

VANSTONE PRECAST (PTY) LTD

PRECAST CONCRETE THREE-PIECE LIGHT MANHOLE / DRAW BOX
FOR TELECOMS INSTALLATIONS

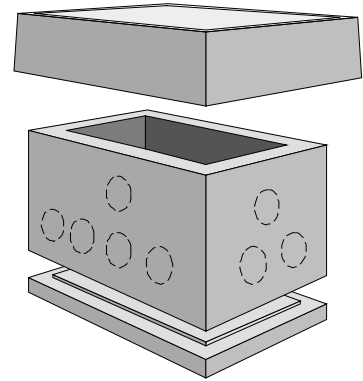
600 x 450 x 600 mm

SPECIFICATION

Update 2: January 2011

Introduction

The Light Manhole is a 600 x 450 x 600 mm high (internally) precast concrete manhole or draw box suitable for underground telecoms services. It comes equipped with any number knock-out holes of size and arrangement to suit the customer. The attached drawings show the standard knock-out arrangement.



The lid nominal opening is 600mm x 450mm. Available lids types are i) Light duty cast iron lid and frame cast-in, ii) Reinforced concrete lid or iii) Steel checker plate hot dipped galvanized lockable lid.

The Light Manhole is supplied in a three-piece kit including a floor, a ring wall and a cover frame.

Design

The walls and floor of Light Manhole has been designed in accordance with SABS 0100-1 2000 "The structural use of concrete" to safely withstand a static wheel load of 50 kN (5 tonnes) evenly distributed over an area of 200 x 150 mm. Lid only design loads are:

- i) Cast iron – light duty no guarantee;
- ii) Reinforced concrete – 50kN (5t: Truck single wheel);
- iii) Steel – 10kN (1t: Ldv single wheel)

The following design criteria were used:

Limit state of design:	Ultimate
Imposed load:	50kN / 10kN static vertical wheel load on lid over 200 x 150 mm area.
Load factor:	1.6
Material safety factors:	Steel 1.15; Concrete 1.5
Analysis:	Static, simply supported
Concrete strength	30 Mpa
Reinforcing:	High tensile main reinforcing to SABS 920

Dimensions

External:	Height	655 mm
	Length	680 mm
	Width	530 mm

Internal:	Depth	600 mm
	Length	600 mm
	Width	450 mm

Components list

Floor:	680 x 530 x 50 mm
Ring wall:	680 x 530 x 430 mm
Lid frame:	758 x 610 x 200 mm
Holes / knock-outs:	Number and size as required by the customer. Services entrances can be either holes through the walls where unused holes have to be plugged or knock-outs where only the holes that are needed are knocked out.

Lifting of lid:

- i. Cast iron. Standard slots,
- ii. Reinforced concrete. Two ventilated slots,
- iii. Steel. Lifting handle and disengage-able hinges.

Other: Any other equipment to customers' requirements like unistruts, security bolts etc. may be supplied as optional extras.

Installation

The total external height of the manhole is 650mm. It is often preferred that the rim of the manhole project above the ground or paving by at least 75mm. This determines the depth of excavation. Excavate for the manhole and over-excavate for the sides sufficiently to allow for compaction equipment. Where sufficient accuracy of excavation can be achieved, only slight over excavation is required. This may be backfilled with a cement stabilized gravel or mass concrete if preferred.

Backfilling should always be at least as strong and serve the same purpose as the surrounding soil. To aid the drainage of occasional rain water, a subsoil drain may be installed under the manhole. This may be in the form of a small sump under the centre hole that can hold extra water or a system that drains water away from the manhole. Simply over-excavate to the size required and fill with any constant size crushed stone.

