



AVK Australia Holding Pty Ltd

PRODUCT APPRAISAL REPORT 1809 Issue 2

AVK Repair, Tapped and Flanged Stainless-Steel Clamps

AS 4181:2013 Repair and off-take clamps for water industry purposes

Issue 1 Published: 9 March 2018

Issue 2 Published: 6 August 2023

Document History

The following information indicates the changes made to this document.

Date	Version
20 February 2018	Client Review
20 February 2018	Peer Review
9 March 2018	Issue 1 Publication
1 August 2023	Issue 2 Client Review
6 August 2023	Issue 2 Publication

Peer Reviewers

Name/Title	Organisation	Date
Product Appraisal Technical Advisory Group	WSAA	6 March 2018
WSAA Expert Panel	WSAA	6 March 2018
Peter Pittard, WSAA Consultant	WSAA	19 February 2018
Carl Radford, Product Appraisal Manager	WSAA	9 March 2018
Peter Pittard, WSAA Consultant	WSAA	28 July 2023
Carl Radford, Product Appraisal Manager	WSAA	4 August 2023

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

AVK Australia Holding Pty Ltd is part of the AVK Global Group, an international manufacturer of valves and fittings for the water, gas, sewerage and fire protection industries

The stainless-steel clamps are manufactured at AVK Wang Pty Ltd in Wangaratta Victoria.

This appraisal is for a range of PN16 Type R repair, tapped and flanged stainless-steel clamps in sizes DN 40 to DN 300 manufactured in conformance with AS 4181:2013 *Repair and off-take clamps for water industry purposes*.

This Issue 2 is a replacement for the previous version of the appraisal which had reached its 5-year expiry date.

The clamps are suitable for application to rigid pipes including Ductile and Cast Iron, Copper, Reinforced Concrete and Asbestos Cement.

The products are marketed under the AVK brand.

The AVK repair and off-take clamps incorporate Grade 316 stainless steel bodies and fasteners with Nitrile elastomeric sealing mats.

Details of the product range included in this appraisal are provided in Section 3.

AVK Australia holds an ISO 9001:2015 Quality Management System Licence.

The AVK stainless steel clamp range has ISO Type 5 StandardsMark product certification to AS 4181:2013.

This Appraisal has determined that stainless steel repair and off-take clamps, as detailed in this report, meet the requirements of WSA PS-313 *Repair and Off-Take Clamps for Pressure Applications – Drinking Water and Non-Drinking Water Supply* 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 Type R AVK repair, tapped and flanged stainless-steel clamps, in sizes from DN 40 to DN 300, as detailed in this report, for application to water and sewerage pipes, provided they are installed in accordance with WSAA Codes and the manufacturers requirements, where specified

2 THE APPLICANT

The Applicant is AVK Australia Holding Pty Ltd.

2.1 The Manufacturer and Supplier

AVK Australia Holding Australia Pty Ltd is privately owned and part of the AVK Group which is comprised of more than 100 companies operating in more than 35 countries. AVK is a leading international manufacturer of valves and pipeline accessories.

AVK Australia incorporates AVK Valves, AVK Wang, AVK Currumbin, AVK Flow Control and AVK Complete Tapping Service. The company utilises its local manufacturing footprint as well as the AVK Global production supply chain to service pipeline infrastructure, water treatment, sewage processing, fire protection, irrigation, dams, reservoirs, mining operations and gas distribution.

The AVK Wang manufacturing facility is located in Wangaratta, Victoria.

The plant manufactures stainless steel products utilising a system of manual, automated and robotic operations with state-of-the-art stainless steel welding techniques.

Pickling and passivation of the stainless-steel finished product forms an integral and mandatory part of the manufacturing operation.

3 THE PRODUCT

This appraisal is for a range of PN16 stainless steel repair, tapped and flanged off-take clamps in sizes DN 40 to DN 300 manufactured in conformance with AS 4181:2013 *Repair and off-take clamps for water industry purposes*.

The Type R clamps included in this appraisal are suitable for application on rigid pipes with a wide range of pipe OD's including grey or ductile cast iron, steel, copper, reinforced concrete and asbestos cement. They are not deemed suitable for use with PVC, GRP, PE or other plastic pipes.

AVK stainless steel repair clamps are suitable for repairing cracks, holes, splits and pinholes in rigid water and sewerage pipes. They also provide an effective means of reinforcing old pipe in critical areas or providing a seal for decommissioned service connections.

Tapped off-take clamps are intended to provide a permanent threaded connection into new and existing pipelines and may be used for replacement of existing damaged tapped connections.

Flanged off-take clamps are intended to provide a permanent means of making a flanged connection to a pipeline.

Off take clamps may also be used for under pressure cut-in connections.

The clamps have limited ability to accommodate axial deflection and should not be used to join two pipes together.

The clamps are rated as PN16 and may be provided with single, double and multiple parts with various lengths.

Stainless steel clamps are suitable for use in contact with potable water and neutral fluids (sewage) with a temperature range of -10 to 60 degrees C and for use with pipes of stiffness of SN 10,000 or greater.

Tables 1 to 3 shows common size clamps. Clamps to suit other OD ranges are available and included in the product certification schedule in Appendix B.

**TABLE 1
AVK STAINLESS STEEL REPAIR CLAMP RANGE**

DN	Pipe OD Range	Length			
		150mm	200mm	300mm	400mm
40	47-52	✓		✓	✓
50	59-64	✓		✓	✓
50	69-74	✓		✓	✓
65	75-80	✓	✓	✓	✓
80	85-92		✓	✓	✓
80	95-105		✓	✓	✓
100	114-124		✓	✓	✓
100	120-130		✓	✓	✓
125	140-150		✓	✓	✓
150	160-170		✓	✓	✓
150	175-185		✓	✓	✓
200	215-225		✓	✓	✓
200	230-240		✓	✓	✓

225	250-260			✓	✓
250	270-280			✓	✓
250	285-295			✓	✓
300	320-330			✓	✓
300	330-340			✓	✓
300	340-350			✓	✓

**TABLE 2
AVK STAINLESS STEEL TAPPED OFF-TAKE CLAMP RANGE**

DN	Pipe OD Range	Tapped Off-take				
		20	25	32	40	50
40	47-52	✓	✓			
50	59-64	✓	✓	✓		
50	69-74	✓	✓	✓		
65	75-80	✓	✓	✓	✓	
80	85-92	✓	✓	✓	✓	
80	95-105	✓	✓	✓	✓	
100	114-124	✓	✓	✓	✓	✓
100	120-130	✓	✓	✓	✓	✓
125	140-150	✓	✓	✓	✓	✓
150	160-170	✓	✓	✓	✓	✓
150	175-185	✓	✓	✓	✓	✓
200	215-225	✓	✓	✓	✓	✓
200	230-240	✓	✓	✓	✓	✓
225	250-260	✓	✓	✓	✓	✓
250	275-285	✓	✓	✓	✓	✓
250	285-295	✓	✓	✓	✓	✓
300	320-340	✓	✓	✓	✓	✓
300	330-350	✓	✓	✓	✓	✓

**TABLE 3
AVK STAINLESS STEEL FLANGED OFF-TAKE CLAMP RANGE**

DN	Pipe OD Range	Flanged Off-take						
		80	100	150	200	225	250	300
100	110-115	✓	✓					
100	120-125	✓	✓					
125	140-150	✓	✓					
150	160-170	✓	✓	✓				
150	175-185	✓	✓	✓				
200	215-225	✓	✓	✓	✓			

200	230-240	✓	✓	✓	✓			
225	250-260	✓	✓	✓	✓			
250	275-285	✓	✓	✓	✓	✓	✓	
250	285-295	✓	✓	✓	✓	✓	✓	
300	320-330	✓	✓	✓	✓	✓	✓	✓
300	330-340	✓	✓	✓	✓	✓	✓	✓
300	340-350	✓	✓	✓	✓	✓	✓	✓

4 SCOPE OF THE APPRAISAL

The scope of this appraisal covers AVK branded Type R stainless steel repair, tapped and flanged clamps rated as PN 16 in sizes from DN 40 to DN 300.

