

Installation Instructions For Watertight Manhole Systems

PD 71 rev C

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Stanton Bonna Manhole System gives a complete '*Invert to Slab*' watertight manhole system with a design life of 120 years.

The Manhole System is available in DN1200 and DN 1500 and is designed with connections for DN 150 – DN300 pipes of all commonly used materials.

The DN1200 can accommodate connecting pins up to and including DN300 in all commonly used materials.

The DN1500 unit can accommodate connecting pins up to and including DN600.

Main product features and benefits include:

Safety

- Dedicated lifting equipment for safer and faster handling.
- Shorter construction time reduces the open excavation time and improves site safety.
- Manhole system is tailored to individual manhole; therefore no need for trimming activities using hand held power tools
- System delivered with benching in-place therefore benching will not be over-looked. Reduced need for following trades to enter and operate in confined spaces.
- Reduced exposure to wet concrete and associated skin irritation etc.; no need for concrete surround, no need for in-situ benching.

Commercial

- A complete watertight construction removes the need for a concrete surround which speeds up the construction process.
- No concrete surround removes an operation and gives better cost control.
- Reduces difficult wet trade works.
- No lifting holes to fill.
- Take off service. Short notice availability. DN1200 rings available from stock.

Technical

- Units are factory made under a third party accredited Quality Management System (BSi).
- Connecting pipes, base, rings and slab are jointed using proprietary seals which combined with a thick wall section gives a watertight construction.
- Standard connections seals are manufactured in SBR type WC and approved in accordance with EN 681-1. Oil resistant seals are available on request.
- Available with or without benching. Available with or without steps.
- Bespoke, monolithic base design.
- Manhole chamber rings comply with BS 5911-3:2010 and BS EN 1917:2002. Completed base units comply with BS EN 1917:2002.

Base Unit Weights

Base units are supplied in heights to suit the Invert to Cover Level height.

Typical average weights are shown in the following table.

	Average Mass (kg)
DN1200	1900
DN1500	3900

Customers are advised to check with Stanton Bonna for mass of units ordered.

Cover Slabs Weights

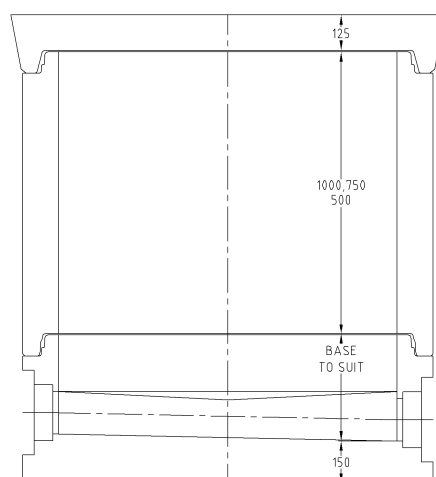
Cover slabs are available with all Kitemarked openings. Weights are as follows:-

	Mass (kg)
DN1200	500
DN1500	1160

Ring Unit Weights

For both DN1200 and DN1500 manholes; rings are available in three different heights and shown in the following table:

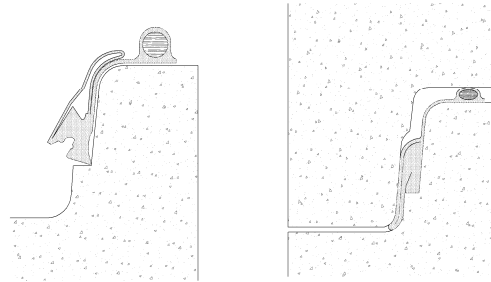
DN (mm)	Height (mm)	Wall thickness (mm)	OD (mm)	Mass (kg)
1200	500	127.5	1455	638
	750			957
	1000			1276
1500	500	160	1820	860
	750			1300
	1000			1750



Gaskets

Gaskets for the chamber rings are manufactured in SBR type WC and approved in accordance with EN 681-1. Oil resistant seals are available on request.

They are complete with a load distributor to prevent concrete to concrete contact and the seal has a pre-lubricated mantle.



The combination of connection hole and gasket is chosen to suit the pipe being used. In some instances adaptor pipes will be required.

