

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

PRODUCTS

ALL MINOR ITEMS NOT COVERED IN DETAIL IN THIS CATALOGUE TO BE IN ACCORDANCE WITH APPROPRIATE AUSTRALIAN STANDARD.

**Further information on products and materials is available on the WSAA web site
www.wsaa.asn.au**

PIPE MATERIALS USED ON VACUUM SEWER MAINS ARE TO BE AS SPECIFIED ON THE ENDORSED DESIGN DRAWINGS.

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

Introduction

Construction of a new Vacuum Sewer System will be based on the Design Drawings supplied by the consultant and authorised by SA Water which identify the detailed location of the system as well as the pipe materials and accessories to be used. In addition to this general direction, typical construction details can be obtained from the WSA Vacuum Sewerage Code of Australia (WSA 06-2004) and SA Water's supplementary documentation supplied with this document. Based on the information provided in these sets of drawings, contractors can select any of the products listed in this catalogue, provided they are appropriate for the use required, and purchase them directly from the manufacturer or their supplier.

The property connection pipework (property boundary IP to collection chamber) is classed as normal gravity sewer pipework and authorisation for products used in this section of the sewer are not included in this manual. See Sewer Construction Manual – Authorised Items.

The products listed in this catalogue have been given authorised status based on their conformance with the SA Water Corporation Standard Product Specification for the item and the quality system operating in the factory where the product was manufactured.

See Index on last page of this document for product coverage.

Document Update Information

Date	Change Type	Page Number(s)	Details

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

PVC Pipe – Gravity Sewer

The PVC pipe used for property connection pipework (property boundary IP to collection chamber) is classed as normal gravity sewer pipework and authorisation for pipe used in this section of the sewer are not included in this manual. All PVC pipes shown in the Authorised Items section of the Sewer Construction Manual are acceptable for this application.

PVC Fittings – Gravity Sewer

The PVC fittings used for property connection pipework (property boundary IP to collection chamber) is classed as normal gravity sewer pipework and authorisation for fittings used in this section of the sewer are not included in this manual. All PVC fittings shown in the Authorised Items section of the Sewer Construction Manual are acceptable for this application.

PE Pipe – Gravity Sewer

The PE pipe used for property connection pipework (property boundary IP to collection chamber) is classed as normal gravity sewer pipework and authorisation for pipe used in this section of the sewer are not included in this manual. All PE pipes shown in the Authorised Items section of the Sewer Construction Manual are acceptable for this application.

PE Fittings – Gravity Sewer

The PE fittings used for property connection pipework (property boundary IP to collection chamber) is classed as normal gravity sewer pipework and authorisation for fittings used in this section of the sewer are not included in this manual. All PE fittings shown in the Authorised Items section of the Sewer Construction Manual are acceptable for this application.

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

PVC Pipe - Vacuum

Where PVC pressure pipe is required for vacuum sewer applications it will be detailed on the approved design drawings. Size range - 100, 150, 200, 250 & 300 mm diameters.

Unless specifically approved otherwise by SA Water all PVC pipe installations shall meet the following requirements:

- For pipe availability reasons, SA Water has standardised on Series 2 (CIOD) PVC pipe for vacuum sewer applications. See relevant Australian Standard.
- Class of pipe to be used can be PN9, PN12 or PN16 (due to usage rates PN16 may be more readily available and cheaper than PN9 and PN12).
- If cream coloured pipe is not available, (normally blue) coloured pipe shall be sleeved using a cream coloured sleeving with wording stating it is a sewer main
- All pipes and fittings shall be Rubber Ring Jointed (RRJ)

Authorised Manufacturers

Standard PVC (PVC-U)

No longer readily available (specific orders only)

Modified PVC (PVC-M)

Damos		(Only available in DN100 to DN250)
Iplex Pipelines -	Blue Rhino	
Key Plastics		(Only available in DN100 to DN200)
Micron		(Only available in DN100 to DN300)
Pipemakers	Enviromain	(Only authorised for DN100 and DN150)
Tyco Water	Tuf-Flo	(Only available in DN100 to DN200)
Vinidex	Hydro Blue	

Oriented PVC (PVC-O)

Not generally used for vacuum sewers because of its minimal wall thickness and low resistance to collapse under vacuum. Project specific approval required before use.

