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## **TECHNICAL BROCHURE**



***SMS AXEDO 600 MAINTENANCE CHAMBER***



## **SMS AXEDO 600 MAINTENANCE CHAMBER TECHNICAL BROCHURE**

SMS (SEWER MAINTENANCE SHAFT) Pty Ltd is a wholly owned Australian company established in 2003 to manufacture and supply specialist products to the water industry. A Quality Endorsed Company, complying with AS/NZS ISO 9001, SMS has its office and factory at 11 Garden Boulevard, Dingley, 3172, a south eastern suburb of Melbourne, Victoria. SMS company principles have extensive experience and expertise in development of innovative products for the Australian water industry. The SMS Polypropylene MS range has a new recently published WSAA appraisal (No PA13/17) demonstrating compliance with current industry standards. SMS has demonstrated compliance with WSAA and industry standards with product appraisals published in 2004 and 2010. The SMS Polypropylene range of Maintenance shafts are currently the only maintenance shafts in Australia with Water Mark Certification. The Axedo 600 maintenance chamber is the latest addition to their product range. For more information visit the SMS website at [www.sewerms.com.au](http://www.sewerms.com.au)

### **Safety in confined spaces**

One of the key drainage issues which must always be considered by contractors, installers and maintenance engineers is that of the health and safety of employees and operatives.

OH&S defines a confined space as: "A confined space is a place which is substantially enclosed (though not always entirely) and where serious injury can occur from hazardous substances or conditions within the space or nearby (e.g. lack of oxygen)".



**AXEDO 600 BASE UNIT**

**(Not designed for human entry)**

### **Axedo 600 – the safe solution**

The Axedo 600 Maintenance Chamber is designed to be installed at depths of up to 6m and comprises of a base unit available in various channel configurations, with a 600mm riser shaft with a plain white liner, sealing ring and sealed polyethylene cap.

The shaft is finished at surface level with an AS 3996 Class B or Class D cover with independent support. The Axedo 600 base unit is available with AS/NZS 1260 compliant deflection sockets in 150mm, 225mm sizes accommodating up to 7.5° angular movement in all directions (see below). Pipeline design and layout can also be accommodated with the use of long radius sweep bends and inlet reducers. Applications include use as demarcation chambers or main sewer or drainage water Maintenance Chambers.



**7.5° ANGULAR MOVEMENT**



### **Ease of installation**

The AXEDO 600 Maintenance Chambers are perfectly suited to manual handling (each base unit is 25kg or less) Riser shafts may require mechanical handling depending on size and DN 600 access covers will require mechanical handling. Installation of the Axedo 600 will be quicker than the installation of traditional products. This results in a considerable cost saving.

The AXEDO 600 has flat bottom to ensure good stability during installation.



### **Leak tightness**

The leak tightness of access structures is important to prevent:

- Pollution of soils and water tables and
- Infiltration of ground water adding costs to operation of treatment plants.

The Axedo 600 Maintenance Chambers have elastomeric seals to provide the same water tightness properties as PVC pipe and comply with pressure or vacuum testing requirements for sewer and drain installation

### **Adaptability**

SMS technical support is on hand to assist with your project.

Simply call 1300 482 228.

### **Chemical inertia, resistance to corrosion**

The polypropylene materials provide excellent resistance to various chemical compounds.

The AXEDO 600 Maintenance Chamber is effective against corrosive attacks:

- Externally: from aggressive soils,
- Internally: from the fluids conveyed, in particular hydrogen sulphide (H<sub>2</sub>S) and sulphuric acid (H<sub>2</sub>SO<sub>4</sub>) which may be given off by the effluent.

### **Resistance to live loads**

The installation of the access cover is separated from the Maintenance Chamber riser and cap. The access cover is supported on beams to bear on undisturbed ground or cement stabilised embedment material or a reinforced concrete slab bearing on ground external to the trench.

This will enable the operating surface loads applied to the cover to be transmitted external to the riser and backfill material and a physical gap maintained between the underside of the access cover and the top of the AXEDO 600 riser cap.

### **Ease of inspection**

The flow profile of the AXEDO 600 Maintenance Chamber facilitates the use of cleaning and inspection tools.

### **Ease of maintenance**

The smoothness of the injection moulded polypropylene materials that make up the flow profile and the white liner of the riser shaft provides good visibility and a clean surface to resist adherence of sewage material. Operational maintenance of the AXEDO 600 Maintenance Chamber is easier and quicker than is the case with structures made of traditional materials.

## Recycling

Polypropylene is a thermoplastic material. It is therefore completely recyclable, as are the other thermoplastics used in the drainage and water supply systems (PVC, PE).