In the bottom of the excavation, prepare a true and level 50mm thick bed of riversand, crusher sand, fine clean gravel (particle size < 10mm) or cement stabilized topping material. Place the manhole base or floor carefully on the bed ensuring proper and even seating. Place the wall section on the base, ensuring that it is the right way up when looking at the service holes. Use a thin layer of cement mortar between the walls and the base if seating is not snug. Place the lid section on top of the walls and make sure that the walls penetrate into the recess at the bottom of the lid and is not half-in, half-out. The manhole can now be used to install sleeves, cables and other services. Full water tightness is not achievable.

Knocking out of holes:

Use a light ball head or ball-pein hammer of no more than 1½ lbs. Identify the hole to be knocked out by looking on the inside. Put one hand over the hole. Now locate the hole's corresponding outside position by placing the



other hand on the outside of the wall directly over it. Mark if necessary. Start tapping from the outside with the ball of the hammer as close as possible to the centre of the hole. The taps should be light and repeatedly on the same spot until penetration occurs. Carefully enlarge the hole from the centre out until it is complete. DO NOT use force, a heavy hammer or knock the hole out from the inside.

Attachments

- Drawing showing panel type manhole and an arrangement of knock-outs. Any arrangement is possible.

Contact

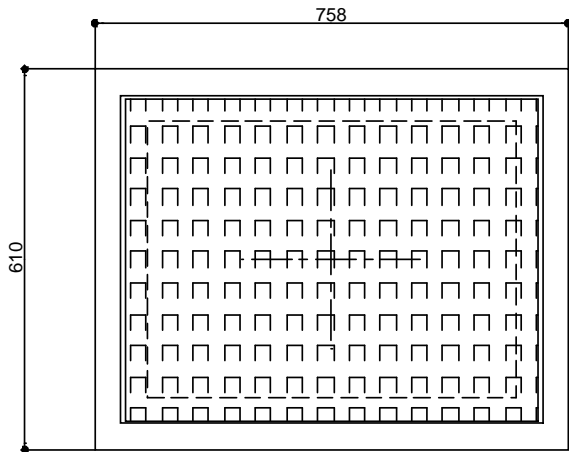
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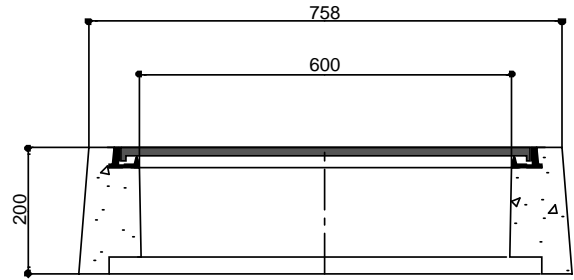
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Visit: www.vanstone.co.za

