StantonBonna

Innovative **Precast Concrete** Solutions





Highways | Water | Housing | Telecoms | Power | Rail

A COMPANY OF CONSOLIS

Contents

info@stanton-bonna.co.uk

Introduction

Stanton Bonna is a leading UK materials producer and part of the Consolis Group,

Europe's Largest Precast Concrete Producer.

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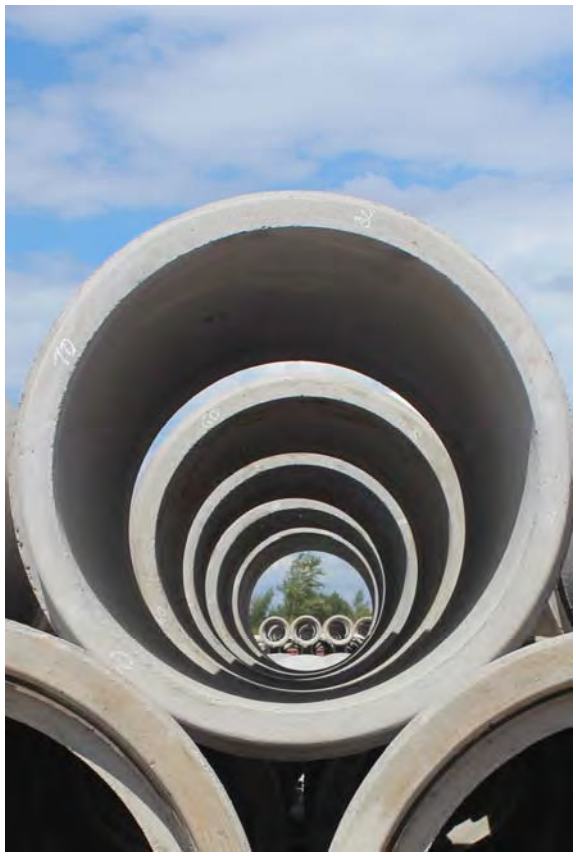
This gives you access to one of the largest selections of innovative offsite products supported by a professional team of industry experienced experts.

This includes:

> Innovative Drainage Systems.
> Stormwater Management.
> Flow Control Solutions.
> Multi-Channel Cable Protection.
> 'Intelligent' Railway Sleepers.
> Power Station Cooling Systems.
> Complete Bridge Design Service.
> Smart Tunnel Segment Technology.
> Bespoke Offsite Solutions.
> Award Winning Offloading and Installation Support Systems.



Customers are more frequently seeking bespoke offsite solutions to help ensure consistent quality on site and to reduce Health and Safety risks.

Consequently, Stanton Bonna increasingly produce items to customer specification or design one-offs to solve a unique site challenge.

Working together with our network of specialist heavyside merchants or direct with design engineers and contractors, our professional, helpful and friendly staff meet the daily challenges of supplying the right product, to the right standard and to the right location reliably and promptly.

Whether supplying a small local project or a fast moving multi-million pound project with complex delivery arrangements or challenging design and manufacturing demands, Stanton Bonna have the experience to meet your needs.

Stanton Bonna is wholly owned and supported by Consolis.

Kitemarked Products to BS 5911 KM 07890

bsi. ISO 9001 Quality Management FM 01313

CPC UKAS

RISQS VERIFIED

UVDB Registered

cpsa concrete pipeline systems association

mpa British Precast Member

BRITISH PRECAST CHARTER MEMBER

Member of Future Water Association Future Water Association Informing, Innovating, Influencing

PJA The Pipe Jacking Association

Ethos

Health and Safety

The Health and Safety of our employees and customers is at the core of our business and is of paramount importance. To recognise the company's commitment Stanton Bonna and employees win prestigious industry awards year after year for contractor safety, innovative offloading systems and staff commitment to supporting Health and Safety. See the latest awards won on our website in the About Us section.

Environment and Sustainability

The environment and sustainability for future generations is extremely important to us all. Stanton Bonna has been awarded BS EN ISO 14001 certification for its environmental management system across the precast concrete business. The certification demonstrates responsible care to stakeholders and the local community and ensures regulatory compliance while reducing energy, materials and waste.

Being part of the British Precast Sustainability Charter also demonstrates Stanton Bonna's commitment to achieving key targets for 2020. These include targets for reducing energy consumption, reducing carbon, quality management and responsible sourcing systems (BES6001), water use reduction, waste reduction and health & safety training.

Did you know that concrete pipes are up to 35% lower in greenhouse gas emissions than plastic pipe? Read more on the CPSA/Carbon Clear study carried out on our website in the About Us section.

Innovation and Added Value

Our customers are continually seeking productivity and quality gains on site. Stanton Bonna's Watertight Manhole System, Access Stairs, Pipe Lifter, Gully Hook and Pipe Pusher are just a few of the latest innovations that demonstrate how we add value to the construction process and deliver a huge gain in speed, safety, quality and consistency. Our experience with bespoke products also provides innovative solutions to challenging projects that can save you time and money.

Quality

Stanton Bonna's product quality is the highest in the industry according to an independent survey. 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 and European standards and kitemarked/CE marked accordingly.

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

Services

Stanton Bonna enjoy an enviable reputation for friendly, professional staff who ensure high standards of reliable and prompt customer service. From enquiry and design through to delivery, independent surveys rank Stanton Bonna as the best.

Whether supplying a small local project or a fast moving multi-million pound project with complex delivery arrangements or challenging design and manufacturing demands, Stanton Bonna have the experience to meet your needs.

Sales Support

Rapid response quotations can be provided by friendly and experienced sales staff. Quote requests can also be made online via **www.precastquotes.co.uk.**

Product Support

From product design and take offs to product scheduling and numbering, Stanton Bonna provide a full pre-delivery support service. Whether you need support for design and installation of pressure pipes for power stations, structural liners for pipeline renovation or for numerous and unique manhole bases, we can offer all the help you require to deliver a successful project.

Technical Support

Technical advice can be provided by qualified and professional staff either on site or from head office. Drawings are available on request, with many available in the **Technical Guides** on the website.

Bespoke Solutions

Customers are more frequently seeking bespoke offsite solutions to help ensure consistent quality on site and to reduce Health and Safety risks. Consequently, Stanton Bonna increasingly manufacture items to customer specification or design one-offs to solve a unique site challenge.

Website Resources

- **Product Information** including key benefits, dimensional data and key standards.
- **Technical Guides** for drawings, installation guides, certificates and product data.
- **Videos** for product information, installation instructions and air testing.
- **Case Studies** to show how products and services have supported some key projects.

For latest updates follow us on:

Lifting and Handling Supports

PLEASE DON'T FORGET TO ORGANISE YOUR OFF LOADING REQUIREMENTS!

A variety of equipment is available including:

- **Pipe Lifters**
- **Pipe Pushers**
- **Manhole Grab**
- **Gully Hook**

Ask for further details on 0115 944 1448.

Delivery

Deliveries are punctual to meet either short or long lead time demands from our central UK location. Our hauliers deliver throughout the UK and Europe.

Once your order is confirmed our team will provide information on:

- **Number of loads per order**
- **Size and weight of vehicles**
- **Delivery schedule**
- **Any additional delivery costs**

To enable a trouble free delivery, please inform us of any vehicle access issues for example, single track lanes, poor ground or height restrictions.

Collections

Should you wish to arrange your own collection then please read the **Arrangements for Customer Collections** on the website in Service>FAQ.

Stockist Network

Manholes, cover slabs and gullies are stocked countrywide by specialist merchants to support local demand. Pipes are also stocked at strategic locations. Ask about your nearest stockist.

Bespoke Solutions

With nearly a century of experience in both the UK and abroad we have the design and manufacturing skills to bring your ideas to life.

Where you find a challenge that needs something different for example in infrastructure, smart motorways, HS2 projects or other specialist civil engineering products, contact us.

We can work specifically on bespoke precast concrete products or in conjunction with other companies to design around associated products eg ductile iron manhole covers (see photo of Highways Communications Chamber Cover and Hard Standing opposite).

Our team of experts provide the technical support needed to ensure your project is managed professionally and accurately. We pride ourselves in providing an excellent bespoke solution to your specific needs.

Communications Chamber Cover and Hard Standing used on Smart Motorways for Manchester and M3

Main benefits

Increasingly, customers are striving for higher standards of product quality, site safety and efficiencies. Our bespoke precast service offers the following:

- **Safer construction**
- **Reduced work in open excavation and confined spaces**
- **Reduced wet trades work**
- **Rapid installation on site**
- **Lower overall construction costs**
- **100+ year service life**

Bespoke Slab with double rebated access opening with Davit socket and 3 openings for service ducts for housing project in Ashdale Nuseries, Thornton

With over 90 years experience of design and manufacture, Stanton Bonna can bring your project ideas to life.

Contact us to discuss your specific requirements: email info@stanton-bonna.co.uk or phone 0115 944 1448.

AMI Base used on Smart Motorways for M3 and M1

Bespoke Solutions

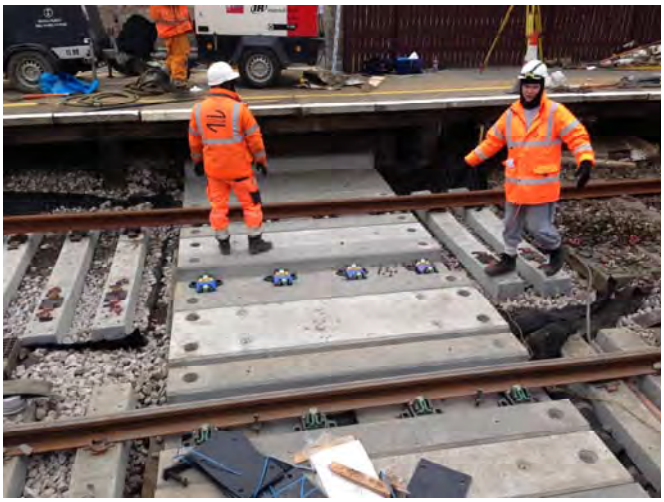
Some recent examples include:

> Slabs with special size and location access holes
> Jetty leg encasement rings
> High voltage cable protection slabs
> Dry weather flow channels
> Manhole bases fitted with penstocks or flap valves
> Catchpits
> Circular cable draw chambers
> Demarcation chambers
> Level crossing transition slabs

Long Sea Outfall Diffuser

Jetty Leg Encasement Rings for Brighton Pier

Transition Slabs between Ballasted Track and Slab Track



Support Beams for subway roof at Chorleywood London Underground Station

Flow Control Chamber

Contact us to discuss your specific requirements: info@stanton-bonna.co.uk or phone 0115 944 1448.

Bridge Beams

Stanton Bonna's European sister companies have over 50 years' experience in the design and construction of precast bridges.

With expert teams of engineers and in-house research and development, a state-of-the-art service with advanced software, illustration and 3D models can be provided. This enables the ability to work effectively on BIM driven projects.

