
1650 x 1000	1930 x 1280	850	500	4600	1.27
1950 x 1000	2270 x 1470	1020	570	6300	1.74
2350 x 1350	2710 x 1710	1230	670	8600	2.48
2650 x 1500	3050 x 1900	1450	740	10800	3.11



Horizontal installation under gas main and road



Scheme Design

Stanton Precast offer advice at all stages of scheme design and installation.

When specifying and installing elliptical pipes please refer to our website for technical details on:

- Structural design.
- Installation.

MANHOLES & SLABS

Innovative ways to meet industry demands while ensuring the highest emphasis on Health and Safety as well as outstanding quality are key to product development at Stanton Precast.

With this in mind Stanton Precast has invested money, time and talent into improving product design and processes including **state-of-the-art** robots and machinery to help provide a quicker offsite manhole solution.

Poly Robot hones bespoke precast base moulds in rapid time, and the **automated Magic Plant** fills, compacts, demoulds and positions manhole rings ready for curing.

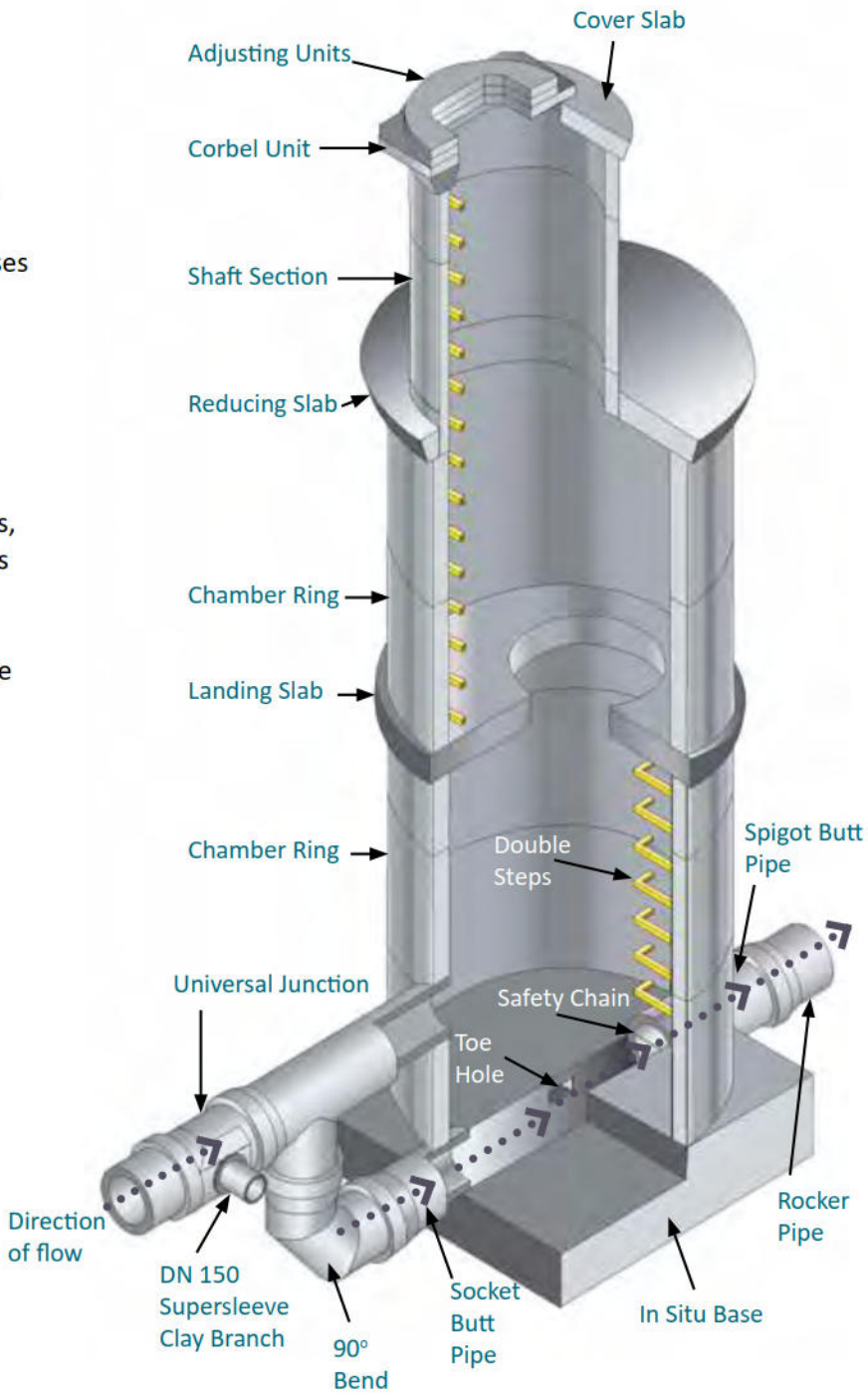
This helps provide contractors with the Stanton Precast **Watertight Manhole System** which incorporates a unique tapered channel, to improve flow between main inlet and outlets. See pages 21 and 22 for further details.

This section includes:

- Watertight Manhole System, P21.
- Catchpits, P23.
- Standard Manholes, P24.
- Soakaways, P24.
- Cover Slabs, P25.
- Corbel & Adjusting Units, P25.
- Reducing Slabs, P26.
- Manhole Jointing, P27.
- Manhole Grab, P27.
- Road Gullies & Gully Grab, P28.
- Super Gully, P29.

Helpful guides on handling and installation can be found online at www.stantonprecast.co.uk.

Construction of a Standard Manhole



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The Stanton Precast Watertight Manhole System is a precast off-site solution which enables contractors to install a modular water tight manhole **without the need for a concrete surround**.

Made here in Derbyshire, this quick assembly system comprises of a monolithic precast concrete base pre-benched to any inlet / outlet configuration, together with thick walled chamber rings with water tight joints incorporating an elastomeric gasket and a sealed cover slab.

The unique design includes a main tapered channel which **eliminates any cascading** between main inlet and outlet pipe – where the main inlet pipe is a smaller diameter to the main outlet pipe. So improving flow.

Specifiers, designers and contractors can be assured that the Stanton Precast Watertight Manhole System offers a **high quality, safer, faster, sustainable, off-site** bespoke manhole solution, with no onsite benching or concrete surround required.

Features

- Available in DN 1200, DN 1500.
- Available in section depths of 250*, 500, 750 and 1000mm.
- Reducing slabs available.
- Available with or without steps.
- Available with or without benching.
- Manufactured to comply with BS EN 1917:2002 and BS 5911-3.
- Kitemarked and UKCA Marked as required.
- Complies with SSG – Appendix C Design and Construction Guidance.
- **30 to 43% lower carbon footprint** than traditional, box based and plastic manholes.

*subject to size variations, see data for full dimensions.



Tapered channel eliminates any cascading. Push fit elastomeric gaskets to ensure watertight joints



Watertight Manhole System installed without concrete surround

See Manhole Grab on page 29 to assist with offloading and handling. Further details on installation can be found online at www.stantonprecast.co.uk.

Flexible Design

- Bespoke base design.
- Wide range of inlet and outlet configurations.
- Inlet and outlet seals connect securely to all common DN 150 – 600 pipes.
- Seals available in SBR & nitrile to BS EN 681-1.
- Adaptors not usually required.

Safer Construction

- Reduced work in open excavation.
- Eliminates work in confined spaces.
- Eliminates difficult wet trades work.
- Safe lifting equipment.

