



Pumping Station Systems Products Catalogue

CONTENTS

| | |
|---------------------------------------------------------------------------------------------------|-----------|
| CONTENTS | 2 |
| DOCUMENT CONTROL INFORMATION | 4 |
| Document Details..... | 4 |
| Document History | 4 |
| About This Catalogue | 6 |
| Intended audience | 7 |
| Instrumentation and control systems | 7 |
| Related reference material..... | 8 |
| Instructions for downloading WSAA Product Specifications | 8 |
| Organisation of this catalogue | 9 |
| Information | 10 |
| DUCTILE IRON PIPELINE SYSTEMS | 11 |
| STEEL PIPELINE SYSTEMS | 11 |
| POLYVINYLCHLORIDE (PVC) SYSTEMS | 11 |
| POLYETHYLENE PIPELINE SYSTEMS | 11 |
| ACRYLONITRILE BUTADIENE STYRENE (ABS) | 11 |
| SURFACE FITTINGS | 11 |
| Pump Station Wetwell cover and frame (including fall protection grid and portable safety rail)... | 11 |
| Round REMovable Steel Bollard | 13 |
| MISCELLANEOUS PRODUCTS | 15 |
| VALVES | 15 |
| MAINTENANCE PRODUCTS | 15 |
| Gap filling epoxy paste adhesive for civil engineering use | 15 |
| BOSTIK 5240 Sealing Strip | 16 |
| Female B-Type Quick Couplings | 16 |
| PRESSURE SEWER PRODUCTS COMPONENTS | 17 |
| MODULAR PUMP STATIONS | 17 |
| Packaged Precast concrete sewer Pump Stations | 17 |
| Packaged Fibreglass Pump Stations | 18 |
| Booster Pump Stations | 19 |
| Fibreglass Storage Vessel | 20 |
| SUBMERSIBLE PUMPS | 21 |
| Soft Starters | 21 |
| Variable Speed Drives | 22 |
| Lighting Infrascan Switch | 22 |
| SCADA RTU | 22 |
| Light Pole | 22 |
| PUMP CONTROLLER | 22 |
| Flow Meter | 23 |
| Level Sensor (wet well & ERS) | 23 |

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| | |
|---------------------------------------------------------------|-----------|
| Backup Pump Controller | 24 |
| Wet Well washer | 24 |
| Float-Switch | 24 |
| Thrust/Puddle Flange..... | 24 |
| Air Valves..... | 24 |
| Isolating Valve (delivery pressure main) | 24 |
| Dismantling Joints..... | 25 |
| Cabinet Locks | 25 |
| CHECK VALVES..... | 26 |
| Ball Check Valve for Pressure Sewer | 26 |
| Swing Check Valve for Pressure Sewer | 27 |
| Rubber check valves for Pressure Sewer | 28 |
| KNIFE GATE VALVES..... | 29 |
| Heavy Duty General Purpose Lugged Style Knifegate Valve | 29 |
| Sewerage Isolation Valves..... | 30 |
| ELECTRIC ACTUATORS | 31 |
| Electric Actuators for water supply and pressure sewer | 31 |
| FLOODGATES | 33 |
| Mounting Ring Type Floodgates | 33 |
| APPROVED MANUFACTURERS AND SUPPLIERS..... | 34 |

DOCUMENT CONTROL INFORMATION

DOCUMENT DETAILS

| | |
|----------------------------|--------------------------------------------|
| Document Name | Pumping Station Systems Products Catalogue |
| Document Issue | C |
| Document Revision No | 04 |
| Document Owner | Manager, Standards and Design |
| Prepared by | Robert Jagger and Mohamed Yoosuf |
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DOCUMENT HISTORY

| Issue | Revision | Date Approved | Page, Para. | Change | Reasons for change |
|-------|----------|---------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| B | 01 | | | <p>Access Cover and Frame was changed to Pump Station Wet Well Cover and Frame – brands and special conditions were revised to accommodate this revision</p> <p>Products Added:</p> <ul style="list-style-type: none"> a) Lighting Infrascan Switch b) Scada RTU c) Light Pole d) Backup Pump Controller e) Cabinet Locks <p>Brands Added</p> <ul style="list-style-type: none"> a. Submersible Pumps – KSB KRT b. Soft Starters – AuCom IMS2 – NHP c. Soft Starters – Sprecher Schuh PCS Ver 2.07 – Supplied by NHP d. Pump Controller – MultiTrode MultiSmart Pump Controller e. Flow Meter – ABB magMaster/SITRANS Magflow Tube and Mag 6000 Transmitter f. Level Sensor – Vegawell 72 with HART PROTOCOL Change in Special Condition: Hydrostatic level sensor with configurable range g. Float Switch – Flygt ENM 10 Change in Special Condition: Should have both NO and NC Contacts <p>Brands Removed</p> <ul style="list-style-type: none"> a. Submersible Pumps – Forrers | New products |
| B | 02 | 30.01.2009 | | <p>Products Added:</p> <ul style="list-style-type: none"> a) AVK Australia: Series 53/50 Ball Check valve, Flanged b) Upwey Group P/L (DUAL VALVES Australia P/L: Dual Slimline Ball Non-Return Valve c) ITT Flygt: HDL 5087 Ball Check Valve | |

| Issue | Revision | Date Approved | Page, Para. | Change | Reasons for change |
|-------|----------|---------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| B | 02 | 30.01.2009 | p.8 | Amendments Instructions for downloading WSAA Product Specifications Image amended. | WSAA launched new website. |
| B | 03 | 29.09.2009 | p.8 | Instructions for downloading WSAA Product Specifications Image amended. | WSAA amended the image |
| B | 03 | 07.09.2009 | p.12 | Products Added: a) Megapoxy P1 – gap filling epoxy paste adhesive for civil engineering use – Vivacity Engineering Pty Ltd | New products |
| | | p.13 | b) Bostik 5240 Sealing Strip – Bostik Australia Pty Ltd | | |
| | | p.13 | c) Female B Type Quick Couplings - IB International Irrigation | | |
| | | p.11 | i) Railsafe Telescopic Guardrail systems | | |
| | | p.14 | d) Modular Precast Concrete Pump Stations – Aquatec Environmental Pty Ltd | | |
| | | p.17 | e) LTU 701 Submersible Level Sensor – ITT Water & Wastewater (ITT Flygt) | | |
| | | p.21 | f) PROCO Styles 710/730 and 720/740 ProFlex rubber check valves - PROCO Products Inc | | |
| | | p.22 | g) Valveco Heavy Duty Knifegate – General Purpose Lugged Style Knifegate Valve – HMA Group of Companies | | |
| | | p.23 | h) Valveco Sewerage Isolation Valves – Dependable Waste Water Control – HMA Group of Companies | | |
| | | p.24 | i) Hume-King Floodgate | | |
| C | 01 | 16.11.2010 | No change from previous Version Issue B3 | | |
| C | 02 | 27.01.2011 | Title changed as 'Pumping Station Systems Products Catalogue' | | Title change |
| C | 02 | 03.03.2011 | p.26 | a) Val-Matic Swing-Flex Check valve for pressure sewer – HMA Group | New products |
| | | p.26 | b) VAG Reto-Stop Swing Check Valve for pressure sewer – Metaval Consolidated Pty Ltd | | |
| | | p.18 | c) Fibreglass Packaged pump stations for alternative water supply – Aquatec Environmental Group P/L | | |
| | | p.19 | d) Boosttec Booster Pump Station for alternative water supply - Aquatec Environmental Group P/L | | |
| C | 03 | 19.05.2011 | p.13 | Round Removable 90mm Steel bollard – Andian Sales Pty Ltd and JamesLuke Australia | New Product |
| C | 04 | 16.08.2011 | p.17 | ITT Water & Wastewater packaged precast concrete sewer pump station | New Product |
| | | 18.10.2011 | p.20 | Aquatec Fibreglass Storage Vessel | New Product |
| | | 18.10.2011 | p.32 | Rotork Electric Actuators – Rotork Australia | |
| | | 18.10.2011 | p.32 | Limitorque Electric Actuators - Acrodyne Pty Ltd | |

ABOUT THIS CATALOGUE

The Pumping Station Systems Product Catalogue lists approved products that can be used in Sewage Pumping Stations and pressure pipeline network (sewer rising mains, potable / recycled water and alternative water supply) within City West Water's license area. Electrical Switchboard and Cabinet Components used in the Sewer Pumping Stations have been exempt from this version.

