



**Engineering**

**Technical Standard**

# **TS 0504 – Authorised Products – Packaged Sewer Pumping Stations**

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**Government of  
South Australia**

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Only the current revision of this Standard should be used which is available for download from the SA Water website.

## Significant/Major Changes Incorporated in This Edition

This revision updates the August 2020 edition of TS 0504 Authorised Products – Packaged Sewer Pumping Stations. The clause numbers described below identify changes from version 1.2.

**Clause 1.1.1**

New clause - Compliance requirements added.

**Clause 1.3.1**

Standards table updated.

**Clause 1.3.2**

SA Water documents table updated.

**Clause 3**

Scope updated - sizes up to DN250.

**Clause 3**

Package pump station information updated.

**Clause 3.1**

New clause and manufacturer added - Wet well safety covers.

**Clause 3.2**

New clause and manufacturer added - Below ground valve chamber safety covers.



## Document Controls

### Revision History

Revision	Date	Author	Comments
1.0	8 April 2016	R Pearce	
1.1	11 August 2020	K Claridge	Refer Pg 2 for identified changes in this revision
1.2	15 March 2022	K Claridge	Refer Pg 2 for identified changes in this revision
1.3	15 Dec 2023	K Claridge	Refer Pg 2 for identified changes in this revision

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# 1 Introduction

SA Water is responsible for operation and maintenance of an extensive amount of engineering infrastructure.

This standard has been developed to assist in the design, maintenance, construction, and management of this infrastructure such that it is safe and fit for purpose. This document lists technically conforming products approved for installation within SA Water's infrastructure networks and the Safety in Design (SiD) process requirements for the pump station design and designs they are incorporated into.

The products listed have been approved after their evaluation based upon the SA Water product appraisal procedure.

Approved products shall only be obtained from the listed manufacturer or their authorised agent.

## 1.1 Purpose

The purpose of this standard is to detail minimum requirements to ensure that assets covered by the scope of this standard are constructed and maintained to consistent standards and attain the required asset life.

This document provides confirmation of products SA Water has authorised, based on their technical merits.

Product Manufacturers, suppliers and other stakeholders may also use the information as reference material.

### 1.1.1 Compliance Requirements

All pipes and fittings used for SA Water pressure applications, shall have a minimum pressure rating of PN 16.

All stainless-steel products shall comply with AS/NZS 4797, TS 0420 and TS 0730. Quality requirements and certificates are outlined in those standards.

The pump lifting chains shall be manufactured from 316L stainless steel (10 mm) that have been pickled and passivated and be manufactured to have a working load limit of 1.2t for all chains, shackles, and fittings.

- Shackles, D-rings, and other lifting components shall be rated and tagged.

The main load hook shall be fixed to the concrete just below lid level, and accessible, and a designated spot provided on the lid's handrail, to attach the slave chain to.

To protect the concrete against acid attacks, sewage and wastewater structures shall have an SA Water approved physical barrier (protective coatings or liner), in compliance with the requirements of note 6 (pg. 33) of TS 0710. The barrier shall cover the entire concrete surface above water level (including cover slab soffit) and extend to a minimum 500 mm below the low water level. The design life of the physical barrier shall comply with the requirements of TS 0109.

Pump station fencing requirements shall comply with TS 0121.

Clause 3.1 specifies approved safety covers and grates that shall be used.

## 1.2 Glossary

The following glossary items are used in this document:

Term	Description
SA Water	South Australian Water Corporation
SiD	Safety in Design
TG	SA Water Technical Guideline
TS	SA Water Technical Standard

## 1.3 References

### 1.3.1 Australian and International

The following table identifies Australian and International standards and other similar documents referenced in this document:

Number	Title
AS/NZS 1260	PVC pipes and fittings for drain, waste and vent (DWV) applications
AS/NZS 1665	Welding of aluminium structures
AS/NZS 2032	Code of practice for the installation of PVC pipe systems
AS/NZS 4797	Stainless steel chain for lifting purposes
AS 3996	Access covers and grates
WHS Act	Work Health and Safety Act 2012 (SA)
WSA PS 201	Ductile iron fittings for pressure and non-pressure applications

### 1.3.2 SA Water Documents

The following table identifies the SA Water standards and other similar documents referenced in this document:

