



WATER SERVICES
ASSOCIATION OF AUSTRALIA

Derwent Industries Pty Ltd

PRODUCT APPRAISAL REPORT PA 1917

DN150 Derwent Sewer OB Junction Clamp

**WSA PS 346 Stainless Steel Sewer OB Junction Clamps -
Sewerage**

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Peer Reviewers

Name/Title	Organisation	Date
Product Appraisal Technical Advisory Group	WSAA	10 December 2019
WSAA Expert Panel	WSAA	10 December 2019
Peter Pittard, WSAA Consultant	WSAA	26 September 2019
Carl Radford, Product Appraisal Manager	WSAA	11 December 2019

Overview of WSAA

The Water Services Association of Australia (WSAA) is the peak industry body representing the urban water industry. Our members provide water and sewerage services to over 20 million customers in Australia and New Zealand and many of Australia's largest industrial and commercial enterprises.

Based around our vision of 'customer driven, enriching life', WSAA facilitates collaboration, knowledge sharing, networking and cooperation within the urban water industry. We are proud of the collegiate attitude of our members which has led to industry-wide approaches to national water issues.

WSAA can demonstrate success in the standardisation of industry performance monitoring and benchmarking, as well as many research outcomes of national significance. The WSAA Executive retains strong links with policy makers and legislative bodies and their influencers, to monitor emerging issues of importance to the urban water industry.

WSAA was formed in 1995 as a non-profit organisation to foster the exchange of information between industry, government and the community, and to promote sustainable water resource management.

The urban water industry is committed to anchoring its services to customers' values, and to enrich communities where water services have broad economic, environmental and social values. In line with this our main activities focus on four areas:

1. influencing national and state policies on the provision of urban water services and sustainable water resource management
2. promoting debate on environmentally sustainable development and management of water resources and the community health requirements of public water supplies
3. improving industry performance and establishing benchmarks and industry leading practices for water service processes; and
4. fostering the exchange of information on education, training, research, water and wastewater management and treatment and other matters of common interest.

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1 EXECUTIVE SUMMARY

Derwent Industries Pty Ltd is a wholly owned operating unit of the Evans Group of Companies, a private family owned business originally established in 1963. Other members of the Evans Group include Derwent International Pty Ltd, Desal Systems Pty Ltd and Advanced Water Group Pty Ltd. Derwent Foundry and Derwent Pipelines are trading names of Derwent Industries Pty Ltd.

Stainless-steel sewer OB junction clamps are manufactured at Derwent's stainless-steel fabrication facility in Wodonga, Victoria.

This appraisal covers a PN1 DN 150 x dn 100 stainless steel sewer OB junction clamp. This product enables installation of new permanent service connections to existing PVC-U, VC or AC sewer mains. The 45° offtake is fitted with a DN 100 PVC-U compatible solvent weld socket for connection to a PVC-U service pipe. Clamps with 90° offtakes are also available. Derwent offers a larger range of OB clamps; however, type testing has only been completed for the DN 150 x dn 100 clamp at this time. Details are provided in Section 3.

The stainless-steel clamps are manufactured from Grade 316 stainless steel with a full circle nitrile rubber seal.

Derwent Industries Pty Ltd has a quality management system certified to ISO 9001:2015.

As these types of clamps are currently not covered by an Australian Standard, WSAA has created a specification based on AS 4181-2013 *Repair and Off-take Clamps for Pressure Applications – Water Supply*.

This Appraisal has determined that the Derwent stainless steel sewer OB junction clamp, as detailed in Section 3, complies with the requirements of WSA PS 346 – *Stainless Steel Sewer OB Junction Clamps - Sewerage* and are considered as 'fit for purpose'.

1.1 Recommendations

It is recommended that WSAA members, subject to any specific requirements of the member, accept or authorise DN 150 x dn100 Derwent stainless steel sewer OB junction clamps, as detailed in this report, for use in non-pressure sewerage pipelines, provided they are installed in accordance with WSAA Codes and the manufacturers requirements, where specified

2 THE APPLICANT

The applicant is Derwent Industries Pty Ltd.

2.1 The Manufacturer

Derwent Industries Pty Ltd is a wholly owned operating unit of the Evans Group of Companies, a private family owned business originally established in 1963. Other members of the Evans Group include Derwent International Pty Ltd, Desal Systems Pty Ltd and Advanced Water Group Pty Ltd. Derwent Foundry and Derwent Pipelines are trading names of Derwent Industries Pty Ltd.

The clamps are manufactured at Derwent's stainless-steel fabrication facility in Wodonga, Victoria.

