

Instructions for Lifting and Handling Concrete Pipes and Manhole Products

PD 64 rev C

01/11/13

See also:

PD 38 Lifting Instructions for DN 2000, DN 2200 & DN 2400

PD 52 Instructions for use of DN 1200 & DN 1500 Jacking Pipe Lifting Bolts

PD 76 Instructions for the use of the Stanton Bonna Pipe Lifter

PD 46 Installation Instructions for Circular Trench Pipes

PD 72 Webbing slings for use with Stanton Bonna small and medium diameter pipes.

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Scope

This product data sheet contains general information on handling and lifting DN300 – DN2400 concrete trench pipes together with handling and lifting information on DN900 – DN3000 traditional manhole rings.

Supplementary information may be found in:-

- PD 38 Lifting instructions for DN2000, DN2200 and DN2400 pipes
- PD 52 DN1200 and DN1500 Jacking pipe lifting eyebolt
- PD 76 Instructions for the use of Stanton Bonna Pipe Lifter
- PD 46 Installation instructions for Integrated Gasket Pipes
- PD 72 Webbing slings for use with Stanton Bonna small and medium diameter pipes

General

Deliveries are usually made of 28 tonne loads. The receiver is responsible for all off-loading. Handling operations with chain sets are primarily for off-loading and installing. Units must not be transported over long distance or on uneven ground, as the increase in dynamic load and uncontrolled movement of the units is likely to cause damage. If units cannot be off-loaded adjacent to where they are needed. Consideration should be given to using a trailer or pipe lifter (in the case of pipes).

Circular Pipe Handling

Handling and Storage

- > Use of correct off-loading equipment on site is essential to ensure a safe, rapid operation and to avoid damage to pipes.
- > For all pipe sizes Stanton Bonna can provide, CE marked Pipe Lifters. See product data sheet PD72 for further details.
- > For lifting DN1400 to DN2400 pipes cast-in anchors are provided for use with lifting chains.
- > For DN300 – DN1200 pipe sizes broad fabric slings may be used.
- > Alternatively a properly designed ‘C’ beam bay be used.
- > Pipes should not be lifted by chains passed through the bore.
- > Pipes should not be dropped or subjected to impact
- > Where loose gaskets are supplied as with RR and SG gaskets they must be stored without ties and protected from sunlight, oil, grease and heat.
- > Full length pipes should be stacked neatly on level ground on wooden chocks up to the height stated in the table.
- > Rocker pipes may be stored as the top layer of a stall of same size full length pipes or separating in one layer.

Circular Pipes Storage Data	
DN	Max. No. of Layers
300 - 375	4
450 - 600	3
675 - 900	2
Above 900	1

2. Lifting Chains with cast in anchors

The lifting and jointing system, when used in conjunction with pipes DN 1400 and above, offers these major advantages

Safe Handling

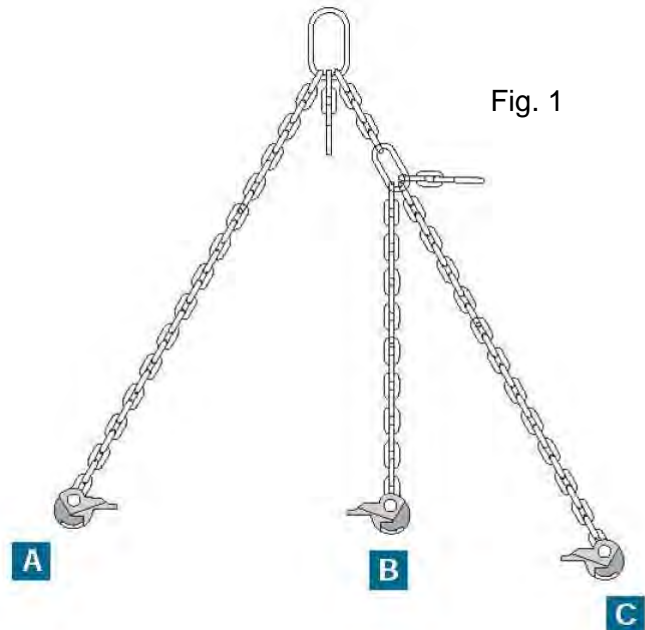
The lifting eyes engage securely and provide a horizontal lift every time. Once engaged, the lifting eyes cannot disengage under load.

Speed

Off-loading, site handling and pipe jointing is much faster than with traditional tackle and no weight balancing is required.

Cost Effective

Compared to traditional methods, the speed, safety and pipe laying efficiency of the system generates savings in time, plant and labour.