AVK repair clamps are available in sizes from DN 40 to DN 1200, tapped clamps are available in sizes from DN 50 to DN 1200 and flanged clamps are available in sizes from DN 50 to DN 900, however the Scope of this appraisal includes only sizes that have been type tested to demonstrate compliance with AS 4181 and included in the product certification schedule.

5 APPRAISAL CRITERIA

5.1 Quality Assurance Requirements

The WSAA Product Appraisal Technical Advisory Group accepts repair, tapped and flanged stainless-steel clamps manufactured in compliance with AS/NZS 4181:2013 *Repair and off-take clamps for water industry purposes* and duly certified by means of an ISO Type 5 product certification scheme undertaken by a JAS-ANZ accredited Conformity Assessment Body (CAB) or by an international accreditation system recognised by JAS-ANZ.

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.

The ISO Type 5 Product Certification Scheme shall meet the criteria described in WSA TN-08.

5.2 Performance Requirements

AVK stainless steel repair, tapped and flanged clamps have been appraised for compliance with AS 4181:2013 *Repair and off-take clamps for water industry purposes*.

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 also relevant to this application:

WSA PS-313 *Repair and Off-Take Clamps for Pressure Applications – Drinking Water and Non-Drinking Water Supply*

A copy of the Product Specification is available at the following link:

<https://www.wsaa.asn.au/shop/product/60961>

6 COMPLIANCE WITH APPRAISAL CRITERIA

6.1 Compliance with Quality Assurance Requirements

AVK has submitted the following quality certificates:

- ISO 9001:2015 Certificate of Registration No. QEC 4596 issued to AVK Australia Holding Pty Ltd by SAI-Global.

- ISO 9001:2015 Certificate of Registration No. FS 604278 issued to CRP Industries Pty Ltd by BSI.
- AS 4181:2013 StandardsMark Product Certification Licence No. SMK1785 issued to AVK Australia Holding Pty Ltd

Copies of the quality certificates have been included in Appendix B and are also available from WSAA.

6.2 Compliance with Performance Requirements

6.2.1 Materials

Table 2.1 of AS 4181:2013 details allowable material requirements for the clamp components as discussed in the clauses below.

6.2.1.1 *Clamp body*

AVK clamps are manufactured from Grade 316L stainless steel in accordance 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

6.2.1.2 *Nuts, bolts and washers*

The fasteners used on the AVK clamps are M16 Grade 316 stainless steel studs, nuts and washers. The threads of the fasteners are coated with a dry film anti-galling coating. The fasteners are supplied by James Glen.

6.2.1.3 *Elastomeric seals*

The compression/hydrostatic lip sealing gasket used in the AVK clamps are moulded from nitrile rubber, supplied by CRP Industries Pty Ltd. A report undertaken by ExcelPlas Pty Ltd (NATA Accreditation No.17149) has been submitted to demonstrate compliance with AS681.1.

6.2.1.4 *Effect on water*

The design of the AVK clamp means that only the nitrile rubber sealing gasket in the clamps is exposed to drinking water. A complying test report No. 309904 dated 25 May 2021 from Australian Water Quality Centre has been submitted to demonstrate compliance of the CRP Nitrile material to AS/NZS 4020:2018.

6.2.2 Design

AVK clamps are of standard design with single part, two part and multiple parts. The length and size of the clamp determines the number of studs used to tighten the clamp to the pipe.

Repair clamps may be designed to suit either flexible pipes (Type F) or rigid pipes (Type R) or may be designed to suit both flexible and rigid. Type F clamps are required to be have a full circle design incorporating a positive stop feature to prevent diametrical deflection greater than 2.5%.

The clamps included in this appraisal have not been tested for Type F compatibility and are therefore deemed unsuitable for flexible plastic pipes.

6.2.3 Performance

AVK submitted copies of Type Test reports for the original appraisal to demonstrate compliance with AS 4181:2013.

Testing was carried out by Pentair Water Solutions (NATA accreditation No. 747) and Prove Standards and Engineering Pty Ltd (NATA accreditation No.18640).

Tests were conducted on each nominal size from DN 40 to DN 300 repair clamps, DN 40 to DN 300 tapped clamps and DN 100 to DN 300 flanged clamps.

7 FITTING INSTRUCTIONS, TRAINING AND INSTALLATION


Each AVK clamp is supplied with an installation guide attached.

A copy of the installation instructions is also attached in Appendix A.

Stainless Steel Repair Clamps are common fittings in the water industry and installation training is not regarded as an industry requirement.

8 PRODUCT MARKING

The products have the following markings stencilled onto the body of the clamp.

- Manufacturers Brand: AVK
- Nominal diameter: e.g., DN100
- Flange or tapping offtake size: e.g., DN100 x dn25
- Pressure Classification: PN16
- Pipe outside diameter range: e.g., 120-130
- Type of clamp: Type R
- The number of this standard: AS 4181
- Manufacturing Date: DD/MM/YY
- Product certification mark:  Lic. 1785

An example of branding is shown in Figure 1.

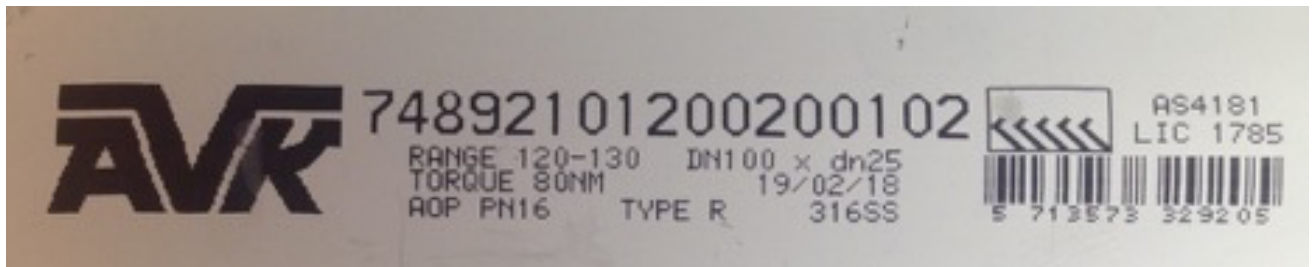


FIGURE 1 AVK CLAMP MARKINGS

9 PACKAGING AND TRANSPORTATION

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



FIGURE 2 EXAMPLE OF PACKAGING

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 AVK's warranty is included in their terms and conditions of sale.

11 WATER AGENCY EXPERIENCE WITH THE PRODUCT OR FIELD-TESTING REPORT

Stainless steel repair clamps are commonly used industry products and field testing is not considered necessary.

12 OUTCOMES OF EXPERT PANEL PRODUCT REVIEW

There are no outstanding issues.

13 FUTURE WORKS

No future works items 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 to 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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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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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



AVK SINGLE, DOUBLE, MULTI PART REPAIR CLAMPS PN16

748

Repair clamps, PN16 to DN600 (720mm OD)
Range DN40 to DN1200
For use on Cast Iron, Ductile Iron, Steel, PVC-U, PVC-M, AC and copper pipes
Range extends beyond DN600

Use:

- Pipelines used in water reticulation, sewage, wastewater and irrigation to a temperature range of -10°C to 60°C
- 16 bar / 160 metres allowable operating pressure (AOP) to DN600
- Suitable for applications with pipe stiffness above SN 10,000
- This product does not provide axial restraint and should not be used to join pipes

Standards and Approvals:

- Manufacturing facility certified to ISO 9001 quality assurance standard
- Fully conforming to AS/NZS 4181-1999 Stainless Steel clamps for waterworks purposes
- Standards Licence Mark SMK 1785 to AS/NZS 4181-1999