Any supplier or manufacturer may apply to City West Water (CWW) to have its product or material included in CWW's Products Catalogue. CWW will give due consideration to the application, and assess the merits of the product or material according to the following Products Approval Criteria:

- The service life of the product or material;
- The life cycle cost of the product or material to CWW;
- The reaction of the product or material on the materials being transported;
- The reaction of the material being transported on the product or material;
- The compatibility of the product or material with existing CWW asset systems;
- The impact of the product or material on CWW's operations and maintenance including the availability of compatible fittings;
- The impact of the product or material on CWW's occupational health and safety obligations;
- The impact of continued use of the product or material on CWW environmental obligations;
- The capacity of CWW and/or its contractors to install the product or material;
- The capacity of CWW and/or its contractors to operate and/or maintain the product or material;
- The availability of spare parts (where applicable) for the product or material;
- The quality of manufacture and delivery to site of the product or material;
- The availability of an Australian Standard, or other recognised standard, for the product or material;
- The in-service performance history of the product or material; and
- The specific applications of the product or material.

CWW does not give preference to any particular make or type of product and will include equivalent products in the catalogue if satisfied that those products comply with the relevant standards or specifications** and conform to CWW's Products Approval Criteria.

Notwithstanding that a product or material satisfies the Products Approval Criteria, where CWW considers on reasonable grounds that the number of approved products/materials in a particular classification needs to be limited in order to control future maintenance and replacement costs, approval of that product or material may be rejected. Information on the status of applications for inclusion of products in this catalogue can be requested from CWW Standards and Design (contact details on the next page).

A product or material may have been tested and approved by a regulatory body, other water authority, industry association or the like. CWW may at its discretion elect to accept these test results or other information related to this testing/approval. However, CWW's final decision will be based upon a consideration of all of the criteria referred to above and the prior testing/approval is not in itself sufficient to support approval by CWW.

** Australian Standards, WSAA Product Specifications and Water Industry Specifications.

Products listed in this catalogue having a reference to a WSAA product specification, as published in www.wsaa.asn.au shall conform to the relevant product specifications.

Products not listed in this catalogue are not allowed for use in CWW licensed area. Use of alternative products is prohibited, as it may seriously affect the long term performance of the infrastructure system. In case an unapproved product is suspected to have been authorised, City West Water should be informed.

| Email | Phone |
|--------------------------------|-----------|
| standards@citywestwater.com.au | 9313 8592 |

CWW will assume no responsibility for any errors that may appear in this catalogue or any damages arising out of the use or inability to use this document.

INTENDED AUDIENCE

This catalogue is intended for CWW personnel, consultant engineers and contractors engaged in the design, construction and maintenance of CWW's pumping station system.

INSTRUMENTATION AND CONTROL SYSTEMS

City West Water (CWW) uses a Supervisory Control and Data Acquisition (SCADA) system as a means of remotely monitoring and controlling the operation of its geographically distributed water and sewer assets. SCADA systems encompass instrumentation and control equipment, wide area communication networks; site based Remote Terminal Units (RTUs), work stations and telemetry computers.

Infrastructure assets such as AICVs, control valves, flowmeters, chambers, pumping stations and reservoirs requiring connection to SCADA for monitoring and control shall be designed to enable their full integration into CWW's SCADA.

All designs incorporating monitoring and control equipment shall comply with the version of CWW's SCADA Installation Requirements Document current at the time of installation, copies of which will only be provided to companies with CWW Accreditation as CWW Approved SCADA system integrators.

Any new SCADA installations will require a CWW Approved SCADA System Integrator to perform pre and final SCADA commissioning of all SCADA functions. City West Water has a list of approved SCADA Integrators which is available upon request. Companies may apply for accreditation however it will be subject to evidence of experience in SCADA systems and subject to a CWW Confidentiality and privacy agreement.

The SCADA System Integrator is responsible for all LiveSCADA Master Station programming, including database and pictures, as well as communications configurations of all equipment at City West Water's main and disaster recovery sites. The SCADA System Integrator will perform commissioning at City West Water's office and must ensure that all works that require establishing reliable communications are completed one week prior to commissioning. This includes but is not limited to site access for Telstra or communications staff and fault finding and resolution.

RELATED REFERENCE MATERIAL

The information in this catalogue should be read in conjunction with:

- ◆ MRWA Edition of the Water Services Association of Australia (WSAA) Water Supply Code of Australia WSA 03 – 2002 Version 2.3
- ◆ MRWA Edition of the Dual Water Supply Systems Supplement to the Water Supply Code of Australia WSA 03 – 2002 Version 2.3
- ◆ Pressure Sewerage Code of Australia WSA 07–2007 Version 1.1
- ◆ CWW Supplement to Water Services Association of Australia (WSAA) Sewage Pumping Station Code of Australia WSA 04-2005;
- ◆ The Water Services Association of Australia (WSAA) Product Specifications (refer to <http://www.wsaa.asn.au> / Product Appraisals / Product Specifications);
- ◆ The Water Services Association of Australia (WSAA) Product and Material Information Guidance Notes (refer to <http://www.wsaa.asn.au> / National Codes / Codes of Practice/ Products and Materials Guidance);
- ◆ City West Water SCADA Installation Requirements Document;
- ◆ Land Development Deed or City West Water Contract documentation; and
- ◆ City West Water's Products Catalogue for Pressure Pipeline Systems

INSTRUCTIONS FOR DOWNLOADING WSAA PRODUCT SPECIFICATIONS

Click [here](#) to download or view a full set of Product Specifications. The file will open at the contents page of the Product Specifications. If you press the F5 key you can now navigate around the document using the bookmarks.

Alternatively you can access the WSAA Website <https://www.wsaa.asn.au> and download or view a full set of Product Specifications:

The screenshot shows the WSAA website with the following content:

- Header:** WSAA logo, tagline 'The peak industry association for urban water utilities', and navigation links (Contact Us, Feedback, Sign In, Search).
- Navigation Menu:** Home, About WSAA, Media Centre, Publications, National Codes, **Product Appraisals**, Links.
- Breadcrumbs:** Home > Product Appraisals > Water Supply & Sewerage
- Sidebar:** Product Appraisal Reports
 - Water Supply & Sewerage** (highlighted)
 - Trade Waste
- Main Content:**

Water Supply & Sewerage

The WSAA Product Appraisals program supports strategic Water Supply, Sewerage and Recycled Water Infrastructure products. The process is a three stage one and consists of the following steps.

Step 1 - Applicant applies for a WSAA Product Appraisal. After the application has been received the Product Appraisal Manager will review it against the product specification and the supporting information required for that product. The applicant will then be advised of any gaps in the application and request that the information be provided.

Step 2 - The application will be reviewed by an expert panel drawn from the WSAA Infrastructure Products and Materials (IPAM) Network. The applicant is invited to attend the panel meeting to discuss any aspects of the application with the panel. The minutes of the meeting and any actions from the meeting are provided to the applicant for review.

Step 3 - When all of the outstanding actions from the Expert Panel meeting have been completed a draft report is prepared for applicant and IPAM Network peer review. Following satisfactory completion of all outstanding issues from this review the completed report is published on the WSAA website

For innovative products that do not have a relevant standard, the application will be reviewed by the Expert Panel for direction on the way that the application will be appraised.

The cost to conduct a standard product appraisal will vary depending on its complexity. In general terms the appraisal fees will be between \$5,000 and \$10,000 per report.

| Title | Publication Number | Published Date | |
|-------------------------------|--------------------|----------------|-------------------------------|
| Product Specifications | | 5/15/2008 | free download |

Product Specifications will continue to be developed as more Industry Standards and Australian Standards are published.

It is a Designer's responsibility to nominate specification most appropriate to project-specific circumstances and to complete the "Options to be specified" table and nominate the "Agency approved options" for each product. For further information refer to the content in this Product Catalogue or the relevant WSAA Codes and/or MRWA Supplement.

ORGANISATION OF THIS CATALOGUE

The information for each product in this catalogue is formatted as shown below.

| | |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Material | The material of the relevant product. |
| Brands | The marketing name used by the manufacturer of the product. |
| Special Conditions | Special conditions imposed by CWW on the use of the listed product. |
| Installation Drawing | The Installation Drawing refers to the CAD drawing of the product as referenced in the WSAA Sewage Pumping Station Code WSA 04-2005 V 2.1. |

Product Specifications, Australian Standards and International Standards relevant to products listed are shown at the beginning of each product category.