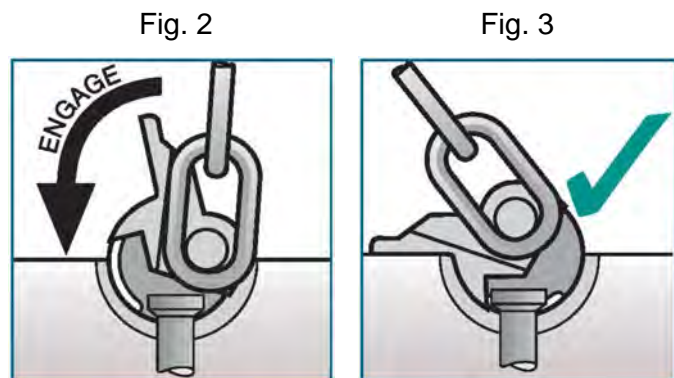
1. The Chain Set

The system comprises lifting anchors cast into the pipe wall and special three legged chain set (Fig.1) with lifting eyes which connect to the anchors for lifting and jointing operations.

2. Engaging the eye

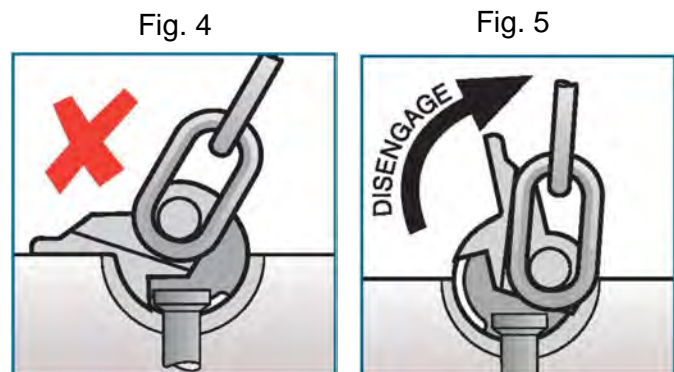
To engage a lifting eye with a lifting anchor simply place the eye opening over the anchor head and rotate the eye tail until it touches the pipe surface.

Correct engagement of the lifting eyes is essential prior to any lifting or jointing operation and the spare lifting eye should be secured to a shortening clutch to avoid accidental damage or injury.



3. Correct Lifting

Engage the eye and lift as shown in Fig. 3 not as in Fig. 4.



5. Disengaging the eye

To disengage a lifting eye, slacken the chain set and rotate the eye tail away from the pipe surface until the eye can be lifted off the anchor head (Fig. 5).

6. Lifting and Handling

Position the crane's top guide pulley centrally between the lifting anchors and engage chain A with the socket end anchor, B with the spigot end anchor and secure C to its shortening clutch (Fig. 6). During lifting the included angle between chains must not exceed 60°.

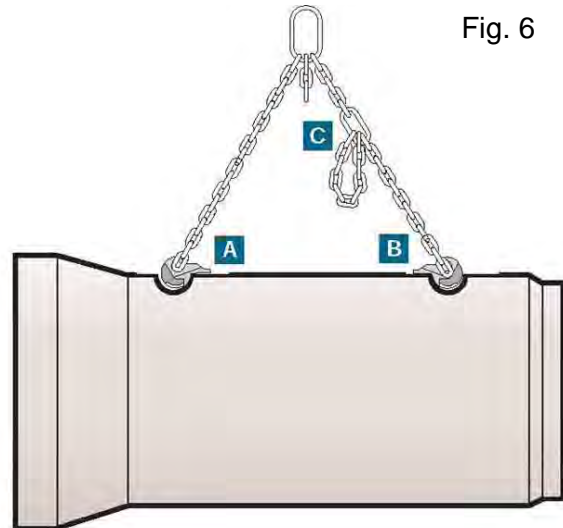


Fig. 6

To facilitate off loading DN1400 – DN1800 pipes are fitted with 3No lifting anchors. This enables the anchor to be presented at a lower level so that the lifting clutches can be attached without having to climb a ladder from the delivery trailer bed.

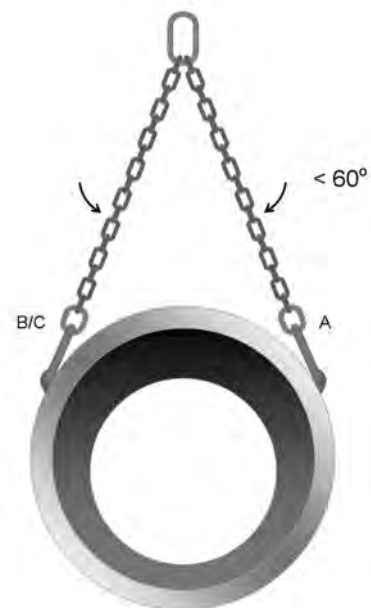
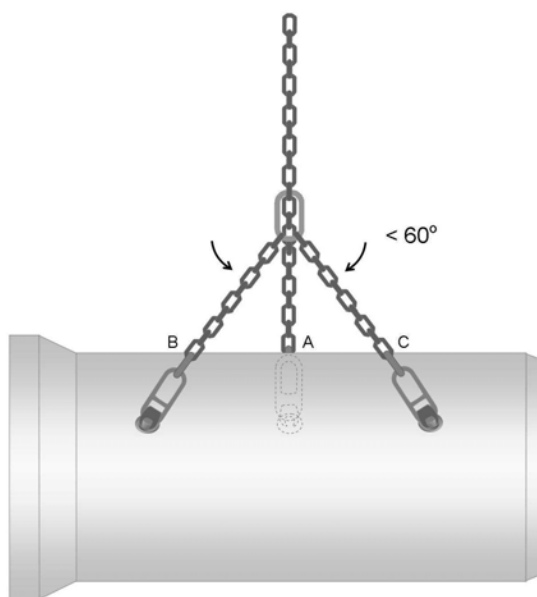
Using the Stanton Bonna 3 leg chain set