**SINGLE PART
REPAIR CLAMP**



**DOUBLE PART
REPAIR CLAMP**

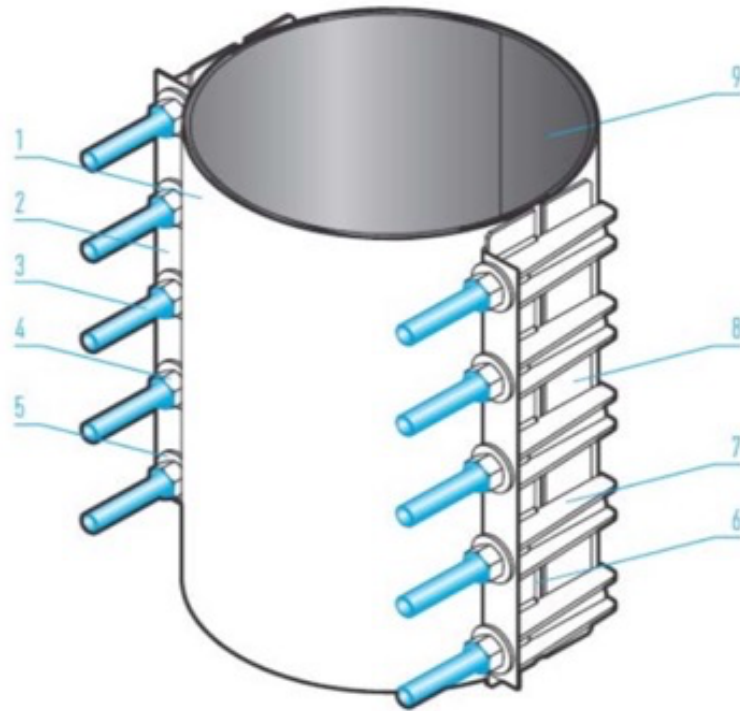


**MULTI PART
REPAIR CLAMP**

Expect... **AVK**

AVK SINGLE, DOUBLE, MULTI PART REPAIR CLAMPS PN16

748



Component list

1. Skin	316 Stainless Steel / ASTM A240M	6. Bridge plate	316 Stainless Steel bonded to gasket / ASTM A240M
2. Locking plate	316 Stainless Steel / ASTM A240M	7. Lugs	316 Stainless Steel / ASTM A240M
3. Studs	316 Stainless Steel - anti-galling compound coated / ASTM A276	8. Flat bars	316 Stainless Steel / ASTM A276 or A240M
4. Nuts	316 Stainless Steel - anti-galling compound coated / AS 1112.1	9. Sealing gasket	Full-circle nitrile (NBR) compound AS 1646 and AS/NZS 4020
5. Washers	316 Stainless Steel / ISO 7089		

Components can be substituted with equivalent or higher class materials.

Reference nos. and dimensions

AVK ref. nos.	DN mm	Material	Clamp length mm	Sealing range mm	No. of parts
748-901-004701	40	316 SS	150	47-52	1
748-901-004703	40	316 SS	300	47-52	1
748-901-004704	40	316 SS	400	47-52	1
748-901-005901	50	316 SS	150	59-64	1
748-901-005903	50	316 SS	300	59-64	1
748-901-005904	50	316 SS	400	59-64	1
748-901-006301	50	316 SS	150	63-68	1
748-901-006303	50	316 SS	300	63-68	1
748-901-006304	50	316 SS	400	63-68	1
748-901-006901	50	316 SS	150	69-74	1
748-901-006902	50	316 SS	300	69-74	1
748-901-006903	50	316 SS	400	69-74	1
748-901-007501	65	316 SS	150	75-80	1
748-901-007502	65	316 SS	200	75-80	1
748-901-007503	65	316 SS	300	75-80	1
748-901-007504	65	316 SS	400	75-80	1
748-901-007506	65	316 SS	600	75-80	1
748-901-007601	80	316 SS	150	76-83	1
748-901-008501	80	316 SS	150	85-92	1

The designs, materials and specifications shown are subject to change without notice due to the continuous development of our product program.

AVK SINGLE, DOUBLE, MULTI PART REPAIR CLAMPS PN16**748**

AVK ref. nos.	DN mm	Material	Clamp length mm	Sealing range mm	No. of parts
748-901-008502	80	316 SS	200	85-92	1
748-901-008503	80	316 SS	300	85-92	1
748-901-008504	80	316 SS	400	85-92	1
748-901-008506	80	316 SS	600	85-92	1
748-901-009502	80	316 SS	200	95-105	1
748-901-009503	80	316 SS	300	95-105	1
748-901-009504	80	316 SS	400	95-105	1
748-901-009506	80	316 SS	600	95-105	1
748-901-010002	100	316 SS	200	100-110	1
748-901-010003	100	316 SS	300	100-110	1
748-901-011002	100	316 SS	200	110-120	1
748-901-011003	100	316 SS	300	110-120	1
748-901-011004	100	316 SS	400	110-120	1
748-901-011005	100	316 SS	600	110-120	1
748-901-011402	100	316 SS	200	114-124	1
748-901-011403	100	316 SS	300	114-124	1
748-901-011404	100	316 SS	400	114-124	1
748-901-011406	100	316 SS	600	114-124	1
748-901-012002	100	316 SS	200	120-130	1
748-901-012003	100	316 SS	300	120-130	1
748-901-012004	100	316 SS	400	120-130	1
748-901-012006	100	316 SS	600	120-130	1
748-901-013002	100	316 SS	200	130-140	1
748-901-013003	100	316 SS	300	130-140	1
748-901-014002	100	316 SS	200	140-150	1
748-901-014003	100	316 SS	300	140-150	1
748-901-014004	100	316 SS	400	140-150	1
748-901-014006	100	316 SS	600	140-150	1
748-901-015002	150	316 SS	200	150-160	1
748-901-015003	150	316 SS	300	150-160	1
748-901-015004	150	316 SS	400	150-160	1
748-901-015006	150	316 SS	600	150-160	1
748-901-016002	150	316 SS	200	160-170	1
748-901-016003	150	316 SS	300	160-170	1
748-901-016004	150	316 SS	400	160-170	1
748-901-016006	150	316 SS	600	160-170	1
748-901-017502	150	316 SS	200	175-185	1
748-901-017503	150	316 SS	300	175-185	1
748-901-017504	150	316 SS	400	175-185	1
748-901-017506	150	316 SS	600	175-185	1
748-901-019002	150	316 SS	200	190-200	1
748-901-019003	150	316 SS	300	190-200	1
748-901-019004	150	316 SS	400	190-200	1
748-901-019006	150	316 SS	600	190-200	1
748-901-020002	150	316 SS	200	200-210	1
748-901-020003	150	316 SS	300	200-210	1
748-901-020004	150	316 SS	400	200-210	1
748-901-020006	150	316 SS	600	200-210	1
748-901-021502	200	316 SS	200	215-225	1
748-901-021503	200	316 SS	300	215-225	1
748-901-021504	200	316 SS	400	215-225	1
748-901-021506	200	316 SS	600	215-225	1
748-901-023002	200	316 SS	200	230-240	1
748-901-023003	200	316 SS	300	230-240	1
748-901-023004	200	316 SS	400	230-240	1
748-901-023006	200	316 SS	600	230-240	1
748-901-024003	200	316 SS	300	240-250	1
748-901-024504	200	316 SS	400	245-255	1
748-901-025003	225	316 SS	300	250-260	1
748-901-025004	225	316 SS	400	250-260	1
748-901-025006	225	316 SS	600	250-260	1
748-901-026003	225	316 SS	300	260-270	1
748-901-026004	225	316 SS	400	260-270	1
748-901-026006	225	316 SS	600	260-270	1
748-901-027003	250	316 SS	300	270-280	1
748-901-027004	250	316 SS	400	270-280	1
748-901-027006	250	316 SS	600	270-280	1
748-901-027503	250	316 SS	300	275-285	1

The designs, materials and specifications shown are subject to change without notice due to the continuous development of our product program.