INFORMATION

For further information and to advise of possible errors, omissions and changes required for future revisions, please fill out a [Document Improvement Request Form](#) and submit to standards@citywestwater.com.au.

DUCTILE IRON PIPELINE SYSTEMS

Refer to Pressure Pipeline Systems Products Catalogue.

STEEL PIPELINE SYSTEMS

Refer to Pressure Pipeline Systems Products Catalogue.

POLYVINYLCHLORIDE (PVC) SYSTEMS

Refer to Pressure Pipeline Systems Products Catalogue.

POLYETHYLENE PIPELINE SYSTEMS

Refer to Pressure Pipeline Systems Products Catalogue.





ACRYLONITRILE BUTADIENE STYRENE (ABS)




Refer to Pressure Pipeline Systems Products Catalogue.

SURFACE FITTINGS

| | |
|----------------------|---------------------------------------------------------------------|
| SPECIFICATION | WSA PS – 290 Access Covers for Water Supply and Sewerage to AS 3996 |
|----------------------|---------------------------------------------------------------------|

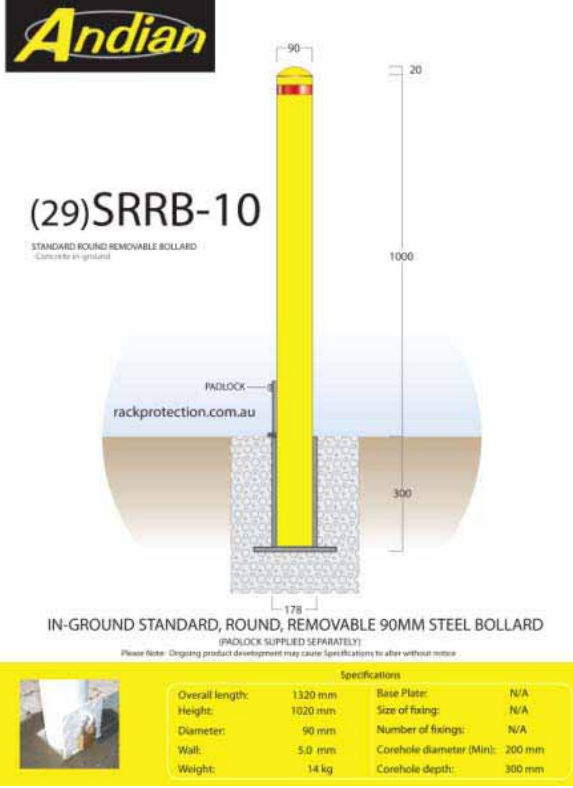
PUMP STATION WETWELL COVER AND FRAME (INCLUDING FALL PROTECTION GRID AND PORTABLE SAFETY RAIL)

| | | | |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Material | Aluminium |  |  |
| Special Conditions | Hinged aluminium covers as specified in City West Water Supplementary Manual to the WSAA Sewerage Code of Australia WSA 04-2005: 2.1 | | |
| | Aluminium fall protection grid and mounting brackets suitable for CWW's portable handrail system as specified in City West Water Supplementary Manual to the WSAA Sewerage Code of Australia WSA 04-2005: 2.1 |  |  |

| | | | |
|--|--|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| | |  <p>Aluminium Corner Bracket</p> |  <p>Handrail System – Complete with Posts, Rails</p> |
| | |  <p>Installation Drawing</p> | |

| Supplier | Brand Name | Type | Clear Opening Size (mm) | Certification Schedule |
|---------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------|
| Kennedy's Aluminium | Kennedy | <p>Pump Station Wet well cover and frame (including fall protection grid and portable safety rail)</p> <p>Railsafe Telescopic Guardrail Systems comprising of:</p> <ol style="list-style-type: none"> 1. Corner posts; 2. Telescopic rails (all size dimensions); 3. Special centre post with double rail connections to support long span; and 4. Aluminium Post Inserts | Varies; specific for each pumping station | |

ROUND REMOVABLE STEEL BOLLARD

| <p>Material</p> | <p>Steel</p> |  <table border="1" data-bbox="997 963 1412 1086"> <thead> <tr> <th colspan="4">Specifications</th> </tr> </thead> <tbody> <tr> <td>Overall length:</td> <td>1320 mm</td> <td>Base Plate:</td> <td>N/A</td> </tr> <tr> <td>Height:</td> <td>1020 mm</td> <td>Size of fixing:</td> <td>N/A</td> </tr> <tr> <td>Diameter:</td> <td>90 mm</td> <td>Number of fixings:</td> <td>N/A</td> </tr> <tr> <td>Wall:</td> <td>5.0 mm</td> <td>Corehole diameter (Min):</td> <td>200 mm</td> </tr> <tr> <td>Weight:</td> <td>14 kg</td> <td>Corehole depth:</td> <td>300 mm</td> </tr> </tbody> </table> | Specifications | | | | Overall length: | 1320 mm | Base Plate: | N/A | Height: | 1020 mm | Size of fixing: | N/A | Diameter: | 90 mm | Number of fixings: | N/A | Wall: | 5.0 mm | Corehole diameter (Min): | 200 mm | Weight: | 14 kg | Corehole depth: | 300 mm |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--|--|--|-----------------|---------|-------------|-----|---------|---------|-----------------|-----|-----------|-------|--------------------|-----|-------|--------|--------------------------|--------|---------|-------|-----------------|--------|
| Specifications | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Overall length: | 1320 mm | Base Plate: | N/A | | | | | | | | | | | | | | | | | | | | | | | |
| Height: | 1020 mm | Size of fixing: | N/A | | | | | | | | | | | | | | | | | | | | | | | |
| Diameter: | 90 mm | Number of fixings: | N/A | | | | | | | | | | | | | | | | | | | | | | | |
| Wall: | 5.0 mm | Corehole diameter (Min): | 200 mm | | | | | | | | | | | | | | | | | | | | | | | |
| Weight: | 14 kg | Corehole depth: | 300 mm | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Special Conditions</p> <ul style="list-style-type: none"> ▪ Surface finish – hot dipped galvanised ▪ Locking System – Padlock not supplied by the supplier. CWW will provide appropriate padlocks. ▪ Colour – Safety Yellow ▪ Weight – 11 to 14 kg ▪ Height – 1000mm aboveground; 200 – 300mm below ground ▪ Bollard size – 90mm circular ▪ Thickness – 4 to 5mm | <p>Installation Drawing</p> | | | | | | | | | | | | | | | | | | | | | | | | | |

| Supplier | Brand Name | Type | Certification Schedule |
|----------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Andian Sales Pty Ltd | Andian | <p>Removable steel 90mm round bollard:</p> <ul style="list-style-type: none"> ▪ Height - 1020mm above ground 300mm below ground ▪ Diameter - 90mm ▪ Wall thickness - 5mm ▪ Weight - 14kg ▪ Locking System - Padlock (not supplied). CWW will provide appropriate padlocks ▪ Colour - Safety yellow | |
| JamesLuke Australia | JamesLuke | <p>Removable steel 90mm round bollard:</p> <ul style="list-style-type: none"> ▪ Height - 1000mm above ground 200mm below ground ▪ Diameter - 90mm ▪ Wall thickness - 4mm ▪ Sleeve - 140 dia Comes with hinged lid to eliminate any trip hazard ▪ Weight - 14kg ▪ Locking System - Padlock (not supplied). CWW will provide appropriate padlocks ▪ Colour - Safety yellow | |

MISCELLANEOUS PRODUCTS

Refer to Pressure Pipeline Systems Products Catalogue.


VALVES

Refer to Pressure Pipeline Systems Products Catalogue.

MAINTENANCE PRODUCTS

Refer to Pressure Pipeline Systems Products Catalogue.