Faster Construction

- Rapid installation in minutes.
- Inlet and outlet connection invert levels pre-set.
- No on-site finishing required, no lifting holes to fill, no jointing strip required.
- No concrete surround.
- Short notice availability.
- Take off service available.

Higher Quality

- Complete Watertight system – base, rings and slabs.
- Quality controlled factory made.
- High quality benching surface finish.
- Precise connection positions and channel gradients.
- Monolithic base.
- Flexible connection reduces settlement risk.
- Perfect hydraulics with unique taper channel.



BASE	Height Min-Max	Wall Thickness	Lifting Lugs	Effective Length	
				Approx. Weight	Max No. *Per Load
DN	mm	mm	no	kg	no
1200	500-1000	127	3	1900	9
1500	550-1350	160	3	3900	7

RING	Available Depth of Section in mm				Wall Thickness	Lifting Lugs	Effective Length	
							Approx. Weight	Max No. *Per Load
DN	250	500	750	1000	mm	no	kg	no
1200	●	●	●	●	127	3	1276	21
1500	●	●	●	●	140	3	1730	14

SLAB	Dia	Effect. Thickness	Appr. Weight	Available Depth of Section in mm							
DN	mm	mm	kg	600 sq	675 sq	600 x 750	750 sq	600 x 900	900 sq	675 x 1200	Max No. *Per Load
1200	1540	125	510	●	●	●	●	s	s		54
1500	1810	160	1170	●	●	●	●	s	s	●	23

All dimensions and weights are approximate, customers should ensure that lifting equipment has sufficient capacity to allow for variations.

*Based on a 28T load, exact quantity per load to be confirmed with our Sales Team.

s = special sizes made to order.

R* = slab with 250mm riser section.

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Precast concrete Catchpits provide a quick, economic alternative to cast in situ manhole bases. The offsite manufacture also ensures installation is quicker and safer.

Key benefits:

- Safer as eliminates time in confined spaces.
- Quick turnaround from order to delivery.
- Cost effective solution with faster installation.
- The strength and durability of precast concrete helps reduce the amount of preparation and bedding required.
- Project specific inlets/outlets provided by the rapid hole cutter.
- Integrated gaskets supplied on request.
- Based on the Highways Agency Drawing F11.
- Conforms to BS 5911-3 & BS EN 1917.

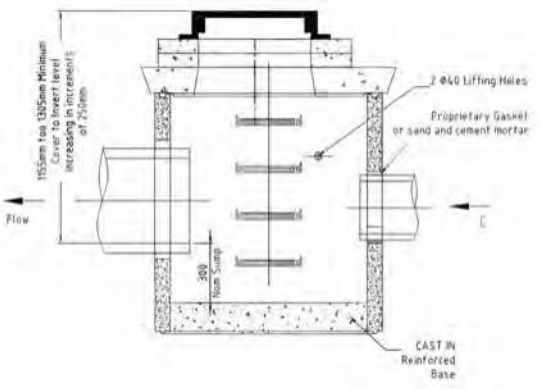


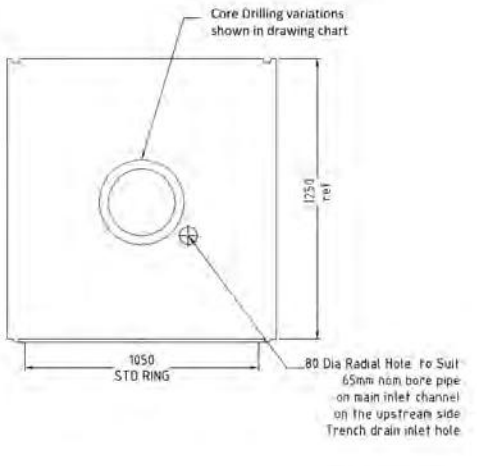
Rapid drilling machine provides project specific inlet and outlet holes

Technical Data

- Stanton Precast Catchpits are available in sizes DN900 to DN1500 and may be fitted with steps in the DN1050 to DN1500.
- Can accommodate a sump of 300mm or 450mm.
- All Catchpits are fitted with lifting holes as detailed in the table below.
- All components conform to BS 5911-3 & BS EN 1917.
- Pipe may be jointed with sand and cement mortar or a bituminous joint seal, available on request.

Stanton Precast Catchpits can accommodate precast concrete, clay and plastic pipes.



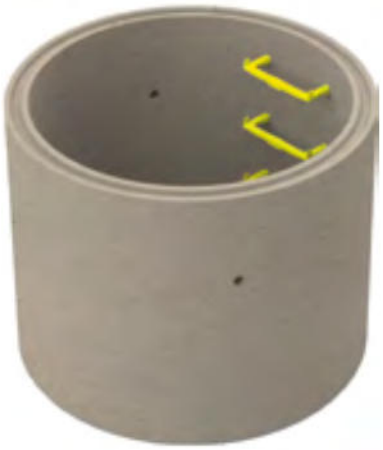


Catchpit Data:

Size	Maximum size connecting pipe (DN)	Steps	Lifting Holes	Maximum Ring Weight
DN	mm			kg
900	225	✗	2 x 40mm Ø	885
1050	450	✓	2 x 40mm Ø	1170
1200	450	✓	2 x 40mm Ø	1512
1350	525	✓	2 x 40mm Ø	1811
1500	600	✓	2 x 40mm Ø	2173

Call us to discuss your project.

- Manhole chamber rings are manufactured with tongue and groove joints designed to accommodate flexible jointing strip or cement mortar.
- Manhole rings can be supplied as plain ring and mannufactured to BS 5911-3
- Rings above DN 900 can be supplied with mild or stainless steel plastic encapsulated double steps or with ladders. Double steps are to BS EN 13101.
- Designers and users should ensure that they have taken into account the current requirements for manhole access as detailed in the Health and Safety Code of Practice, Regulations and Guidance issued by the Health and Safety Executive under the Confined Spaces Regulations 1997 and other relevant requirements.
- Plugs are available to seal the lifting holes in manhole rings.
- Manhole and soakaway depths are nominal, actual depths may vary. Where the height of construction is critical, units should be measured prior to construction.



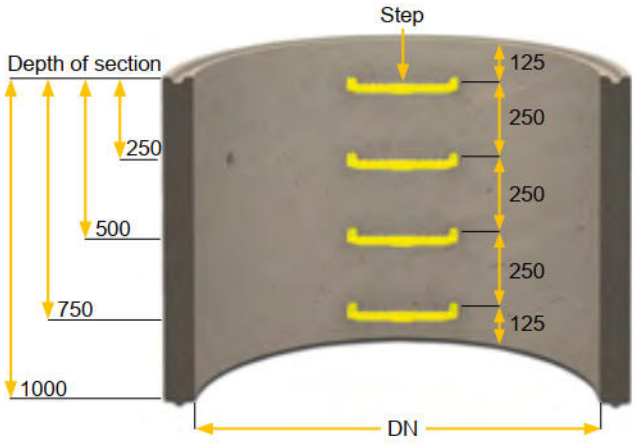


STANDARD Manhole Ring Data:

RING	Available Depth of Section in mm				Wall Thick.	Lifting Lugs	Effective Length	
							Approx. Weight	Max No. *Per Load
DN	250	500	750	1000	mm	no	kg	no
900	●	●	●	●	70	2 x 40	520	52
1050	●	●	●	●	80	2 x 40	680	40
1200	●	●	●	●	90	2 x 40	875	30
1350		●	●	●	95	2 x 40	1025	20
1500	●	●	●	●	100	2 x 40	1215	16
1800		●	●	●	115	3 x 45	1730	12
2100		●	●	●	125	3 x 45	2185	10
2400		●	●	●	140	3 x 45	2700	9
2700		●	●	●	160	3 x 45	3350	8
3000		●	●	●	175	3 x 45	3950	6

Soakaway Ring Data:

RING	Perforations per section (75mm Ø)		
	500mm deep	750mm deep	1000mm deep
DN	Perfs per product	Perfs per product	Perfs per product
900	6	9	12
1050	6	9	12
1200	8	12	16
1350	8	12	16
1500	10	15	20
1800	12	18	24
2100	12	18	24
2400	14	21	28
2700	16	24	32
3000	18	27	36



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Health & Safety – Access Sizes

Manhole shaft diameter, opening size and access arrangement are specified by the adopting authority or system designer. Guidance is provided in SSG – Appendix C Design and Construction Guidance and BS EN 752.



