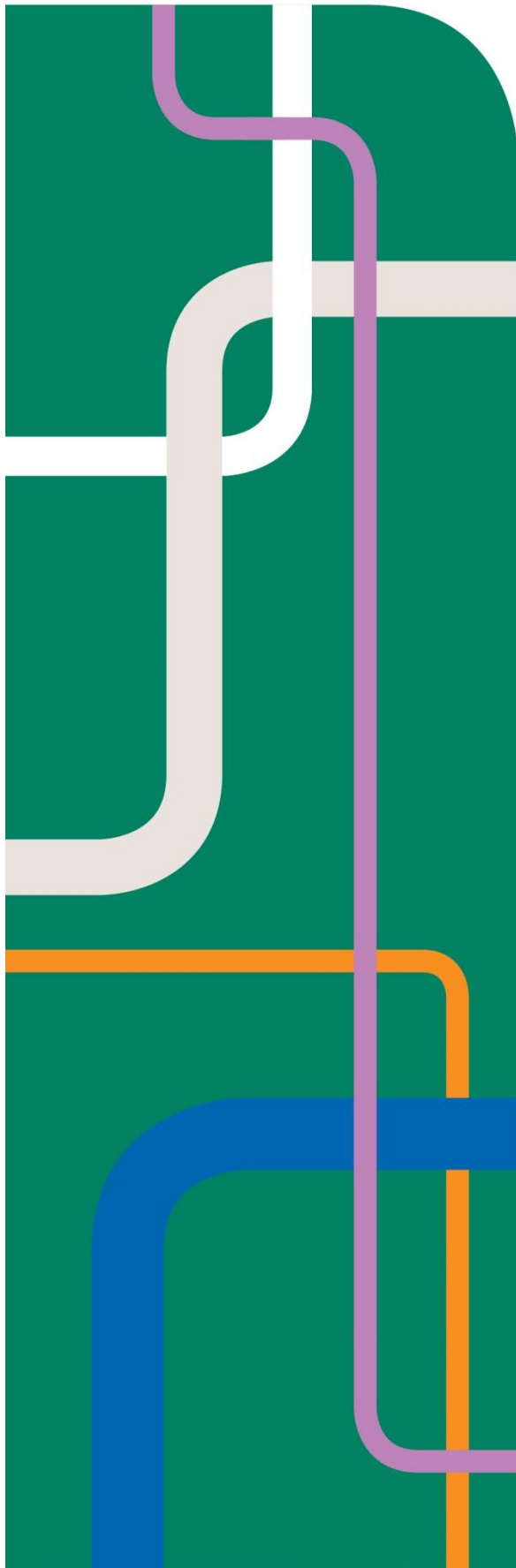




Government
of South Australia



Engineering Services

Authorised Products **TS 0506**

Vacuum Sewer Systems

Revision: 1.0
Date: 08 April 2016

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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 is the first issue of this Technical Standard.

The document is based upon the September 2014 edition of Authorised Items for Vacuum Sewer Systems.




Document Controls

Revision History

Revision	Date	Author	Comments
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1 Introduction

This Document lists conforming products approved for installation within SA Water's infrastructure networks.

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

Design Consultants and Construction Contractors should use the information presented within this document for confirmation of products SA Water has authorised for use.

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

SA Water personnel should source items from the Store. If not stocked they should procure by means of:

- utilising the relevant SA Water Period Contract or Standing Offer Arrangement,
- where an item is not covered under a Contract or Standing Offer Arrangement, contacting a relevant Stores or Procurement Officer.