GAP FILLING EPOXY PASTE ADHESIVE FOR CIVIL ENGINEERING USE

| | | | |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--|
| Australian Standard | |  | |
| Other Standards | | | |
| Special Conditions | <ul style="list-style-type: none">▪ Ideal for structural bonding and repairs of precast concrete.▪ Two component epoxy paste based on DGEBA epoxy resin and carbonate free filler.▪ Shelf life of unopened kits is 2 years minimum▪ The product should be stored in a cool, dry place | | |
| | | Standard Drawing | |


| Supplier | Brand Name | Type | Containers | Certification Schedule |
|------------------------------|-------------|--------------------------------------------------------------------------|-------------------------|------------------------|
| Vivacity Engineering Pty Ltd | Megapoxy P1 | Megapoxy P1 – Gap Filling Epoxy Paste Adhesive for civil engineering use | 4 Litre & 20 Litre kits | |

BOSTIK 5240 SEALING STRIP

| | | |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Australian Standard | | |
| Other Standards | | |
| Special Conditions | <ul style="list-style-type: none"> ▪ Ideal for structural bonding and repairs of precast concrete. ▪ Two component epoxy paste based on DGEBA epoxy resin and carbonate free filler. ▪ Shelf life of unopened kits is 2 years minimum ▪ The product should be stored in a cool, dry place | |
| | | Standard Drawing |

| Supplier | Brand Name | Type | Delivery | Certification Schedule |
|--------------------------|-------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Bostik Australia Pty Ltd | Bostik 5240 Brown | Bostik 5240 Sealing Strip | <ul style="list-style-type: none"> ▪ 13mm dia x 18 mtr spools ▪ 8 mm x 6 mm x 8 mtr rolls ▪ This material is extruded in 20mm x 15mm x 4.4 metres - off white colour Strip lengths onto a release paper supplied rolls and packed in cartons containing 5 rolls. | |

FEMALE B-TYPE QUICK COUPLINGS

| | | |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Australian Standard | |  |
| Other Standards | | |
| Special Conditions | <ul style="list-style-type: none"> ▪ New Stronger Alloy Steel ▪ Advanced Manufacturing Techniques ▪ Quicker Set Up and Disassembly Times ▪ Increased Reliability ▪ Enhanced Material Construction ▪ Decreased operational expenses involved in moving large volumes of water | |
| | | Standard Drawing |

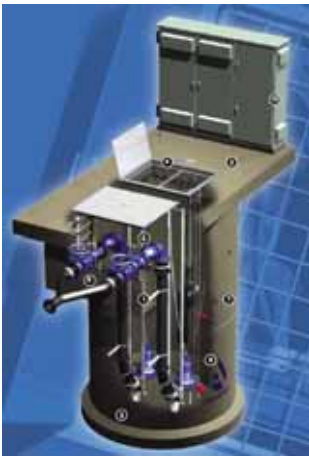

| Supplier | Brand Name | Type | Pressure Rating | Nominal Size | Certification Schedule |
|-----------------------------|-------------------------------------|-------------------------------|-----------------|--------------|------------------------|
| IB International Irrigation | Bauer interchangeable B12 Couplings | Female B-Type Quick Couplings | 20 Bar | DN 300 | |

PRESSURE SEWER PRODUCTS COMPONENTS

Refer to Products Catalogue for Pressure Pipeline Systems.

MODULAR PUMP STATIONS

PACKAGED PRECAST CONCRETE SEWER PUMP STATIONS


| | | | |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Australian Standard | AS 3735:2001 Concrete structures for containing liquids. |  |  |
| | AS/NZS 1546.1:1998 – On-Site domestic waste water treatment units – Part 1: Septic Tanks. | | |
| Other Standards | WSA 04:2005 Sewage Pumping Station Code | | |
| Special Conditions | For special conditions of use of modular pre-cast concrete Pumping Stations refer to City West Water Supplementary Manual to the Sewerage Pumping Station Code WSA 04 | | |
| | The range of optional items (offer at fit out) shall be in accordance with City West Water Pumping Station Product Catalogue | | |
| | | Aquatec SPS | ITT W&WW SPS |
| | | Standard Drawing | |

| Supplier | Model | Internal Diameter | Maximum Depth (m) | Integral Valve Chamber | Increment Size (mm) | Normal Pit Capacity (ltr) |
|-------------------------------------|-------|-------------------|-------------------|------------------------|---------------------|---------------------------|
| Aquatec Environmental Group Pty Ltd | PPM | 1800 | 10 | 1200 x 1200 | 300 | 4500 |
| | PPL | 2250 | 10 | 1500 x 1500 | 300 | 7000 |
| | PPG | 3200 | 10 | 2200 x 1800 | 500 | 14000 |

| Supplier | Model | Internal Diameter | Maximum Depth (m) | Integral Valve Chamber | Increment Size (mm) | Normal Pit Capacity (m ³) |
|------------------------|------------|-------------------|-------------------|------------------------|---------------------|---------------------------------------|
| ITT Water & Wastewater | 11CSM 1800 | 1800 | 8 | 900 x 900 | 300 | 20.35 |
| | 11CSM 2200 | 2200 | 14 | 1200 x 1200 | 300 | 53.19 |
| | 11CSM 3000 | 3000 | 14 | 1500 x 1500 | 500 | 98.91 |

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PACKAGED FIBREGLASS PUMP STATIONS

| | | |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Australian Standard | AS 2634 - 1983 Chemical plant equipment made from glass-fibre reinforced plastic (GRP) based on thermosetting resins. |  |
| | AS/NZS 1546.1:1998 – On-Site domestic waste water treatment units – Part 1: Septic Tanks. | |
| Other Standards | BS 4994:1987 Specification for design and construction of vessels and tanks in reinforced plastics | |
| Special Conditions | <ul style="list-style-type: none"> ▪ The range of optional items (offered at fit out) shall be in accordance with City West Water Pumping Station Systems Product Catalogue. ▪ An integral valve chamber is available as an option. This comes in different sizes ranging from 600mm x 600mm to 2000mm x 2000mm and a standard depth of the of 1000mm, deeper on request. ▪ Pump Stations only to be used in alternative water supply (storm water) applications. ▪ Each proposed Aquatec Fibreglass Pump Station to be used in Alternative Water Supply proposals shall be subject to a design appraisal for an assessment for their suitability and specific project requirements. | |
| | | Standard Drawing |


Chamber dimensions

| Supplier | Model No. | Diameter (mm) | Depth (m) | Volume (litres) |
|-------------------------------------|-----------|---------------|-----------|------------------|
| Aquatec Environmental Group Pty Ltd | AFPS 10 | 1000 | 1 – 10 | 1,000 – 10,000 |
| | AFPS12 | 1250 | 1 – 10 | 1,200 – 12,000 |
| | AFPS15 | 1550 | 1 – 10 | 1,700 – 17,000 |
| | AFPS18 | 1850 | 2 – 10 | 5,000 – 25,000 |
| | AFPS20 | 2000 | 2 – 10 | 6,200 – 31,000 |
| | AFPS24 | 2470 | 2 – 10 | 9,600 – 48,000 |
| | AFPS30 | 3000 | 2 – 10 | 14,000 – 70,000 |
| | AFPS35 | 3500 | 2 – 10 | 18,000 – 96,000 |
| | AFPS40 | 4000 | 2 – 10 | 25,000 – 125,000 |
| | AFPS45 | 4500 | 2 - 10 | 31,800 - 159,000 |
| | AFPS 50 | 5000 | 2 - 10 | 39,200 - 196,000 |

Cover Type


| Supplier | Ref No. | Loading | Type |
|-------------------------------------|---------|---------------|---------------------------|
| Aquatec Environmental Group Pty Ltd | 1 | Pedestrian | Aluminium Gas-tight |
| | 2 | Light Service | Aluminium Gas-tight cover |
| | 3 | Heavy Service | Aluminium Gas-tight cover |

BOOSTER PUMP STATIONS

| | | |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Australian Standard | |  |
| Other Standards | | |
| Special Conditions | <ul style="list-style-type: none"> ▪ Pump Stations only to be used in alternative water supply (storm water) applications. ▪ Mechanical and electrical items within the package must be as per CWW approved Products Catalogues. ▪ The need for and details of: Accumulators, pump station enclosure, air valves on manifolds, support concrete slab, vehicle and maintenance access and pump bypass; need to be considered as part of the installation design. ▪ Each proposed Aquatec Boosttec Booster System to be used in Alternative Water Supply proposals shall be subject to a design appraisal for an assessment of their suitability and specific project requirements. | |
| | | <p>Standard Drawing</p> |

| Supplier | Model | Description |
|-------------------------------------|-------------|--------------------------------------------------------------------------|
| Aquatec Environmental Group Pty Ltd | Boosttec AS | On/Off controllable system |
| | Boosttec AF | Variable speed regulation with centrally located frequency converter |
| | Boosttec AE | Variable speed regulation with frequency convertor integrated with motor |