Number	Title
TS 0101	Safety in Design
TS 112	Process and Instrumentation Diagrams
TS 0109	Infrastructure Design
TS 0132	Operating and Maintenance Manuals
TS 0121	Installation Standards for Physical Security
TS 0420	Welding Requirements (Metal)
TS 0500	Authorised Products - Water and Sewer Maintenance
TS 0502	Authorised Products – Gravity Sewer and Pressure Pumping Main Systems
TS 0503	Authorised Products – Water Systems
TS 0710	Concrete
TS 0730	Stainless Steel Durability, Fabrication & Erection

## 1.4 Definitions

The following definitions are applicable to this document:

Term	Description
SA Water's Representative	<p>The SA Water representative with delegated authority under a Contract or engagement, including (as applicable):</p> <ul style="list-style-type: none"> <li>• Superintendent's Representative (e.g., AS 4300 &amp; AS 2124 etc.)</li> <li>• SA Water Project Manager</li> <li>• SA Water Construction Technical Officer/Manager</li> <li>• Reticulation Networks Wastewater/Water Specialist</li> <li>• SA Water nominated contact person</li> </ul>
Responsible Discipline Lead	The engineering discipline expert responsible for TS 0504 defined on page 3 (via SA Water's Representative)
Constructor	The organisation responsible for constructing and installing infrastructure for SA Water whether it be a third party under contract to SA Water or an in-house entity.
Designer	The organisation responsible for designing infrastructure for SA Water whether it be a third party under contract to SA Water or a Constructor, or an in-house entity

## 1.5 Disclaimer

- SA Water reserves the right to alter, amend or withdraw this document, at any time, without prior notice.
- SA Water does not give preference to any particular make or type of product listed herein. Manufacturers are presented in alphabetical order, not in any order of preference.
- All products listed may be subject to change by the manufacturer. In such circumstances manufacturers are required to notify SA Water of any changes in the design, materials or manufacturing process of any approved product. SA Water is reliant upon manufacturers providing such notification in a timely manner and takes no responsibility for any issue that may arise should a manufacturer fail to do so.
- It is the responsibility of the Designer/ Constructor to ensure selected products are appropriate for the intended application.
- It is the responsibility of the Designer/ Constructor to ensure the product complies with the infrastructure category and meets the relevant Australian standards.
- It is the responsibility of the Constructor to ensure components do not exceed any expiry date.
- Product sizing may vary between manufacturers. Size range provided herein is a guide only and the Designer/ Constructor shall refer to the manufacturer for the product size and availability.
- Pipe and fitting sizing have been limited to DN250 throughout this document. Larger sizes are available from the manufacturer. However, consideration of any product not itemised herein is subject to SA Water approval.
- Information within this document is correct at time of publication. The date of publication of this document can be found on the front page, and in the left-hand corner of the footer on each subsequent page.



## 2 Scope

This document specifies products that are authorised for use in packaged sewer pumping stations, that are installed in sewer systems. It also outlines the Safety in Design (SiD) requirements to meet the WHS Act (2012) legislative requirements.

NOTE: Authorised products for use in pumping mains (from Pumping Stations) up to a maximum size of DN 250, are detailed in TS 0502.

### 2.1 Safety in Design

The WHS Act outlines the duties of Designers when designing plant, structures or substances. Approved products, and designs they are incorporated into, must go through the SA Water Safety in Design (SiD) process, as outlined in Technical Standard TS 0101.

It is the responsibility of the Designer/Constructor to ensure that the SA Water Safety in Design process has been followed in accordance with TS 0101, and that the corresponding information is provided. This includes, but is not limited to, the SA Water SiD hazard register and SiD (Safety) Report.

All package pump stations are to have a completed SiD Hazard Register supplied by the manufacturer/supplier, which shall be updated during the design of specific installations. If a packaged pump station is supplied without the relevant safety in design information, the designer must request the provision of safety in design information and/or complete it themselves. All packaged sewer pump stations are to be supplied with an operations and maintenance manual.