The Evans Group has a long history of involvement in manufacturing and marketing products for the Australian water industry. In 1981 Wang Industries Pty Ltd, a member of the Evans Group, began the manufacture of the first Australian made stainless steel repair clamp range, branded as Kawandah. In the 1990's a range of Varigib repair couplings was introduced to the market. Wang Industries acquired Derwent Foundry, located in Hobart Tasmania, in 1997, which provided manufacturing capability for a complete range of ductile iron fittings.

In 2001 Tyco International acquired Wang Industries, however the Evans Group retained Derwent Foundry, now operating as the manufacturing arm of Derwent Industries Pty Ltd.

The stainless-steel fabrication facility was established in 2018.

Derwent Industries Pty Ltd is the operations and sales arm of the Group whilst Derwent International Pty Ltd is the logistics business, importing pipeline component products for Derwent Industries, to complement their manufactured products.

For more information see: www.derwentindustries.com.au

3 THE PRODUCT

Derwent stainless steel sewer OB junction clamps enable the installation of permanent service connections to existing or new PVC-U, VC or AC non-pressure sewer mains.

The clamps are manufactured from Grade 316 stainless steel with a full circle nitrile rubber seal. The Grade 316 stainless-steel fasteners are coated with a Molybond compound to minimise galling.

This Appraisal covers DN 150 x dn 100 PN1 OB junction clamps with a PVC-U compatible solvent weld socket fitted to a 45° offtake. The clamp is 300mm long. Clamps with 90° offtakes are also available. See Table 1 for details of the range.

TABLE 1
DN DERWENT OB JUNCTION CLAMPS

DN	Pipe OD Range mm	Branch DN/OD
150	150-160	100/110
150	160-170	100/110
150	175-185	100/110
150	190-200	100/110

The PVC-U solvent weld socket outlet is fitted to the stainless steel off-take with an interference fit and the joint sealed using a silicon-based adhesive.

The inside diameter of the stainless steel off-take is 108mm whilst the ID of the PVC-U pipe is 104mm. This ensures that there are no protrusions to the flow into the main.



FIGURE 1 DERWENT SEWER OB JUNCTION CLAMP

4 SCOPE OF THE APPRAISAL

The scope of this appraisal covers Derwent branded stainless steel sewer OB junction clamps rated as PN1 in sizes DN 150 x dn 100 with a solvent weld socket off-take to suit DN 100 PVC-U sewer pipe to AS/NZS 1260.

Derwent offers a full range of OB junction clamps as detailed in Appendix A, however the scope of this appraisal is limited to the clamps qualified by type test requirements specified in AS 4181:2013.

5 APPRAISAL CRITERIA

5.1 Quality Assurance Requirements

The WSAA Product Appraisal Technical Advisory Group accepts sewer OB junction clamps manufactured to comply with WSA PS 346 – *Stainless Steel Sewer OB Junction Clamps – Sewerage*.

The manufacturer is generally expected to have a production management and control system that has been duly accredited in accordance with AS/NZS ISO 9001 as a prerequisite to undergoing a product certification audit.

Sewer OB junction clamps are not covered by an Australian Standard. WSAA has created a specification based on the relevant material requirements of AS 4181-2013 *Repair and Off-take Clamps for Pressure Applications – Water Supply* and incorporated relevant performance tests, including some modified requirements.

5.2 Performance Requirements

Derwent stainless steel sewer OB junction clamps have been appraised for compliance with WSA PS 346 – *Stainless Steel Sewer OB Junction Clamps – Sewerage*.

Appraisal criteria are also determined by the WSAA Product Appraisal Technical Advisory Group and regularly reviewed to ensure that the criteria reflect the requirements of WSAA members.

The following Product Specification is relevant to this application:

WSA PS 346 – *Stainless Steel Sewer OB Junction Clamps – Sewerage*

Copies of the above Product Specification can be found in Appendix C or downloaded from the WSAA members website.

6 COMPLIANCE WITH APPRAISAL CRITERIA

6.1 Compliance with Quality Assurance Requirements

Derwent has submitted the following quality certificate:

- ISO 9001:2015 Certificate of Registration No. QEC 2004 issued to Derwent Industries Pty Ltd by SAI-Global.

A copy of Derwent's Quality Assurance licence has been included in Appendix B and is also available for downloading from the WSAA Members Website.

Copies of Quality Management System ISO 9001:2015 certificates have also been supplied for the fastener and elastomer stainless steel component suppliers, however have not been included in this report as their identity has been requested to remain "commercial in confidence".

6.2 Compliance with Performance Requirements

6.2.1 Materials

AS 4181 includes allowable material requirements for repair and off-take clamps. These requirements are considered applicable to the sewer OB junction clamps.