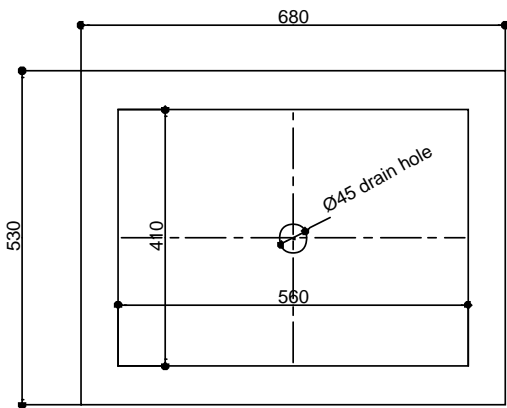
E-mail: pvheerden@vanstone.co.za



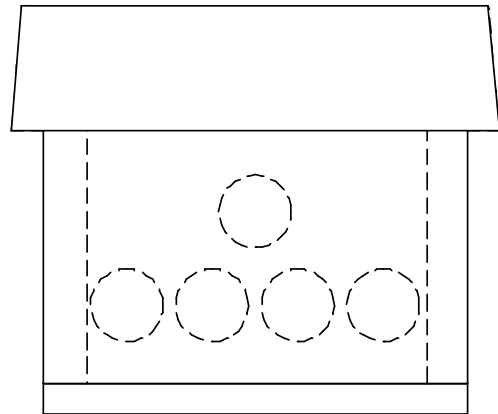
PLAN - TOP FRAME



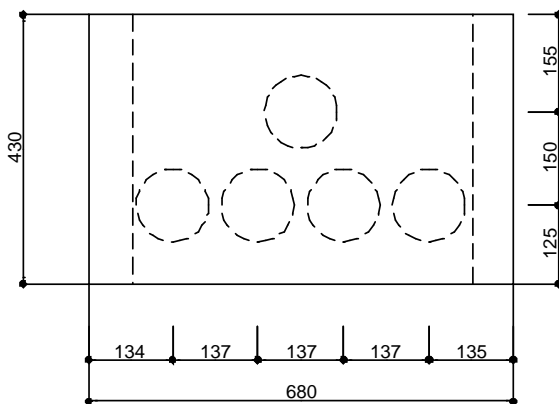
SECTION THROUGH TOP FRAME



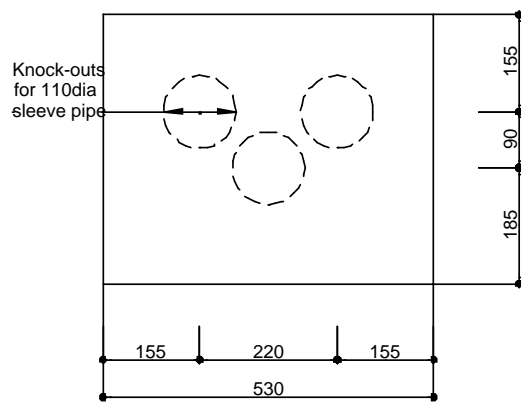
PLAN - WALLS



ELEVATION



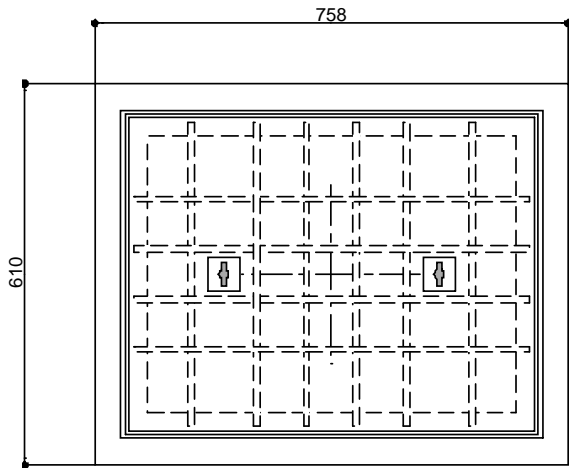
ELEVATION - LONG SIDE



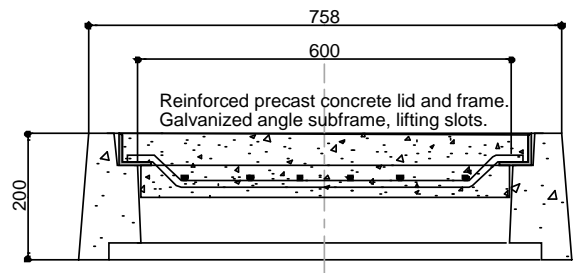
ELEVATION - SHORT SIDE

600 x 450 3-PIECE PRECAST MANHOLE - CAST IRON LID

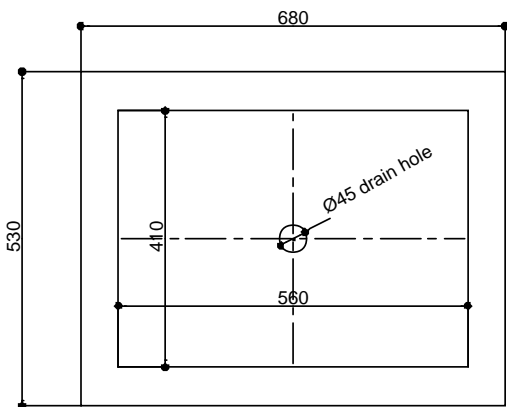