Attach chain legs B and C to the in-line pair of anchors. The length of leg B and C must be equalised and the included angle must not be greater than 60°.

Equalise the length of chains to that of the B and C combination. Attach chain leg A to the isolated anchor.

The included angle at the master link between leg A and the leg B & C combinations must be less than 60°.

Under no circumstances shall the pipe be lifted from the isolated single anchor alone.



Anchor Recesses

Before backfilling, clean and make good anchor recesses flush to the pipe barrel surface with epoxy or polyester resin or a 1:3 cement sand mortar proportioned by mass.

General Advice

The Management of Health & Safety at Work Regulations 1999, requires employers to carry out risk assessment of hazards and to identify the control measures needed to reduce risks to an acceptable level and comply with other health and safety legislation.

The Lifting Operations and Lifting Equipment Regulations 1998, requires employers to ensure that all lifting such as the unloading of concrete products are all properly planned by a competent person, appropriately supervised and carried out in a safe manner.

Users should have a current test certificate and certificate of examination as appropriate and should check equipment daily for obvious damage before use. If equipment is subjected to excessive shock load or abuse it should be taken out of use, re-examined and tested.

Junctions, bends, rocker and butt pipes require jointing by traditional methods. Rocker and butt pipes may be lifted using the single cast in anchor.

Manhole and Cover Slab Handling

- > Chamber rings must not be lifted by attached lifting equipment to steps.
- > Chamber rings should be lifted with suitable lifting equipment for example chains and quick release lifting eyes which are available on request.
- > Lifting holes are 40mm dia for DN900-1500 chamber rings, 45mm for DN 1800-2100 rings and 50mm for DN 2400-3000 rings.
- > Chains should be attached to lifting eye on the inside of chamber rings and the chain angle should not exceed 45° to the vertical.
- > Chamber rings should be stored vertically to prevent them from rolling or toppling.
- > Slabs are manufactured with three lifting eyes and should be lifted level and individually using suitable three legged chains.
- > Slabs should be stored flat, right side up on suitable timber bearers at stack heights not exceeding those detailed below.

Slab Stacking Data		
DN	Max. No. of Slabs per Pack	
	Storage	Lifting
900 - 1200	5	1
1350 - 1500	3	1
1800	3	1
2100 - 3000	1	1

Lifting Equipment

Quick release lifting eyes and chains are available to enable rapid handling and jointing of manhole chamber rings.

All lifting equipment is supplied having been tested in accordance with the Construction (Lifting Operations) Regulations 1961.



Concrete Product Weights

Pipes

Nom Dia	300	375	450	525	600	675	750	800	900
Full Length (kg)	425	505	710	950	1215	1275	1500	1650	2025
Rocker (kg)	135	155	225	300	375	650	750	775	925

Nom Dia	1050	1200	1400	1500	1600	1800	2000	2200	2400
Full Length (kg)	2700	3500	4550	5300	5580	7100	8700	10400	11200
Rocker (kg)	1250	1550	2275	2700	2800	3600	-	-	-

Manholes and Soakaways

Nom Dia	900	1050	1200	1350	1500	1800	2100	2400	2700	3000
kg/m	520	680	875	1025	1215	1730	2185	2700	3350	3950

Manholes Cover Slabs

Nom Dia	900	1050	1200	1350	1500	1800	2100	2400	2700	3000
kg/m	220	335	480	655	855	1570	2165	2855	3660	4535

Manholes Reducing Slabs

Nom Dia Chamber	1200	1350	1500	1800	2100	2400	2700	3000
kg/m	525	650	850	1575	2175	2900	3875	4350

Corbel and Adjusting Units

Unit Type	Adjusting	Adjusting	Adjusting	Adjusting	Adjusting	Corbel
Access Size	600 x 600	675 x 675	750 x 600	750 x 750	1200 x 675	600 x 600
kg	70	80	125	135	160	140

PLEASE NOTE: All weights are approximate. Customer should ensure that lifting equipment has sufficient capacity to allow for variation.

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