Precast bridges are well suited for projects where the cost of traditional methods is prohibitive and where construction speed and minimising local disruption is crucial.

The range of quality designs include:

> Solid slab bridges.

> Girder bridges.

> Complete precast box girder bridges like the Westrandweg viaduct in Amsterdam, **the longest bridge in the Netherlands**.

Features:

> Over 25 in-house bridge engineers within group.

> Early engagement to support the design process through to production and installation.

> Support at design stage can help provide economic efficiencies.

> Complete transparency and interaction at each stage.

> Design, manufacture, supply and installation services.

Contact us to discuss your specific requirements: info@stanton-bonna.co.uk or phone 0115 944 1448.

Bridge Beams

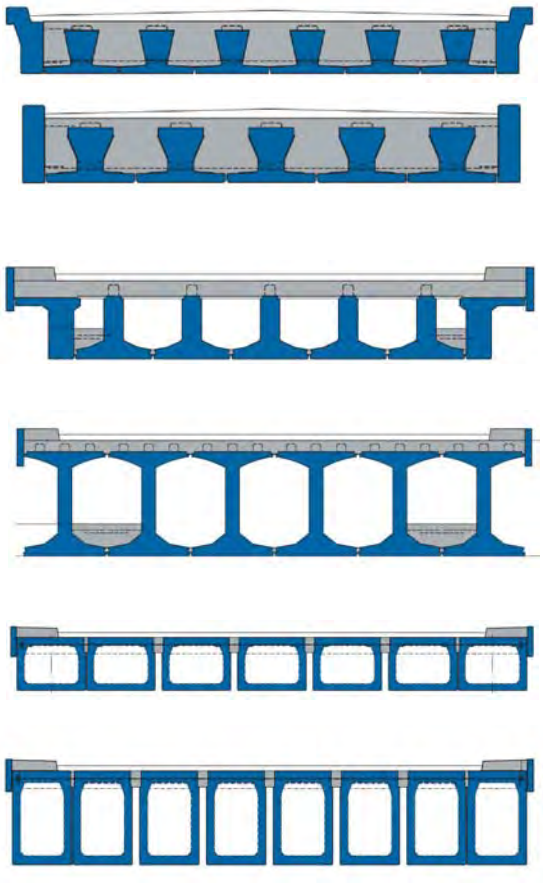
Bridge Systems

Solid Slab Bridge Beams
The beams are available in spans between 6 to 20 metres and used for deck bridges, overpasses, parking garages, culverts, tunnels and piers. They can also be used for bridges with different crossing angles.

Girder Beams
Girder beams are used for bridges with cast in-situ decks, designed to suit a bridge span of 16 to 60 metres. Used primarily for road or railway bridges.

Box Girder Beams
Rectangular box girders used for bridge decking and often used where time is restricted for a quicker installation. Available up to a size of 60 metres.

Commonly used in combination with post-tensioning. Asphalt can be applied on top of the bridge deck.



Solid Slab Bridge Beams

Girder Beams

Illustrations shown above are just a few examples of profiles, please ask for full details.

Cable Troughs and Service Ducts

Stanton Bonna offer a wide range of precast concrete cable troughs and service ducts for all infrastructure work including railway, highway, power, telecom and water projects.

> Troughs and covers can be supplied to customer specific sizes and specifications.

> Covers* are available in both precast concrete and GRP.

> Troughs are designed to the relevant parts of BS EN 1433.

> LIGHT DUTY – Suitable for pedestrian and occasional vehicle loads (private car parks).

> HEAVY DUTY – Suitable for main roads and most types of road vehicles.

> Product drawings are available on the website in Technical Guides.

> Bespoke and larger size troughs are available on request.

*The Covers are compatible with the troughs and are designed to accommodate normal road going vehicles travelling at slow speed with wheel loads not exceeding 11t.

Bespoke trough used at Valero Pembroke Refinery

We supply and recommend the use of our conformance strip between troughs and covers, particularly where covers will be subject to vehicle loading.

Cable tray support channels may be incorporated into certain sizes of trough on request.

Cast in lifting anchors plus advice on handling and installation of concrete troughing can be provided for all sizes.

For further information and drawings refer to our website or contact us to discuss your specific requirements in detail.

LIGHT DUTY TROUGHS **1000mm Length**	Trough & Cover Total Weight
DN mm	**kg**
68 x 82	35
84 x 70	38
88 x 100	40
100 x 90 (C/1/6)	59
130 x 130 (C/1/7)	74
150 x 200 (C/1/8)	100
158 x 200	89
160 x 95	56
190 x 130 (C/1/9)	84
208 x 200	99
250 x 130 (C/1/10)	104
260 x 250	157
282 x 98	82
350 x 130 (C/1/29)	138
350 x 300 (C/1/43)	211
370 x 300	226
410 x 200	178
420 x 125	118
420 x 150	121
648 x 210	272

LIGHT DUTY TROUGHS	Trough & Cover Total Weight
DN mm	**kg**
196 x 225 (**760mm length)**	87
420 x 310 (**3000mm length**)	717

LIGHT DUTY **MULTI COMPARTMENT** TROUGHS 1000mm Length	Trough & Cover Total Weight
DN mm	**kg**
160/2 x 95	58
282/2 x 98	83
282/3 x 98	85
410/2 x 200	200
420/2 x 150	124
420/3 x 150	135
440/2 x 130	122

Client List includes:

> Channel Tunnel Rail Link (High Speed 1).

> Thames Water.

> Severn Trent Water.

> M6 Toll road.

> Magnox.

Cable Troughs and Service Ducts

Heavy duty troughs and covers for vehicle loading

Hampton WWTW service duct installation

LIGHT DUTY TROUGHS **2000mm Length** (**kg =** Trough & Covers Total Weight per 2000mm length)

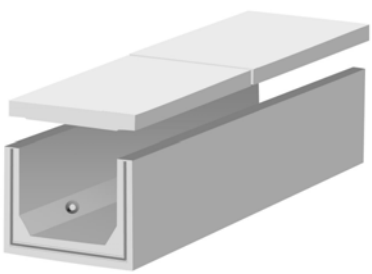
DN mm	kg	DN mm	kg	DN mm	kg	DN mm	kg	DN mm	kg
400 x 300	738	600 x 500	1136	800 x 400	1420	1000 x 400	1685	1000 x 1100	2580
400 x 400	786	600 x 600	1208	800 x 500	1536	1000 x 500	1800	1000 x 1200	2650
500 x 300	864	700 x 290	780	800 x 600	1642	1000 x 600	2087	1000 x 1300	2740
500 x 400	942	700 x 400	1173	800 x 700	1690	1000 x 700	2213	1000 x 1400	2830
500 x 500	1004	700 x 500	1226	800 x 800	1775	1000 x 800	2320	1000 x 1500	2915
600 x 300	938	700 x 600	1354	900 x 510	1313	1000 x 900	2403	1250 x 600	2610
600 x 400	1006	700 x 700	1400	1000 x 300	1630	1000 x 1000	2500	-	-

HEAVY DUTY TROUGHS **2000mm Length** (**kg =** Trough & Covers Total Weight per 2000mm length)

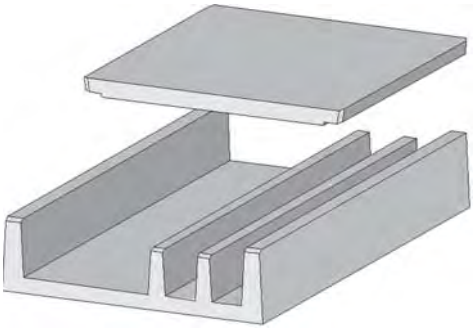
DN mm	kg	DN mm	kg	DN mm	kg	DN mm	kg	DN mm	kg
200 x 200	408	500 x 500	1137	700 x 600	1558	1000 x 400	2090	1000 x 1100	2880
300 x 200	546	600 x 300	1116	700 x 700	1625	1000 x 500	2080	1000 x 1200	2955
300 x 300	618	600 x 400	1186	800 x 400	1646	1000 x 600	2505	1000 x 1300	3050
400 x 200	656	600 x 500	1286	800 x 500	1756	1000 x 700	2615	1000 x 1400	3140
400 x 300	741	600 x 600	1376	800 x 600	1866	1000 x 800	2700	1000 x 1500	3230
400 x 400	791	600 x 600*R	2240	800 x 700	1916	1000 x 900	2795	1250 x 600	2920
500 x 300	972	700 x 400	1375	800 x 800	2001	1000 x 1000	2824	-	-
500 x 400	1047	700 x 500	1428	1000 x 300	1910	1000 x 1000*R	4144	-	-

*R = Rebated trough, see image below.

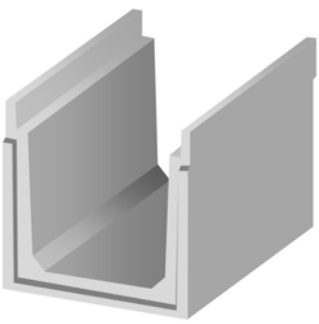
Standard Trough and Covers



Multi-Channel Trough



Rebated Trough



Circular Pipes

Customers have successfully installed our circular concrete pipes for the past 90 years on a diverse range of projects, across the length and breadth of the UK, from a few metres to tens of kilometres on major road projects.

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 compatibility 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.**
- **New users should refer to our handling and installation instructions available on our website.**

Delivery to the M1 widening scheme

Integrated gasket joint pipes

Joint Deflection Data*

Nominal Diameter	Minim. Ang. Deflection	Minim. Ang. 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 Data

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

Rocker pipes above DN 1800 are not recommended due to potential over-deflection of pipe joint under settlement.

Circular Pipes

Concrete Pipes Data

Nominal Size*	Pipe Dimensions				Delivery Details			Minimum Crushing Load Class 120 F_n
	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	65	36
375	2500	562	485	55	505	155	54	45
450	2500	670	578	64	710	225	37	54
525	2500	792	669	72	950	300	28	63
600	2500	876	768	84	1215	375	22	72
675	2500	968	825	75	1275	650	21	81
750	2500	1056	910	80	1500	750	18	90
800*	2500	1130	975	85	1650	775	16	96
900	2500	1248	1080	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	1800	150	5300	2700	5	180
1600*	2500	1980	1920	160	5580	2830	4	192
1800	2500	2220	2160	180	7600	3600	2	216
2000	2400	2460	2400	200	8700	-	2	240
2100	2500	2530	2440	170	7800	-	2	252
2400	2400	2840	2840	220	11200	-	2	288

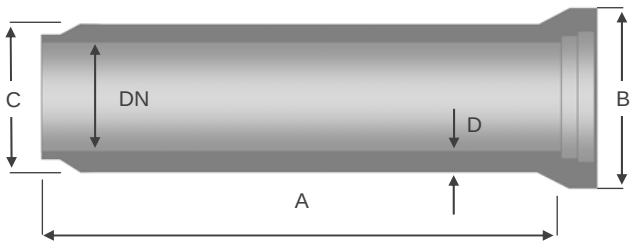
All dimensions and weights are approximate, customers should ensure that lifting equipment has sufficient capacity to allow for variations.