6.2.1.1 Clamp body

Derwent sewer OB junction clamps are manufactured from Grade 316L stainless steel compliant with ASTM A240M. Welding is required to be carried out in accordance with AS/NZS 1554.6 with welding quality Category 2B and be capable of meeting the

requirements of the inter-granular corrosion test specified in AS 2205.10.1. All stainless-steel components are to be passivated in accordance with ASTM A380. Test results have been provided to demonstrate compliance to these requirements.

6.2.1.2 Fasteners

The fasteners used on the sewer OB junction clamps are M16 Grade 316 stainless steel studs, nuts and washers. The threads of the fasteners are coated with a dry film anti-galling Molybond coating. The suppliers have ISO 9001:2015 certification.

6.2.1.3 Elastomeric seal

The sealing gasket used in the sewer OB junction clamps are moulded from nitrile rubber. Type test reports have been submitted to demonstrate compliance with AS1646. The manufacturer is licenced to ISO 9001:2015.

6.2.2 Performance tests

WSA PS 346 specifies that Type F type tests detailed in AS 4181 are required to be completed with the exception of Clause 4.1.4 and Clause 4.1.6. The required tests are as follows:

- Assembly test on SN4 PVC-U pipe for >DN100.
- Joint infiltration test at -80 to -85 kPa.
- Hydrostatic leak-tightness test at 150 kPa.

Derwent has submitted test reports from Queensland Testing Laboratory for DN 150 x dn 100 OB clamp with a reach of 160-170, to demonstrate compliance with the requirements of WSA PS 346.

7 FITTING INSTRUCTIONS, TRAINING AND INSTALLATION

Each sewer OB clamp is supplied with an installation guide attached. A copy is attached in Appendix A.

8 PRODUCT MARKING

The sewer OB junction clamps have the following markings stencilled onto the body of the clamp:

- Manufacturers name: Derwent
- Nominal diameter: DN 150
- Pressure Classification: 100kPa
- Pipe outside diameter range: e.g. 160 - 170 x 110
- Manufacturing Date: e.g. 290519
- Tension: 40Nm

An example of marking is shown in Figure 2.



FIGURE 2 DERWENT SEWER OB JUNCTION CLAMP MARKING

9 PACKAGING AND TRANSPORTATION

The clamps are packaged in cardboard cartons to prevent damage during handling and transport. The quantity of clamps per carton is dependent on the product size and weight.

10 PRODUCT WARRANTY

The products are covered by the normal commercial and legal requirements of the *Competition and Consumer Act 2010 (Cth)*, which covers manufacture to the relevant standard, and details of Derwent Industries Pty Ltd's warranty is included in their terms and conditions of sale.

11 WATER AGENCY EXPERIENCE WITH THE PRODUCT OR FIELD TESTING REPORT

Derwent OB junction clamps are approved for use by the Melbourne Retail Water Agencies for sizes DN 100 to DN 450.

12 OUTCOMES OF EXPERT PANEL PRODUCT REVIEW

No queries were raised.

13 FUTURE WORKS

No future works have been identified.

14 DISCLAIMER

This Product Appraisal Report (Report) is issued by the Water Services Association of Australia Limited on the understanding that:

This Report applies to the product(s) as submitted. Any changes to the product(s) either minor or major shall void this Report.

To maintain the recommendations of this Report any such changes shall be detailed and notified to the Product Appraisal Manager for consideration and review of the Report and appropriate action. Appraisals and their recommendations will be the subject of continuous review dependent upon the satisfactory performance of products.

WSAA reserves the right to undertake random audits of product manufacture and installation. Where products fail to maintain appraised performance requirements the appraisal and its recommendations may be modified and reissued. Appraisal reports will be reviewed and reissued at regular intervals not exceeding five (5) years.

The following information explains a number of very important limits on your ability to rely on the information in this Report. Please read it carefully and take it into account when considering the contents of this Report.

Any enquiries regarding this report should be directed to the Program Manager, Carl Radford, Phone: 03 8605 7601 email carl.radford@wsaa.asn.au.

14.1 Issue of Report

This Report has been published and/or prepared by the Water Services Association of Australia Limited and nominated Project Manager and peer group of technical specialists (the Publishers).

The Report has been prepared for use within Australia only by technical specialists that have expertise in the function of products such as those appraised in the Report (the Recipients).

By accepting this Report, the Recipient acknowledges and represents to the Publisher(s) and each person involved in the preparation of the Report that the Recipient has understood and accepted the terms of this Disclaimer.