AVK SINGLE, DOUBLE, MULTI PART REPAIR CLAMPS PN16**748**

AVK ref. nos.	DN mm	Material	Clamp length mm	Sealing range mm	No. of parts
748-901-027504	250	316 SS	400	275-285	1
748-901-027506	250	316 SS	600	275-285	1
748-901-028503	250	316 SS	300	285-295	1
748-901-028504	250	316 SS	400	285-295	1
748-901-028506	250	316 SS	600	285-290	1
748-901-029003	250	316 SS	300	290-300	1
748-901-030003	300	316 SS	300	300-310	1
748-901-030004	300	316 SS	400	300-310	1
748-901-030006	300	316 SS	600	300-310	1
748-901-031003	300	316 SS	300	310-320	1
748-901-031004	300	316 SS	400	310-320	1
748-901-031006	300	316 SS	600	310-320	1
748-901-032003	300	316 SS	300	320-330	1
748-901-032004	300	316 SS	400	320-330	1
748-901-032006	300	316 SS	600	320-330	1
748-901-033003	300	316 SS	300	330-350	1
748-901-033004	300	316 SS	400	330-350	1
748-901-033006	300	316 SS	600	330-350	1
748-901-033008	300	316 SS	800	330-350	1
748-901-034003	300	316 SS	300	340-360	1
748-901-034004	300	316 SS	400	340-360	1
748-901-034006	300	316 SS	600	340-360	1
748-901-034008	300	316 SS	800	340-360	1
748-902-035004	350	316 SS	400	350-370	2
748-902-035006	350	316 SS	600	350-370	2
748-902-035008	350	316 SS	800	350-370	2
748-902-036004	350	316 SS	400	360-380	2
748-902-036006	350	316 SS	600	360-380	2
748-902-036008	350	316 SS	800	360-380	2
748-902-037004	350	316 SS	400	370-390	2
748-902-037006	350	316 SS	600	370-390	2
748-902-037008	350	316 SS	800	370-390	2
748-902-038004	350	316 SS	400	380-400	2
748-902-038006	350	316 SS	600	380-400	2
748-902-038008	350	316 SS	800	380-400	2
748-902-039004	375	316 SS	400	390-410	2
748-902-039006	375	316 SS	600	390-410	2
748-902-039008	375	316 SS	800	390-410	2
748-902-040004	375	316 SS	400	400-420	2
748-902-040006	375	316 SS	600	400-420	2
748-902-040008	375	316 SS	800	400-420	2
748-902-040010	375	316 SS	1000	400-420	2
748-902-040012	375	316 SS	1200	400-420	2
748-902-041004	375	316 SS	400	410-430	2
748-902-041006	375	316 SS	600	410-430	2
748-902-041008	375	316 SS	800	410-430	2
748-902-041010	375	316 SS	1000	410-430	2
748-902-041012	375	316 SS	1200	410-430	2
748-902-042004	375	316 SS	400	420-440	2
748-902-042006	375	316 SS	600	420-440	2
748-902-042008	375	316 SS	800	420-440	2
748-902-042010	375	316 SS	1000	420-440	2
748-902-042012	375	316 SS	1200	420-440	2
748-902-044004	375	316 SS	400	440-460	2
748-902-044006	375	316 SS	600	440-460	2
748-902-044008	375	316 SS	800	440-460	2
748-902-044010	375	316 SS	1000	440-460	2
748-902-044012	375	316 SS	1200	440-460	2
748-902-045004	400	316 SS	400	450-470	2
748-902-045006	400	316 SS	600	450-470	2
748-902-045008	400	316 SS	800	450-470	2
748-902-045010	400	316 SS	1000	450-470	2
748-902-045012	400	316 SS	1200	450-470	2
748-902-047004	450	316 SS	400	470-490	2
748-902-047006	450	316 SS	600	470-490	2
748-902-047008	450	316 SS	800	470-490	2
748-902-047010	450	316 SS	1000	470-490	2
748-902-047012	450	316 SS	1200	470-490	2

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AVK SINGLE, DOUBLE, MULTI PART REPAIR CLAMPS PN16**748**

AVK ref. nos.	DN mm	Material	Clamp length mm	Sealing range mm	No. of parts
748-902-048004	450	316 SS	400	480-500	2
748-902-048006	450	316 SS	600	480-500	2
748-902-048008	450	316 SS	800	480-500	2
748-902-048010	450	316 SS	1000	480-500	2
748-902-048012	450	316 SS	1200	480-500	2
748-902-049004	450	316 SS	400	490-510	2
748-902-049006	450	316 SS	600	490-510	2
748-902-049008	450	316 SS	800	490-510	2
748-902-049010	450	316 SS	1000	490-510	2
748-902-049012	450	316 SS	1200	490-510	2
748-903-049004	450	316 SS	400	490-520	3
748-903-049006	450	316 SS	600	490-520	3
748-903-049008	450	316 SS	800	490-520	3
748-903-049010	450	316 SS	1000	490-520	3
748-903-049012	450	316 SS	1200	490-520	3
748-903-052006	450	316 SS	600	520-550	3
748-903-052008	450	316 SS	800	520-550	3
748-903-052012	450	316 SS	1000	520-550	3
748-903-052012	450	316 SS	1200	520-550	3
748-903-053004	500	316 SS	400	530-560	3
748-903-053006	500	316 SS	600	530-560	3
748-903-053008	500	316 SS	800	530-560	3
748-903-053010	500	316 SS	1000	530-560	3
748-903-053012	500	316 SS	1200	530-560	3
748-903-056004	500	316 SS	400	560-590	3
748-903-056006	500	316 SS	600	560-590	3
748-903-056008	500	316 SS	800	560-590	3
748-903-056010	500	316 SS	1000	560-590	3
748-903-056012	500	316 SS	1200	560-590	3
748-903-057004	525	316 SS	400	570-600	3
748-903-057006	525	316 SS	600	570-600	3
748-903-057008	525	316 SS	800	570-600	3
748-903-057010	525	316 SS	1000	570-600	3
748-903-057012	525	316 SS	1200	570-600	3
748-903-060004	600	316 SS	400	600-630	3
748-903-060006	600	316 SS	600	600-630	3
748-903-060008	600	316 SS	800	600-630	3
748-903-060010	600	316 SS	1000	600-630	3
748-903-060012	600	316 SS	1200	600-630	3
748-903-062004	600	316 SS	400	620-650	3
748-903-062006	600	316 SS	600	620-650	3
748-903-062008	600	316 SS	800	620-650	3
748-903-062010	600	316 SS	1000	620-650	3
748-903-062012	600	316 SS	1200	620-650	3
748-903-063004	600	316 SS	400	630-660	3
748-903-063006	600	316 SS	600	630-660	3
748-903-063008	600	316 SS	800	630-660	3
748-903-063010	600	316 SS	1000	630-660	3
748-903-063012	600	316 SS	1200	630-660	3
748-903-065004	600	316 SS	400	650-680	3
748-903-065006	600	316 SS	600	650-680	3
748-903-065008	600	316 SS	800	650-680	3
748-903-065010	600	316 SS	1000	650-680	3
748-903-065012	600	316 SS	1200	650-680	3
748-903-069004	600	316 SS	400	690-720	3
748-903-069006	600	316 SS	600	690-720	3
748-903-069008	600	316 SS	800	690-720	3
748-903-069010	600	316 SS	1000	690-720	3
748-903-069012	600	316 SS	1200	690-720	3

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AVK TAPPED OFFTAKE CLAMPS PN16

748

Repair clamps, PN16 to DN400 (470mm OD)
Range DN50 to DN1200
Offtake sizes DN20 to DN100 (depending on host pipe size)
Female BSP offtake as standard, other type offtakes available
For use on Cast Iron, Ductile Iron, Steel, PVC-U, PVC-M, AC and copper pipes
Range extends beyond DN400

Use:

- Pipelines used in water reticulation, sewage, wastewater and irrigation to a temperature range of -10°C to 60°C
- 16 bar / 160 meters allowable operating pressure (AOP) to DN400
- Suitable for applications with pipe stiffness above SN 10,000
- This product does not provide axial restraint.