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.



Universal Junctions

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.

Densleeve DN 150 clay branches and branches in other materials can be fitted with a suitable adaptor.

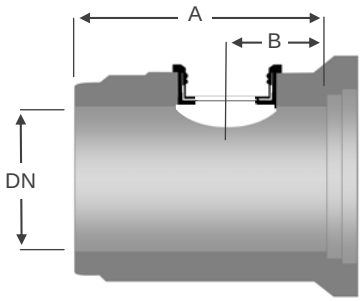
The universal junction seal can accommodate either straight pipes or a full range of fittings.

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 the seal by not connecting vertically or near vertically into the universal junction.**

Universal Junctions Data

Nominal Size of Main Pipe	Effective Length of Uni. Junct.	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
2100	2500	505
2000	2400	505
2400	2400	505

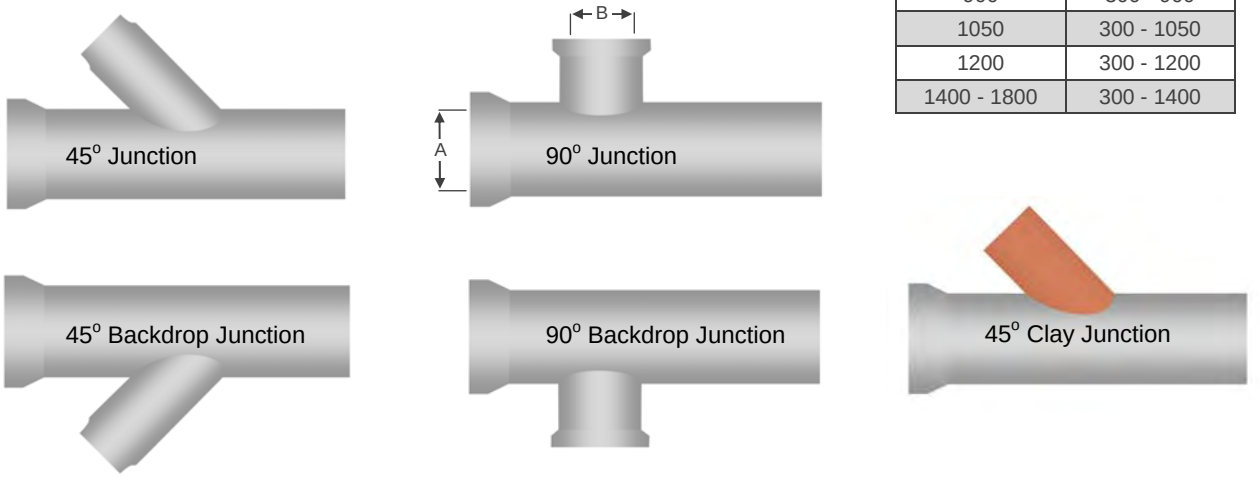


Fixed Branch Junctions

- Fixed branch junctions are provided with DN 100,150 and 225 Densleeve clay branches to BS EN 295 or with concrete socket or spigot branches for DN 300 and above.
- 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.
- **Fixed branch junctions are not designed as load bearing structures and should be encased in a suitably designed in-situ concrete surround.**

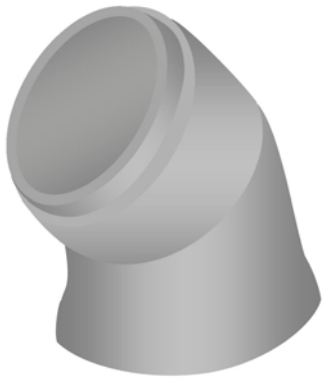
Fixed Branch Data

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 on our website.
- Sizes and angles are nominal.
- **Bends are not designed as load bearing structures and should be encased in a suitably designed in-situ concrete surround.**



Standard Bends Data

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

Attenuation Systems

Precast concrete provides the ideal solution for gravity storm water attenuation systems in line with current SuDS guidelines. Stanton Bonna 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.

Stanton Bonna will also provide assistance with the design, specification and installation of attenuation tanks.

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: up to 2400mm circular, 2650 x 1500mm elliptical and 3000 x 2500mm rectangular.

Elliptical Attenuation Tank installed at Talbot Green

AquaCulvert with integrated dry weather flow channel used for attenuation

Projects supplied include:

> **Oxford University Student Accommodation.**
> **Selley Walk Flood Alleviation Scheme, Bristol.**
> **Twickenham Stadium.**

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 and proven solution.

Dry Weather Flow Channels

As pipeline designers and contractors seek more innovation, efficient components and installation methods, Stanton Bonna 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 instu concrete.

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

Side Entry Manhole with Elliptical Pipe

Culverts

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

These flexible, modular systems are available from Stanton Bonna and 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.

Medium Culverts: AquaCulverts with integrated dry weather flow channel.

Medium to Large Culverts: Box Culverts provide the most flexible and widest range of sizes and wall thickness.

Elliptical Pipes can also provide an efficient alternative to Box Culverts (see page 22 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.
- Project specific bespoke options available.
- Manufactured to EN 14844 and in accordance with relevant European standards and CE marked accordingly.

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. Durability - Whether 50yrs or 100yrs required according to Eurocodes? Exposure Class?

5. Water table - Is there a water table level relating to the project?

6. Compaction - What compacting equipment will be used – type & weight?

7. Adoptable - Who is the adopting client organisation?

8. Any other specific consideration?

Small: **Compact Culverts**

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.

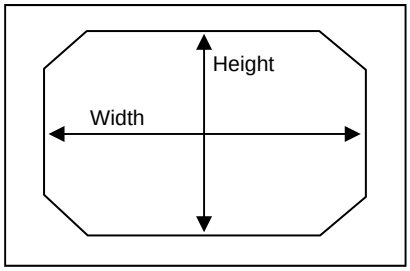
Can be used for dry networks such as cabling or for effective water management. Compact Culverts can be used vertically or horizontally as required.

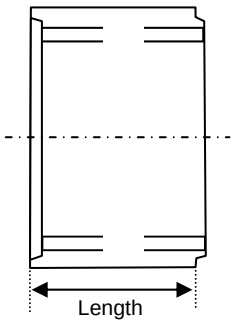
A focused range of six sizes (see below) from 500 x 300mm through to 1500 x 700mm in 2.4m lengths complete with a factory fitted integrated gasket to enable simple installation.

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 typically available within two weeks.
- Fittings available in all sizes include: bends, end walls, junctions, T-sections and bespoke chambers.
- Manufactured to EN 14844 and in accordance with relevant European standards and CE marked accordingly.

See website for Culvert Drawings and Installation Guide.





Compact Culvert Data

W x H (mm)	Length (mm)	Thickness (mm)	Unit Weight (Tonne)	Lifting Anchors	Full Flow Cross Sectional Area Mtr²
500 x 300	2400	130	1.65	2 x 2.5T	0.145
600 x 400	2400	130	1.95	2 x 2.5T	0.235
800 x 400	2400	130	2.25	2 x 2.5T	0.315
1000 x 400	2400	130	2.63	2 x 5T	0.378
1100 x 550	2400	130	3.15	2 x 5T	0.56
1500 x 700	2400	130	4.81	2 x 5T	1.005

Please note all dimensions and weights are approximate.

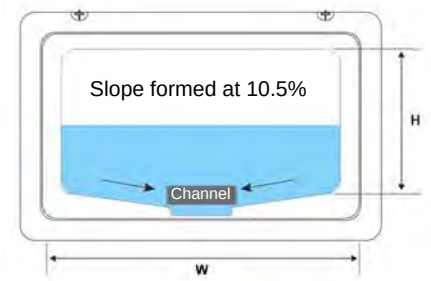
Medium: **AquaCulvert**

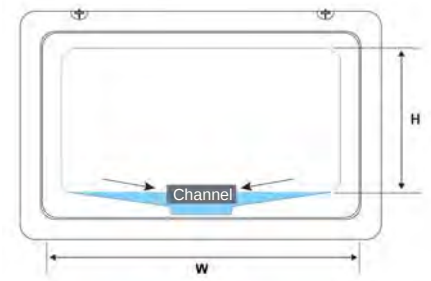
Medium size culverts with Integrated Dry Weather Flow Channel.

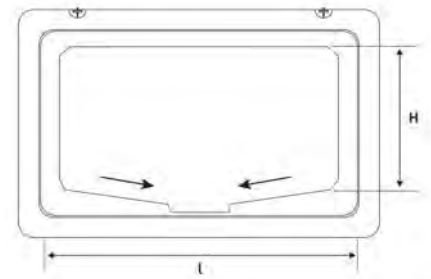
The AquaCulvert system has been developed as part of an effective water management system. The built-in dry weather flow channel optimizes hydraulic flow and provides a self-cleaning, cost effective system which provides continuous flow, even where there is a low gradient.

Features:

- Prefabricated dry weather flow channel.
- Factory fitted integrated gasket.
- Modular units for quick and easy installation.
- Cast-in lifting anchors for safer offloading.
- Effective at low gradients.
- Self-cleaning optimised hydraulic flow.
- Rapid delivery - often supplied within two weeks from order.
- Fittings available in all sizes include: bends, end walls, junctions, T-sections and bespoke chambers.
- Manufactured to EN 14844 and in accordance with relevant European standards and CE marked accordingly.







AquaCulvert Dimensions

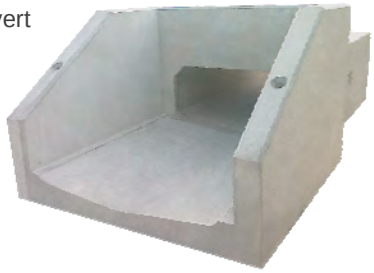
W x H (mm)	Length (mm)	Thickness (mm)	Unit Weight (Tonne)	Lifting Anchors
1100 x 550	2400	140	3.40	2 x 5T
1250 x 600	2400	140	3.75	2 x 5T
1000 x 1000	2400	140	4.00	2 x 5T
1500 x 700	2400	140	4.43	2 x 7.5T
1750 x 750	2400	160	5.72	2 x 10T
1500 x 1000	2400	140	4.93	2 x 7.5T
2000 x 1000	2400	180	7.49	2 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 (m^3/s)	Speed (m/s)	Max. flow (m^3/s)	Speed (m/s)	Max. flow (m^3/s)	Speed (m/s)	
1100 x 550	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	4.62	6.5	6.53	0.999
1750 x 750	3.4	2.71	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 details.



See website for Culvert Drawings and Installation Guide.

Medium to Large: **Box Culverts**

Medium and large culverts in a wide range of diameters.

Box Culvert applications include water course diversions, attenuation, tunnels and subways, stormwater and foul sewers, and access shafts.

This range of high quality, precast concrete box culverts is designed to save time on site. The flexible, modular system is available in square or rectangular profiles and used as a single or multi-unit run.