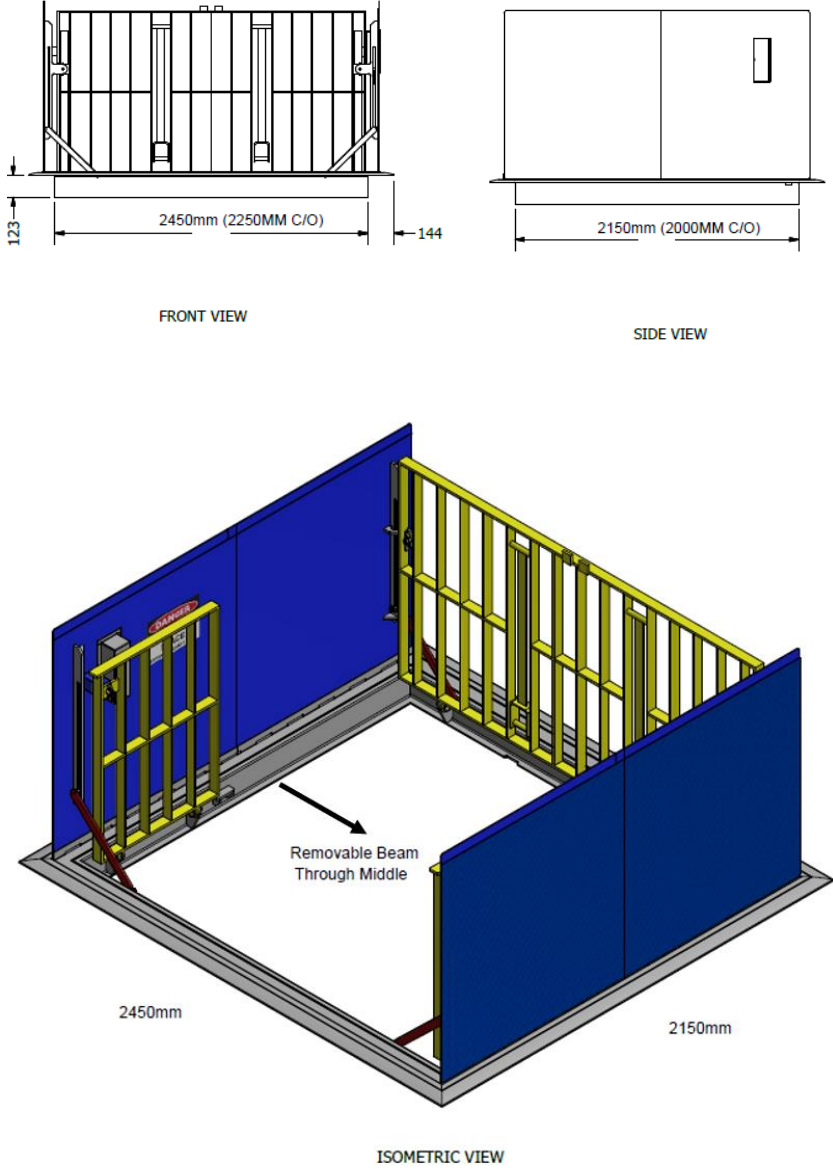
### 3 Package Pump Station Information

<b>All Fittings Shall Comply with Australian Standard</b>	Refer: SA Water Technical Standard TS 0502 (Authorised Products for Gravity Sewer and Pressure Pumping Main Systems)
<b>Specification</b>	TS 0109 TS 0710
<b>Notes</b>	<ul style="list-style-type: none"> <li>All package pump stations shall be in accordance with the Sewer Construction Manual (Section M), the Authorised Manufacturer Approved Drawing, and the Approved Design Drawings.</li> <li>Approved Supplier Pumping Stations come as a Package, inclusive of a concrete sump, separate concrete above ground valve assembly or below ground concrete chamber, electrical cabinet and vent.</li> <li>Pumping Stations Sump shall be installed complete with covers, mechanical plant and equipment, pump bases, guide rails, pipework, level control mechanisms, lifting chains and all ancillary items.</li> <li>Safety railing is a requirement.</li> <li>Stations installed in highly corrosion environments shall require all steel items installed inside chamber to be Grade 316 Stainless Steel or other non-corrosive materials as approved by SA Water. This includes the Pumps, Guiderails etc.</li> <li>Manufacturers are presented in alphabetical order. (Refer Disclaimer).</li> </ul>