Applicable Australian Standards

- AS/NZS1477 PVC-U Pipes and fittings for pressure applications
- AS2032 Code of practice for the installation of PVC pipe systems
- AS/NZS4441 PVC-O Pipes for pressure applications
- AS/NZS4765 PVC-M Pipes for pressure applications

*For more details about these manufacturers refer to the **Manufacturers** section of this manual.*

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

PVC Pipe Fittings – Vacuum

As there are no PVC fittings manufactured for PVC pressure pipe, the only fittings that can be used are FBE coated Ductile Iron fittings (both internally and externally). Cement lined fittings are NOT to be used.

The current range of FBE coated Ductile Iron fittings, as shown in the “Authorised Items for Water Supply Systems”, are acceptable for use in a Vacuum Sewer System.

These include:

- Tees
- Bends (22½°, 45°, 90°)
- Tapers

Post-formed PVC-U and PVC-M bends can also be used.

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

Polyethylene Pipe - Vacuum

Polyethylene pipe can also be used because of its ease of laying and its suitability for directional boring.

Where specified in the VSCM, a detectable underground warning tape shall be laid on top of the embedment material and above the polyethylene pipe to allow the pipe to be located in the future.

Pipe Classification

Pipe to be in accordance with AS/NZS4130

When ordering specify - PE80 pipe - Type B - PN 12.5 minimum or
- PE 100 pipe – PN 12.5 minimum

Colour

To be in accordance with WSA PS-207S

Cream (preferred) or Black with Cream Stripes (permitted if cream unavailable)

Allowable Pipe Sizes

DN 90	DN 180
DN 110	DN 250
DN 125	DN 315

Alternate sizes are available and may be used in special applications with SA Water approval

Authorised Manufacturers

- Iplex Pipelines
- Vinidex
- PPI (up to DN100)

Applicable Australian Standards

- AS/NZS4130 Polyethylene pipes for pressure applications
- AS/NZS4129 Fittings for polyethylene (PE) pipes for pressure applications
- AS2033 Installation of polyethylene pipe systems (For minimum cover refer Water Supply Construction manual)

*For more details about these manufacturers refer to the **Manufacturers** section of this manual.*

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

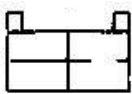
Polyethylene Fittings-Vacuum

Electrofusion Couplings is the preferred method of jointing. **NOTE** The section pipe to be inserted into the coupling **MUST** be shaved back to virgin material using a commercially available Mechanical Scraper, immediately prior to making the joint. The fittings must not be unwrapped until immediately prior to installation and welding.

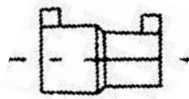
Butt Welding by specialist PE welders is also acceptable. Specific SA Water approval is required when this method is planned to be used.

Electrofusion Fittings (to be in accordance with AS/NZS4129)

- George Fischer
- Fusion Plast Australia
- Philmac (Durafuse)
- Plasson
- Rollmaplast



Standard



Reducing

Types Available

- Tees
- 45 and 90 Bends
- Stub Flanges (with SS backing flange)

Butt Welding - All Sizes

- Factory Butt welding only is permitted.

Fabrication of PE pipe Specials

- Fusion Plast Australia

*For more details about these manufacturers refer to the **Manufacturers** section of this manual.*

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

Ductile Iron Pipe

Imported DI pipe with a polyurethane coating is the preferred metallic pipe for use in a vacuum sewer system.

DI pipe with a cement lining (DICL) can only be used with specific approval from SA Water. DICL pipe is only to be used for specific locations/areas which require one or more of the additional features of DICL eg the restrained jointing system and its use will be specified on the approved design drawings.

Ductile iron pipe uses a rubber ring jointing system and all DI pipe used in the vacuum sewer system must have a minimum operating pressure of PN16.

Authorised Manufacturers

- VonRoll ECOPUR pipe (coated internally with polyurethane and manufactured to ISO standards)
- Tyco Water DICL K9 Series and Series 2100 (SA Water approval required).