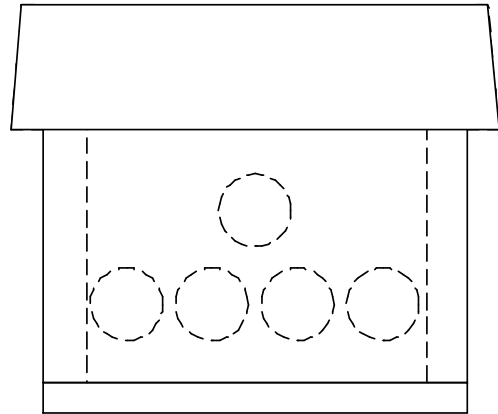
PLAN - TOP FRAME



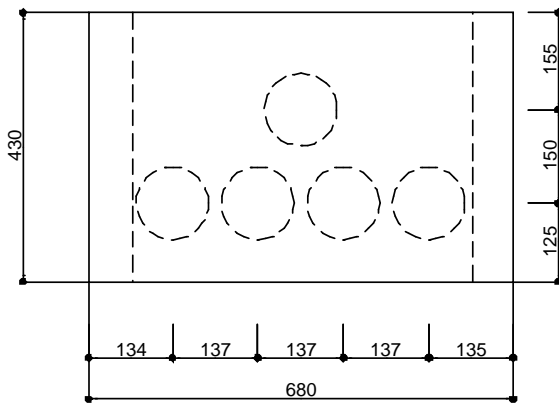
SECTION THROUGH TOP FRAME & LID



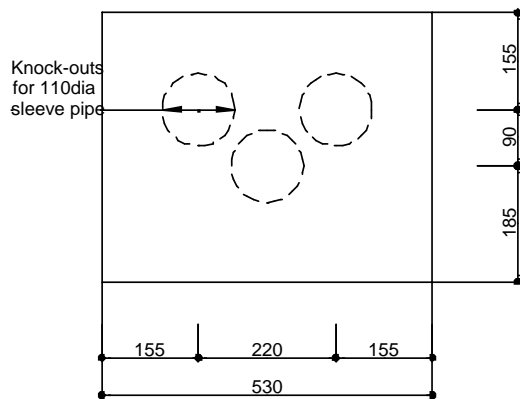
PLAN - WALLS



ELEVATION



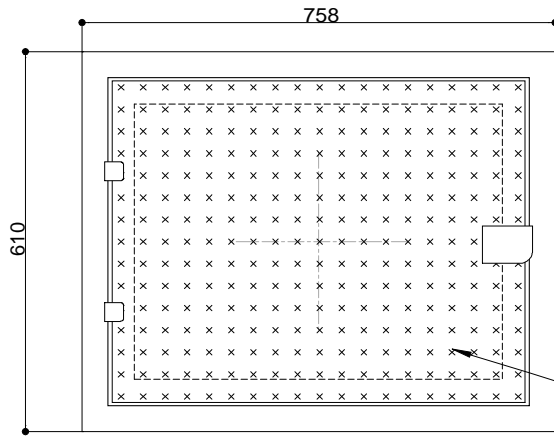
ELEVATION - LONG SIDE



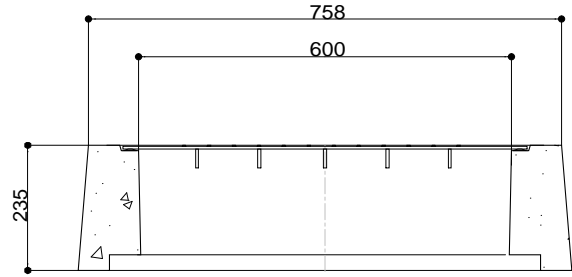
ELEVATION - SHORT SIDE

600 x 450 3-PIECE PRECAST MANHOLE - CONCRETE LID



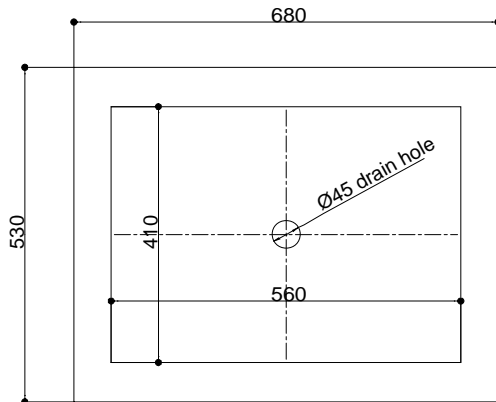


PLAN - TOP FRAME AND LID

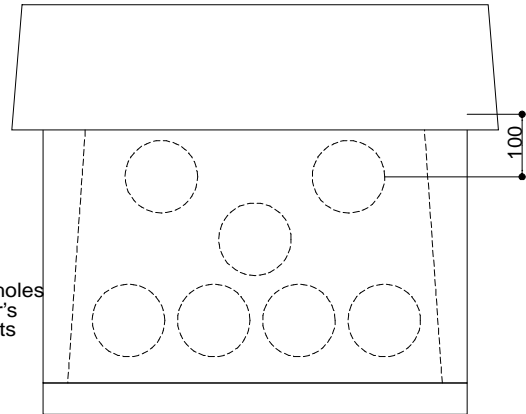