#### 3.1 Wet Well Safety Covers

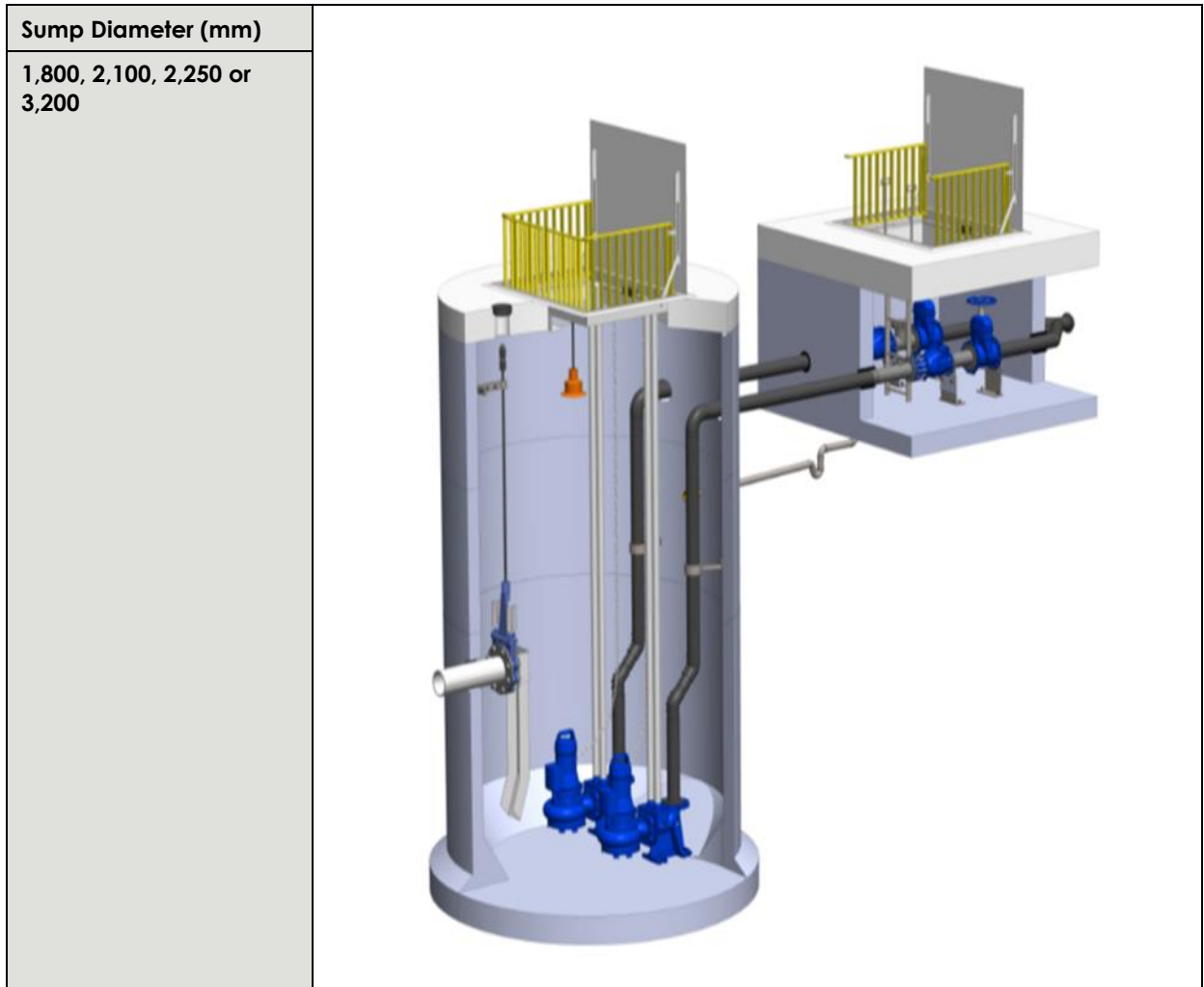
<b>All Fittings Shall Comply with Australian Standard</b>	AS 3996 - Access covers and grates AS/NZS 1665 - Welding of aluminium structures
<b>Specification</b>	FSP 1690 Dual layer safety grates and hatch lid
<b>Notes</b>  Dimensions 1580 X 880	
<b>Manufacturer</b>	<b>Austral International</b>