Corbel & Adjusting Units

- Designed to replace engineering bricks to seat a cast iron cover and frame.
- Effective thickness is 65mm and has average compression strength similar to Class B engineering bricks.
- Corbel unit provides a 600 x 600 access on a cover slab with a 750 x 600 opening to accommodate ladder access.

Corbel & Adjusting Units Data:

Unit Type	Access		Approximate Weight
	Size	Position	kg
Adjusting	600 x 600	C	70
Adjusting	675 x 675	C	80
Adjusting	750 x 600	C	125
Adjusting	750 x 750	C	135
Adjusting	1200 x 675	C	160
Corbel	600 x 600	E	140

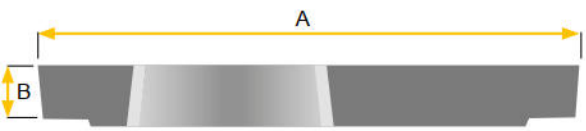
Cover Slabs

- Cover slabs are heavy duty reinforced.
- Also available with non-kitemarked size access holes.
- Designers and users should ensure that they have taken into account the current requirements for manhole access as detailed in the Health and Safety Code of Practice, Regulations and Guidance issued by the Health and Safety Executive under the Confined Spaces Regulations 1997 and other relevant requirements.



Cover Slabs Data:

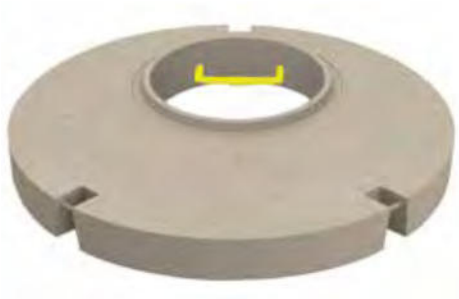
RING	Overall Dia	Effective Thickness	Approximate Weight	Access Size and Position						
DN	'A' mm	'B' mm	kg	600sq	675sq	600 x 750	750sq	600 x 900	900sq	675 x 1200
900	1188	135	220	C	C					
1050	1358	135	335	E	E		C			
1200	1538	135	480	E	E	E	*E	*C		
1350	1607	160	655	E	E	E	*E	*E	*C	
1350	1789	160	855							C
1500	1789	160	855	E	E	E	*E	*E	*E	C
1800	2130	200	1570	E	E	E	*E	*E	*E	E
2100	2450	200	2165	E	E	E	*E	*E	*E	E
2400	2780	200	2855	E	E	E	*E	*E	*E	E
2700	3120	200	3660	E	E	E	*E			E
3000	3450	200	4535	E	E	E	*E			E



C denotes central. E denotes eccentric.
* denotes non-kitemarked.
All cover slabs up to and including DN1200 are UKCA Marked.
All dimensions and weights are approximate, customers should ensure that lifting equipment has sufficient capacity to allow for variations.
The appropriate access size for the project will be given by the adopting authority or their agents. Guidance is provided in SSG – Appendix C Design and Construction Guidance and BS EN 752.

Reducing Slabs

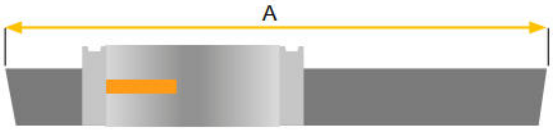
- Available to suit chamber rings of DN 1200 and above.
- Available with DN 900, 1050 or 1200 shaft.



All dimensions and weights are approximate, customers should ensure that lifting equipment has sufficient capacity to allow for variations.

Reducing Slab Data:

Nominal Dia of Chamber (DN)	Diameter	Approximate Weight
	'A' mm	kg
1200	1656	525
1350	1816	650
1500	1994	850
1800	2297	1575
2100	2619	2175
2400	2870	2900
2700	3120	2875
3000	3450	4350



Bespoke Slabs

We produce bespoke slabs for different applications including drainage, highways and rail.

Call us for further details on 0115 944 1448.



Torrent slab created in conjunction with PAM Saint Gobain and Carnell for a project to replace ageing gratings of large capacity catchpits on the M45. This was on behalf of National Highways Area 7.



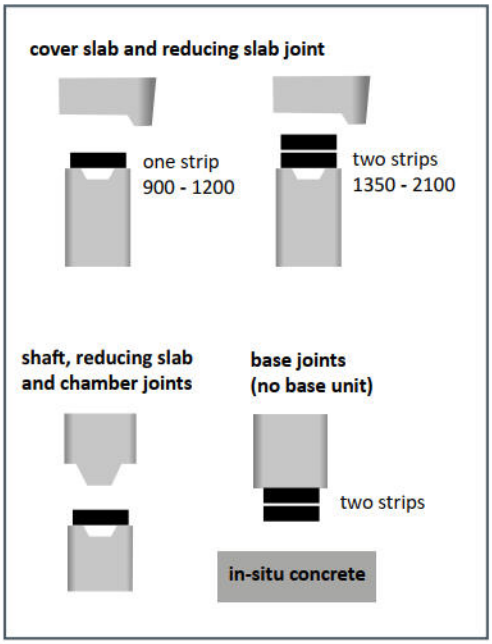


Manhole Jointing Compound

Manholes are designed and manufactured to provide accurate joint profiles with a high quality finish. When used in conjunction with polymer modified bituminous jointing strip, contractors can construct watertight manholes quickly and easily to the details described in the following documents:

- BS EN 752 Drains and Sewer Systems Outside Buildings.
- BS EN 1610 Construction and Testing of Drains and Sewers.
- Civil Engineering Specification for the Water Industry.
- The Building Regulations.
- The Building (Scotland) Regulations.
- Specification for Highways Works.

The use of the precast concrete products with flexible jointing compound also meets the requirements of SSG – Appendix C Design and Construction Guidance.



Chamber Ring	DN	900	1050	1200	1350	1500	1800	2100	2400	2700	3000
Jointing Compound	mm	12 x 60		12 x 80				12 x 120			
Metres per carton	m	24		18				12			
Jointing Compound per joint	m	3.1	3.6	4.1	4.6	5.1	6.1	7	8	9	10
Joints per carton	No	7.7	6.6	4.4	3.9	3.5	3.0	1.7	1.5	1.3	1.2
Primer	Ltr	0.9	1.0	0.9	0.9	1.0	1.1	0.9	0.9	1.0	1.1

Manhole Grab

The Manhole Grab RK1 and RK2 for DN 900 to 2400 Concrete Manhole Chamber Rings.

The Manhole Grab provides quick offloading with stability and protection for the product. This system is also safer as no manual intervention is required.