Standards and Approvals:

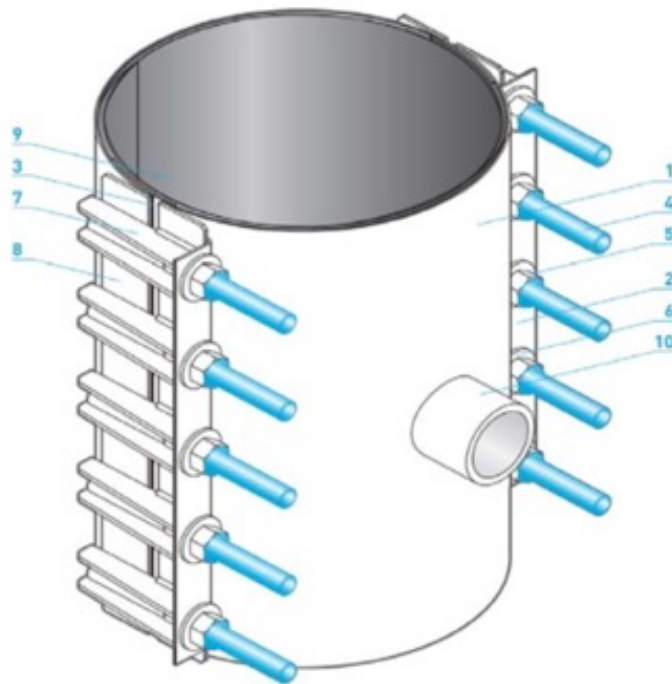
- Manufacturing facility certified to ISO 9001 quality assurance standard
- Fully conforming to AS/NZS 4181-1999 Stainless Steel clamps for waterworks purposes
- Standards Licence Mark SMK 1785 to AS/NZS 4181-1999



Expect... **AVK**

AVK TAPPED OFFTAKE CLAMPS PN16

748



Nominal DN	Clamp length	Offtake DN
50	150	20-32
65	150	20-40
80	150	20-40
80	200	20-40
80	300	20-50
100-125	200	20-50
100-125	300	20-50
150	200	20-50
150	300	20-50
200	200	20-50
200	300	20-50
225-250	300	20-50
300-400	400	20-50

Component list

1. Skin	316 Stainless Steel / ASTM A240M	6. Washers	316 Stainless Steel / ISO 7089
2. Locking plate	316 Stainless Steel / ASTM A240M	7. Lugs	316 Stainless Steel / ASTM A240M
3. Bridge plate	316 Stainless Steel bonded to gasket / ASTM A240M	8. Flat bars	316 Stainless Steel / ASTM A240M
4. Studs	316 Stainless Steel - anti-galling compound coated / ASTM A276	9. Sealing gasket	Full-circle nitrate (NBR) compound AS 1646 and AS/NZS 4020
5. Nuts	316 Stainless Steel - anti-galling compound coated / AS 1112.1	10. BSP offtake	316 Stainless Steel ISO 4144 or ANSI B16.3, AS 1722.1

Components can be substituted with equivalent or higher class materials.

Reference nos. and dimensions

AVK ref. nos.	DN mm	Material	Clamp length mm	Sealing range mm	No. of parts
748-921-004701-00-1??	40	316 SS	150	47-52	1
748-921-005901-00-1??	50	316 SS	150	59-64	1
748-921-006301-00-1??	50	316 SS	150	63-68	1
748-921-006901-00-1??	50	316 SS	150	69-74	1
748-921-007501-00-1??	80	316 SS	150	75-80	1
748-921-007601-00-1??	80	316 SS	150	76-83	1
748-921-008502-00-1??	80	316 SS	200	85-92	1
748-921-008802-00-1??	80	316 SS	200	88-95	1
748-921-009502-00-1??	80	316 SS	200	95-105	1
748-921-009503-00-1??	80	316 SS	300	95-105	1
748-921-010002-00-1??	100	316 SS	200	100-110	1
748-921-010003-00-1??	100	316 SS	300	100-110	1
748-921-011402-00-1??	100	316 SS	200	114-124	1
748-921-011403-00-1??	100	316 SS	300	114-124	1
748-921-012002-00-1??	100	316 SS	200	120-130	1
748-921-012003-00-1??	100	316 SS	300	120-130	1
748-921-013002-00-1??	100	316 SS	200	130-140	1
748-921-013003-00-1??	100	316 SS	300	130-140	1
748-921-014002-00-1??	125	316 SS	200	140-150	1

The designs, materials and specifications shown are subject to change without notice due to the continuous development of our product program.

AVK TAPPED OFFTAKE CLAMPS PN16**748**

AVK ref. nos.	DN mm	Material	Clamp length mm	Sealing range mm	No. of parts
748-921-014003-00-1??	125	316 SS	300	140-150	1
748-921-015002-00-1??	150	316 SS	200	150-160	1
748-921-015003-00-1??	150	316 SS	300	150-160	1
748-921-016002-00-1??	150	316 SS	200	160-170	1
748-921-016003-00-1??	150	316 SS	300	160-170	1
748-921-016802-00-1??	150	316 SS	200	168-178	1
748-921-016803-00-1??	150	316 SS	300	168-178	1
748-921-017502-00-1??	150	316 SS	200	175-185	1
748-921-017503-00-1??	150	316 SS	300	175-185	1
748-921-019002-00-1??	150	316 SS	200	190-200	1
748-921-019003-00-1??	150	316 SS	300	190-200	1
748-921-020002-00-1??	200	316 SS	200	200-210	1
748-921-020003-00-1??	200	316 SS	300	200-210	1
748-921-021502-00-1??	200	316 SS	200	215-225	1
748-921-021503-00-1??	200	316 SS	300	215-225	1
748-921-023002-00-1??	200	316 SS	200	230-240	1
748-921-023003-00-1??	200	316 SS	300	230-240	1
748-921-025003-00-1??	225	316 SS	300	250-260	1
748-921-026503-00-1??	250	316 SS	300	265-275	1
748-921-027503-00-1??	250	316 SS	300	275-285	1
748-921-028502-00-1??	250	316 SS	300	285-295	1
748-922-031504-00-1??	300	316 SS	400	315-325	2
748-922-032004-00-1??	300	316 SS	400	320-340	2
748-922-033004-00-1??	300	316 SS	400	330-350	2
748-922-035004-00-1??	300	316 SS	400	350-370	2
748-922-036004-00-1??	350	316 SS	400	360-380	2
748-922-037004-00-1??	350	316 SS	400	370-390	2
748-922-039004-00-1??	375	316 SS	400	390-410	2
748-922-040004-00-1??	375	316 SS	400	400-420	2
748-922-041004-00-1??	375	316 SS	400	410-430	2
748-922-044004-00-1??	400	316 SS	400	440-460	2
748-922-045004-00-1??	400	316 SS	400	450-470	2

* Note: Offtake sizes up to DN100 are available where parent pipe size permit.
Offtake configurations other than female BSP are available upon request

The designs, materials and specifications shown are subject to change without notice due to the continuous development of our product program.



AVK FLANGED OFFTAKE CLAMPS PN16

748

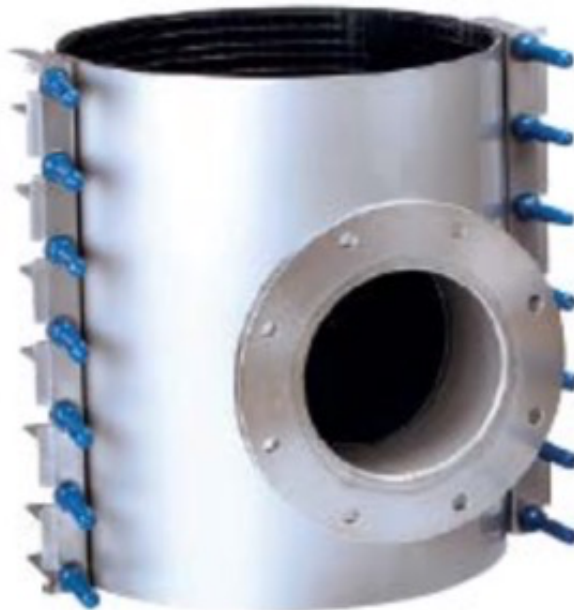
Flanged repair clamps, PN16, DN100 to DN450 (470mm OD)
Flanged repair clamps range DN100 to DN900
Offtake sizes DN80 to DN300 (depending on host pipe size)
For use on Cast Iron, Ductile Iron, Steel, PVC-U, PVC-M, AC and copper pipes
Flange drilling, PN16 to AS 4087 with Table C, D compatible drilling (AS 2129)
Range extends beyond DN450
For sizes and configurations not listed, please contact AVK Wang

Use:

- Pipelines used in water reticulation, sewage, wastewater and irrigation
- Temperature range from -10°C to 60°C
- 16 bar / 160 metres allowable operating pressure (AOP) to DN450
- Suitable for applications with pipe stiffness above SN 10,000
- This product does not provide axial pipe restraint
- For size on size tapplings, it is recommended to use the next lowest DN sized shell cutter, in accordance with WSAA under pressure tapping code of practice