### 3.2 Below Ground Valve Chamber - Safety Covers

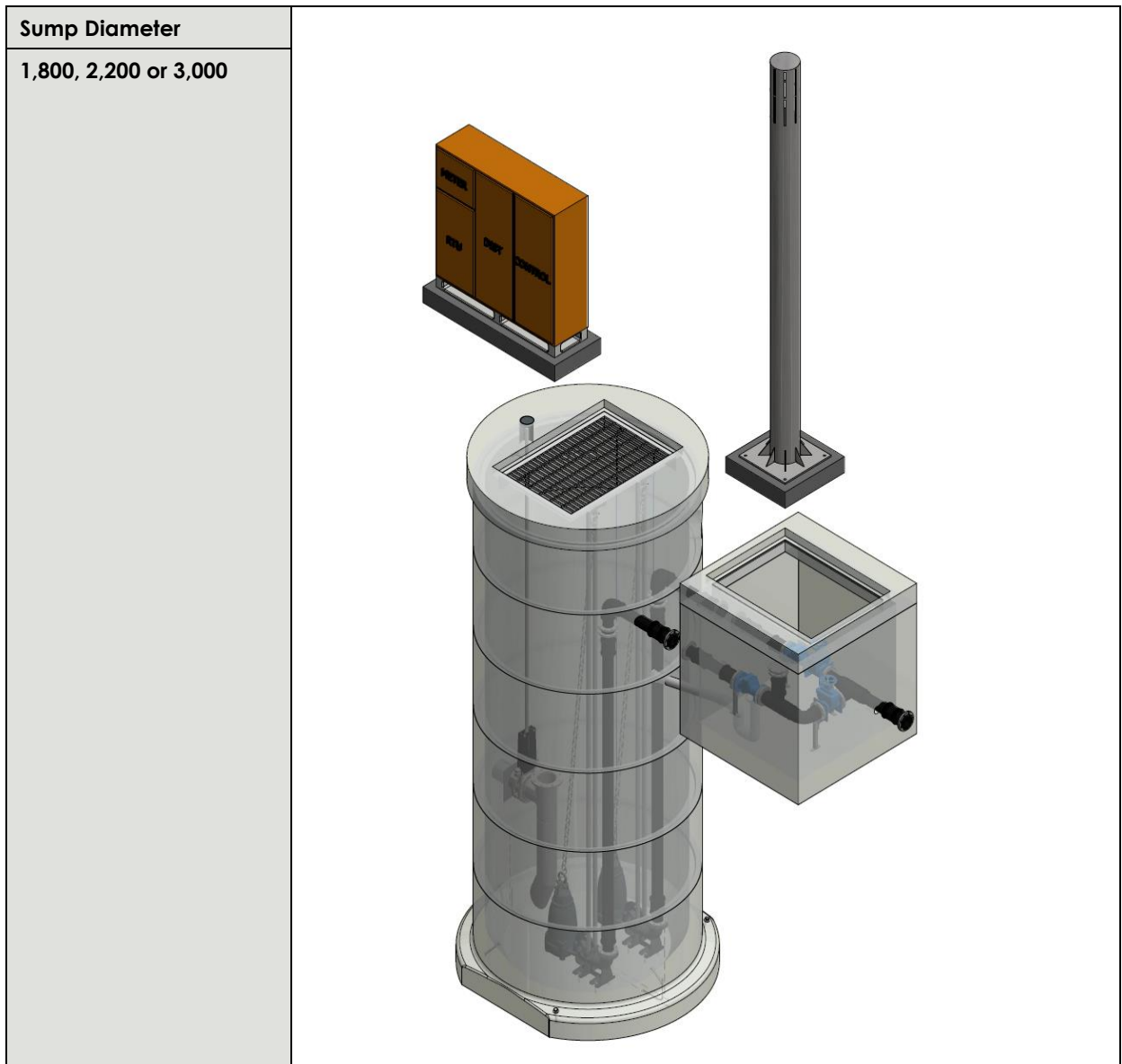
<p><b>All Fittings Shall Comply with Australian Standard</b></p>	<p>AS 3996 - Access covers and grates AS/NZS 1665 - Welding of aluminium structures</p>
<p><b>Specification</b></p>	<p>TSP Access Cover</p>
<p><b>Notes</b></p> <p>Manufactured by: Austral International</p> <p>Dimensions 2,250 mm x 2,000 Clear opening</p>	 <p>The technical drawings show the following dimensions:</p> <ul style="list-style-type: none"> <li><b>FRONT VIEW:</b> Total width is 2450mm (2250MM C/O), total height is 123mm, and a side offset of 144mm is shown.</li> <li><b>SIDE VIEW:</b> Total depth is 2150mm (2000MM C/O).</li> <li><b>ISOMETRIC VIEW:</b> Shows the 3D structure with a 2450mm length and 2150mm width. A 'Removable Beam Through Middle' is indicated.</li> </ul>
<p><b>Manufacturer</b></p>	<p><b>Austral International</b></p>

## 4 Package Pump Station Providers

### 4.1 Global Group



## 4.2 Xylem



## 5 Educt Vents

Clauses in 4.8.1 of SA Water Technical Standard TS 0500 (Authorised Products Water and Sewer Maintenance) provide details of manufacturers, materials and dimensions.