Features:

> Excellent mechanical and hydraulic performance.
> Factory fitted integrated gasket joint.
> Dry weather flow channels and mammal ledges available.
> Can be used at shallow or deep depths, full design calculations supplied on request.
> Manufactured to EN 14844 and in accordance with relevant European standards and CE marked accordingly.

Standard Product Data

Table below shows standard Box Culvert data for the most popular sizes. **Additional sizes up to 6000 x 3000mm and other project requirements available on request**.

Width (mm)	Height (mm)	Typical Unit Weight (T) * based on 1500mm length in 160mm thickness	Full Flow Cross Sectional Area Mtr²
1000	1500	3.61	1.42
1000	2000	4.2	1.92
1000	3000	5.37	2.92
1500	1000	3.61	1.42
1500	1500	4.2	2.17
1500	2000	4.79	2.92
1500	2500	5.37	3.67
1500	3000	5.96	4.42
2000	1000	4.2	1.92
2000	1500	4.79	2.92
2000	2000	5.37	3.92
2000	2500	5.96	4.92
2000	3000	6.55	5.92
2500	1500	5.37	3.67
2500	2000	5.96	4.92
2500	2500	6.55	6.17
3000	1000	5.37	2.92
3000	1500	5.96	4.42
3000	2000	6.55	5.92

See website for Culvert Drawings and Installation Guide.

Elliptical Pipes

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.

> 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 are further reduced since joints do not require priming or sealing with a separate sealing 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.

Vertical installation with bend

Elliptical Attenuation Tank installed at Talbot Green

Client list includes:

> Twickenham Stadium.

> Rolls Royce.

> Baglan Energy Park.

> Thames Water.

> Crossrail.

Elliptical Pipe

Fittings

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

Elliptical Pipe with Manhole Access

Horizontal installation under gas main and road

Quality & Specification

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

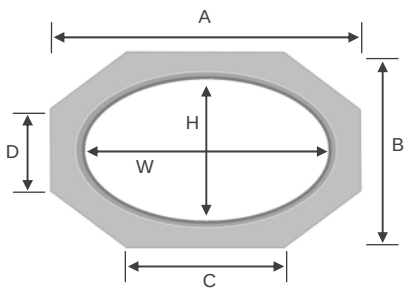
Elliptical pipes are supplied under a Quality System complying with ISO 9001 and the relevant parts of BS 5911-1 Precast concrete pipes, fittings and ancillary products.

Scheme Design

Stanton Bonna 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.



Elliptical Pipes Data

Internal W x H (mm)	External A x B (mm)	End Face Lengths		Effective Length	Approx. Weight	Full Flow Cross Section Area
		C	D			
mm	mm	mm	mm	mm	Kg	m^2
1000 x 650	1250 x 900	520	370	2400	2600	0.51
1150 x 750	1400 x 1000	600	430	2400	3000	0.68
1650 x 1000	1930 x 1280	850	500	2400	4600	1.27
1950 x 1150	2270 x 1470	1020	570	2400	6300	1.74
2350 x 1350	2710 x 1710	1230	670	2400	8600	2.48
2650 x 1500	3050 x 1900	1450	740	2400	10800	3.11

GRP Pipes and Liners

Stanton Bonna offers a versatile range of liners in glass reinforced plastic (GRP), used for the complete or partial renovation of man entry sewers and culverts. The product is available in circular and non-circular profiles.

Applications

> The diversity of the GRP range allows the products to be used for a range of applications.

> Liners are typically used for the renovation of damaged sewers and culverts to improve structural integrity, leak tightness and hydraulic capacity.

Major Benefits

> A comprehensive range of shapes, sizes, joints and lengths are offered.

> Products have a high strength/weight ratio.

> Products are designed and manufactured to be scheme specific to ensure optimum performance.

Dimensions and Shapes

> Liners can be produced to any curved profile up to 3.5m maximum axis and in discrete lengths up to 6m.

> Fittings such as bends and tees are fabricated from sections of straight liner.

Quality Assurance

> All materials used are required to comply with the Stanton Bonna specification and any relevant British, European or International Standard.

Projects / clients supplied include:

> Thames Water.

> Bristol Water.

> Yorkshire Water.

> Numerous projects throughout Europe.

Headwalls

Precast concrete headwalls for drainage outfall connections into open water areas including collection ponds, swales and rivers.

They provide:

> 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 in-situ solutions with no on-site shuttering or formwork required. This proves ideal at difficult to reach areas and where time is limited.

Lifting loops attached to cast-in lifting sockets enable easy manoeuvring with standard chains. No additional lifting equipment is required.

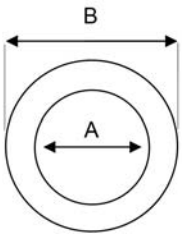
The aperture within the headwall will be sized and positioned to meet your requirements, so please contact us with your specific scheme details.

Accessories

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.

Headwall Data

Precast concrete headwalls can accommodate clay, concrete or plastic pipeline sizes, as follows:



Headwall Sizes	'A' = Pipe Internal Diameters (mm)		'B' = Max Pipe Outer Diameter (mm)*
	PCC	Plastic Twinwall	
Small	Up to 300	Up to 375	435
Medium	Up to 450	Up to 600	680
Large	Up to 900	Up to 900	1053
Extra Large	Up to 1500	Up to 1600	1820

* Hole size supplied in headwall will be wider than pipe Outer Diameter.

Hole Sizes

The tables below show details of the current hole sizes available for each size headwall based on our stock of hole formers.

Hole Size (mm)	Small Headwall	Medium Headwall	Large Headwall
190	■	■	■
276	■	■	■
299	■	■	■
310	■	■	■
360	■	■	■
429	■	■	■
449	■	■	■
460		■	■
495		■	■
530		■	■
595		■	■
685		■	■
720			■
790			■
855			■
920			■
960			■
1050			■
1080			■
1100			■

Hole Size (mm)	Extra Large Headwall
595	■
1300	■
1450	■
1480	■
1640	■
1830	■
1850	■
1930	■

We recommend hole sizes to be a minimum of 20mm wider than the pipe outer diameter.

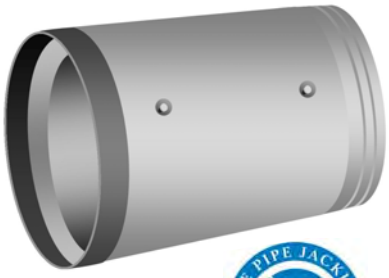
See website for Headwall Drawings and Installation Guide.

If you require a size not listed please call 0115 944 1448 or email info@stanton-bonna.co.uk.

Jacking Pipes

Stanton Bonna offer a range of jacking pipes suitable for installation with modern jacking techniques.

> The joint incorporates the well proven steel collar and elastomeric sealing gasket to ensure a watertight joint.
> Mild steel collars are provided with a paint coating. Pipes with stainless steel collars can be supplied on request.
> Pipes are vertically cast to produce accurate joint surfaces with square faces and a strong high density concrete.
> Interjack stations with integral ‘cans’ and ‘lead’ pipes are available.
> Grout injection points and a lifting hole can be cast into pipes on request.
> Jacking pipes are manufactured to BS 5911-1 and BS EN 1916.
> Full technical details including pipe dimensions, packing details and allowable jacking loads are available on our website.
> Full lifting and jointing instructions are available on our website.
> Bonna Pressure Pipe also available with jacking option.
> Enquiries are welcomed for diameters/lengths not shown below.



Project supplied include:

> 3.2km DN 1200 to Welwyn Garden City Southern Outfall.
> 276m DN 2500 to Terminal 5, Heathrow Airport.
> 1.8km DN 1200 to the London 2012 Olympic Park Primary Sewer.
> 1.4km DN 1200 to Wichelstowe Trunk Sewer.
> 1km DN 1200 to Didcot Flood Alleviation Scheme.

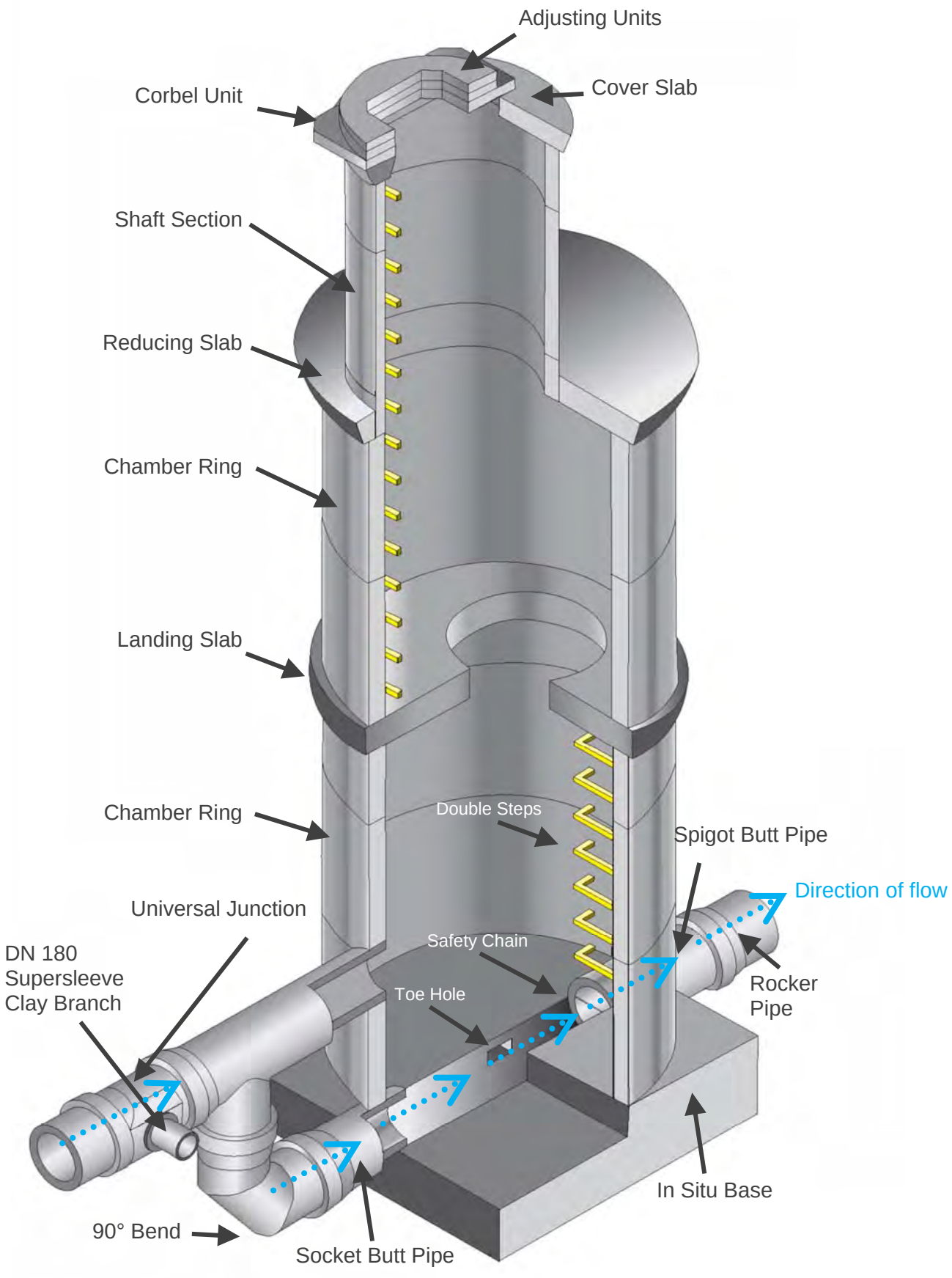
Jacking Pipes Data

Nominal Size	Internal Diameter	External Diameter	Effective Length	Approx. Pipe Weight	Min. Crushing Load Class F_n	Pipes Per Normal Load
DN	mm	mm	mm	kg	kN/m	
1200	1180	1430	2500	3180	144	8
1500	1470	1780	2500	4920	180	5
1800	1800	2140	2500	6880	216	4
2500	2500	3000	2340	12555	300	2

Jacking Pipe installed 26m underground

Traffic flow unaffected

Construction of Standard Manhole



Watertight Manhole System

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 Bonna.