Manhole base Connecting Pipe details					
DN	Material	Reference	Manufacturer	Ext Dia (mm)	Adaptor
110	PVC		All	110	Marley Reducer ref. URM604 Polypipe Reducer ref. UG621 Hunter Reducer ref. DS433
150	Clay	Supersleeve	Hepworth	178	Not required
		Densleeve	Naylor	188	Naylor DC18
	Plastics	Ultrarib	Wavin	170	Not required
		Quantum	Marley	160	Not required
		Ridgidrain	Polypipe	178	Not required
		Polysewer	Polypipe	160	Not required
		Osma TW	Wavin	178	Not required
		Corripipe	JFC	180	Not required
160	PVC		All	160	Not required
225	Clay	Supersleeve	Hepworth	263	QSC 265 to Quantum
		Densleeve	Naylor	278	NAC 2602 to Quantum
	Plastics	Ultrarib	Wavin	250	Not required
		Quantum	Marley	250	Not required
		Ridgidrain	Polypipe	267	Not required
		Polysewer	Polypipe	250	Not required
		Osma TW	Wavin	268	Not required
		Corripipe	JFC	268	Not required
300	Clay	Supersleeve	Hepworth	357	QSC 360 + QBC 0803 to Quantum
		Densleeve	Naylor	380	NAC UR 300 to Quantum
	Plastics	Ultrarib	Wavin	335	Not required
		Quantum	Marley	330	Not required
		Ridgidrain	Polypipe	355	Not required
		Polysewer	Polypipe	330	Not required
		Osma TW	Wavin	355	Not required
		Corripipe	JFC	355	Not required
	Concrete		Stanton Bonna		Not required