1.2 Glossary

The following glossary items are used in this document:

Term	Description
DICL	Ductile Iron Cement Lined
DN	Diameter Nominal
PVC	Polyvinyl Chloride
PVC M	Polyvinyl Chloride Modified
PVC O	Polyvinyl Chloride Oriented
PVC U	Polyvinyl Chloride Unplasticised
SA Water	South Australian Water Corporation
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 2032	Code of practice for the installation of PVC pipe systems
AS 2033	Installation of polyethylene pipe systems
AS 2638-2	Gate valves for water works purposes
AS 3680	Polyethylene sleeving for ductile iron pipelines
AS 3681	Guidelines for the application of polyethylene sleeving to ductile iron pipelines and fittings
AS 3996	Access covers and grates
AS 3996	Metal access covers, road grates and frames
AS 4310	Piston type vacuum interface valves for municipal sewer systems
AS/NZS 1477	PVC U pipes and fittings for pressure applications
AS/NZS 2280	Ductile iron pipes and fittings
AS/NZS 2648-1	Underground marking tape - non-detectable tape
AS/NZS 4129	Fittings for polyethylene pipe for pressure applications
AS/NZS 4130	Polyethylene (PE) pipes for pressure applications
AS/NZS 4441	Oriented PVC (PVC-O) pipes for pressure applications
AS/NZS 4765	Modified PVC (PVC-M) pipes for pressure applications
EN 1091	Vacuum Sewerage Systems Outside Buildings
WSA PS 207	Polyethylene (PE) pipe for water supply
WSA PS 260	Gate valves - resilient seated
WSA PS 262	Extension spindles for gate valves
WSA PS 318	Marking tape, detectable
WSA PS 319	Marking tape, non-detectable

1.3.2 SA Water Documents

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

Number	Title

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"> • Superintendent's Representative (e.g. AS 4300 & AS 2124 etc.) • SA Water Project Manager • SA Water Contract Audit Officer • Reticulation Networks Wastewater/ Water Specialist • SA Water nominated contact person
Responsible Discipline Lead	The engineering discipline expert responsible for TS 0506 defined on page 3 (via SA Water's Representative)

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 has been limited to DN 200 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 E&OE. 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 Vacuum Sewer Systems covered by WSA 06-2008.

Specific approval from SA Water is required for the use of a Vacuum Sewer System.


3 Pipes

3.1 Gravity Pipes (PVC & PE)

The vacuum sewer system would typically require some gravity pipes and fittings used for property connection pipework, which enables waste water to gravitate to a vacuum collection chamber, connected to the vacuum system.


For details of approved gravity pipes and fittings , refer to Authorised Products for Sewer Infrastructure, Section 3.

3.2 PVC Vacuum Pipe


All Fittings Shall Comply With Australian Standard	Modified PVC (PVC M)	AS 2032 AS/NZS 4765	 <p>DN 100 - 300</p>	
	Oriented PVC (PVC O)	AS 2032 AS/NZS 4441		
Specification	Series 2 (CIOD), PN 16 Series 2 (CIOD), PN 9 & PN 12 are also available. Use of PN 9, PN 12 is subject to approval.			
Notes	Modified PVC (PVC M)	If cream coloured pipe is not available, (normally blue) coloured pipe shall be sleeved using a cream coloured sleeving with wording stating SEWER MAIN All pipe connections shall be Rubber Ring Jointed (RRJ)		
	Oriented PVC (PVC O)	Not generally used for vacuum sewer. Project specific approval required prior to use.		
Manufacturers	Damos	PVC M		DN 100 – DN 250
	Iplex	PVC M		BLUE Rhino
	Key Plastics	PVC M	DN 100 – DN 200	
	Micron Pipelines	PVC M	DN 100 – DN 300	
	Pipemakers	PVC M	Enviromain DN 100 & DN 150 Only	
	Viadux	PVC M	Tuf-flo DN 100 – DN 200	
	Vinidex	PVC M	Hydro BLUE	

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3.3 Polyethylene Vacuum Pipe

All Fittings Shall Comply With Australian Standard	AS 2033 AS/NZS 4129 AS/NZS 4130	
Specification	PE 100 Pipe – PN 16 or PE 80 Pipe - PN 12.5 Minimum Use of PN 12.5 is subject to approval.	
Notes	Solid CREAM (preferred) or BLACK with CREAM stripe	OD90, 110, 125, 180, 250 & 315
Manufacturers	Iplex	
	PPI	Up to OD 100
	Vinidex	