With this in mind Stanton Bonna has invested in a new state-of-the-art plant to help provide a quicker offsite manhole solution.

The Stanton Bonna Watertight Manhole System provides contractors with a high quality, watertight, wider wall solution to enable a safe, faster installation with no onsite benching or concrete surround required.

The Stanton Bonna Watertight Manhole System comprises of a monolithic precast concrete base pre-benched to any inlet / outlet configuration together with wide walled chamber rings incorporating an elastomeric gasket for water tight joints and completed with a sealed cover slab.

The system also incorporates push fit elastometric seals for inlet and outlet pipes.

Specifiers, designers and contractors can be assured that the Stanton Bonna Watertight Manhole System offers a safer, faster, sustainable, off-site bespoke manhole solution.

Features

> Available in DN 1200 and 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.

> Installation guide available.

> Base unit available to suit standard tongue and groove joint chamber rings.

> Manufactured to comply with BS EN 1917:2002 and BS 5911-3.

> Kitemarked and CE Marked as required.

> Complies with Sewers for Adoption 7 (2012).

Watertight Manhole Data

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.

> Complete watertight system.

Higher Quality

> Watertight system – base, rings and slabs.

> Manufactured to comply with BS EN 1917:2002 and BS 5911-3.

> Kitemarked and CE Marked as required.

> Complies with Sewers for Adoption 7 (2012).

> Quality controlled factory made.

> High quality benching surface finish.

> Precise connection positions and channel gradients.

> Monolithic base.

> Flexible connection reduces settlement risk.

> Perfect hydraulics.

> 30 to 43% lower carbon footprint than traditional, box based and plastic manholes.

BASE	Height Min-Max	Wall Thick - ness	Lift Lugs	Delivery Details	
				Approx. Wt.	Max No. *Per Load
DN	mm	mm	no.	kg	no.
1200	500-1000	127	3	1600	9
1500	550-1350	160	3	4500	7

RING	Available Depth of Section in mm				Wall Thick-ness	Lift Lugs	Delivery Details	
							Approx. Wt.	Max No. *Per Load
DN	250	500	750	1000	mm	no.	kg/m	no.
1200	•	•	•	•	127	3	1276	21
1500	•	•	•	•	160	3	1961	14

SLAB	Dia.	Effect. Thick-ness	Appr. Wt.	Available Access Size							Max. No. *Per Load
DN	mm	mm	kg	600 sq	675 sq	600 x 750	750 sq	600 x 900	900 sq	675 x 1200	
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

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.

Manhole and Soakaway Rings

> 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 above DN 900 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 Rings Data

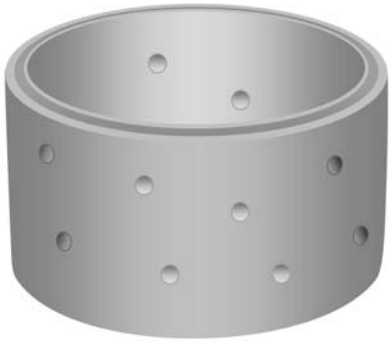
Ring	Available Depth of Section in mm				Wall Thick-ness	Lifting Holes	Delivery	
							Appr. Wt. inc. steps	Max. Per Load**
DN	250	500	750	1000	mm	N°x Ø	Kg/m	No.
900	•	•	•	•	70	2 x 40	520	52
1050	•	•	•	•	80	2 x 40	680	40
1200	•	•	•	•	90	2 x 40	875	30
1350	•	•	•	•	95	2 x 40	1025	20
1500	•	•	•	•	100	2 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

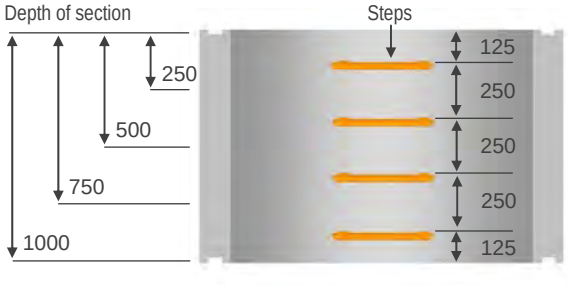
**Based on a 28T load, exact quantity per load to be confirmed by our Sales Team

Soakaway Rings Data

Ring	Perforations per section (75mm Ø)		
	0.5m deep	0.75m deep	1.0m 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

Soakaways are perforated vertically at 250 centres.





Manhole Slabs

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 Sewers for Adoption 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 (600 x 600 eccentric) for 750 x 600 slab access.

Corbel & Adjust. Units Data

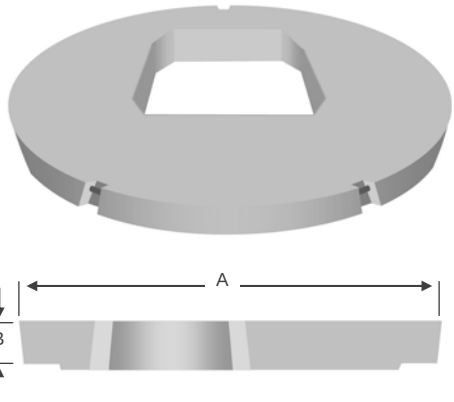
Unit Type	Access		Approx. Weight
	Size	Posit.	kg
Adjust.	600 x 600	C	70
Adjust.	675 x 675	C	80
Adjust.	750 x 600	C	125
Adjust.	750 x 750	C	135
Adjust.	1200 x 675	C	160
Corbel	600 x 600	E	140

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

Manhole	Overall Dia	Effective Thickness	Appr. Wt.	Access Size and Position						
DN	'A' mm	'B' mm	kg	600 sq	675 sq	600 x 750	750 sq	600 x 900	900 sq	675 x 1200
900	1188	135	220	C	C					
1050	1358	135	335	E	E	*C	C			
1200	1538	135	480	E	E	E	*E	*C		
1350	1607	160	655	E	E	E	*E	*E	*C	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

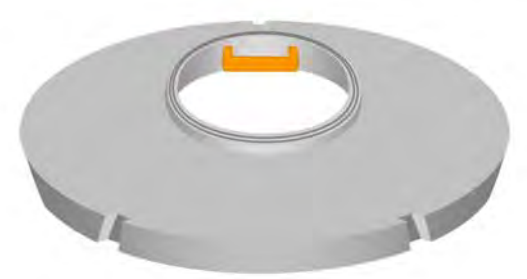
* denotes non-kitemaked. C denotes central. E denotes eccentric. The appropriate access size for the project will be given by the adopting authority or their agents. Guidance is provided in Sewers for Adoption and BS EN 752.

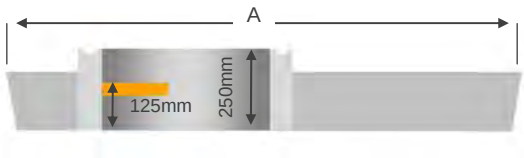
Manhole products are manufactured to BS 5911-3.

Manhole Slabs

Reducing Slabs

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



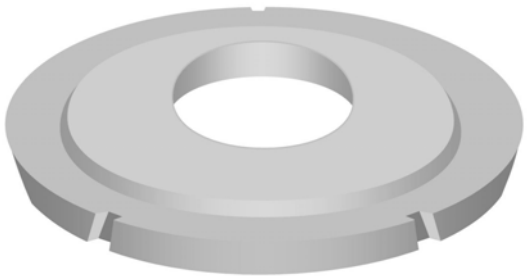


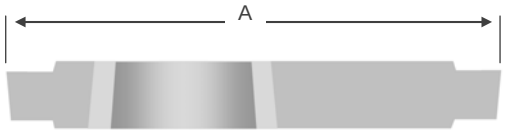
Reducing Slabs Data

Nominal Dia. of Chamber	Diameter	Appr. Wt.
	'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

Landing Slabs

- Reinforced slabs are available for use in deep manholes.
- Effective thickness of 160mm for DN 1500 and 200mm for DN 1800 to 3000.





Landing Slabs Data

Nominal Dia. of Chamber	Diameter	Appr. Wt.
	'A' mm	kg
1500	1920	950
1800	2230	1375
2100	2515	1850
2400	2780	2500
2700	3175	3550
3000	3350	4370

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

Manhole Jointing Strip and Road Gullies

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.

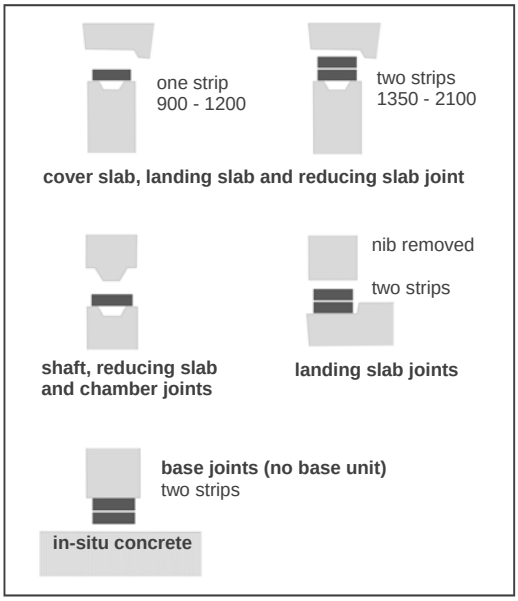
> Civil Engineering Specification for the Water Industry.

> 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 WRC Sewers for Adoption.



Manhole Jointing Compound

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

Road Gullies

> 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. A seal compatible with outer diameters of 170-190mm can also be supplied on request.

> Gully cover slabs are available as a ‘u’ shape or square with a DN 450 access.

> Slabs are 100mm thick and weigh approx. 80kg.

Road Gully Data

Nom. Dia.	Nom. Depth	Approx. Wt.
mm	mm	kg
375	750	219
375	900	250
450	750	260
450	900	298
450	1050	323

Slot Drain

This heavy duty F900 class, high capacity surface water drainage system is designed to accommodate all load classes while resolving the problem of standing water. Installation is rapid and economical with no concrete surround required.