RING	250mm depth	500mm depth	750mm depth	1000mm depth
DN (mm)	Model	Model	Model	Model
900	RK1	RK1	RK1	RK1
1050	RK1	RK1	RK1	RK1
1200*	RK1	RK1	RK1	RK1
1350	RK1	RK1	RK1	RK1
1500	RK1	RK1	RK1	RK1
1500*		RK2	RK2	RK2
1800		RK2	RK2	RK2
2100		RK2	RK2	RK2
2400		RK2	RK2	RK2



*Includes widewall Watertight Manhole Chamber Ring

GULLIES

- Gullies are kitemarked, made to BS 5911-6 and can be supplied with adaptors for connection to clay or plastic pipes.
- Gullies are fitted with a seal to suit DN150 diameter clay and plastic pipes with an outer diameter of 160-180mm.
- When using Densleeve or Denseal pipes with an outside diameter greater than 180mm, a Supersleve Stub with an DC15 or DC18 Adaptor should be used. Stanton Precast have the adaptors available from stock.
- Gully cover slabs are available as a 'u' shape or square with a DN450 access.
- Slabs are available as either 65mm thick or 100mm thick and weigh approximately 50kg and 80kg respectively.





Gullies produced on the Magic Machine which has improved speed and quality



Gullies offloaded using the Gully Grab

Gully Data:

Nominal Diameter	Nominal Depth	Approximate Weight
mm	mm	kg
375	700	219
375	900	250
450	750	260
450	900	298
450	1050	323

Gully Grab

The Gully Grab was developed out of a need to offload Gullies safely and quickly on a construction site.

Key features:

- Can be attached to an excavator, backactor, or crane.
- Two setting points: one for DN375mm and one for DN450mm gullies.
- Three points of contact provide a secure hold on the product.
- Lifts all heights including 1200mm.
- Safe Working Load of the Gully Grab is 350Kgs.
- Conforms to relevant directives for safety of machinery and UKCA marked accordingly.



Find out more about the Gully Grab and its sister the Gully Lifter at www.stantonprecast.co.uk.

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The innovative Super Gully has been developed as an effective, low maintenance, high capacity kerbside stormwater management system to manage high levels of water from highways prone to flooding.

Super Gully was created to help overcome common issues with highway flooding including:

- Flooding at low lying areas.
- Lack of regular highways maintenance .
- Failure of carrier pipes to cope with extreme rainfall conditions.
- No real alternative to road gullies.

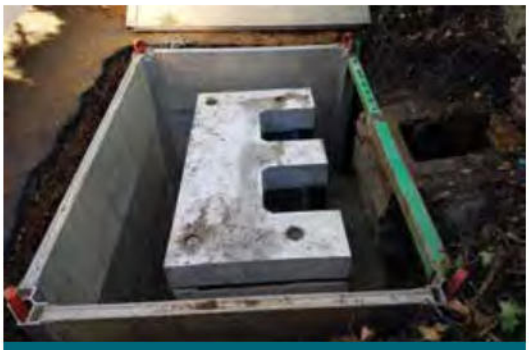
Super Gully is an ideal system for use on new developments working with carrier pipes as part of the stormwater system.

In troublesome areas, the Super Gully can be installed in groups - initial units designed to take the silt and sediment and further units designed to take the water. Ask us for further details.

The Stanton Precast Super Gully can be installed within the kerb line or just within the road channel to provide surface water drainage for many areas including:

= Roads.
= Railways.
= Car parks and Park & Ride.
= House building
= Airports.
= Industrial estates.
= Bus stations.
= Distribution yards and loading docks.





Installing the high capacity Super Gully in a small country lane





Completed within kerb line and ground level surface

Super Gully Key Benefits:

- High capacity.
- Rapid removal of rainwater.
- Minimum maintenance.
- Offsite manufacture.
- Quick installation.

ATTENUATION TANKS

Precast concrete attenuation systems provide the ideal solution for gravity storm water attenuation in line with current SuDS guidelines. Stanton Precast offer a comprehensive range of circular, elliptical and rectangular tanks tailored to specific site requirements.

Our Attenuation Systems can be manufactured with a variety of fittings including blank ends, access points, manifold pipes and flow control units together with headwalls enabling discharge into ponds or swales.

Elliptical pipes can be designed for both horizontal or vertical installation and are especially useful where the space and cover depths are limited and in areas which are subject to vehicular trafficking.

Our Attenuation Systems are available in a wide range of sizes and designs:

- Up to 2400mm Circular.
- Up to 2650 x 1500mm Elliptical.
- Small rectangular up to 1500 x 700mm (Compact Culverts).
- Medium rectangular up to 2000 x 1000mm with integrated dry weather flow channel (AquaCulverts).

Other sizes may be available on request. Contact us with details of your scheme and we will propose the most cost effective solution.



Elliptical Attenuation Tank installed at Talbot Green



AquaCulvert with integrated dry weather flow channel used for attenuation



Circular Attenuation Tank with side entry manhole

Main benefits:

- Assistance available for tank design, specification and installation
- Choice of square, rectangular or circular access holes
- Option to include flow control units within the tank design
- Factory fitted blank ends with cast in connections or box outs as required.
- Pipes and fittings are to client requirements incorporating products compliant with BS EN 1916, BS EN 1917 and BS EN 5911-1
- Can be used in low cover applications with highway wheel loadings
- Precast concrete products are extremely durable and resistant to impact damage
- Integrated captive elastometric gasket joints permit fast installation
- Self weight contributes to floatation resistance
- A low maintenance proven solution

Projects supplied include:

- Aldi Development, Bedford
- TFL, Acton Train Depot
- Twickenham Stadium

[redacted]

SATeBA
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Precast concrete culverts provide a versatile solution for water course diversions, attenuation, tunnels and subways, and access shafts. Smaller sizes also used for dry networks including cabling.

These flexible, modular systems are readily available from stock from mulitple locations. They come in a variety of designs and sizes to fit with a specific project need. Products include:

- **Small Culverts:** Compact Culverts for a small, rapid, economic solution, page 32.
- **Medium Culverts**: AquaCulverts with integrated dry weather flow channel and matching headwalls to suit, page 33.
- **Elliptical Pipes** can also provide an efficient alternative to Box Culverts, see page 18 for further details.

Features include:

- Factory fitted integrated gasket joint for rapid installation.
- Cast-in lifting anchors for safer offloading.
- Can be used at shallow or deep depths, full design calculations supplied on request.
- Range of strength options are available to suit your project requirements.
- Project specific bespoke options available.
- Rapid production capability for minimal lead time.
- Manufactured to EN 14844.

Concrete design according to Eurocodes EN 1990, EN 1991-1-1, EN 1991-2, EN 1992-1 and EN 1992-2 (French annexes). Box culvert modelled as a rigid frame. Concrete, C35/45, CEM-I SR3 cement. Exposure Class in accordance with EN 206: XC4/XF1. Nominal cover to reinforcement: 30mm. Design life 50 years. Limit crack width 0.3mm. No water table.

Loads: Earth cover 500mm to 2500mm. Earth unit weight: 20 kN/m3. Earth friction angle: 35°. Marston and Rankine theories considered. Variable load: LM1 +LM2.

Help Us to Help You

To ensure an accurate response please provide the following information when requesting a quote:

1. **Conveyance** - What will be going through the culvert?
2. **Cover Height** - From surface to top of culvert section?
3. **Loadings** - Traffic LM1,LM2?
4. **Water table** - Is there a water table level relating to the project?
5. **Compaction** - What compacting equipment will be used – type & weight?
6. **Adoptable** - Who is the adopting client organisation?
7. **Any other specific consideration**?