3.4 Ductile Iron Pipe

All Fittings Shall Comply With Australian Standard	AS 3680 AS 3681 AS/NZ 2280	
Specification		
Notes	Ductile Iron pipes can only be used with specific approval from SA Water DI pipe with a polyurethane coating is the preferred pipe. DI pipe with a cement lining (DICL) can only be used with specific approval from SA Water. Cream sleeving required marked with the words SEWER PIPE	DN 300
Manufacturers	Viadux	Used with Tyton Lok Sealing Ring
	Von Roll	Used with Tyton Lok underground warning tape Ecopur

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4 Fittings

4.1 PVC & Ductile Iron


NOTE:

- Only ductile iron fittings that are internally and externally FBE coated are permitted for use. Cement lined fittings are not approved
- Post-formed PVC-M bends can also be used for PVC pipe.

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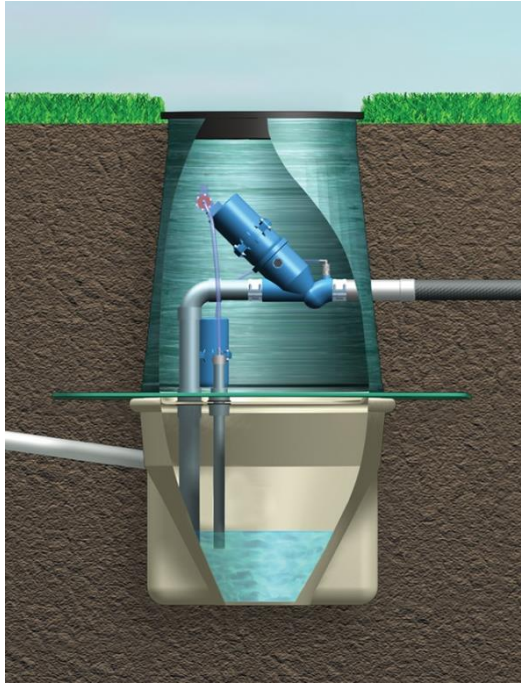
4.2 Polyethylene

All Fittings Shall Comply With Australian Standard	AS/NZS 4129 Only PE products identified in this document are approved for use. In addition, the products shall be obtained from one of the listed Manufacturers, or his Agent.
Specification	Items shall only be fabricated by welders who have attained the PMBWELD301B qualification.
Notes	Upon completion, the Fabrication Company shall provide the SA Water Representative with a Form : <ul style="list-style-type: none"> Identifying every weld, with the date of the weld and name and id of the technician who undertook the weld Itemising the materials used, ie item manufacturer & description. Each weld shall be stamped with the welder id. The Form shall be signed by an authorised officer of the Fabrication Company and shall be co-signed by the Construction Contractor installing the item.

<table border="1"> <tr> <th colspan="2">PE Pipe Sizes</th> </tr> <tr> <td>90 mm OD</td> <td></td> </tr> <tr> <td>110 mm OD</td> <td></td> </tr> <tr> <td>125 mm OD</td> <td></td> </tr> <tr> <td>180 mm OD</td> <td></td> </tr> <tr> <td>250 mm OD</td> <td></td> </tr> <tr> <td>315 mm OD</td> <td></td> </tr> </table>	PE Pipe Sizes		90 mm OD		110 mm OD		125 mm OD		180 mm OD		250 mm OD		315 mm OD		
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All Fittings Shall Comply With Australian Standard	AS/NZS 4129														
Manufacturers	George Fischer														
	Philmac	Friatec													
	Plasson	Smartfuse													
	FusionPlast (Fusionweld)	Flex Tee & Multi Seal													
	Rollmaplast														

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5 Collection Chambers

<p>All Fittings Shall Comply With Australian Standard</p>	<p>AS 4310 EN 1091</p>	 <p style="text-align: center;">Product Example</p>
<p>Note</p>	<ul style="list-style-type: none"> • For maintenance / compatibility reasons SA Water is limiting the types of collection chambers used in the infrastructure network and SA Water MUST be consulted before any collection chamber or vacuum interface valves are purchased • Collection chambers can be manufactured from concrete, polyethylene, fibreglass or stainless steel • Collection chambers are supplied to suite individual locations 	
<p>Manufacturers</p>	<p style="text-align: center;">Airvac</p> <hr/> <p style="text-align: center;">Flovac</p> <hr/> <p style="text-align: center;">Sekisui Ribloc</p>	