Pipe Sleeving

- Cream sleeving marked with at least the words “Sewer Pipe” (see tapes-underground warning)

Restrained Joint Sealing Rings

- Tyco Water - Tyton lok

Underground Warning Tape for Restrained Joint pipe

- Tyco Water - Tyton lok

Applicable Australian Standards

- AS/NZS2280 Ductile iron pressure pipes and fittings
- AS3680 Polyethylene sleeving for ductile iron pipelines
- AS3681 Guidelines for the application of polyethylene sleeving to ductile iron pipelines and fittings

REFER to Water Supply Construction Practice Manual for more details on restrained joints.

Fittings – Ductile Iron

The only fittings to be used with DI pipe are FBE coated Ductile Iron fittings (coated both internally and externally). Cement lined fittings are NOT to be used.

The current range of FBE coated Ductile Iron fittings, as shown in the “Authorised Items for Water Supply Systems”, are acceptable for use in a Vacuum Sewer System.

*For more details about the manufacturers refer to the **Manufacturers** section of this manual.*

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

SA Water Product Description

Collection Chamber



Alternative Description: Collection Pit

SA Water Stock No.	Flovac
-----	★

Notes

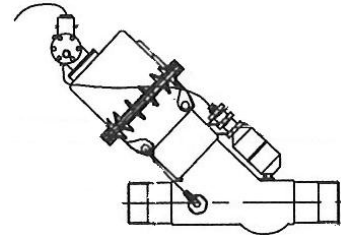
1. For maintenance/ compatibility reasons SA Water is limiting the types of collection chambers used in their infrastructure network and SA Water **MUST** be consulted before any collection chambers or vacuum interface valves are ordered or purchased
2. Collection chambers can be manufactured from concrete, PE, fibreglass or stainless steel.
3. Collection chambers are designed and supplied to suit individual locations.

*For more details about these manufacturers refer to the **Manufacturers** section of this manual.*

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

SA Water Product Description

Vacuum Interface Valve



Alternative Description: "Vacuum Valve"

SA Water Stock No.	Flovac
-----	*

Notes

1. For maintenance/ compatibility reasons SA Water is limiting the types of vacuum interface valves used in their infrastructure network and SA Water **MUST** be consulted before any collection chambers or vacuum interface valves are purchased
2. Must comply with EN1091/ AS 4310.
3. Vacuum interface valves are compatible with DN 80 PVC pipe and 90 mm PE pipe.

*For more details about these manufacturers refer to the **Manufacturers** section of this manual.*

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

SA Water Product Description

***Valves - Resilient Seat Gate Valve
Socket - Socket
(Manually Operated Valve to AS2638 Part 2
Square drive and clockwise closing)***



For Buried Applications ONLY

Alternative Description

***Sluice Valve – Soc - Soc
Stop Valve – Soc - Soc***

Nom. Size DN (Pressure)	SA Water Stock No. (1.6 MPa)	AVK (Iplex) Series 57/50 (1.6 MPa)	Tyco (1.6 MPa)
80 (1.6 MPa)		*	*
100 (1.6 MPa)		*	Auslite
150 (1.6 MPa)		*	Auslite
200 (1.6 MPa)		*	*

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

SA Water Product Description

***Valves - Resilient Seat Gate Valve
with PE Pipe Connection Ends
(Pressure Rating 1.6 MPa
Square drive and clockwise closing)***



Series 36/80



Series 01/70

Alternative Description

Nom. PE Pipe Size (Equivalent Valve size)	SA Water Stock No.	AVK (Iplex)
SERIES 36/80 (Fusion or Butt welded applications)		
75		*
90		*
110		*
125 (DN100 equiv)		*
180 (DN150 equiv)		*
250 (DN200 equiv)		*
315 (DN250 equiv)		*
SERIES 01/70 (Tensile Resistant PE ends – Restrained Joint)		
90		*
110		*
125 (DN100 equiv)		*
180 (DN150 equiv)		*
250 (DN200 equiv)		*
315 (DN250 equiv)		*

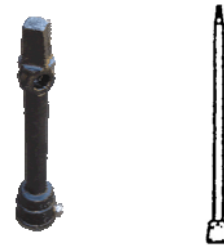
AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

SA Water Product Description

Valve - Spindle Extension

Alternative Description

Spindle Extension Valve



Extension Nominal Length (mm)	SA Water Stock No.	Iplex	Hadaway	Tyco
150	4820-0016	★	★	★
300	4820-0017	★	★	★
450	4820-0019	★	★	★