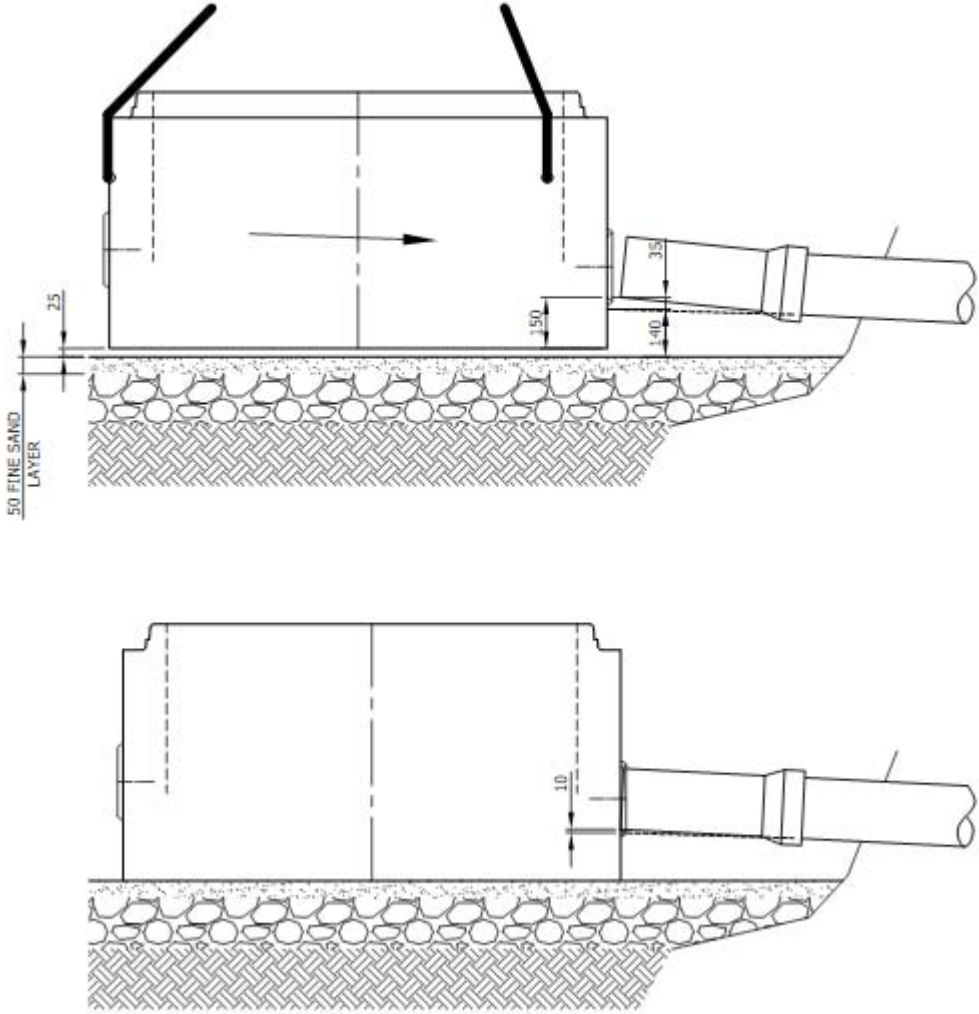
Lifting

Each unit is fitted with 3No 2.5t button headed lifting anchors at 120°. Stanton Bonna are able to supply certificated lifting assembly consisting of appropriate clutches and webbing slings plus wear sleeves.

Installation

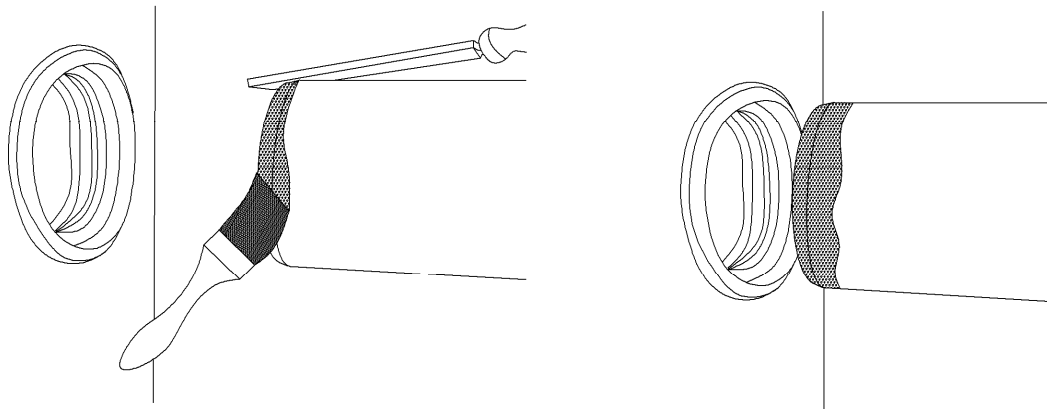
Users are recommended to refer to the BPDA guide to Precast Concrete Drainage Systems for information on the design and installation of drainage products. Additional and specific installation requirements are as follows.

- Units should be lifted using proprietary lifting clutch, SWL 4500kg as supplied by Stanton Bonna. Please refer to Stanton Bonna information on Manhole handling.
- Units should be stored on flat level ground, base down.
- Avoid contamination from ground adhering to the unit as this will need to be removed prior to installation.
- Units should be laid on a prepared level foundation of adequate bearing capacity. A 50 mm layer of fine sand is recommended between the foundation and the unit.
- Particular care should be taken to ensure the units are installed level, having regard for the inlet and outlet connection and the build of the manhole above.
- Set top of fine sand layer 140mm below invert of out going pipe.
- Temporarily raise out going rocker by 35mm.
- Suspend base unit 25mm above fine sand layer and joint on to rocker.
- Remove any temporary packing and lower base on to fine sand layer.
- The additional 10mm fall on rocker will allow for any subsequent settlement.
- The outlet is marked on the unit internally.



Jointing of Connections

- Pipes to be jointed into the manhole base connections should be cut cleanly square, sharp edges removed and edges chamfered.
- The connecting pipe should be lubricated with Stanton Bonna pipe jointing lubricant. Lubricants not specifically designed for pipe jointing must not be used as they may compromise the durability of the seal.
- The connection seal joint is a push fit joint and pipes should be pushed concentrically and squarely into the seal so that the end of the pipe is approximately flush with the inside of the manhole. The pipe manufacturers recommendation for joint gap with any benching, should be respected.