6 Valves & Covers


6.1 Valves

6.1.1 Vacuum Interface Valve

<p>All Fittings Shall Comply With Australian Standard</p>	<p>EN 1091 / AS 4310</p>	<div style="text-align: center;">  <p>DN 80 PVC & 90 mm PE</p> </div>
<p>Note</p>	<p>For maintenance / compatibility reasons SA Water is limiting the types of vacuum interface valves used in the infrastructure network and SA Water MUST be consulted before any collection chamber or vacuum interface valves are purchased</p>	
<p>Manufacturers</p>	<p>Airvac</p>	
	<p>Flovac</p>	
	<p>Sekisui Ribloc</p>	



6.1.2 Resilient Seat Valves

6.1.2.1 Socket - Socket


<p>All Fittings Shall Comply With Australian Standard</p>	<p>AS 2638-2 WSA PS 260</p>	<div style="text-align: center;">  <p>DN 80 - 200</p> </div>
<p>Manufacturers</p>	<p>AAP Industries Pty Ltd (Maxiflo)</p>	
	<p>AKV (Iplex)</p>	
	<p>Betta</p>	
	<p>Viadux</p>	

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6.1.2.2 PE Connection Ends

All Fittings Shall Comply With Australian Standard	AS 2638-2 WSA PS 260		
		Series 01/70 (tensile resistant PE ends – restrained joints) PE OD90 – 315	Series 36/80 (fusions or butt weld applications) PE OD75 - 315
Manufacturer	AVK (Iplex)		

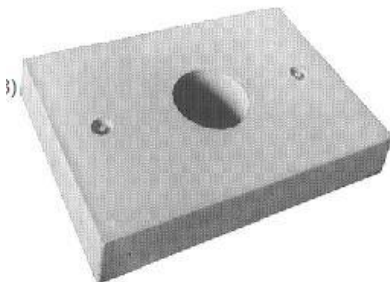

6.1.3 Valve Spindle Extension

All Fittings Shall Comply With Australian Standard	AS 2638 WSA PS 262	
		Length 150 - 1200
Manufacturers	Iplex	
	Hadaway	
	Viadux	




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6.2 Valve Covers

6.2.1 Trafficable

<p>Trafficable Cover Support Slab</p> 	<p>Full Height</p> 
<p>1200 x 800 x 170 Class "D"</p>	<p>Lid to be maked SEWER</p>
Manufacturer	
Bianco Precast	Bianco Precast
Cooke Pre-Cast Concrete	Cooke Pre-Cast Concrete
Webforge	Webforge


6.2.2 Non Trafficable

<p>Valve Cover system Small Non Trafficable</p> 	<p>Non-Trafficable Cover Support Ring</p> 	<p>Half Height</p> 
	<p>600Ø x 140 Thick</p>	<p>Lid to be maked SEWER</p>
Manufacturer		
	Bianco Precast	
	Cooke Pre-Cast Concrete	
	Webforge	
Iplex Crevet		
Viadux		


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7 Signs & Marking Tape

7.1 Metal Markers

Notes	Text: Vacuum Sewer Stop Valve	
Manufacturer	Ottoway Engineering	
	Peninsular Castings	

7.2 Marking Tape

All Fittings Shall Comply With Australian Standard	AS/NZS 2648.1 WSA PS 318 WSA PS 319	
Specification	<ul style="list-style-type: none"> • Sewer tapes are to be CREAM • 'WARNING: RESTRAINED PIPELINE TYTON LOK FITTINGS' – Non Detectable • 'DANGER BURIED MAIN BELOW' – Non Detectable • 'DANGER BURIED MAIN BELOW' –Detectable 	
Notes	Detectable tape to be placed 100 – 150 mm below finished ground level above pipe	
Manufacturer	Boddingtons	
	Heatech	
	Romac Trading	
	Tapex	
	Viadux	

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