FIBREGLASS STORAGE VESSEL

| | | | | |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|--|
| Australian Standard | AS 2634 - 1983 Chemical plant equipment made from glass-fibre reinforced plastic (GRP) based on thermosetting resins. |  | | |
| | AS/NZS 1546.1:1998 – On-Site domestic waste water treatment units – Part 1: Septic Tanks. | | | |
| Other Standards | BS 4994:1987 Specification for design and construction of vessels and tanks in reinforced plastics | | | |
| Special Conditions | The range of optional items shall be in accordance with City West Water specifications. | <table border="1"> <tr> <td>Standard Drawing</td> <td></td> </tr> </table> | Standard Drawing | |
| Standard Drawing | | | | |

Chamber dimensions

| Supplier | Model No. | Diameter (mm) | Length (m) | Other sizes available on request |
|-------------------------------------|-----------|---------------|------------|----------------------------------|
| Aquatec Environmental Group Pty Ltd | AQES 15 | 1500 | 1 – 50 | Yes |
| | AQES 18 | 1850 | 2 – 50 | |
| | AQES 20 | 2000 | 3 – 50 | |
| | AQES 25 | 2500 | 3 – 50 | |
| | AQES 30 | 3000 | 4 – 50 | |
| | AQES 35 | 3500 | 4 – 50 | |
| | AQES 40 | 4000 | 5 – 50 | |
| | AQES 45 | 4500 | 5 – 50 | |
| | AQES 50 | 5000 | 6 – 50 | |

Cover Type

| Supplier | Ref No. | Loading | Type |
|-------------------------------------|---------|---------------|---------------------------|
| Aquatec Environmental Group Pty Ltd | 1 | Pedestrian | Aluminium Gas-tight cover |
| | 2 | Light Service | Aluminium Gas-tight cover |
| | 3 | Heavy Service | Cast Iron cover Class D |

SUBMERSIBLE PUMPS

| | |
|----------------------|----------------------------------------------------------------------------------|
| SPECIFICATION | Industry Standard for Submersible Pumps for Sewage Pumping Stations WSA 101-2005 |
|----------------------|----------------------------------------------------------------------------------|

| | | |
|-----------------------------|-------------------------------------------------------------------------------------|--|
| Material | Ductile iron | |
| Installation drawing | SEW- 1406 | |
| | SEW- 1404 | |
| | SPS – 1104 | |
| | SPS - 1300, SPS - 1301 | |
| Brand(s) | Flygt | |
| | KSB KRT | |
| | Grundfos | |
| | Other pumps considered on a case by case basis. | |
| Special Conditions | Pumps larger than 5.5 kW shall use soft starters. | |
| | Pumps less than 5.5kW may use DOL, auto transformer or soft starters. | |
| | Sphere clearance shall be a minimum of 75mm | |
| | Final selection of pump model and size is subject to approval from City West Water. | |
| | Centrifugal submersible pumps driven by single-speed motors are required. | |

SOFT STARTERS

| | | |
|-----------------------------|---------------------------------------------------------------------------------------------|--|
| Material | | |
| Installation drawing | | |
| Brand(s) | Allen-Bradley | |
| | Schneider | |
| | Danfoss | |
| | ABB | |
| | AuCom IMS 2 – supplied by NHP | |
| | Sprecher Schuh PCS Ver 2.07 – supplied by NHP | |
| Special Conditions | Must have integrated overload protection | |
| | Must have integrated current and voltage transducers with self diagnostic features. | |
| | Must have all printed circuit boards coated with clear polymer film to withstand corrosion. | |

VARIABLE SPEED DRIVES

| | | |
|-----------------------------|-----------------------------------------------------------------------|--|
| Material | | |
| Installation drawing | | |
| Brand(s) | ABB | |
| | Allen-Bradley | |
| | Danfoss | |
| | Vacon | |
| | Toshiba | |
| Special Conditions | Must have visual display panel for each drive. | |
| | RFI filter shall be provided if not integrated in the VSD controller. | |

LIGHTING INFRASCAN SWITCH

| | | |
|-----------------|-------------------------------------|--|
| Material | Infrascan Switch | |
| Brand(s) | Clipsal Infrascan Switch Series 750 | |

SCADA RTU

| | | |
|---------------------------|-------------------------------------------------------------------|--|
| Brand(s) | King fisher RTU | |
| Special Conditions | Can only be installed by CWW's accredited SCADA system integrator | |
| | | |

LIGHT POLE

| | | |
|-----------------|-------------------------------------|--|
| Material | | |
| Brand(s) | Ingal – EPS Model FSL 45R | |
| | Slimline Pole with Foundation Bolts | |

PUMP CONTROLLER



| | |
|----------------------|-------------|
| SPECIFICATION | IEC 61131-3 |
|----------------------|-------------|

| | | |
|-----------------------------|---------------------------------------|--|
| Material | | |
| Installation drawing | | |
| Brand(s) | MultiTrode Multismart pump controller | |
| Special Conditions | | |
| | | |

FLOW METER

| | | |
|-----------------------------|--------------------------------------------------------------------------------------------|--|
| Material | Magnetic flow meter | |
| Installation drawing | SPS - 1301 | |
| Brand(s) | ABB MagMaster/SITRANS Magflow tube and Mag 6000 Transmitter | |
| Special Conditions | A magnetic flow meter is required on the pressure main, following the valve chamber. | |
| | Flowmeter shall have 4-20mA flow analogue output and a pulse output proportional to volume | |

LEVEL SENSOR (WET WELL & ERS)

| | | |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material | |  <p>ITR Flygt LTU 701 level sensor</p>  <p>Siemens SITRANS P MPS hydrostatic level transmitter</p> |
| Installation drawing | SPS - 1505 | |
| Brand(s) | <ul style="list-style-type: none"> ▪ Vega well 52 with HART PROTOCOL ▪ ITT Flygt LTU 701 with HART PROTOCOL ▪ Siemens SITRANS P MPS Hydrostatic level transmitter | |
| Special Conditions | <ul style="list-style-type: none"> ▪ Hydrostatic level sensor with configurable range (ITT Flygt). ▪ Hydrostatic level transmitter with fixed range (Siemens) ▪ Output is standard 4–20 mA direct current. ▪ Siemens SITRANS P MPS transmitter must be used with junction box (7MF1570-8AA) and cable hanger (7MF1570-8AB). The use of this unit is limited in ERSs. | |

BACKUP PUMP CONTROLLER

| | | |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Material | | |
| Installation drawing | SPS - 1300 | |
| Brand(s) | Omron Zen 500 | |
| Special Conditions | A high level backup pump control via a float set 50mm below the high level alarm shall be installed using Omron Zen programmable relays ZEN-10C1DR-D-V1. | |

WET WELL WASHER

| | | |
|-----------------------------|-------------------------------------------------------------------------|--|
| Material | | |
| Installation drawing | | |
| Brand(s) | MultiTrode | |
| Special Conditions | The washer is to be controlled by the MultiTrode MT2PC pump controller. | |

FLOAT-SWITCH

| | | |
|---------------------------|-------------------------------------|--|
| Brand(s) | Flygt ENM 10 | |
| Special Conditions | Should have both NO and NC contacts | |

THRUST/PUDDLE FLANGE

| | | |
|-----------------------------|--------------|--|
| Material | Ductile Iron | |
| Installation drawing | | |
| Brand(s) | Tyco | |
| Special Conditions | | |

AIR VALVES

| | | |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Material | Stainless Steel | |
| Installation drawing | | |
| Brand(s) | Val-Matic | |
| Special Conditions | Must incorporate: <ul style="list-style-type: none"> ▪ a combined kinetic and automatic air release ▪ backwash accessories kit | |

ISOLATING VALVE (DELIVERY PRESSURE MAIN)

| | | |
|-----------------------------|---------------------------------------------------------------|--|
| Material | Stainless Steel | |
| Installation drawing | | |
| Brand(s) | | |
| Special Conditions | Wheel operated, clockwise closing and have a non-rising stem. | |

DISMANTLING JOINTS


| | | |
|-----------------------------|---------------------------------------------------------------------------|--|
| Material | | |
| Installation drawing | | |
| Brand(s) | Metaval | |
| Special Conditions | Uni-Flange type. Using only stainless steel grade AISI4100 set screws. | |