The innovative design is available in four diameters from Ø 300 to Ø 600mm and provides excellent flow rates even at zero or shallow gradients. The design also assists self cleaning of sludge and debris.

The integrated gasket ensures this watertight product is effective in its rapid dispersal of surface water.

Each section has a socket and spigot end to provide correct joining and alignment.

The external shape of the Stanton Bonna Slot Drain provides a structurally efficient, robust product. Providing up to F900 load class to withstand heavy vehicular loading, it's particularly suited for areas where high axle loads are imposed.

Rodding access (see photo below) and additional connections can be provided on request.

Junction box sump unit also available in all sizes.

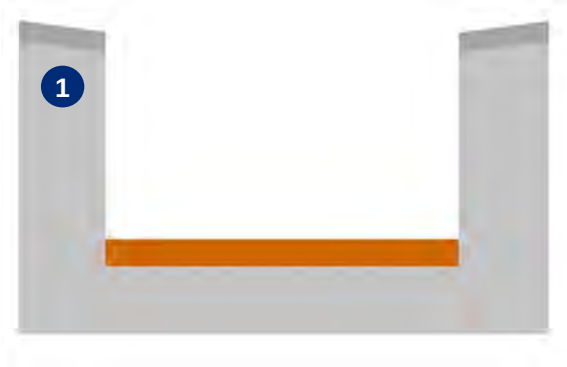
Grated access used for rodding and drainage

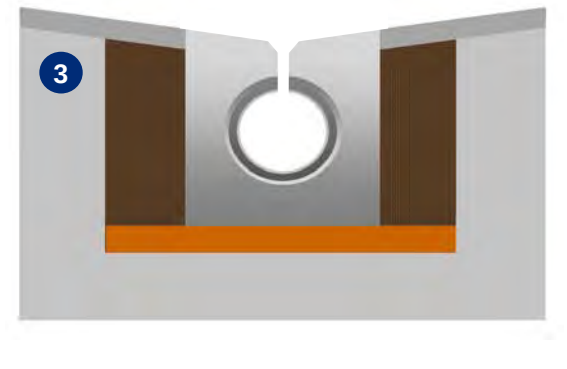
Integrated gasket ensures a quick fit installation

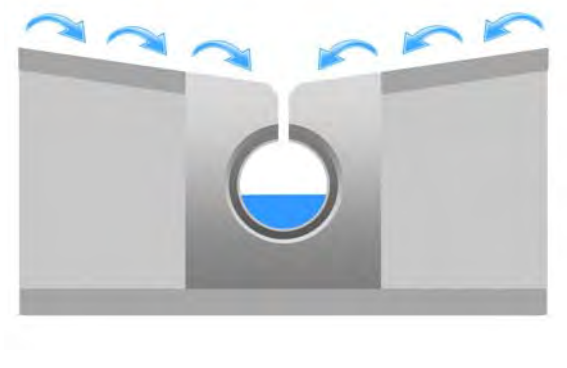
Slot Drain

The Stanton Bonna Slot Drain can be installed alongside concrete, block paving, tarmac and grass to provide surface water drainage for many areas including:

- Roads and motorways
- Railways
- Car parks and Park & Ride
- Airports and runways
- Industrial estates
- Bus stations
- Distribution yards and loading docks







Slot Drain Data

Nominal Diameter Ø (mm)	External Height (m)	Effective Length (m)	Weight (kg)	Load Bearing Class
300	0.56	2.37	1180	F900
400	0.66	2.37	1545	F900
500	0.78	2.37	2195	F900
600	0.89	2.37	2611	F900

NB: Each section contains 3 slots. Standard slot diameter is 30mm x 520mm. DN400 is also available with 19mm x 520mm slots.

Installation

Slot Drains provide an easy, rapid installation that often achieves over 100 metres per day.

1 Excavate earth, level bottom, add compactable aggregate and level.

2 Place Slot Drains in position. Always place downstream to upstream. The spigot must primarily be inserted into socket of the previous Slot Drain. Clean and remove any debris. Level as needed.

3 Backfill excavated earth and compact.

This product offers ease of installation and cost saving. On roads it replaces kerb drain systems and can be connected into road catchpits, gullies or manholes.

The Slot Drain conforms to EN 1433 and is CE marked.

Embankment Access Stairs

Stanton Bonna's precast concrete Access Stairs provide a modular, easy to install system for use on road, rail and utility embankments.

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

Features:

- Quick and easy modular system
- Available in 1 metre, 1.5 metre and 2 metre step widths
- Minimal ground surface preparation required
- Used on slopes with gradients of between 25° and 45°
- Fixing pins 400mm long with up to 250mm penetrating the ground
- DDA compliant options available
- Various hand rail formats can be accommodated including galvanised steel and GRP, to industry specific requirements

Clients supplied include:

- Volker Highways.
- Network Rail.
- Highways Agency (now called Highways England).
- Wallasea Island RSPB Nature Reserve.
- Carillion.
- Enterprisemouchel.
- High Speed 1 (Channel Tunnel Rail Link).

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Embankment Access Stairs

These highly durable concrete steps are supplied in modular 1.65m string units with risers and tie-bars.

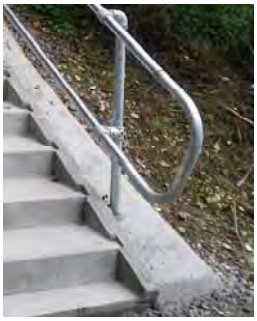
Delivered to site on pallets, they can be quickly and easily assembled in a single operation without the need for heavy plant.

Ease of assembly means that, subject to clearance of an embankment's vegetation, the stairway modules can be installed on rough terrain with the minimal amount of preparatory groundwork.

The fixing pins are only 400mm long so the chances of interfering with below ground services is minimal. These benefits ensure significant time and cost savings compared with more traditional methods of access stair construction.

The stairway system is designed for both permanent and temporary installation and can be applied to embankment slopes with a gradient of between 25 and 45 degrees, ensuring compatibility with most roadside locations.

Safety hand rail kits can be fitted to one or both sides of the steps, if required. Photo shows how the handrail fitting is bolted to the string and then the rail inserted and secured.



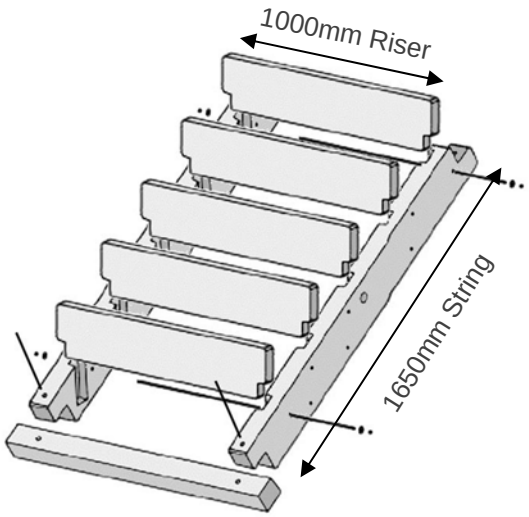


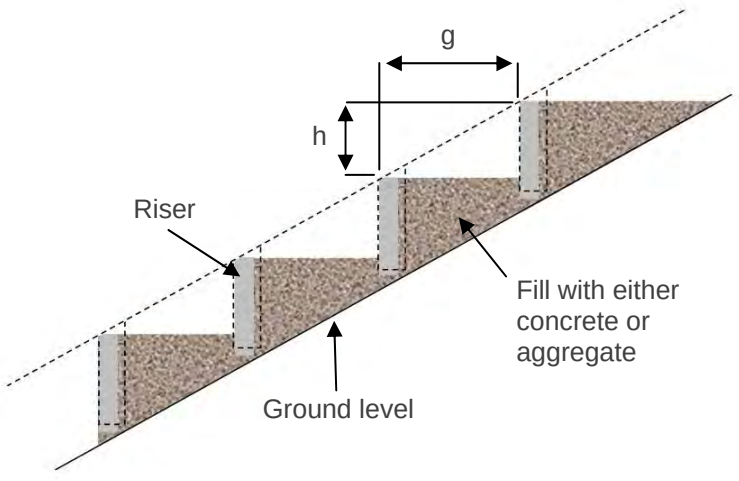
Diagram above shows a 1 metre wide unit of:

1 x Left String
1 x Right String
5 x Risers
2 x M8 Tie Bars, nuts and washers
1 x Kicker Beam with fixing pins is supplied with each start of flight.

The stair unit can be supplied in widths of 1 metre, 1.5 metres and 2 metres.

Riser Dimensions

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



Highways Catchpits

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

The strength and durability of precast concrete helps reduce the amount of preparation and bedding required.

Stanton Bonna have invested in a state-of-the art drilling machine with rotation plate specifically to serve as a rapid hole cutter for Catchpits and manhole rings and can provide the inlet/outlet profiles required for your project.

Key benefits:

> Safer as eliminates time in confined spaces.

> Quick turnaround from order to delivery.

> Cost effective solution with faster installation.

> Project specific inlets/outlets provided by the rapid hole cutter.

> Based on the Highways Agency Drawing F11.

> Conforms to BS 5911-3 & BS EN 1917.

Rapid drilling machine provides inlet and outlet holes specific for your project. Integrated gaskets supplied on request.

Highways Catchpits

Technical Data

Stanton Bonna Catchpits are available in sizes DN900 to DN1500.

The construction of the Catchpit consists of a cast in reinforced base, drilled standard manhole unit(s), a cover slab and adjusting units. The metal work cover is supplied by others. An example is shown opposite >

Catchpits from DN1050 to DN1500 may be fitted with steps if required.

The final configuration of the Catchpit will depend on the number and size of openings required and any additional features.

Catchpits can accommodate a sump of 300mm or 450mm.

The design of the Catchpit is based on the Highways Agency Drawing F11. As shown in drawing opposite >

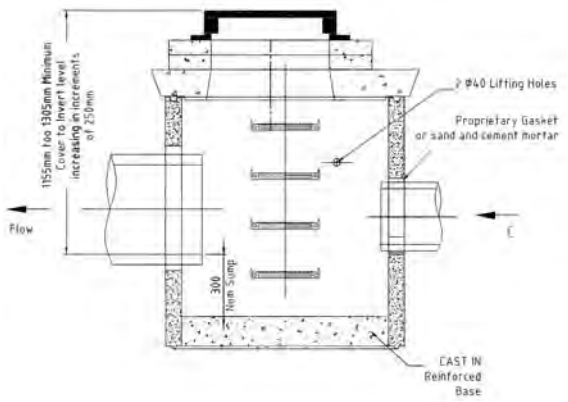
All Catchpits are fitted with lifting holes as detailed in the table bottom right.