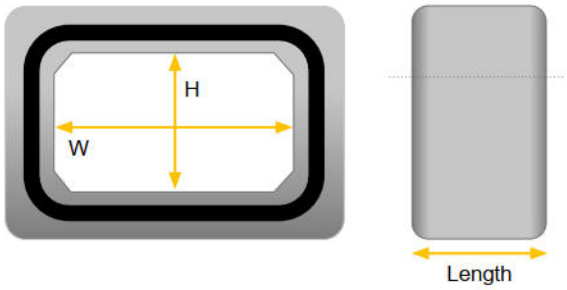


Compact Culvert Data

Compact Culverts come in 2400mm lengths and have a wall thickness of 130mm.

W x H (mm)	Unit Weight (Tonne)	Lifting Anchors	Full Flow Cross Sectional Area Mtr²
500 x 300	1.65	2 x 2.5T	0.145
600 x 400	1.95	2 x 2.5T	0.235
800 x 400	2.25	2 x 2.5T	0.315
1000 x 400	2.63	2 x 5T	0.378
1100 x 500	3.15	2 x 5T	0.560
1500 x 700	4.81	2 x 5T	1.005

Please note all dimensions and weights are approximate.





Small culverts for rapid installation.

This range of value for money, rectangular precast concrete culverts is designed to provide a rapid and economical solution when smaller culverts are required. Typically available from stock and readily available for customers needing a quick solution.

Can be used for dry networks such as cabling or for effective water management. Compact Culverts can be used vertically or horizontally as required.

A focused range of six sizes (see below) from 500 x 300mm through to 1500 x 700mm in 2.4m lengths complete with a factory fitted integrated gasket to enable simple installation.

Features:

- Factory fitted integrated gasket joint for rapid installation.
- Cast in lifting anchors for safer offloading.
- Rapid installation.
- Suitable for low cover levels of up to 3m. Other cover levels available during design, ask for details.
- Stock available in all sizes and most deliveries made within 10 days of order.
- Fittings available in all sizes include: bends, end walls, junctions and T-sections
- Full calculations and drawings available.
- Manufactured to EN 14844.

See website for Culvert Drawings and Installation Guide at www.stantonprecast.co.uk.

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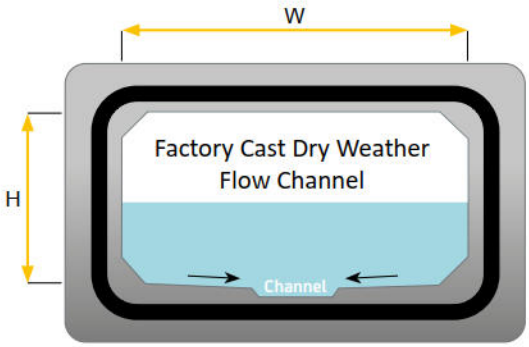
Medium size culverts with Integrated Dry Weather Flow Channel.

The AquaCulvert system has been developed as part of an effective water management system. The built-in dry weather flow channel optimizes hydraulic flow and provides a self-cleaning, cost effective system which provides continuous flow, even where there is a low gradient.



Features:

- Typically available from stock, with order to delivery within 10 days.
- Prefabricated dry weather flow channel.
- Factory fitted integrated gasket enables rapid installation.
- Cast-in lifting anchors for safer offloading.
- Effective at low gradients.
- Self-cleaning optimised hydraulic flow.
- Fittings available in all sizes include: bends, end walls, junctions, T-sections and mammal shelves.
- Full calculations available.
- Manufactured to EN 14844.



AquaCulvert Dimensions:

W x H (mm)	Length (mm)	Thickness (mm)	Unit Weight (Tonne)	Lifting Anchors
1100 x 500	2400	140	3.4	2 x 5T
1250 x 600	2400	140	3.75	2 x 5T
1000 x 1000	2400	140	4.00	2 x 5T
1500 x 700	2400	140	4.43	2 x 7.5T
1750 x 750	2400	160	5.72	2 x 10T
1500 x 1000	2400	140	4.93	2 x 7.5T
2000 x 1000	2400	180	7.49	2 x 10T

AquaCulvert Flow Rates and Calculations:

Dimensions	3mm/m		10mm/m		20mm/m		Full Flow Cross Sectional Area Mtr²
W x H (mm)	Max. flow (m³/s)	Speed (m/s)	Max. flow (m³/s)	Speed (m/s)	Max. flow (m³/s)	Speed (m/s)	
1100 x 500	1.1	2.02	2	3.7	2.83	5.23	0.565
1250 x 600	1.59	2.25	2.9	4.11	4.1	5.81	0.707
1000 x 1000	2.29	2.4	4.19	4.39	5.92	6.21	0.964
1500 x 700	2.52	2.53	4.6	4.65	6.5	6.53	0.999
1750 x 750	3.4	2.74	6.2	4.96	8.77	7.01	1.252
1500 x 1000	4.14	2.86	7.55	5.22	10.68	7.39	1.449
2000 x 1000	6.07	3.15	11.09	5.76	15.68	8.15	1.926

The hydraulic capacities are calculated using the Manning-Strickler formula. Values calculated as 95% of the maximum filling level.

Matching AquaCulvert Headwalls are available. Ask for further details.



See website for Culvert Drawings and Installation Guide.

DRAINAGE CHANNELS



Stanton Precast drainage channels provide a wide range of surface water drainage solutions from offsite linear dranage for highways, embankment channels to help reduce erosion, perforated drainage troughs commonly used alongside railway lines to the popular trapezoidal channels and V channels with flat base - used extensively in highways

These include the folllowing:

- Trapezoidal Channel below.
- Aqua-Slot™ Drain and lifter, P36-37.
- Cascade Embankment Channel, P35.
- Perforated Drainage Troughs, P38.
- V Channel, P39.

Trapezoidal Channel

Precast concrete Trapezoidal Channels allow the collection and transportation of surface water while protecting the area from erosion.

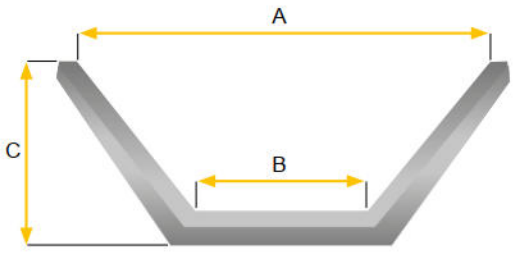
The handy units are commonly used as a quicker, economic, offsite alternative to slipform.

Detailed drawings are available on the website at www.stantonprecast.co.uk.



Trapezoidal Channel Data:

Dimensions A x B x C	Length	Weight	Anchor Points
mm	mm	kg	
860 x 300 x 415	2400	700	2 x 2.5T
1500 x 500 x 635	2400	1300	2 x 2.5T
1500 x 560 x 935	2400	1490	2 x 2.5T
1600 x 560 x 1260	2400	2450	2 x 2.5T



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To protect embankments from erosion.

Precast concrete chutes for channelling water in a controlled manner down embankments.

Ideal for use in embankment remediation projects or in the design of new projects, the chutes can also be used as a spillway overflow.

They protect the embankment from erosion in heavy downpours of rain when water runs off from higher areas.