SECTION THROUGH TOP FRAME AND LID

Checker plate lid hot dipped galvanized lockable with lifting handle and two disengage-able hinges.

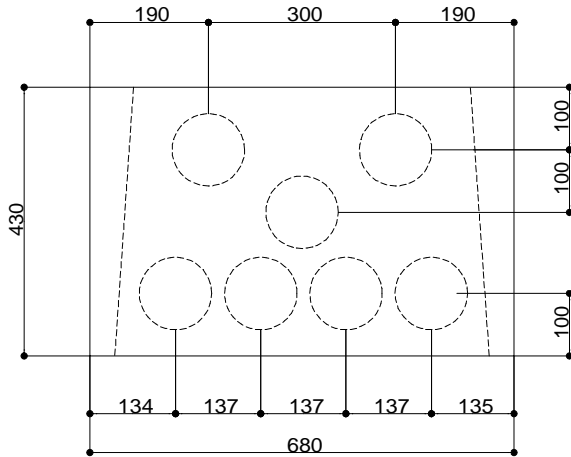


PLAN - WALLS

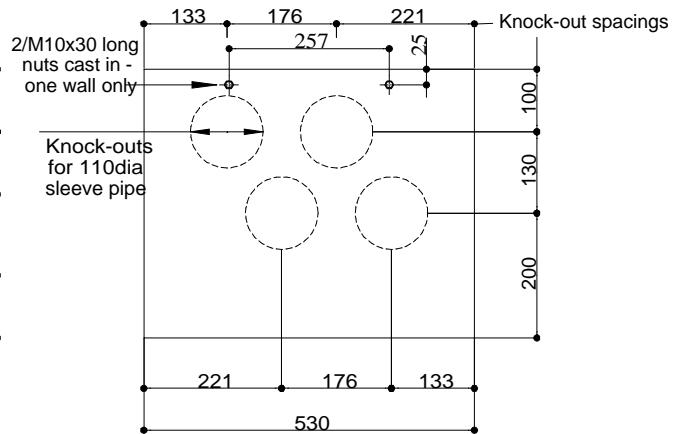


ELEVATION

Knock-out holes to customer's requirements



ELEVATION - LONG SIDE



ELEVATION - SHORT SIDE

2/M10x30 long nuts cast in - one wall only

Knock-outs for 110dia sleeve pipe

600 x 450 3-PIECE PRECAST MANHOLE - LOCKABLE STEEL LID