CABINET LOCKS

| | | |
|-----------------|-----------------------------------------------------------------------------------------------------------|--|
| Brand(s) | Lockwood PI 201 Series Night latch cylinder lock with PI 3874 key – for Power Authority meter compartment | |
| | CWW1 Key – for CWW General M&E Compartments | |
| Supplier | Auslock & Safe Pty Ltd | |

CHECK VALVES

BALL CHECK VALVE FOR PRESSURE SEWER

| | | | |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--|
| SPECIFICATION | WSA PS - 264 Non Return (Reflux) Valves | | |
| Australian Standard | AS 4794-2001 Non-return valves – Swing check and titling disc |  Type 1 (AVK) Type 2 (Upwey Group) | |
| Other International Standards | ISO 5208:2008 Industrial valves - Pressure testing of metallic valves | | |
| Special Conditions | <p>Type 1 (AVK) Flanges and Drilling to AS 4087 Figure B5 or AS 2129 Table D Body and cover - Ductile Iron Fusion Bonded Epoxy coating to AS/NZS 4158 Ball of the check valve:</p> <ul style="list-style-type: none"> • DN 80 to 100 - Aluminium, vulcanised with NBR rubber • DN 150 to 300 - Grey cast iron, vulcanised with NBR rubber. <p>Type 2 (Upwey Group) Flanges and Drilling to AS 2129 Table D or E Fusion Bonded Epoxy coating to AS/NZS 4158 Body and cover:</p> <ul style="list-style-type: none"> • DN 80 to 250 - Cast steel • DN 300 to 600 - fabricated from Carbon steel <p>Ball of the check valve Hollow aluminium core ball Urethane coated</p> | | |
| | <p>Type 3 (ITT Flygt) Flanges and Drilling</p> <ul style="list-style-type: none"> • DN 80 - 150 to EN 1092-2 table 9 (PN 16) and • DN 200 - 600 to EN 1092-2 table 8 (PN 10) <p>Body and cover</p> <ul style="list-style-type: none"> • DN 80 to 600 – Nodular Cast Iron (GGG 40) <p>Ball of the check valve Aluminium core with Polyurethane rubber</p> | Standard Drawings | |


| Supplier | Brand Name | Type | Nominal Size | PN Ratings | Certification Schedule |
|--------------------------------------------------------|-------------|------------------------------------------------|-----------------------------------|----------------|------------------------|
| AVK Australia | AVK | Type 1: Series 53/50 Ball Check valve, Flanged | DN 80 – DN 300 | PN 16 | |
| Upwey Group Pty Ltd DUAL VALVES (Australia) Pty Ltd | Upwey Group | Type 2: Dual Slimline Ball Non-Return Valve | DN 80 – DN 600 | PN 10 & PN 16 | |
| ITT Flygt | HDL | Type 3: 5087 | DN 80 – DN 150 DN 200 – DN 600 | PN 16 PN 10 | |

SWING CHECK VALVE FOR PRESSURE SEWER

| | | |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SPECIFICATION | WSA PS - 264 Non Return (Reflux) Valves | |
| Australian Standard | AS 4794-2001 Non-return valves – Swing check and titling disc |  <p>Val-Matic Swing-Flex</p>  <p>VAG Retro-Stop</p> |
| Other International Standards | ISO 5208:2008 Industrial valves - Pressure testing of metallic valves EN 1074-3:2000 - Valves for Water Supply - Fitness for Purpose Requirements and Appropriate Verification Tests - Part 3: Check Valves | |
| Special Conditions | <p>Val-Matic Swing-Flex Check valve</p> <p>a) Flanges and Drilling</p> <ul style="list-style-type: none"> DN 80 - 750 to AS 4087 Fig B5 (PN 16) and DN 750 - 900 to AS 4087 Fig B5 (PN 10) <p>b) Body and cover DN 80 to 900 – Ductile Iron ASTM A536 Gr 65-45-12</p> <p>c) Disc Buna-N (NBR), ASTM D2000-BG</p> <p>d) Coating (Interior & Exterior) Fusion Bonded Epoxy Resicoat R4</p> <p>VAG Retro-Stop Swing Check Valve</p> <p>a) Flanges and Drilling DN 80 - 300 to AS 4087 Fig B5 (PN 16 and PN 10)</p> <p>b) Body and cover DN 80 to 300 – Ductile Iron EN-JS 1030 (GGG-40)</p> <p>c) Disc Ductile Iron EN-JS 1030 (GGG-40), EPDM vulcanised, elastomers of EPDM approved according to W 270 DVGW – German standard for in contact with potable water</p> <p>d) Coating (Interior & Exterior) Fusion Bonded Epoxy</p> | |
| | | Standard Drawings |

| Supplier | Brand Name | Type | Nominal Size | PN Ratings | Certification Schedule |
|------------------------------|----------------|-------------|-----------------------------------|----------------|------------------------|
| HMA Valveco | Val-Matic | Swing-Flex | DN 80 – DN 750 DN 750 – DN 900 | PN 16 PN 10 | |
| Metaval Consolidated Pty Ltd | VAG Retro-Stop | Swing check | DN 80 – DN 300 DN 200 – DN 300 | PN 16 PN 10 | |


RUBBER CHECK VALVES FOR PRESSURE SEWER

| | | |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| SPECIFICATION | |  |
| Australian Standard | | |
| Other International Standards | | |
| Special Conditions | <ul style="list-style-type: none"> ▪ ProFlex in-line Rubber Check Valves are supplied with 316 stainless steel retaining rings and 304 stainless steel clamps as standard ▪ Check valves elastomers are made of Nitrile (NSF/ANSI Standard 61), Neoprene, Natural Rubber, Hypalon®, Chlorobutyl, EPDM, and Viton • One of the optional materials for the ProFlex Rubber Check Valves is the NSF/ ANSI Standard 61, suitable for potable water applications as well. | |
| | | Standard Drawings |

| Supplier | Brand Name | Type | Nominal Size | PN Ratings | Certification Schedule |
|--------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------------------------------------|------------------------|
| PROCO Products Inc | PROCO | ProFlex Style 710 Flanged Type: <ul style="list-style-type: none"> ▪ designed to bolt directly to existing flanges or new installations, flanges are drilled to BS-10; ▪ can be installed in either a vertical or horizontal application | DN 25 - 1800 | Can withstand back pressure up to 13.8 bar | |
| | | ProFlex Style 730 Sleeve Type: <ul style="list-style-type: none"> ▪ designed to easily slip over existing pipe and affixed with heavy-duty Stainless Steel clamps; ▪ can be installed in either a vertical or horizontal application. | | | |
| | | ProFlex Style 720 Flanged Type: <ul style="list-style-type: none"> ▪ designed to bolt directly between two existing pipe flanges. Flanges are drilled to BS-10; ▪ can be installed in either a vertical or horizontal application. | | | |
| | | ProFlex Style 740 Slip-In Type: <ul style="list-style-type: none"> ▪ designed to easily slip into an existing pipe and affixed with a heavy-duty Stainless Steel expandable clamp; ▪ can be installed in either a vertical or horizontal application. | | | |


KNIFE GATE VALVES

HEAVY DUTY GENERAL PURPOSE LUGGED STYLE KNIFEGATE VALVE

| | | |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| SPECIFICATION | |  |
| Australian Standard | | |
| Other International Standards | | |
| Special Conditions | <ul style="list-style-type: none"> ▪ Compact design for easy installation and maintenance ▪ Both 304SS and 316SS valves available ▪ Available in metal & resilient seat ▪ Uni & bi-directional design ▪ One piece integral cast body, chest and lugs ▪ Integral cast in gate wedges minimize flow obstructions ▪ High flow rates with low pressure drops ▪ Gate guides to support gate ▪ Complies with AS6401 & MSS SP-81 face to face dimensions ▪ Every valve pressure tested ▪ Gate machined over full length for optimum sealing ▪ Specifically formulated PTFE impregnated packing material for increased service life and lower friction ▪ Specialised packing for chemical resistant or abrasive applications available on request ▪ Available with a variety of actuators including hand wheel, chain wheel, quick acting lever, geared, electric, air or hydraulic cylinder actuator | |
| | | Standard Drawings |

| Supplier | Brand Name | Type | Nominal Size | PN Ratings | Certification Schedule |
|------------------------|------------|---------------------------------------------------------|--------------|------------|------------------------|
| HMA Group of Companies | Valveco | Heavy Duty General Purpose Lugged Style Knifegate valve | DN 50 - 600 | 10 bar | |