## Quality (ISO system and standards)

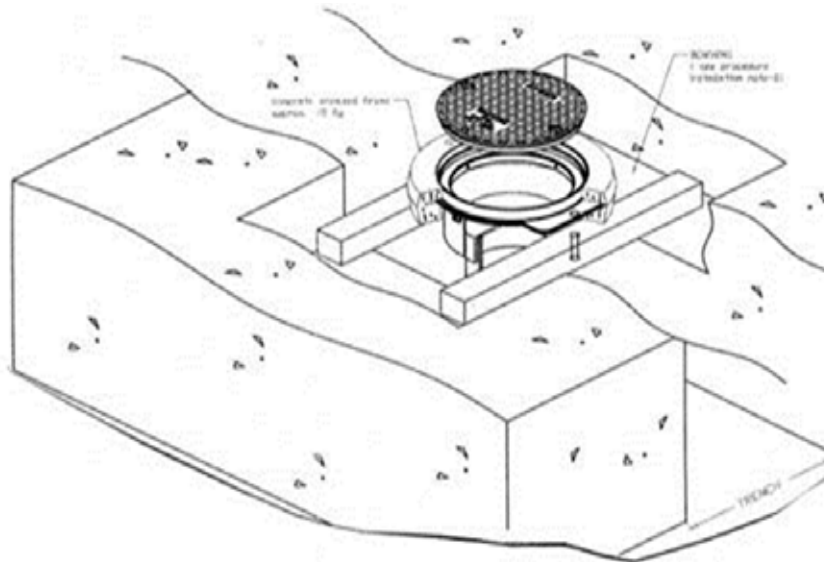
The AXEDO 600 Maintenance Chambers are produced in ISO 9001: 2008 and ISO 14001 certified factories. These products have been made to the European standards EN 13598-1, EN 13598-2 and EN 476 and comply with Australian Industry Standard WSA-137:2013.

## Components:

See opposite numbered from the bottom up.

1. Base Unit
2. 600mm rubber sealing ring
3. Riser Pipe - (Vinidex Storm Pro twin wall – white liner) **THE SYSTEM IS DESIGNED TO UTILISE ONLY THE VINIDEX STORM-PRO 600MM TWIN WALLED PIPE. AND VINIDEX SEALING RING**
4. 600mm rubber sealing ring (Cap)
5. Cap - (Available in 300mm and 500mm clear opening)
6. Lid - rubber sealing ring
7. Lid – (300mm or 500mm clear opening)
8. Shroud
9. (Not shown – see next page for assembly) Recycled plastic or concrete bearers or (compacted mix of crushed rock and concrete as specified by authority)
10. Concrete surround for DI Cover.
11. Class B or Class D cover and frame





### **SURFACE FITTINGS ASSEMBLY**

The above schematic shows: - from the top down

- The ductile iron access cover
- The ductile iron access cover frame
- The access cover concrete surround (optional)
- The Recycled plastic or concrete bearers
- Shroud



## **INSTALLATION**

### **Excavation**

Inspect the excavated trench floor for rock outcrops and soft and loose areas. Take appropriate action to ensure that the Maintenance Chamber will not be subject to differential settlement in the future. Where rock outcrops are present, trim the trench floor and fill and compact with granular material to restore the design trench floor level limits. Treat soft and loose areas as specified by the water agency.

The general dimensions of the Maintenance Chamber excavation area should be at least 300mm wider than each side of the Maintenance Chamber to enable access to conduct the following operations:

- Embedment, backfilling and compacting with appropriate equipment and
- Connection of pipes.

In all cases, the installation drawings and local water agency requirements are to be complied with.

### **Bedding the Axedo 600 Maintenance Chamber**

Remove all debris and water before bedding material is placed.

The bedding shall be granular material:

- Embedment sand (WSA-PS-360) or
- 5mm minus crushed rock-(WSA-PS-361)

The bedding shall be placed flat and horizontal with a minimum thickness of 100mm.

### **Installation of Axedo 600 Maintenance Chamber**

Before installation, the base component will be prepared as follows:

- Check if the seal(s) are clean,
- Lubricate the seal(s),

Installation of the Axedo 600 base component:

- Set the Axedo 600 base unit level into the prepared compacted bedding.
- Ensure pipes to be connected are correctly chamfered and swarf removed.
- Lubricate the male ends with pipe jointing lubricant prior to jointing.
- Joint pipework, bends or reducers as necessary, using the angular deflection up to  $\pm 7.5^\circ$  available in Axedo 600 sockets for perfect alignment.
- Close off sockets that that will not be used with socket plugs.



## Embedment of the Axedo 600 Maintenance Chamber

The Axedo 600 Maintenance Chamber complete with all pipeline attachments shall be embedded up to the base of the riser socket using the granular bedding material described above. The embedment shall be compacted around the Maintenance Chamber to stabilise it prior to installing the riser shaft.

Embedment material shall be placed and compacted evenly around the Maintenance Chamber base to prevent displacement. Care shall be taken to place and compact the embedment material evenly around the base in 150mm layers and to avoid unbalanced lateral loading.