Standards and Approvals:

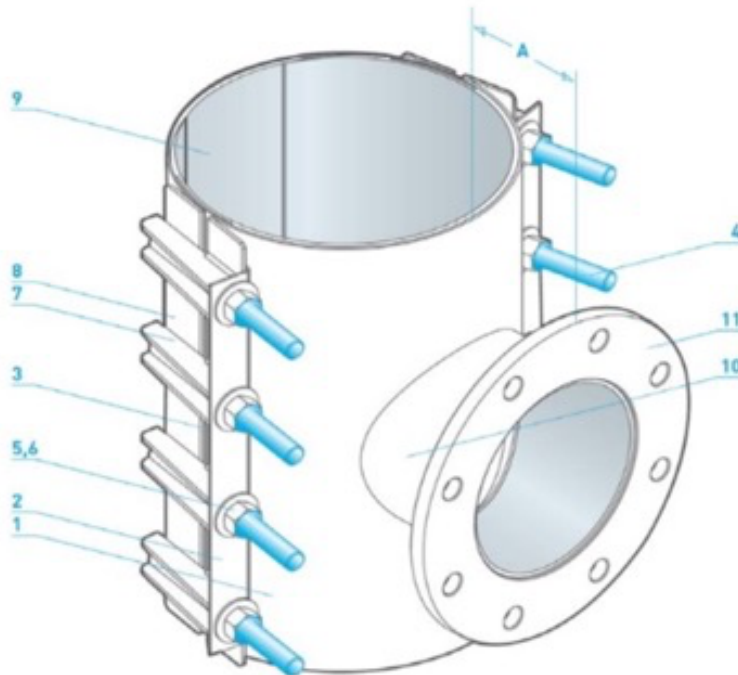
- Manufacturing facility certified to ISO 9001 quality assurance standard
- Fully conforming to AS/NZS 4181-1999 Stainless Steel clamps for waterworks purposes
- Standards Licence Mark SMK 1785 to AS/NZS 4181-1999



Expect... **AVK**

AVK FLANGED OFFTAKE CLAMPS PN16

748



OFFTAKE DIMENSIONS

Flange size	A
80-150	90mm
220-225	105mm
250-300	125mm

Nominal DN	Clamp length mm	Offtake DN
100-125	400	80-100
150-300	400	80-150
375-450	400	80-150
200-450	600	80-250
300-450	800	300

Component list

1. Skin	316 Stainless Steel / ASTM A240M	7. Lugs	316 Stainless Steel / ASTM A276
2. Locking plate	316 Stainless Steel / ASTM A240M	8. Flats	316 Stainless Steel / ASTM A276
3. Bridge plate	316 Stainless Steel bonded to gasket / ASTM A240M	9. Sealing gasket	Full-circle nitrile (NBR) compound AS 1646 and AS/NZS 4020
4. Studs	316 Stainless Steel - anti-galling compound coated / ASTM A276	10. Offtake pipe	316 Stainless Steel / ASTM A312M or ASME B36.19M
5. Nuts	316 Stainless Steel - anti-galling compound coated / AS 1112.1	11. Offtake flange	316 Stainless Steel / ASTM A240M or A182, AS 4087
6. Washers	316 Stainless Steel / ISO 7089		

Components can be substituted with equivalent or higher class materials.

Reference nos. and dimensions

AVK ref. nos.	DN mm	Material	Clamp length mm	Sealing range mm	No. of parts
748-912-011004-00-1??	100	316 SS	400	110-115	2
748-912-012004-00-1??	100	316 SS	400	120-125	2
748-912-014004-00-1??	125	316 SS	400	140-150	2
748-912-015004-00-1??	150	316 SS	400	150-160	2
748-912-016004-00-1??	150	316 SS	400	160-170	2
748-912-017504-00-1??	150	316 SS	400	175-185	2
748-912-020004-00-1??	200	316 SS	400	200-210	2
748-912-021504-00-1??	200	316 SS	400	215-225	2
748-912-022504-00-1??	200	316 SS	400	225-235	2
748-912-023004-00-1??	200	316 SS	400	230-240	2
748-912-025004-00-1??	225	316 SS	400	250-260	2
748-912-025006-00-1??	225	316 SS	600	250-260	2
748-912-026004-00-1??	225	316 SS	400	260-270	2
748-912-026006-00-1??	225	316 SS	600	260-270	2
748-912-027004-00-1??	250	316 SS	400	270-280	2
748-912-027006-00-1??	250	316 SS	600	270-280	2
748-912-027504-00-1??	250	316 SS	400	275-285	2

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AVK FLANGED OFFTAKE CLAMPS PN16**748**

AVK ref. nos.	DN mm	Material	Clamp length mm	Sealing range mm	No. of parts
748-912-027506-00-1??	250	316 SS	600	275-285	2
748-912-028504-00-1??	250	316 SS	400	285-295	2
748-912-028506-00-1??	250	316 SS	600	285-295	2
748-912-031004-00-1??	300	316 SS	400	310-320	2
748-912-031006-00-1??	300	316 SS	600	310-320	2
748-912-032004-00-1??	300	316 SS	400	320-330	2
748-912-032006-00-1??	300	316 SS	600	320-330	2
748-912-033004-00-1??	300	316 SS	400	330-340	2
748-912-033006-00-1??	300	316 SS	600	330-340	2
748-912-033008-00-1??	300	316 SS	800	330-340	2
748-912-034004-00-1??	300	316 SS	400	340-350	2
748-912-034006-00-1??	300	316 SS	600	340-350	2
748-912-034008-00-1??	300	316 SS	800	340-350	2
748-912-035004-00-1??	300	316 SS	400	350-360	2
748-912-035006-00-1??	300	316 SS	600	350-360	2
748-912-038004-00-1??	350	316 SS	400	380-390	2
748-912-038006-00-1??	350	316 SS	600	380-390	2
748-912-039004-00-1??	350	316 SS	400	390-400	2
748-912-039006-00-1??	350	316 SS	600	390-400	2
748-912-039008-00-1??	350	316 SS	800	390-400	2
748-912-040004-00-1??	375	316 SS	400	400-410	2
748-912-040006-00-1??	375	316 SS	600	400-410	2
748-912-041004-00-1??	375	316 SS	400	410-420	2
748-912-041006-00-1??	375	316 SS	600	410-420	2
748-912-042004-00-1??	375	316 SS	400	420-430	2
748-912-042006-00-1??	375	316 SS	600	420-430	2
748-912-042008-00-1??	375	316 SS	800	420-430	2
748-912-043004-00-1??	375	316 SS	400	430-440	2
748-912-043006-00-1??	375	316 SS	600	430-440	2
748-912-044004-00-1??	400	316 SS	400	440-450	2
748-912-044006-00-1??	400	316 SS	600	440-450	2
748-912-045004-00-1??	400	316 SS	400	450-460	2
748-912-045006-00-1??	400	316 SS	600	450-460	2
748-912-045008-00-1??	400	316 SS	800	450-460	2
748-912-048004-00-1??	450	316 SS	400	480-490	2
748-912-048006-00-1??	450	316 SS	600	480-490	2
748-912-049004-00-1??	450	316 SS	400	490-500	2
748-912-049006-00-1??	450	316 SS	600	490-500	2
748-912-050004-00-1??	450	316 SS	400	500-510	2
748-912-050006-00-1??	450	316 SS	600	500-510	2
748-912-050008-00-1??	450	316SS	800	500-510	2

The designs, materials and specifications shown are subject to change without notice due to the continuous development of our product program.

CLAMPS

INSTALLATION GUIDE

GENERIC INSTRUCTIONS: To be read in conjunction with 'Type Specific Instructions' overleaf.
Please read ALL information on both sides of this guide prior to installation.