SEWERAGE ISOLATION VALVES

| | | |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| SPECIFICATION | |  |
| Australian Standard | | |
| Other International Standards | | |
| Special Conditions | <ul style="list-style-type: none"> ▪ designed and manufactured in Australia specifically for wet well sewage pump station isolation ▪ Stainless steel construction suitable for submergence or splashing by sewage and sludge ▪ Maintenance free integral seat design, within 316 Grade stainless steel body. Other components of the design manufactured in the same grade material include gate, superstructure and all fasteners ▪ The valve body is tapped to suit the flange drilling up stream as required. Design suitable for end of line isolation ▪ There is no gland sealing on this valve so it is a maintenance free piece of equipment; ▪ The valve stem is driven through a fixed bronze drive bush operated by a 316 grade stainless steel tube fitted with a standard square drive. This unique design fully isolates the threaded drive spindle from sewage contamination when it is in the open position, as it is totally contained within a permanently lubricated and protected enclosure ▪ Operating stem extensions can be easily fitted to the valve's non rising square drive and can be manufactured in various materials to suit requirements. It is recommended that extensions are supported independently when over three metres in length. | Standard Drawings |

| Supplier | Brand Name | Type | Nominal Size | PN Ratings | Certification Schedule |
|------------------------|------------|------------------------------------------------------------|--------------|------------|------------------------|
| HMA Group of Companies | Valveco | Sewerage Isolation Valves – Dependable Waste Water Control | DN 100 - 600 | 10 bar | |

ELECTRIC ACTUATORS

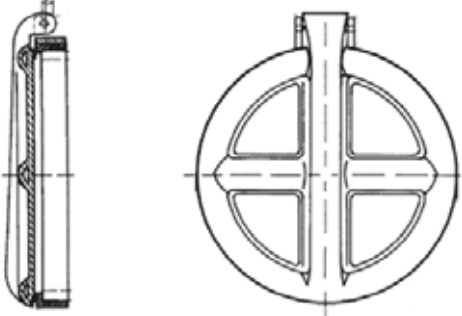
ELECTRIC ACTUATORS FOR WATER SUPPLY AND PRESSURE SEWER

| | | | |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| SPECIFICATION | None |  <p>Limitorque MX type</p>  <p>Limitorque QX type</p>  <p>Rotork IQ type</p>  <p>Rotork IQT type</p> | |
| Australian Standard | None | | |
| Other International Standards | AWWA Standard for power actuating device for valves and sluice gates | | |
| Features | <p>Features for both Limitorque and Rotork Actuators</p> <ul style="list-style-type: none"> ▪ IP68 enclosure rated ▪ Double seal design meaning control & internal components are separated from termination chamber, never exposing them to environmental conditions. ▪ LCD screen that provides actuator status and diagnostics in an easy to use, easy to read, graphical format ▪ Non intrusive, set up. ▪ Simple menu command for set up, no symbols to remember ▪ Absolute encoder for position sensing ▪ Wide selection of monitoring, control and logic functions all selectable through the actuator control switches and menu ▪ Options include position feed back or modulating process control up to 1200 starts per hour with solid state reversers ▪ Digital network communications with a variety of protocols including Profibus, Foundation Fieldbus ▪ Communication capability for remote configuration where the access to the actuator is difficult ▪ Manual hand wheel and declutch device is standard. <p>Features for Limitorque Actuator</p> <ul style="list-style-type: none"> ▪ 32-character LCD screen that provides actuator status and diagnostics in an easy to use, easy to read, graphical format ▪ Adjustable torque settings ▪ Bluetooth communication capability for remote configuration where the access to the actuator is difficult ▪ The MX is available as High and low voltage 3-phase supply. Manual handwheel and declutch device is standard. ▪ The QX is low or high voltage AC for operation on single or 3-phase supply. DC operation is possible from 24 to 48 V DC. <p>Features for Rotork Actuator</p> <ul style="list-style-type: none"> ▪ 1000 hour salt spray corrosion resistant using marine grade alloy enclosure, with powder coating and stainless steel fasteners. ▪ Non intrusive, access controlled, set up via IrDA setting tool. ▪ Simple menu command for set up, no symbols to remember, with built in help screens. ▪ Adjustable torque settings from 100% to 40%. ▪ Data logger for storing the last 1024 events, to assist with diagnosis of valve problems, with torque signature. ▪ Remote Indication position & data logger events are maintained during loss of mains power with a long life battery backup. ▪ Absolute encoder for position sensing - no battery backup with IQ AP option. ▪ Rotork - Available as high and low voltage 3-phase, single phase or DC supply options ▪ Digital network communications with a variety of protocols including Profibus , Modbus, Foundation Fieldbus, DeviceNet & SCADA ▪ Backed up with factory trained Rotork Site Service field technicians. | | |
| Limit of Use | For Limitorque MX type a single phase and DC version will be available very shortly. | | |

| Manufacturer / Supplier | Brand Name / Model | Type | Applications | Certification Schedule |
|----------------------------------------------|--------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Flowserve Corporation USA / Acrodyne Pty Ltd | Limitorque MX | Electric Actuator for multi turn sluice and gate valves | The MX is suitable for Sluice Valve, Gate Valve, Penstock, in general all valves requiring multi-turn or part turn operation e.g. large Butterfly and Plug valves. | |
| | Limitorque QX | Electric Actuator for quarter turn butterfly valves | The QX is suitable for all part turn applications, Butterfly, Plug , ball valves and Dampers, additionally the QX can be used as a Control valve actuator for very fine and precise control of level and or flow. | |
| Rotork Plc / Rotork Australia Pty Ltd | Rotork IQ | Electric Actuator for multi turn sluice and gate valves | The IQ is suitable for Sluice Valve, Gate Valve, Penstock, in general all valves requiring multi-turn or part turn operation e.g. large Butterfly and Plug valves. | |
| | Rotork IQT | Electric Actuator for quarter turn butterfly valves | The IQT is suitable for all part turn applications, Butterfly, Plug , ball valves and Dampers, additionally the QX can be used as a Control valve actuator for very fine and precise control of level and or flow. | |

FLOODGATES

MOUNTING RING TYPE FLOODGATES

| | | |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| SPECIFICATION | |  |
| Australian Standard | | |
| Other International Standards | | |
| Material | Floodgates are moulded from fibreglass reinforced polyester with high tensile 316 stainless steel built-in hinge fittings and replaceable neoprene sealing rings | |
| Special Conditions | <p>Handling</p> <p>Hume-King Floodgates are extremely durable but can be damaged by careless handling. The following practices should be avoided:</p> <ul style="list-style-type: none"> ▪ During handling the gate must not be allowed to flop back 180° on the mounting ring; this causes a severe lever action which in heavy gates could damage the hinge. Note that in operation the gate will not rise more than 90°. ▪ During installation the integrity of the hinge pin of the gate must be maintained. In the event that the hinge pin is moved it may become permanently loose which will lead to operational problems. | Standard Drawings |

| Supplier | Brand Name | Type | Nominal Pipe Size | Certification Schedule |
|----------|------------|------------------------------------------|-------------------|------------------------|
| Humes | King | Hume-King Floodgate – Mounting Ring Type | DN 100 - 900 | |