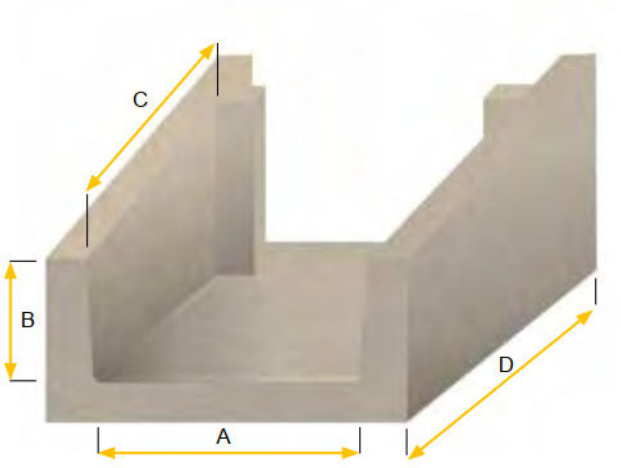
Available in 2 sizes, (drawings available on the website) the units are tapered in shape – see table below for dimensional details.

These simple products are easy to install onto an excavated embankment as shown.









Cascade Embankment Channel Data:

Size	Internal Dimensions A x B x C	External Dimensions D	Unit Weight
	mm	mm	kg
Small Unit	2500 x 100 x 540	595	12.5
Large Unit	580 x 105 x 480	535	12.5

Aqua-Slot™ Drain

Precast concrete Aqua-Slot™ Drain is the ideal linear drainage solution for schemes such as highways upgrades, dockyards, distribution centres and aviation.

Available in bore sizes 300 to 600mm equivalent internal diameter and with kerb options. All sizes are manufactured in either Highways Class to E600 or Airport Class to F900 and have been independently load tested to meet criteria set in the BS EN 1433 technical specification.

This high capacity linear drainage system comprising of channel, cast-in rodding access points and catchpit sumps is designed to remove surface water quickly and effectively.

Installation is rapid in most weather conditions unaffected by hot or cold temperatures. Output levels of over 200m per day are regularly achieved by a small team utilising minimal plant and manpower. With no concrete surround and standard lengths of 2.5m, the range provides a quick-fit offsite solution.

The flexibility to work in multiple locations simultaneously and quickly move from one string to another minimising disruption is also of benefit.

Aqua-Slot™ Drain Attributes

- Factory finished, repetitive quality product.
- Smooth internal bore allowing for optimum hydraulics aids flow through system.
- Trapezoidal shaped slots allow quick entry of water and pulls detritus through to prevent blocking.
- Totally integrated modular system with channel, grated rodding points and outfall units available.
- Exclusive cast-in ductile iron grates with a spring clip combined with anti-theft captive hinge enables secure, easy, maintenance access.
- Watertight gasket included.
- Each unit has a socket and spigot joint which allows a 1° deflection in all plains.
- The external shape provides a structurally efficient, robust product.



Over 200m installed daily on the M6



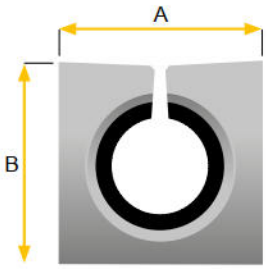
Aqua-Slot™ with exclusive cast-in ductile iron grates includes a spring clip combined with anti-theft captive hinge to enable secure, easy, maintenance access.

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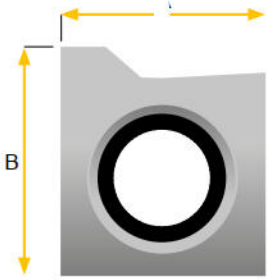
Benefits include:

- Guaranteed Quality Control (UKCA marked).
- Designed to BS EN 1433.
- Just in time deliveries.
- Minimal manpower and plant = H&S benefits, minimal site disruption, plus reduced costs.
- Programme certainty.
- Significantly reduced waste on site.
- Fit & forget – no retrospective saw cuts or grates to be added or concrete testing required.

DN300 Standard



DN300 Kerb



Product	Dia.	Internal Bore Dia.	Height (A)	Width (B)	Weight
	DN	mm	mm	mm	kg
Standard	300	305 Ø	570	525	1334
Kerb	300	305 Ø	645**	525	1383
Standard	400	305 x 490	760	525	1662
Standard	500	450 x 535	815	740	2538
Standard	600	450 x 725	1005	740	2829

**available up to 720mm to suit

Each standard section is 2500mm effective length and contains 7 slots with a size of 40mm x 130mm to comply with standards for highways. 1000mm lengths are also available. Load Bearing Class is E600 as standard, F900 available on application.



Aqua-Slot Kerb also available



Aqua-Slot CKD (Combined Kerb Drain) also available



The Aqua-Slot Lifter helps with manouvering and handling

Perforated Drainage Troughs



Perforated drainage troughs are a precast concrete system providing an excellent trackside or roadside drainage solution.

- Traditionally used where the risk of siltation from run off is medium to high and a high hydraulic capacity is required.
- Much easier than perforated pipes to inspect and maintain – simply lift the cover.
- A modular system comprising of trough and riser units of varying heights that are selected to match the individual site requirements.
- Applications include ballasted track, slab track and tunnel installations.
- Can be installed with a geotextile filter membrane if required.
- Can be used for track bed protection / sealing applications.
- Suitable for pedestrian loading only.
- Advice on both the handling and installation of perforated drainage troughs can be found on our website.
- Please contact us to discuss your specific project requirements.

Client List includes:

- Channel Tunnel Rail Link (High Speed 1).
- Network Rail (Certificate of Acceptance PA05/01611).

System M32-12



Perforated Drainage Trough Data:

Type	Internal W x H	Length	Weight
	mm	mm	kg
Cover AV	555 x 70 (external dimensions)	500	41
Riser H 37	430 x 370	1000	174
Riser H 58	430 x 580	1000	275
Trough M40-15	430 x 330	1000	226
Trough M50-25	430 x 420	1000	271
Trough M60-15	430 x 530	1000	316
Trough M70-25	430 x 630	1000	411
Trough M80-15	430 x 730	1000	461
System M32-12 Cover	280 x 50 (external dimensions)	500	31
System M32-12 Riser	200 x 246	1000	81
System M32-12 Trough	210 x 260	1000	100

Narrow Perforated Trough Data:

Type	Internal W x H	Weight
	mm	kg
Cover N	320 x 70 (external dimensions)	33
Riser H20	220 x 200	55
Riser H25	220 x 250	65
Trough H37	225 x 370	159
Trough H65	220 x 650	196
Trough H73	215 x 730	198
Trough H81	220 x 810	252
Trough H86	220 x 860	262
Trough H91	215 x 905	277
Trough H96	220 x 960	288



All items in the above table have an effective length of 750mm.

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Precast concrete V-Channel Drainage enables the controlled channelling of surface water. A quick fit alternative to cast in-situ.

Available in a simple V shape design or wide V shape with a flat centre.

The clever design suits straight runs or curves to run alongside carriageways with the option of an integrated V-Profile grating and frame.