RECOMMENDED EQUIPMENT

- Tension Wrench (0-150Nm) & 24mm long thread socket
- Pipe surface cleaning equipment
- Clamp & Pipe Lubricant (supplied) or other lubricant approved for use with potable water

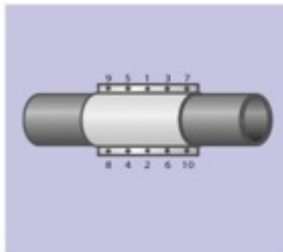
INITIAL PREPARATION

Clean the pipe surface, making it as clean and free of soil, mud and scale as possible in order to enable the clamp gasket to successfully seal against the pipe surface

- 1 Hold the clamp against the pipe and draw left and right clamp end locator marks on the pipe
- 2 Loosen the nuts to the end of the studs but **DO NOT** remove nuts or the locking plate. Spread open the clamp but do not flatten or crease the metal band(s)
- 3 Use the supplied pipe lubricant sachet or an approved pipe joining lubricant to lubricate the clamp gasket and pipe surface
- 4 Wrap the clamp around the pipe surface, ensuring that the gaskets and studs remain as clean and free of soil and mud as possible
- 5 Assemble the clamp around the pipe by bringing the locking plate over the alignment lugs and hand tightening the nuts to hold it in place (see adjacent diagram). Check that the edges of the clamp are within the locator marks (Step 1) and that the gasket mat is wrapped smoothly around the pipe without any twists or ripples



- 6 Once satisfied with the location of the clamp on the pipe, use a tension wrench to incrementally tighten the studs, in sequence (see adjacent diagram), to the recommended tension specified on the clamp.
- ALWAYS RETENSION STUDS** after 20 to 30 minutes in order to compensate for loss in initial tension due to rubber gasket relaxation. Finally replace the blue thread protectors



AVK WANG, Cnr. Gibson & Sandford Roads
Wangaratta, Victoria 3677, Australia
Phone (61) 03 5722 7400

F2055R1



AVK CLAMPS & TAPPING SADDLES INSTALLATION, OPERATION & MAINTENANCE MANUAL



Instruction for use

Thank you for selecting an AVK product. With correct use, the product is guaranteed to deliver a long and reliable service. This manual has been prepared to assist you with the installation, operation and maintenance of the valve to the maximum efficiency. For ease of reference, it has been divided into sections covering all aspects of use, and it is in the users best interests to read it and ensure that it is fully understood.



Health and Safety

It is always recommended that wherever work is being carried out on a valve that the valve is fully depressurised prior to carrying it out, and for the convenience draining of the line may be beneficial.

It is essential that the user of the valve is aware of the weight of the components and/or assemblies that must be handled and manipulated during installation and maintenance. It is the users responsibility to ensure that safe working practices are followed at all times.

Whenever AVK products are installed, operated, or maintained, it is essential that the staff that undertake these operations be adequately trained. The hazards of pressurised liquids and gases can be severe, and it is the responsibility of the users to ensure that trained, competent staff undertake these duties. This manual has been designed to assist, but it can never fully replace quality training in the workplace. AVK technical staff will always be available to answer any questions relating to specific problems that may not be covered by this manual.

AVK products are designed and manufactured to be fit for purpose, and to a high and reliable standard. This provides a safe product with minimum risk to health when used correctly for the purpose for which it was designed. However, this assumes that the equipment is used and maintained in accordance with the manual, and the user is advised to study this manual, and to make it available to all staff that may need to refer to it.

AVK cannot be held responsible for any incidents arising from incorrect installation, operation or maintenance. The responsibility for this must rest wholly with the user.

Expect... **AVK**

**AVK CLAMPS & TAPPING SADDLES
INSTALLATION, OPERATION & MAINTENANCE MANUAL**

Generic Instructions

To be read in conjunction with 'Type Specific Installation Information' pp. 3. Please read ALL information in this guide prior to installation.

Recommended Equipment:

- Tension Wrench (0-150Nm) & 24mm long thread socket
- Pipe surface cleaning equipment
- Clamp & pipe lubricant (supplied) or other lubricant approved for use with potable water



Repair Clamps



Kwik Clamps



Tapped Offtake Clamps



Flanged Offtake Clamps



HDPE Clamps









Sewer OB Junction Clamps



Tapping Saddles

Expect... **AVK**

**AVK CLAMPS & TAPPING SADDLES
INSTALLATION, OPERATION & MAINTENANCE MANUAL**

CLAMP TYPE	STEP	Type Specific Installation Information
	4 & 5	First slide the cartridge gasket out of the clamp and open it at the split running along its length. Disengage the bolt head from the lug and install the clamp assembly around the cartridge gasket before tightening. Then comply with Step 6 – Generic Instructions
	NA	Follow Generic Instructions
	6	If the pipe offtake opening is to be pre-tapped, ensure that the clamp's tapping offtake sits concentric to the pipe opening. Then comply with Step 6 – Generic Instructions
	6	If the pipe offtake opening is to be pre-tapped, ensure that the size of the tapped opening permits the gasket 'Sealing Ring' to be firmly in contact with the pipe surface. Then comply with Step 6 – Generic Instructions
	6	Limit the rotation of the clamp on the pipe to a minimum so as to avoid dislodging the Clamps gasket 'Sealing Ring' around the offtake. Then comply with Step 6 – Generic Instructions
	6	Ensure that the lip of the offtake sits within the pipe opening and not against the pipe surface. Then comply with Step 6 – Generic Instructions

IMPORTANT - PLEASE READ PRIOR TO INSTALLATION

AVK Clamps DO NOT provide axial pipe restraint. Therefore if used above ground or in a non back-filled trench, ensure that BOTH the clamp and pipe are axially restrained by external means. Repair Clamps are NOT intended to be used as pipe joiners or where circumferential crack separation has occurred. The product cannot be guaranteed in such applications Prior to use of any AVK clamp on 'O'PVC pipe. For HDPE pipe application, ensure that HDPE specific clamps are used. Nitrile rubber gaskets are only recommended for use in temperatures ranging from -10° to 60°C. Corrosive environments, including soils with a Chloride content in excess of 1000ppm, can have a detrimental effect on Stainless Steel. Where a product is intended for use in such environments, additional advice should be sought from AVK prior to installation. It is recommended that periodic assessment and maintenance of the clamp be undertaken in such environments.

Please contact AVK in order to assess the suitability of product application and for any special installation instructions.



AVK CLAMPS & TAPPING SADDLES INSTALLATION, OPERATION & MAINTENANCE MANUAL

Initial Preparation

Clean the pipe surface, making sure it is as clean and free of soil, mud and scale as possible in order to enable the clamp gasket to successfully seal against the pipe surface.

1. Reference Marks

Hold the clamp against the pipe and draw left and right clamp end locator marks on the pipe.

2. Opening the Clamp

Loosen the nuts to the end of the studs but DO NOT remove nuts or the locking plate. Spread open the clamp but do not flatten or crease the metal band(s).

3. Lubrication

Use the supplied pipe lubricant sachet or an approved pipe joining lubricant to lubricate the clamp gasket and pipe surface.

4. Wrapping the Clamp

Wrap the clamp around the pipe surface, ensuring that the gaskets and studs remain as clean and free of soil and mud as possible.

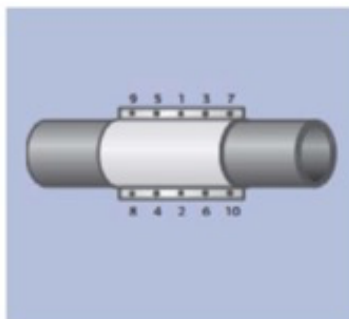
5. Assembly

Assemble the clamp around the pipe by bringing the locking plate over the alignment lugs and hand tightening the nuts to hold it in place (see diagram below). Check that the edges of the clamp are within the locator marks (Step 1) and that the gasket mat is wrapped smoothly around the pipe without any twists or ripples.



6. Re-tension & Final Check

Once satisfied with the location of the clamp on the pipe, use a tension wrench to incrementally tighten the studs, in sequence (see diagram below), to the recommended tension specified on the clamp. ALWAYS RE-TENSION STUDS after 20 to 30 minutes in order to compensate for loss in initial tension due to rubber gasket relaxation. Finally replace the blue thread protectors.



Expect... **AVK**

APPENDIX B - QUALITY CERTIFICATIONS

Copies of the following Quality Certificates are available from WSAA.