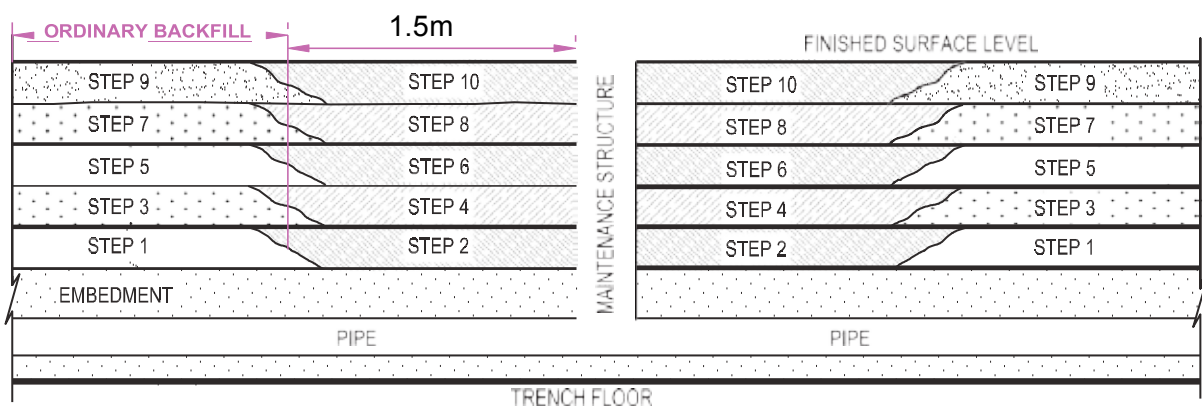
## Installation of the riser

The riser pipe is Vinidex DN 600 Storm-Pro corrugated polypropylene pipe and shall be installed vertically as follows;

- Position the sealing ring in the pre-cleaned first full corrugation of the Storm-Pro pipe then lubricate the ring outer surface with pipe jointing lubricant.
- Once the shaft is positioned onto the base mechanical assistance can be used to gently push the shaft and sealing ring fully into the base to create the watertight seal. Ensure a wooden block or similar is used to protect the shaft from damage and push vertically.
- Locate the riser shaft vertically and apply a structure to hold it in the vertical position for backfilling.
- Cut the riser pipe between 200mm and 300mm below the finished surface level.

## Backfilling the riser

- The backfill shall be granular material as described above.
- The backfill shall be placed and compacted evenly around the shaft to prevent displacement.
- Care shall be taken to place and compact the backfill evenly around the structure in 150mm / 300mm layers, to avoid unbalanced lateral loading.
- High compactive effort shall not be used against the riser pipe to ensure damage is prevented.
- All open trench within 1.5m of the perimeter of the riser shaft shall be backfilled as per the schematic diagram below.
- Backfill to a finished surface level around the riser pipe at three (3) corrugations below the top of the cut riser pipe.



**AXEDO 600 MAINTENANCE CHAMBER TRENCH BACKFILL SCHEMATIC ONLY**



## Installing the cap on the riser shaft

- Lubricate and install the rubber ring seal in the first full corrugation below the cut surface of the riser pipe.
- Push on the cap and lid assembly fully to stop. No mechanical assistance should be required.
- Place the 'shroud' over the riser pipe and lid assembly with the 800mm (large) opening at the base.

## Supporting structure for access cover

The access cover is installed independent of the maintenance chamber and riser pipe cap. In other words the access cover shall be installed at least 50mm clear of the top of the riser assembly to ensure no surface load is applied to the riser.

Key components of the access cover installation include:

- SHROUD - The PE shroud forms a barrier to the backfill material and ensures clean access to the pipe riser is maintained. The shroud should be installed to maintain a small clearance from the underside of the access cover.
- LOAD CLASS - Class 'B' access cover for non-trafficable installation areas.  
Class 'D' access cover for trafficable installation areas.
- ACCESS COVER SUPPORT – **Class 'B' installation** – SUPPORT BEAMS - CONCRETE or RECYCLED PLASTIC (minimum 75mm x 75mm) or cement stabilised crushed rock bedding for a Class 'B' access cover with a concrete surround – surface to suit.  
**Class 'D' installation** - a full concrete slab designed to suit the installation and the access cover cast in or on top with road surface to match access cover height.

## Access cover installation

- The supports are placed either side of the shroud and bear the full weight of the cover. See diagram page 5.

## Testing

**THE SMS AXEDO 600 MAINTENANCE CHAMBER CAP AND LID IS NOT DESIGNED FOR PRESSURE TESTING AND MUST NOT BE USED FOR THIS PURPOSE WITHOUT CONTACTING SMS.**

### Vacuum Testing

Where the test method is not specified, undertake a vacuum test. In this instance the Axedo 600 cap and lid can be used to seal against vacuum at the top of the shaft.

Apply a test vacuum (negative pressure) as specified by the Regulatory authority. Observe all safety practices and requirements during the vacuum test.

### Sales and technical support:

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