Key benefits include:

- Quality controlled factory production
- Overcomes the need for retrospective saw cutting on site
- Minimises required onsite manpower
- No additional curing time required, ensuring lane closures are kept to a minimum

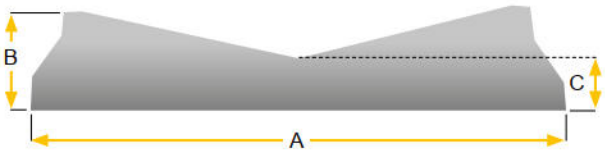


V Channel with flat centre installed with Emergency Area



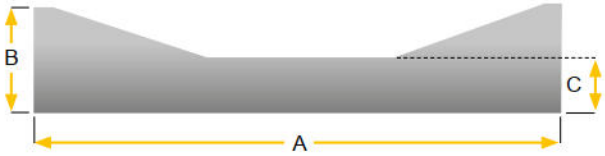
V-Channel Data:

Width (A)	Height - edge (B)	Height - channel (C)	Weight
mm	mm	mm	kg
1100	265	165	1372
1300	285	165	1696
1500	305	165	2043



V-Channel with Grate Data:

To suit & grate size	Base Width (A)	Height - edge (B)	Height - channel (C)	Weight
mm	mm	mm	kg	kg
1100 - 900 x 900	1318	265	165	1138
1300 - 900 x 900	1520	285	165	1474
1500 - 1200 x 675	1720	305	165	1974



V-Channel with Flat Centre Data:

Width (A)	Height - edge (B)	Height - channel (C)	Width - channel (D)	Weight
mm	mm	mm	kg	kg
1900	205	100	750	3500

Nominal lengths:
V-Channel and V-Channel with Grate 2400mm.
V-Channel with Flat Channel 4800mm.

EMBANKMENT ACCESS STAIRS

Stanton Precast embankment Access Stairs are made from precast concrete and provide a modular, easy to install system for use alongside roads, railways and other utility embankments.

This popular system has a proven track record on both Network Rail and National Highways schemes.

Main benefits:

- System comprises of modular components that can be quickly installed saving time and money over conventional methods
- Stairway modules can be installed with minimal ground surface preparation and without the need for heavy plant
- A durable system that can be used for both temporary and permanent installations
- The product can be used for any angle between 25° and 45°
- System available with 1 metre, 1.5 metre and 2 metre step widths
- Fixing pins 400mm long with up to 250mm penetrating the ground
- Can be used with a variety of proprietary hand rail types and tailored at site to suit specific landing requirements
- Hand rails can be bolted directly to units via preformed fixing points
- Various hand rail formats can be accommodated including galvanised steel and GRP, to industry specific requirements

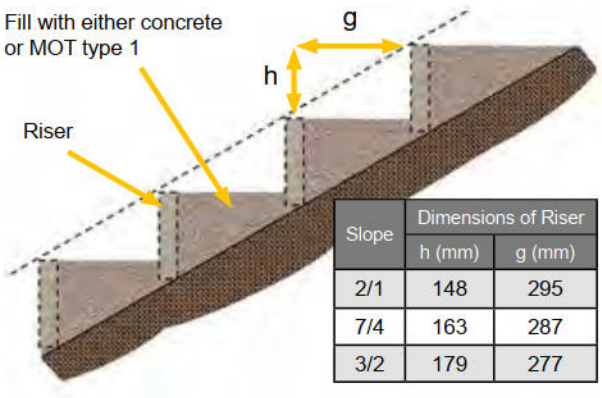
Clients supplied include:

- Network Rail.
- Highways Agency.
- Canal and River Trust.
- High Speed Rail.

Components of 1m wide unit	Length (m)	Weight (kg)
String	1.65	62
Riser	1.00	20
Kicker Beam	1.30	33
Complete Assembly 2 x String, 5 x Risers 1 x Kicker Beam	1.65	224







Slope	Dimensions of Riser	
	h (mm)	g (mm)
2/1	148	295
7/4	163	287
3/2	179	277

Inclination	h (mm)	g (mm)
25⁰	1.30	280
45⁰	220	220

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Precast concrete headwalls with toes from Stanton Precast comply with SSG – Appendix C Design and Construction Guidance for drainage outfall connections into open water areas including collection ponds, swales and rivers.

Key benefits:

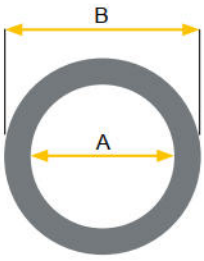
- Low maintenance
- Cost effectiveness
- Quick fit installation
- Design specific solution
- Longevity

The strength and durability of precast concrete headwalls preserves the surrounding environment by **minimising erosion** at the outfall connection.

The quick positioning of precast concrete headwalls is a distinct advantage over ready mixed solutions with **no on-site shuttering** or formwork required. This proves ideal at difficult to reach areas and where time is limited.

Available in four standard sizes (small, medium, large and extra large) with various hole sizes to suit pipe inlets/outlets.

Lifting loops, attached to cast in lifting sockets, provide a highly economic systems and enable easy manoeuvring with standard chains.



The aperture within the headwall will be sized and positioned to meet your requirements, so please contact us with your specific scheme details.



Extra Large Headwall with safety rails and flat grate



Small precast concrete headwalls with toes

Headwalls are available with either an integrated toe that typically covers 200mm below base or a range of longer toes from 500mm to 1000mm.

A range of accessories are available including flap valves, penstocks, safety grates (flat, hinged & cranked) and handrails. Ask us about relevant accessories to save time on site.

Find toe sizes, hole former sizes, multiple size drawings and installation guide on the website at www.stantonprecast.co.uk.

Headwall & Toe Data:

Size	Backwall Height (mm)	'A = Pipe Internal Diameters (mm)			'B' = Max Pipe Outer Diameter (mm)*	Toe Height and Weight**		
		Precast Concrete	Plastic Twinwall	Clay		500mm	750mm	1000mm
Small	770	Up to 300	Up to 375	Up to 300	435	970kg	1450kg	1930kg
Medium	1150	375 to 450	450 to 600	375 to 525	680	1200kg	1770kg	2360kg
Large	1650	525 to 900	675 to 900	600	1053	1400kg	2100kg	2800kg
Extra Large	2365	1050 to 1500	1050 to 1600	-	1820	-	-	-

* Hole size supplied in headwall will be wider than pipe Outer Diameter. ** Based on a toe size of 500mm deep.

MAXUMSTONE RETAINING WALL

MaxumStone is a big block hollow core retaining wall system, manufactured using **40% less concrete than traditional blocks**. Free draining material is backfilled into the hollow blocks allowing for a smaller footprint and helping to minimise the effects of hydrostatic pressures behind the wall.

The versatile system utilises big blocks to reduce construction time yet the hollow core ensures all units weigh under 650kg enabling lighter weight machinery to be used eg 5 ton excavators. The lighter weight does not compromise on strength and enables more products to be delivered per load.

It is also a three in one system that allows gravity, reinforced and cantilever wall solutions without the need to change blocks.

Gravity walls, Geogrid Walls, Terraced Plantable Walls and Cantilever Walls are all easily achievable with this user friendly system that has proven successful on hundreds of projects throughout the world.

Key Benefits:

- Rapid installation with lighter plant eg 5 ton excavator
- 100m² per shift can be achieved, with gang of three
- Small footprint ideal where space is a premium
- The shallow sub base can eliminate use of steel piling and significantly reduce costs, material and labour
- 40% less concrete* without compromising strength
- More products per load, reducing traffic

* than traditional blocks.





USE THE FORCE!

Gravity retaining walls are designed to effectively utilise weight to resist load pressures.

The availability of two different size extenders placed on the back face with tongue and groove connection allow flexibility for designing higher gravity wall solutions with a reduced footprint whilst enabling the integration of services behind the wall.

Not Just a Gravity Wall!

The Maxumstone system is flexible with taller walls often utilising geogrids rather than extenders to reinforce the soil mass behind MaxumStone units. This is ideal when car parks or highways are to be positioned behind the wall.

The large vertical and horizontal hollow core makes Maxumstone the ideal choice for using the units as terraces with planters. The hollow core provides a plantable retaining wall pocket within the retaining wall system.