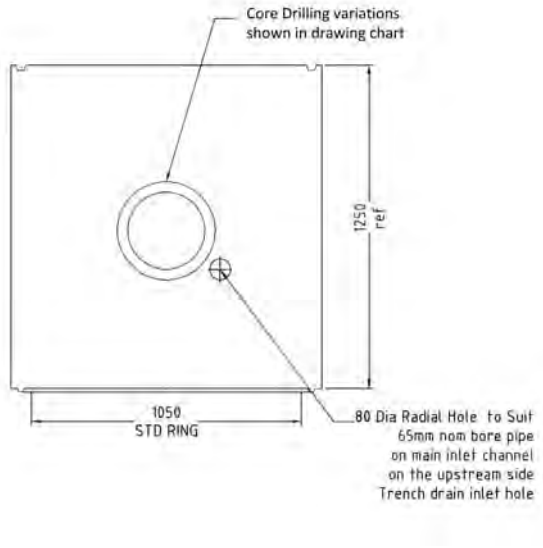
All components conform to BS 5911-3 & BS EN 1917.

Pipe may be jointed with sand and cement mortar or a bituminous joint seal, available on request.

Stanton Bonna Catchpits can accommodate precast concrete, clay and plastic pipes. Sizes are detailed opposite >

Call us to discuss your project on 0115 944 1448 or email info@stanton-bonna.co.uk to see how we can help you.





Catchpit Data

Size	Max size connect. pipe	Steps	Lifting Holes	Max. Ring Weight (kg)
DN900	DN225	×	2 x 40mm Ø	885
DN1050	DN450	✓	2 x 40mm Ø	1170
DN1200	DN450	✓	2 x 40mm Ø	1512
DN1350	DN525	✓	2 x 40mm Ø	1811
DN1500	DN600	✓	2 x 40mm Ø	2173

Chamber Slab and Hard Standing

An innovative, offsite solution providing rapid installation of quick, easy, secure access to roadside communications.

Supply chain collaboration between Stanton Bonna, Saint-Gobain PAM UK and MWay Communications has resulted in this exclusive (patent pending) time saving solution.

The combination of high quality steel reinforced precast concrete with high performance ductile iron Opt-Emax access covers and Warrior surface boxes ensures the Integrated Access Chamber Cover and Slab offers significant onsite benefits:

> **Safety** - Eliminates manual handling; reduces movement of plant and people.

> **Cost Predictability** - Works can continue as planned even in periods of inclement weather.

> **Economy** - Utilises labour more efficiently, reduces issues with concrete availability, out of hours plant & site delivery costs.

> **Accuracy** - Assembled and manufactured within factory controlled environment.

> **Speed of Installation** - Quality assured "right first time" approach accelerates programme. Installation completed in a single visit, in virtually all weather conditions.

> **Environmental** - No need for timber shuttering; no concrete wasted; reduces journeys made by plant; enables reuse of product if works are changed.

> **Quality and Credibility**

Stanton Bonna products manufactured to BS EN ISO 9001 and BS EN ISO 14001.

Saint-Gobain PAM UK products manufactured to BS EN 124 1994, BS EN ISO 9001: 2008 and BS EN ISO 14001: 2004.

Two products initially launched:

- **Motorway Communications Type A Chamber Cover Slab** complete with interrupter ports.
- **Motorway Communications Type B Chamber Cover Slab**.

Each are compatible with MCL and Cubis Chambers.

Other models available on request.

Average savings per unit*

– 12 manual handling activities
– 20 miles of plant movements
– 6m of timber shuttering
– 8 man hours

***estimate based on installation of 800 x Motorway Communication Type A Chamber Cover SlabS on two Smart motorway projects.**

V-Channel, AMI Base and 610 Plinths

V– Channel Drainage slab

Precast V-Channel slab with integrated V-Profile grating and frame. Works with slipform drainage systems and avoids need to break out grating – saving time.

Post Mounted AMI entry Signal Base

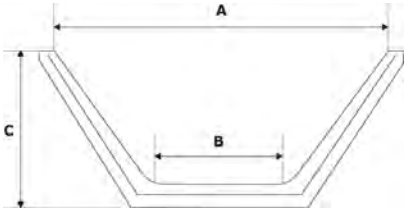
Used on Smart Motorway schemes saving significant time and labour costs. Reduces need for costly lane closures during construction works.

610 Plinths for Cabinets

Factory production overcomes need for sacrificial steel skirt. Saves significant time on site. Suitable for 600, 609, 610 and 617 cabinets.

Trapezoidal Channel

Precast concrete channels used as a quicker, economic, offsite alternative to slipform.



AMI Base on M62 Smart Motorway

Trapezoidal Dimensions

Dimensions A x B x C (mm)	Unit Length (m)	Weight (kg)	Anchor points
900 x 300 x 300	2.40	675	2 x 2.5 T
1500 x 500 x 500	2.40	1340	2 x 2.5 T
1500 x 500 x 800	2.45	1540	2 x 2.5 T
1600 x 500 1100	2.45	2350	2 x 2.5 T
2500 x 10000 x 900	2.00	2090	4 x 2.5 T
2600 x 500 x 1200	2.00	2550	4 x 2.5 T

Contact us about project specific bespoke grated units and slabs. Call 0115 944 1448 or email: info@stanton-bonna.co.uk.

Projects supplied include:

- M60, M62 Manchester Smart Motorways.
- M3 Smart Motorway scheme.
- M1 Smart Motorway scheme.

Pressure Pipes

The Bonna pressure pipe is an internationally successful product with over 100 years of proven performance under pressure.

More than 20,000km have been installed worldwide. The versatility of this pressure pipe system (which can be installed by jacking or open cut) is clear from the range of applications for which the system provides a cost effective solution.

Applications

> Sea outfalls.
> Power station cooling water pipework.
> Sewage pumping mains.
> Sewage treatment works.
> Industrial plant pipework.

Benefits

Design Service

The requirements for each pressure pipe application are unique. A major advantage of the Bonna pressure pipe system is the inclusion of a free, in-house project design service which provides:

> Design calculations and layout drawings.
> Installation and maintenance manuals.
> Optional site supervision.

Durability

> Will withstand full vacuum conditions.
> High resistance to impact loading.
> Abrasion resistant internal lining.
> Low hydraulic coefficient of friction.
> High resistance to floatation.
> Resistant to external climatic conditions.
> Designed to withstand water hammer.

Cost Effectiveness

> Optimal design for each project.
> Most ‘as dug’ material can be used as backfill.
> Thrust blocks are not required for welded joints.
> Cathodic protection is not required.
> Pipeline curvature achievable through joint deflection.

Versatility

> Unrivalled diameter range from DN 250 - 4000.
> Installation by open cut or jacking.
> Underwater installation by float and lower, bottom tow or jacking.
> Joints can be welded, flanged, gasketed or custom.
> A wide range of factory produced fittings are available, to virtually any configuration.

West Burton CCGT Power Station
cooling water pipework

DN 3000 Y-Piece Reducing Unit

Pressure Pipes

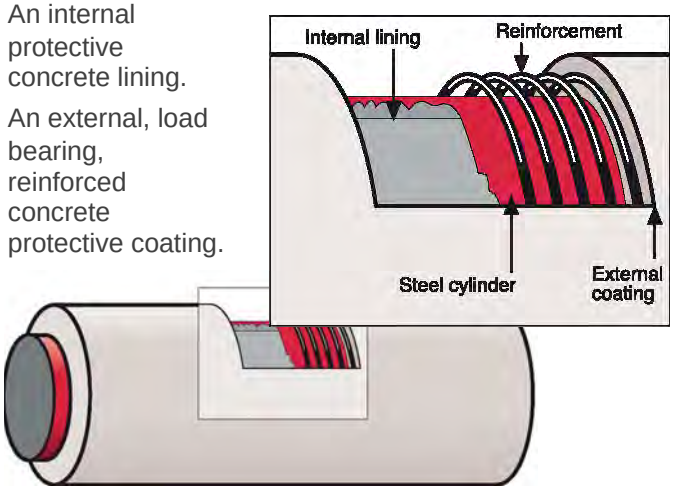
Standard Pipe Design

Pipes consist of three primary components:

> A watertight steel cylinder core with end rings to suit various joint types.

> An internal protective concrete lining.

> An external, load bearing, reinforced concrete protective coating.



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.

Fittings

> Any configuration can be produced to suit specific project needs.

> Fittings are coated internally and externally with reinforced concrete for durability and load bearing strength.

> Fittings include bends, tees, reducers, short length pipes, diffuser units, flanged adaptors, closure units and settlement compensator systems.

Bonna Pressure Pipe Data

Internal Diameter	External Diameter	Effective Length	Approx. Weight/m
mm	mm	m	kg
300	420	6.07	170
400	520	6.15/6.50	220
500	630	6.15/6.50	290
600	730	6.15/6.50	350
700	840	6.15/6.50	430
800	950	6.15/6.50	530
900	1060	6.15/6.50	630
1000	1164	6.15/6.50	710
1100	1276	6.5	840
1200	1390	6.15	990
1250	1470	6.15	1200
1400	1640	5.03	1460
1500	1740	5.03	1560
1600	1880	5.03	1950
1700	1980	5.03	2050
1800	2100	5.03	2340
2000	2320	4.5	2770
2100	2440	4.5	3090
2200	2560	4.7	3430
2350	2730	4	3870
2400	2800	5.03	4170
2500	2910	4	4440
2600	3030	2.91	4850
2800	3250	3.5	5450
3000	3480	2.91	6230
3200	3720	2.91	7210
3500	4080	2.41	8800
4000	4640	2.05	11070

Projects supplied include:

> West Burton CCGT Power Station.

> Marchwood Power Station.

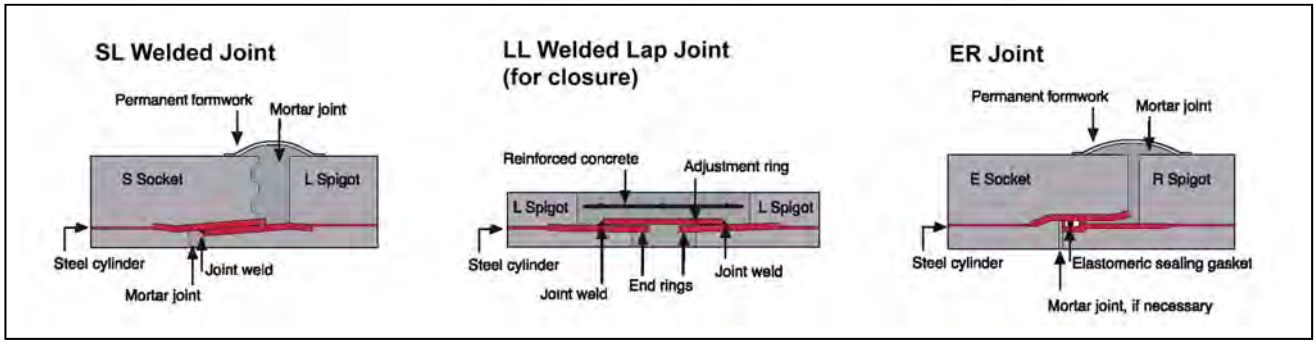
> Clifton Marsh STW.