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This Report does not contain all information that a person might require for the purposes of assessing any product discussed or appraised within it (Product). The product appraisal criteria used in preparing this Report may not address all relevant aspects of the Product.

Recipients should seek independent evidence of any matter which is material to their decisions in connection with an assessment of the Product and consult their own advisers for any technical information required. Any decision to use the Product should take into account the reliability of that independent evidence obtained by the Recipient regarding the Product.

Recipients should also independently verify and assess the appropriateness of any recommendation in the Report, especially given that any recommendation will not take into account a Recipient's particular needs or circumstances.

WSAA has not evaluated the extent of the product liability and professional indemnity insurance that the provider of the product maintains. Recipients should ensure that they evaluate the allocation of liability for product defects and any professional advice obtained in relation to the product or its specification including the requirements for product liability and professional indemnity insurance.

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14.4 No Warranty

The Publisher(s) do[es] not, in any way, warrant that steps have been taken to verify or audit the accuracy or completeness of the information in this Report, or the accuracy, completeness or reasonableness of any recommendation in this Report.

APPENDIX A – PRODUCT LITERATURE



Sewer OB Junctions DN 100 – DN 450

Derwent Industries 316 Stainless Steel Sewer OB's are Australian manufactured. Sewer OB's are a permanent sewer branch connection and can also be used for repairs on Non-Pressure Sewer pipelines.

Features & Testing:

- 316 Stainless Steel for superior corrosion protection
- Bolts and Nuts coated with molybond to prevent galling
- Sewer OB's provide a simple and permanent Connection whilst supporting the integrity of the main
- Nitrile Gasket providing a full circle seal.
- Sewer OB's are fully passivated
- Junctions available in 45° and 90°
45° as standard, 90° as specials
- uPVC coupling attached to offtake to allow for ease of connection to PVC property drain
- All bolts are supplied with plastic thread protectors.



Applications:

The Derwent Industries Sewer OB's are ideal for new service connections on existing or new sewer mains. The Sewer OB's can also be used for repair and reconnecting a damaged branch. Sizes are available for new and older styles of sewer mains.

Technical Data:

Size Range:	DN100 – DN 450
Offtake Sizes:	DN 100 / 150 / 225 (Offtake size is dependent on host pipe)
Temperature Range:	-10°C to 60°C
Maximum Operating Pressure:	100 kPa

Distributed By: Derwent Industries Pty Ltd

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 Sydney Office: 2 Ross Place, Wetherill Park, NSW 2164
 Tasmanian Office: 102 Sunderland Street, Derwent Park, Tas 7009

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 Ph: 02 9136 0466 Fax: 02 9136 0458
 Ph: 03 6273 0729 Fax: 03 6273 0202

E & O.E



DERWENT SEWER CLAMPS

CLAMP FITTING INSTRUCTION

1. Ensure pipe is clean where clamp is to be located.
2. Loosen the nuts to the end of the studs and remove the bottom half of the clamp leaving the washers and nuts on the end of the studs.
3. Use supplied template to mark the hole shape onto the pipe you wish to install the clamp on.
4. Cut the hole into pipe so clamp offtake will fit down onto pipe without fouling on the offtake.
5. Apply an approved RRJ lubricant (supplied in attached sachet) to rubber gasket and pipe.
6. Place clamp around pipe ensuring inner offtake clears the hole.
7. Locate locking plate into position with folded edge locked under flat bar, hand tighten nuts to lock mechanism into position.
8. Evenly tighten nuts to required tension as printed on the clamp.
9. Re-tension after 15 minutes minimum to counter gasket rubber relaxation.

Derwent Industries Pty Ltd

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APPENDIX B - QUALITY CERTIFICATIONS

Copies of the following Quality Certification Certificates are available for downloading from the WSAA Members Website.

TABLE B1 DERWENT INDUSTRIES PTY LTD– MANAGEMENT SYSTEMS

102-104 Sunderland Street Derwent Park Tas 7009 8 Stead Street Wodonga Vic 3690	
Quality Systems Standard	ISO 9001:2015
Certification licence no.	QEC2004
Certifying agency	SAI-Global
First date of certification	8 August 1994
Current date of certification	27 July 2018
Expiry date of certification	4 July 2021



CERTIFICATE OF REGISTRATION

This is to certify that:

Derwent Industries Pty Ltd

ABN 48 096 997 152

102 - 104 Sunderland Street Derwent Park TAS 7009 AUSTRALIA
8 Stead Street Wodonga VIC 3690 AUSTRALIA

operates a

QUALITY MANAGEMENT SYSTEM

which complies with the requirements of

ISO 9001:2015

for the following scope

Design, manufacturing, sourcing and distribution of pipeline fittings and accessories for the water, waste treatment, gas and irrigation industries as well as castings made to clients specifications and other merchandise which has been bought in to complement our own ranges.