SATEBA
STANTON PRECAST

Cantilever walls can be achieved by inserting steel reinforcement and concrete filling the hollow core.

The system is often used as a water wall with the open core allowing for vertical internal drainage, minimising the effects of hydrostatic pressures behind the walls and facilitating design options for 'rapid draw-down' in the case of flooding.

Big Block

MaxumStone retaining wall is available in setbacks of 4.5, 2.4 and 0 degrees (near vertical).

Each standard block measures 1220mm x 610mm x 610mm. Half high, end blocks and top blocks are also available. See the data tables overleaf for further information.

They rely on their own weight to hold back the earth behind them and are reinforced by the exclusive MaxumStone gravity extenders.

MaxumStone Block Data:

Unit	Size H x D	Face x Back Width	Face Area	Setback
	mm	mm	mm	degree
Standard	610 x 610	1219 x 991	0.745m²	4.5° / 2.4° / 0°
Half	305 x 610	1219 x 991	0.37m²	4.5° / 2.4° / 0°



Gravity Extenders

MaxumStone concrete mass extenders are available in lengths of 610mm and 1220mm and when connected the system can create extenders up to 36 metres or greater if required. See the data tables overleaf for further information.

MaxumStone Gravity Retaining Wall Extenders can replace the need for Geogrid reinforcements by using a tongue-and-groove concrete system that meets or exceeds the demands of engineers.

This system reduces the large footprints demanded by cantilevered traditional gravity retaining walls and gives developers and owners greater use of land above the wall.

The concrete mass extenders use a tongue-and-groove connection to lock into the back of the retaining wall blocks.

The extenders may also be locked into each other creating deeper units, allowing for flexible design and easy installation. The system's design allows ample room immediately behind the wall for utility services.

MaxumStone Extender Data:

Unit	Size H x D	Back Width	Weight
	mm	mm	kg
Short	610 x 610	762	236
Long	610 x 1219	762	372



For further details on end and corner caps, full brochure, 3D model, video and animation of system please go to the website at www.stantonprecast.co.uk.

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Pea Gravel
Technical Data Sheet

PACK SIZE

Available in Maxipack and Bulk bags



DESCRIPTION

6mm single sized fine natural gravel

USES

Flower borders, decorative cover and decorative features.
This product is suitable for fish ponds or aquariums.
We recommend that this product is re-washed in clean, fresh water prior to use.

Decorative aggregates are natural products and variations in size and colour may occur due to geographical and processing variables.



COVERAGE

Depth	Maxipack	Bulk bag
25mm	0.8m²	30 m²
50mm	0.4 m²	15 m²
100mm	0.2 m²	7 m²

HEALTH AND SAFETY

Please refer to Material Safety Data Sheet for full information.

For further information contact:

Hanson Cement
Ketton
Stamford
Lincolnshire
PE9 3SX

Hanson-packedproducts.co.uk

Customer Services:

[redacted]

DGH0D4/4337/KT

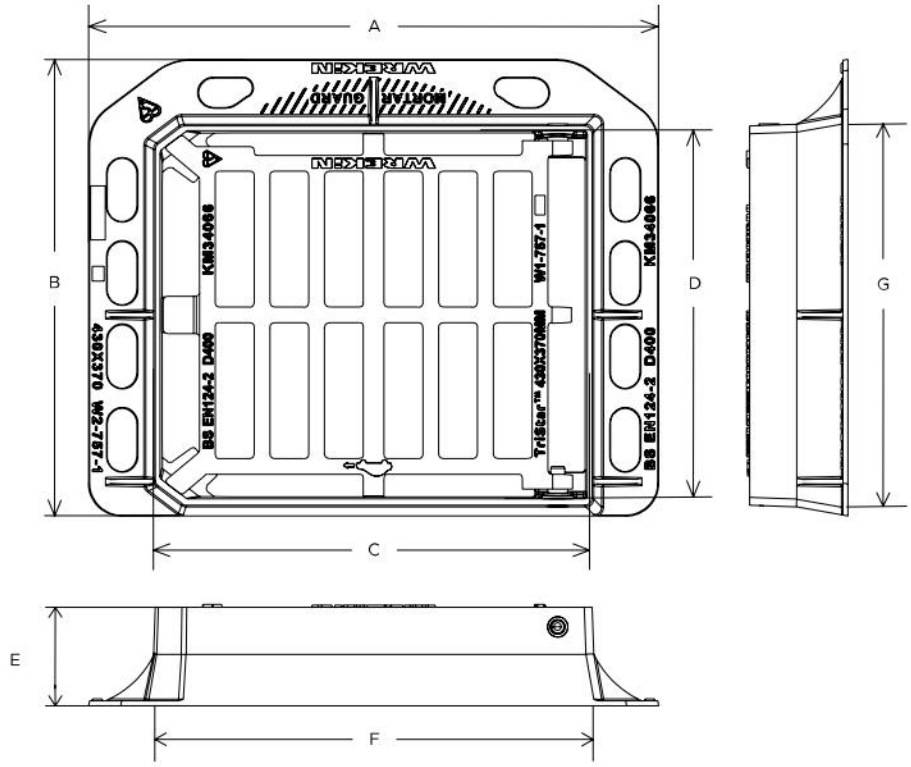
Tristar D400 3 flange gully grate 430mm x 370mm clear opening with 100mm frame depth



RANGE	OVERALL FRAME (A X B)	CLEAR OPENING (C X D)	FRAME DEPTH (E)	BASE OPENING (F X G)	WATERWAY AREA
Tristar	580 mm x 465 mm	430 mm x 370 mm	100 mm	455 mm x 390 mm	1,050 cm²

KEY FEATURES

- Captive hinges reduce theft risk whilst allowing easy lifting.



SPECIFICATION

General information

Stock code	DGH0D4/4337/KT
Primary material	Ductile iron
Range	Tristar
Category	Gully grate
Flanges	3

Standards, classes and groupings

Standards	BS EN 124 CD 526 CD 534
BS EN 124 Class	D400
BS EN 124 Group	3 4
Third party certified	Kitemark
CD526 Hydraulic Capacity	R

Dimensions

Frame shape	Rectangular
Manhole shape	Rectangular
Overall frame (A x B)	465 mm x 580 mm
Clear opening (C x D)	370 mm x 430 mm
Frame depth (E)	100mm
Base opening (F x G)	390 mm x 455 mm
Waterway area	1,050cm²

NOTES

The use of Armadillo is recommended where exposure to construction site traffic is likely.

The D400 load capability of these Group 3 products also offers the benefit of making them suitable for exposure to Group 4 traffic types. Where 3-flange D400 Gully Grate assemblies are employed, we recommend that they are installed against a kerb, not in an open highway location. All values stated are nominal within 2.5% tolerance.

ACCESSORIES

STOCK CODE	PRODUCT NAME	DESCRIPTION
PC/UNIFORM/151076	Uniform	Uniform chamber adjustment unit 760mm x 100mm x 15mm
PC/UNIFORM/251076	Uniform	Uniform chamber adjustment unit 760mm x 100mm x 25mm
PC/UNIWEDGE/755012	Uniform	Uniform support wedge 120mm x 50mm x 75mm
YPCR/U12.5	UniPak Mortar	12.5Kg Unipak rapid curing polyester resin mortar
YPCR/U25	UniPak Mortar	25Kg Unipak rapid curing polyester resin mortar
ARMGSHELL/4337	Armadillo	Armadillo gully grate protector shell 645mm x 490mm

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.


SGS


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Management
CERTIFIED