SA Water Product Description

**Valve Cover Systems
Small Non-Trafficable**

Note: –



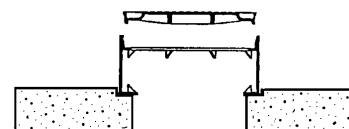
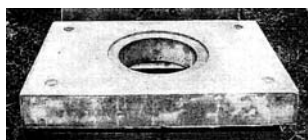
Item	Iplex Crevet	Tyco Water
Lid (DI - Marked SV)	★	★
Surround (Recycled Plastic)	★	★
Shroud	★	★
Base Plate (DI)	★	★

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

SA Water Product Description **Valve Cover System – Large Trafficable**

Note: –

1. Lid to be marked “SEWER”
2. Purchased as a unit from Concrete Manufacturer



CLASS D –TRAFFICABLE USE (to AS 3996)

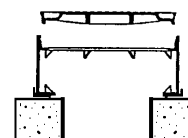
Item	SA Water Stock Number	Cooke Pre Cast (WASA)	Bianco Precast (BIA)	Webforge
Concrete Support Slab (1200 x 800 x 170 mm high)	5680-0050	★	400044	
Cover	5680-0407	★	400601	★
Street Box - DI (Full Height)	5680-0061	★	★	★
Street Box - DI (1/2 Height)	5680-0230	★	400586	★

SA Water Product Description

**Valve Cover System –
Large Non-trafficable**

Note :-

1. Lid to be marked “SEWER”
2. Purchased as a unit from Concrete Manufacturer



CLASS B – NON-TRAFFICABLE USE (to AS 3996)

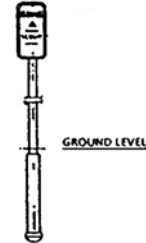
Item	SA Water Stock Number	Cooke Pre Cast (WASA)	Bianco Precast (BIA)	Webforge
Concrete Support Ring 600ø x 140 mm thick	5680-0049	★	400223	
Cover	5680-0407	★	400601	★
Street Box - DI (Full Height)	5680-0061	★	★	★
Street Box - DI (1/2 Height)	5680-0230	★	400586	★

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

SA Water Product Description

Signs

Alternative Description



METAL MARKERS

Item Description	SA Water Stock No.	Peninsular Castings#	Ottoway Engineering
VACUUM SEWER STOP VALVE Sign with 32mm Galv. Post	-----	★	★
VACUUM SEWER STOP VALVE Sign only	-----	★	

Can manufacture signs with alternate wording as required

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

SA Water Product Description

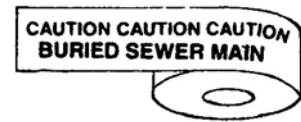
Tape - Underground Warning

NOTE : Tape to be Cream in colour.

Non-detectable tape to be placed on overlay sand above pipe.

Detectable tape to be placed 100 - 150mm below finished ground level above pipe.

Tape or mesh can be used but it must be a minimum of 100mm wide



Alternative Description

Item Description	Heatech	Romac Trading	Tapex	Boddingtons
Non Detectable 'DANGER BURIED SEWER MAIN BELOW'	★	★	★	★
Detectable 'DANGER BURIED SEWER MAIN BELOW'	★	★	★	★

AUTHORISED ITEMS for VACUUM SEWER SYSTEMS

INDEX

Collection Chamber 9
Document Update Information 2
Fitting - Gravity
 For PE pipe 3
 For PVC pipe 3
Fittings-Vacuum
 Ductile Iron 8
 For PVC pipe 5
 Polyethylene..... 7
Introduction 2
Pipe -Gravity
 PE..... 3
 PVC..... 3
Pipe-Vacuum
 Ductile Iron (DI) 8
 Polyethylene..... 6
 PVC..... 4
Signs 15
Tape - Underground Warning..... 16
Vacuum Interface Valve 10
Valve Cover System
 Large - Non-trafficable..... 14
 Large Trafficable..... 14
 Small Non-Trafficable..... 13
Valves
 Resilient Seat Gate – Soc - Soc..... 11
 Resilient Seat Gate – with PE Pipe Connection Ends..... 12
 Spindle Extension 13