APPROVED MANUFACTURERS AND SUPPLIERS

| Supplier | Address | Phone | Fax | Email |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------|--------------------|------------------------------------------------------------------------------------|
| ABB Australia www.abb.com | 850 Lorimer St Port VIC 3207 | (03) 8645 0500 | (03) 9681 9521 | |
| Acrodyne Actuation and Control www.acrodyne.com.au | Factory 14, 11 Havelock Rd, Bayswater VIC 3153 | (03) 8727 7800 | (03) 9729 8699 | choare@acrodyne.com.au |
| Apollo General Engineering (Aust) Pty Ltd http://www.apollo-engineering.com.au | 13-21 Culverlands Street PO Box 5003, West Heidelberg DC, VIC 3081 | (03) 9459 4611 | (03) 9457 5835 | info@apollo-engineering.com.au |
| Aquatec Fluid Systems - a division of Aquatec Environmental Group Pty Ltd http://www.aquatecenviro.com.au | P O Box 841 SHEPPARTON VIC 3632 | 1800 852 782 | (03) 5831 4588 | hseeley@aquatecenviro.com.au |
| Andian Sales Pty Ltd http://www.rackprotection.com.au | 4 Glennden Court Bundoora Vic 3083 | (0430) 046 878 | (03) 9467 2217 | rackarmourvic@bigpond.com |
| Atom Supply (for MacDermid Plc) http://www.macdermid.com | 77 McDowell St Welshpool Perth WA 6106 | (08) 9351 3600 | (03) 9351 3699 | bruce@atomsupply.com |
| Auslock & Safe Pty Ltd www.auslock.com.au | Factory 16, 47-51 Boundary Rd Laverton North, VIC 3026 | (03)9318 9711 | (03)9318 9877 | sales@auslock.com.au |
| AVK Australia Pty Ltd http://www.avkvalves.com.au | 559A Grand Junction Rd, Wingfield SA 5013 | (08) 8368 0900 | (08) 8368 0970 | info@avkvalves.com.au |
| B.R. Durham & Son Pty Ltd www.durham.com.au | Lot 103 Curtis Road, Mulgrave, NSW 2756 | (02) 4587 7011 1300 DUR HAM | (02) 4587 7069 | sales@durham.com.au |
| Beverly Industries Australia http://www.beverlyind.com | Recycle Park, 249 Hanson Road, Ottoway, SA 5013 | (08) 8447 8545 | (08) 8447 8929 | sales@beverlyind.com |
| Boddingtons Australia Pty Ltd http://www.boddingtons.com.au | Unit 1-3 42-26 Vella Drive Sunshine, Vic 3020 P.O. Box 316, Altona North VIC 3025 | 1800 357211; (03) 9310 2100 | (03) 9310 2466 | sales@boddingtons.com.au |
| Bostik Australia Pty Ltd http://www.bostik.com.au | 51-71 High Street Thomastown VIC 3074 | (03) 9279 9333 | (03) 9279 9240 | |
| Crevet Pipelines Pty Ltd Pipelines Pty Ltd http://www.crevet.com.au | 7 -15 Radford Rd Reservoir VIC 3073 | (03) 9460 2677 | (03) 9462 1314 | melbourne@crevet.com.au |
| Danfoss (Australia) Pty Ltd www.danfoss.com.au | PO Box 5150 Hallam, VIC 3804 | (03) 9703 5100 | (03) 9703 5159 | danfoss@danfoss.com.au |
| D J Muller Enterprises Pty Ltd | 185 Briens Rd Northmead NSW 2152 | (02) 9630 2788 | | - |
| E.J. Hadaway Pty Ltd http://www.ejhadaway.com.au | 3 Nicholas Drive Dandenong VIC 3152 | (03) 9706 6102 | (03) 9706 6103 | info@jhadaway.com.au |
| Four B Engineering | 60-62 Kirkham Road West Keysborough, VIC 3173 | (03) 9798-8767 | (03) 9798- 8767 | - |
| Gatic-Milnes http://www.gatic.com.au | 7-15 Radford Rd Reservoir VIC 3073 | (03) 9316 2666 | (03) 9315 0099 | sales@gatic.com.au |
| Grundfos www.grundfos.com.au | Unit C13, 2A Westall rd Springvale Clayton VIC 3171 | (03) 9544 3655 | (03) 9544 6677 | contact-au@grundfos.com |
| Havestock Pty Ltd www.havestock.com.au | PO Box 34 Virginia QLD 4014 | (07) 3216 5000 | (07) 3216 5222 | havestock@havestock.com.au |

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| Halley & Mellowes Australasia Group of Companies (Valveco) http://www.valveco.com.au | Level 4, 150 Albert Rd PO Box 290, South Melbourne VIC 3205 | (03) 9685 7598 | (03) 9685 7599 | Melbourne@hmagroup.com.au Vic Sales Manager David Mckay dmckay@hmagroup.com.au sales@hultec.com.au |
| Hultec Asia Pacific Pty Ltd http://www.hultec.com.au | 81 Christie Street St Marys NSW 2760 | (02) 9833 9988 | (02) 9833 9977 | |
| Humes http://www.humes.com.au | 122A Dohertys Road Laverton, VIC 3028 | (03) 9360-3888 | (03) 9360-3887 | - |
| HMA Group of Companies http://www.valveco.com.au | P O Box 290 SOUTH MELBOURNE VIC 3205 | (03) 9685 7598 | (0)3 9685 7599 | dmckay@hmagroup.com.au melbourne@hmagroup.com.au |
| ITT Flygt Australia www.flygt.com.au | 22 Starr Avenue North Plympton SA 5037 | (08) 8376 1000 | (08) 8376 9111 | - |
| IB International Irrigation http://ibinternational.com.au | PO Box 5481 Manly QLD 4179 | (07) 3348 8300 | (07) 3348 8900 | info@ibinternational.com.au |
| Icon Industries (Vic) Pty Ltd | Carngham Rd Ballarat, VIC 3350 | (03)5335 8741 | (03) 5336 1118 | - |
| JamesLuke Australia http://www.jamesluke.com.au | 21a Production Drv, Campbellfield VIC 3061 | 1300 306 553 | 1300 308 366 | info@jamesluke.com.au |
| Kennedy's Aluminium | 103-109 Holloway St., Bairnsdale, VIC 3875 | (03) 5152 3633 | (03) 5152 1488 | kennalum@net-tech.com.au |
| Kealba Engineering Pty Ltd | 32 Reid Street Ardeer, VIC 3022 | (03) 9363-5000 | (03) 9363-5706 | |
| KSB www.ksb.com | 27 Indwe Street 3012 Tottenham, VIC 3012 | (03) 9314 0611 | (03) 9314 7435 | harry.katunar@ksbajax.com.au |
| Leap Australasia Pty Ltd www.leapltd.com.au | 95 B Cheltenham Road, Dandenong VIC 3175 | (03) 9791 2462 1800 666 952 | (03) 9791 2108 0425 726 531 | peter@leapltd.com.au |
| Metaval Consolidated Pty Ltd www.metaval.com.au | 17 Kelvin Rd Bayswater, VIC 3153 | (03) 9761 4000 | (03) 9761 4006 | controls@metaval.com.au |
| MultiTrode Pty Ltd www.multitrode.com.au | P O Box 4633 Eight Mile Plains QLD 4113 | (07) 3340 7000 | (07) 3340 7077 | sales@multitrode.com.au |
| PROCO Products Inc http://www.procoproducts.com | 2431 North Wigwam Drive, Stockton, CA 95205 | 209-943-6088 | 209-943-0242 | sales@procoproducts.com |
| Purple Pig (Australia) Pty Ltd www.purplepig.com.au | 180 - 184 McIntyre Road (PO Box 223) Sunshine North VIC 3020 | (03) 9290 1555 | (03) 9292 1500 | purplepig@purplepig.com.au |
| South Eastern Gaskets Pty Ltd www.segaskets.com.au | Unit 7, 2 Sibthorpe St Braeside VIC 3195 | (03) 9587 4122 | (03)9587 4316 | sales@segaskets.com.au |
| Siemens Pty Ltd http://www.siemens.com.au | 885 Mountain Highway Bayswater, VIC 3153 | (03) 97212818 | (03) 97217650 | yash.modi@siemens.com |
| Thomas Grozier and Son P/L | 79 Mars Road, Lane Cove NSW 2066 | 61(0) 2 9427 3635 | (02) 9427 7679 | robert@thomasgrozier.com |
| Toshiba www.toshiba.com.au | 12-24 Talavera Rd North Ryde NSW 2113 | (02) 9887 6000 | (02) 9887 3102 | |
| Tyco Water Pty Ltd http://www.tycowater.com.au | 60A Maffra St Coolaroo VIC 3048 | (03) 9309 9133 | (03) 9309 6237 | ccm@tycowater.com.au |
| Vacon Pacific Pty Ltd www.vacon.com | 5/66-74 Micro Circuit Dandenong South VIC 3175 | (03) 9238 9300 | (03) 9238 9310 | sales.australia@vacom.com |

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| Viking Johnson http://www.vikingjohnson.com | distributed by Philmac Pty Ltd: 60-62 Deeds Rd North Plympton SA 5027 | (08) 8300 9200 | (08) 8300 9395 | info@vikingjohnson.com ; lionelk@philmac.com.au |
| Vivacity Engineering Pty Ltd http://www.megapoxy.com | 3 Sefton Rod, Thornieigh, NSW 2120 | (02) 9875 3034 | (02) 9875 3665 | info@megapoxy.com |

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