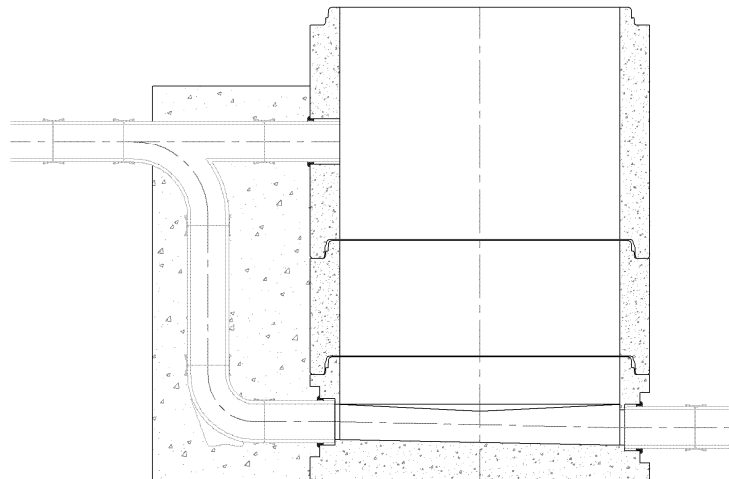
- The completed connection should be checked to ensure the pipe is concentric within the seal and the seal is in its correct position.
- Except where required to be cast into an in-situ concrete surround, jointed pipes should be checked to ensure they remain flexibly jointed into the manhole base.
- If the seal is removed and has to be replaced, push the seal back into the hole from the outside of the manhole without using lubricant.

Backdrops

Backdrop details can be accommodated in the Manhole System.

The high level connection into the chamber can be accommodate using a core drilled hole and gasket in a similar way to the connections into the base unit.

However care needs to be taken to ensure the high level connection is positioned so as to avoid the gasketed joint between the chamber units.



Flotation

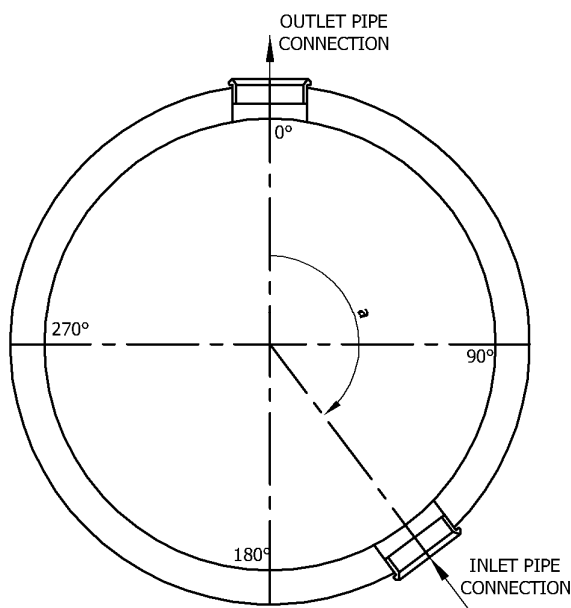
The following table gives the maximum overall construction depths for the Manhole System backfilled with selected as dug material or MoT Type 1 material:

	Backfill material	
	Selected as-dug backfill	MoT type 1 Backfill
DN1200	2.75m	6.00m
DN1500	3.25m	5.25m

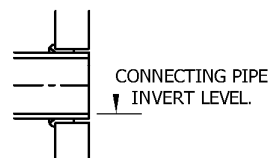
The above figures assume the water table is at ground level.

WATERTIGHT MANHOLE BASE ORDER SCHEDULE

CUSTOMER NAME:							
CONTRACT NAME:							
ORDER NUMBER:							
MANHOLE REF:					MANHOLE DIA:		
TYPE OF BASE:	UNBENCHED:		BENCHED:		WITH STEPS:		WITHOUT STEPS:



PLEASE MARK STEP CENTRE LINE POSITION



Connection	Angle α (degrees)	Connecting Pipe				Height above outlet (mm)
		DN	Ref	Material	Ext Dia	
0 Outlet						0
1 Inlet						
2 Inlet						
3 Inlet						
4 Inlet						
5 Inlet						
Step				~		~

* Height above outlet is height of inlet invert above outlet invert

COMPLETED BY:	NAME:	DATE:
	CONTACT PHONE:	COMPANY:

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