Certificate No: QEC2004

Issued: 6 August 2018

Originally Certified: 8 August 1994

Expires: 4 July 2021

Current Certification: 27 July 2018

Kevin Goodwin
General Manager Technical Services
SAI Global Assurance



ISO 9001

WWW.JAS-ANZ.ORG/REGISTER

Registered by:

SAI Global Certification Services Pty Ltd (ACN 108 716 665) 680 George Street, Sydney NSW 2000 Australia with SAI Global Pty Limited 680 George Street Sydney NSW 2000 Australia ("SAI Global") and subject to the SAI Global Terms and Conditions for Certification. While all due care and skill was exercised in carrying out this assessment, SAI Global accepts responsibility only for proven negligence. This certificate remains the property of SAI Global and must be returned to SAI Global upon its request. To verify that this certificate is current please refer to SAI Global On-Line Certification register at <http://register.saiglobal.com/>





ATTACHMENT TO CERTIFICATE OF REGISTRATION

These sites are registered under certificate No: QEC2004 issued on 6 August 2018.

Derwent Industries Pty Ltd

SAI Site Cert no.	Certified Site Details	Effective Date
C-84971	102 - 104 Sunderland Street Derwent Park TAS 7009 AUSTRALIA	27 July 2018

Site Scope:

Design, manufacturing, sourcing and distribution of pipeline fittings and accessories for the water, waste treatment, gas and irrigation industries as well as castings made to clients specifications and other merchandise which has been bought in to complement our own ranges.

C-414547	8 Stead Street Wodonga VIC 3690 AUSTRALIA	27 July 2018
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Site Scope:

Design, manufacturing, sourcing and distribution of pipeline fittings and accessories for the water, waste treatment, gas and irrigation industries as well as castings made to clients specifications and other merchandise which has been bought in to complement our own ranges.

These registrations are dependent on Derwent Industries Pty Ltd maintaining their scope of registration to ISO 9001:2015.

Registered by:

SAI Global Certification Services Pty Ltd (ACN 108 716 669) 680 George Street Sydney NSW 2000 Australia with SAI Global Pty Limited 680 George Street Sydney NSW 2000 Australia ("SAI Global") and subject to the SAI Global Terms and Conditions for Certification. While all due care and skill was exercised in carrying out this assessment, SAI Global accepts responsibility only for proven negligence. This certificate remains the property of SAI Global and must be returned to SAI Global upon its request. To verify that this certificate is current please refer to SAI Global On-Line Certification register at <http://register.sai-global.com>



APPENDIX C - WSA PRODUCT SPECIFICATION

WATER SERVICES ASSOCIATION of Australia

PRODUCT SPECIFICATION

WSA PS - 346 STAINLESS STEEL SEWER OB JUNCTION CLAMPS – SEWERAGE

346.1 SCOPE

This specification covers stainless steel OB junction clamps in sizes from DN 100 to DN 450 with 45° or 90° offtakes suitable for solvent weld connection to DN 100, DN 150 or DN 225 PVC-U sewer pipes.

346.2 REQUIREMENTS

The clamps shall comply with AS/NZS 4181:2013 *Repair and off-take clamps for water industry purposes* with the following variations:

- (a) The allowable operating pressure shall be 0.1 MPa.
- (b) Type F clamps shall be type tested on PVC-U pipes to AS/NZS 1260:2017 *PVC-U pipes and fittings for drain, waste and vent applications* using SN6 for DN 100 and SN4 for sizes larger than DN 100, except that testing to Clause 4.1.4 and Clause 4.1.7 is not required.
- (c) The offtake of the clamp shall be fitted with a PVC-U socket outlet suitable for solvent weld connection to PVC-U pipe. The socket shall be fixed to the stainless-steel off-take with an interference fit and the joint sealed with a suitable adhesive. The inside diameter of the stainless-steel off-take shall be equal to or larger than the inside diameter of the connecting PVC-U branch pipe to ensure that there are no protrusions to the direction of flow.

346.3 QUALITY ASSURANCE

- (a) The manufacturer shall have certification to ISO 9001.
- (b) Performance tests shall be completed in accordance with this specification by a laboratory or facility accredited in accordance with WSA TN-08.

346.4 AGENCY OR PROJECT SPECIFIC REQUIREMENTS

Nominal size and branch offtake size	
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APPENDIX D - SUPPLIER CONTACTS

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