> Folkstone Long Sea Outfall.

> South Humber Bank CCGT Power Station.

> Honda Car Plant, Swindon.

Standard Joint Types



Railway Sleepers and Bearers

Stanton Bonna and it's sister company SBC Rail are the UK members of Consolis, Europe's leading manufacturer of concrete sleepers with an annual production capacity of 3.5 million sleepers per year and over 30 years experience in the production of railway sleepers for High Speed lines.

Major projects supplied in the UK include:

> Crossrail.
> High Speed 1 (Channel Tunnel Rail Link).
> Nottingham Express Transit.
> Manchester Metrolink.
> Midland Metro.
> Docklands Light Railway.
> Sheffield Supertram.

Lightweight Twin Block Sleepers supplied to Nottingham Express Transit Line 1

Ballasted Track Sleepers

> The world high speed train record (574.8km/hr) was set on Consolis sleepers.
> A range of twin block and monoblock sleepers are available for both Light Rapid Transit (LRT) and High Speed ballasted track applications.
> Twin block sleepers are the sleeper of choice for LRT projects since they are light weight and easy to install.
> Sleepers can be produced to suit the project specification to optimise costs and performance for a variety of rail and fastening types.
> Innovative solutions are available, such as under sleeper pads to reduce ballast wear and ballast thickness.

Mainline Sleepers supplied to High Speed 1 (CTRL)

SMART SLEEPERS®

> An innovative, prestressed monoblock concrete sleeper equipped with embedded Optical Fiber Sensors.
> Highly accurate sensors provide real time measurements on mechanical behaviour of sleepers and track.
> Moving towards predictive maintenance, reduces the need for costly preventative and corrective maintenance operations.
> **SMART SLEEPERS®** can be used on any line such as high speed, mainline, heavy haul or urban.

smart | sleeper™

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CONSOLIS SBC RAIL

Railway Sleepers and Bearers

Vibration Mitigation Solutions

Noise and vibration reduction sleepers consist of a concrete sleeper with a traditional elastic fastening mounted within a rigid plastic hull.

The system incorporates a resilient pad offering a second level of elasticity under the sleeper block.

Sleepers can be 'tuned' to the specific performance requirements of the project and are available in either twin block, monoblock or switches and crossing bearer configurations.

SAT S312 Sleepers and Bearers

> This reinforced twinblock sleeper provides various levels of vibration mitigation performance (5db - 15db).

> A complete, cost effective installation and maintenance solution.

> Can be adapted to any type of sleeper: twinblock, monoblock or bearers, and any type of fastening.

> Suitable for high speed, mainline and urban lines.

> Installed on HS1 and Crossrail.

High Attenuation Sleeper (HAS)

> This prestressed monoblock sleeper provides an extremely high level of vibration mitigation performance (> 20db).

> A cost effective alternative to Floating Slab Track as it provides the same level of performance but can be **installed up to ten times faster**!

> This innovative sleeper is the result of extensive research and testing at the SNCF Track Research Centre (patent Sateba/Alstom).

> Suitable for high speed, mainline and urban lines.

> Installed on the Crossrail project.

Contact us to discuss your specific requirements:
email info@stanton-bonna.co.uk or
phone 0115 944 1448.

SAT S312 Twinblock Sleepers installed at Connaught Tunnel Crossrail

SAT S312 Bearers

HAS supplied to Crossrail Project

CONSOLIS SBC RAIL

RISQS VERIFIED

Railway Sleepers and Bearers

Slab Track Products

Concrete sleepers for incorporation into an in-situ concrete slab using ‘top down’ construction techniques are available in various forms:

Shallow Depth Slab Track Sleepers

> Shallow depth twin block sleepers with modern elastic rail fastenings offer a simple and cost effective method of constructing slab track in depots and in urban environments for street running, pedestrian and grass track applications.

> The incorporation of the tie bar and levelling inserts greatly assists with track alignment prior to second stage concreting.

> Available for embedded and non-embedded rail, on street or green track.

Shallow Depth Sleepers

Baseplate Sleepers

> Sleepers fitted with traditional resilient baseplates can be pre-assembled in the factory and delivered direct to site.

> They are used for tracks with specific performance requirements over and above those provided by a standard elastic fastening for example - height adjustment, higher loads / speeds, noise and vibration mitigation.

> Sleepers can be provided to suit many conventional base plate designs.

Harmelen Level Crossing installed for Network Rail

Harmelen Level Crossings

The Harmelen level crossing is a hard wearing and versatile prefabricated modular level crossing with a life span in excess of 25 years. Designed in the Netherlands, the Harmelen system has been installed for decades across Europe and is the crossing of choice for heavy traffic routes.

Ladder Track

Precast concrete ladder track provides a cost effective and robust method of constructing slab track. It can be manufactured in both straight and curved sections in 6m lengths complete with fastenings. Also available for grass track.

Ladder Track

Grass Track

Ancillary Track Products

Bearers for Switches and Crossings

Bearers for Switches and Crossings

Prestressed concrete bearers for switches and crossings are produced to UK standards with extremely tight tolerances in accordance with Network Rail NR60 designs. Type D and R section bearers are available in lengths between 2600mm and 6350mm.

Cable Passage Bearers

An innovative solution which allows the safe passage of cables across track and reduces the need for UTX (under track crossings). These bearers incorporate an insulated baseplate design.

Derailment Containment System

For use with ballasted track sleepers, a specifically engineered transverse bar system holds derailment rails independently from the sleepers. The system attaches to the running rails and using an insulated fastening system it has the advantage that it can be retro fitted to most trackforms.

MOFIX

> MOFIX is an innovative precast concrete foundation for catenary poles or noise barriers.

> By method of drilling it is extremely quick and easy to install and requires little space.

> Available in various lengths and diameters to suit application, it has been in use on European Rail Networks for over two decades.

Transition Slabs

Precast transition concrete slabs are used in zones between ballasted track and slab track where significant changes in the trackbed stiffness many be encountered. Transition slabs can be produced to the customer's specific design.

Transition Slab

Derailment Containment System

MOFIX

Cable Passage Bearer

Perforated Drainage Troughs

The Stanton Bonna precast concrete perforated drainage troughs system provides an excellent trackside 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.

> Approved to Network Rail Certificate of Acceptance PA05/01611.

> 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.

Installation on High Speed 1 for track bed sealing

Modular components permit rapid installation

Perforated Drainage Troughs Data

Item	Internal W x H	Length	Weight
	mm	mm	kg
Cover AV	555 x 70	500	41
Riser H 37	430 x 370	1000	174
Riser H58	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
Narrow Cover N	320 x 70	750	33
Narrow Riser H20	322 x 200	750	55
Narrow Riser H25	320 x 250	750	65
Narrow Trough H37	320 x 250	750	159
Narrow Trough H65	225 x 650	750	196
Narrow Trough H73	225 x 730	750	198
Narrow Trough H81	215 x 810	750	252
Narrow Trough H86	215 x 860	750	262
Narrow Trough H91	220 x 910	750	277
Narrow Trough H96	220 x 960	750	288

System M32-12 (**1000mm length**)	Internal W x H	Weight
	mm	kg
Cover	280 x 50	31
Riser	200 x 246	81
Trough	210 x 260	100

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Tunnel Segments

The CONSOLIS Group has been a manufacturer of precast tunnel lining segments for **more than 35 years**. Over the decades we have produced more than **220,000 metres of tunnel**.

We have expertise in various sectors, such as transportation (road, train and mass transit), tunnels for fresh water, stormwater, wastewater and sewerage, utility tunnels and more.

We have collaborated on projects throughout Europe and North Africa and constantly refine and improve our products, manufacturing processes and installations through technical advancement and innovation.

Large schemes may require Consolis to invest in new facilities. This has already been done throughout Europe with examples including Rennes and Paris Metro Schemes.

Features:

> Smart concrete technology with embedded microchips.

> Over 35 years experience.

> Over 220,000 metres of tunnelling installed.

> Manufactured specific to project specifications.

Projects already supplied include tunnel sizes from 2900mm up to 8350mm diameters.

Contact us to discuss your project and for further details.

Rennes Metro

XPREStank®

The Xprestank® range of precast concrete storage tanks provide a diverse range of customers with numerous advantages when compared to alternative solutions.

The rapidly installed, circular concrete tanks are proving to be the ideal solution for numerous applications including biogas production, fish farming, manure and slurry storage, wastewater treatment, recycling, salt storage and much more.

Key benefits of XPREStank® :

> Faster production and installation than cast-in-situ systems.
> High resistance to almost all substances.
> Non-corrosive compared to steel systems.
> Non-flammable compared to plastic or polyethylene systems.
> Reduces risk of weed or bacterial growth due to maintenance of low temperatures.
> Resistant to extreme weather conditions.
> Extremely durable as they last for many years so an economical solution.

Economically priced with installation included, the new range of concrete tanks are available in various heights up to 6 metres with a volume capacity of up to 7000m3.

The precast tanks feature a perfect seal as pre-stressed concrete panels are held together with exterior post-tensioned plastic covered steel cables.

Exclusive technology ensures XPREStank® customers benefit from advantages including rapid installation, durability, low maintenance and a choice of sizes and volumes to meet customer specific needs.

Optimal safety is guaranteed with a 10-year warranty on tightness, seal and structural elements backed by independent certifications including ISO9001 and CE marking.

Unlike cast-in-situ tanks, XPREStank® provides certainty to project costs and is installed more rapidly to a consistent quality standard.

XPREStank® used in biogas production

XPREStank® used in fish farm in Scotland

XPREStank® used in agriculture

Agriculture and industry customers who benefit from the chemical resistance of concrete storage tanks include:

> Water companies with wastewater treatment and final settlement tanks.
> Biogas organisations utilising anaerobic digestion with slurry tanks and digestate storage tanks.
> Farmers for manure storage and slurry storage.
> Fish farmers for aquaculture.

Our Vision, Mission and Values

Our Vision

To have a growing, sustainable and profitable Construction Product Business, achieved through a culture of safety and empowerment that exceeds customer expectations.

Our Mission

Through the empowerment of our people be the benchmark against which our competitors are judged.

To achieve this we:

> Understand and deliver our customers' needs.

> Establish long term relationships with our customers based on excellent customer service.

> Develop a team of people committed to excellence and continuous improvement.

> Believe that each of us can make a difference.

Our Values

> We put **safety** at the top of every agenda because we care about people.

> We invite independent assessment of the **quality** of our products and processes because we are proud of what we make and deliver.

> Awards won reinforce trust and **integrity** of the brand and show that we are a professional team.

> Our **innovative** approach ensures ongoing product development to meet the needs of our customers.

> Continual **improvement** is at the heart of what we do.

SAFETY • QUALITY • INTEGRITY • INNOVATION • IMPROVEMENT

StantonBonna

Innovative **Precast Concrete** Solutions





Highways | Water | Housing | Telecoms | Power | Rail

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