TABLE A1 AVK AUSTRALIA HOLDING PTY LTD – MANAGEMENT SYSTEMS

Cnr Sanford Road and Gibson Street Wangaratta Vic	
Quality Systems Standard	ISO 9001:2015
Certification Licence No.	QEC13894
Certifying Agency	SAI-Global
First Date of Certification	30 April 2001
Current Date of Certification	10 February 2021
Expiry Date of Certification	14 February 2024

TABLE A2 CRP INDUSTRIES PTY LTD – MANAGEMENT SYSTEMS

Quality Systems Standard	ISO 9001:2015
Certification Licence No.	FS 604278
Certifying Agency	BSI
First Date of Certification	23 July 2008
Current Date of Certification	22 July 2020
Expiry Date of Certification	31 July 2023

TABLE A3 AVK AUSTRALIA HOLDING PTY LTD – PRODUCT CERTIFICATION

Cnr Sanford Road and Gibson Street Wangaratta Vic	
Product Standard/Spec.	AS 4181:2013
Certificate No.	SMK1785
Issuing Certification Body	SAI Global
First Date of Certification	10 February 1998
Current Date of Certification	10 February 2023
Expiry Date of Certification	20 January 2025



CERTIFICATE OF REGISTRATION

This is to certify that:

AVK Australia Holding Pty Ltd

ABN 11 081 236 777

AVK Valves Pty Ltd

ABN 25 615 247 544

AVK Flow Control Pty Ltd

ABN 80 153 707 398

AVK CTS Pty Ltd

Trading as Complete Tapping Service

ABN 59 621 126 207

AVK Wang Pty Ltd

ABN 29 605 784 343

AVK Currumbin Pty Ltd

ABN 24 615 602 250

559A Grand Junction Road Wingfield SA 5013 AUSTRALIA

(Refer to Attachment to Certificate of Registration dated 12 February 2021 for additional certified sites)

operates a

QUALITY MANAGEMENT SYSTEM

which complies with the requirements of

ISO 9001:2015

for the following scope

The manufacture, marketing and sale of valves and associated products including stainless steel pipe couplings, tapping saddles and flange off take clamps and the provision of under pressure tapping, line stopping and valve insertion services.

Certificate No: QEC13894

Issued: 12 February 2021

Originally Certified: 30 April 2001

Expires: 14 February 2024

Current Certification: 10 February 2021

Frank Camasta
Global Head of Technical Services
SAI Global Assurance



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.saiglobal.com/>





Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2015

This is to certify that:

CRP Industries Pty Ltd
5 Kimberly Road
Dandenong South VIC 3175

Holds Certificate Number:

FS 604278

and operates a Quality Management System which complies with the requirements of ISO 9001:2015 for the following scope:

Manufacture, sales and distribution of rubber moulded and rubber bonded products, radial shaft seals, metal pressings and product identification tags.

For and on behalf of BSI:

Chris Cheung, Head of Compliance & Risk - Asia Pacific

Original Registration Date: 2008-07-23

Effective Date: 2020-07-20

Latest Revision Date: 2020-07-22

Expiry Date: 2023-07-31

Page: 1 of 1



...making excellence a habit.™

This certificate was issued electronically and remains the property of BSI Group ANZ Pty Limited, ACN 078 659 211 and is bound by the conditions of contract. This certificate can be verified at www.bsi-global.com/clientdirectory. Printed copies can be validated at www.bsi-global.com/ClientDirectory. Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2015 requirements may be obtained by consulting the organization. This certificate is valid only if provided original copies are in complete set.

Information and Contact: BSI, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PP. Tel: + 44 345 080 9000
BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.
Information and Contact: BSI Group ANZ Pty Limited, ACN 078 659 211: Suite 2, Level 7, 15 Talavera Road, Macquarie Park, NSW 2113
A Member of the BSI Group of Companies.



STANDARDSMARK LICENCE

SAI Global hereby grants:

AVK Australia Holding Pty Ltd

ABN 11 081 236 777

559A Grand Junction Road, Wingfield, SA 5013, Australia
Cnr Sanford Road and Gibson Street, Wangaratta, VIC 3677, Australia

StandardsMark Licence

Manufactured to:

AS 4181-2013 - Repair and off-take clamps for water industry purposes

"the StandardsMark Licensee" the right to use the STANDARDSMARK as shown below only in respect of the goods described and detailed in the Schedule which are produced by the Licensee or on behalf of the Licensee* and which comply with the appropriate Standard referred to above as from time to time amended. The Licence is granted subject to the rules governing the use of the STANDARDSMARK and the Terms and Conditions for certification and licence. The Licensee covenants to comply with all the Rules and Terms and Conditions.

Licence No: SMK1785

Issued : 11 February 2023
Expires : 20 January 2025

Originally Certified : 10 February 1998
Current Certification : 10 February 2023

Calin Moldovean
President, Business Assurance
SAI Global Assurance



* For details of manufacture, refer to the licensee

The STANDARDSMARK is a registered certification trademark of SAI Global Pty Limited (A.C.N. 050 644 642) and is issued under licence by SAI Global Certification Services Pty Limited (ACN 108 716 669) ("SAI Global") 650 Lorimer Street, Port Melbourne VIC 3207, GPO Box 5420 Sydney NSW 2001. This certificate remains the property of SAI Global and must be returned to SAI Global upon its request. Refer to www.saiglobal.com, for the list of product models.



SCHEDULE TO STANDARDSMARK LICENCE

SAI Global hereby grants:

AVK Australia Holding Pty Ltd

559A Grand Junction Road, Wingfield, SA 5013, Australia
Cnr Sanford Road and Gibson Street, Wangaratta, VIC 3677, Australia

StandardsMark Licence

Manufactured to:

AS 4181-2013 - Repair and off-take clamps for water industry purposes

Model identification of the goods on which the STANDARDSMARK may be used:

Model Identification	Model Name	Brand Name	Product Description	Nominal Size	Offtake Size	Pressure Rating	Minimum Pipe Size	Maximum Pipe Size	Pipe Compatibility	Minimum Clamp Length	Clamp Material	Date Endorsed
27489010047	2748/90	WANG	Repair Clamp 1 Part	40	N/A	PN16	47	52	Type R	150mm	SS, NBR	8 Feb 2018
27489010056	2748/90	WANG	Repair Clamp 1 Part	50	N/A	PN16	55	60	Type R	150mm	SS, NBR	8 Feb 2018
27489010059	2748/90	WANG	Repair Clamp 1 Part	50	N/A	PN16	59	64	Type R	150mm	SS, NBR	8 Feb 2018
27489010063	2748/90	WANG	Repair Clamp 1 Part	50	N/A	PN16	63	68	Type R	150mm	SS, NBR	8 Feb 2018
27489010069	2748/90	WANG	Repair Clamp 1 Part	50	N/A	PN16	69	74	Type R	150mm	SS, NBR	8 Feb 2018
27489010075	2748/90	WANG	Repair Clamp 1 Part	50, 65, 80	N/A	PN16	75	80	Type R	150mm	SS, NBR	8 Feb 2018
27489010076	2748/90	WANG	Repair Clamp 1 Part	80	N/A	PN16	76	81	Type R	150mm	SS, NBR	8 Feb 2018
27489010079	2748/90	WANG	Repair Clamp 1 Part	65	N/A	PN16	79	84	Type R	150mm	SS, NBR	8 Feb 2018
27489010080	2748/90	WANG	Repair Clamp 1 Part	80	N/A	PN16	80	87	Type R	150mm	SS, NBR	8 Feb 2018
27489010085	2748/90	WANG	Repair Clamp 1 Part	80	N/A	PN16	85	92	Type R	150mm	SS, NBR	8 Feb 2018
27489010086	2748/90	WANG	Repair Clamp 1 Part	80	N/A	PN16	88	95	Type R	150mm	SS, NBR	8 Feb 2018
27489010096	2748/90	WANG	Repair Clamp 1 Part	80	N/A	PN16	96	102	Type R	150mm	SS, NBR	8 Feb 2018
27489010100	2748/90	WANG	Repair Clamp 1 Part	100	N/A	PN16	100	110	Type R	200mm	SS, NBR	8 Feb 2018
27489010105	2748/90	WANG	Repair Clamp 1 Part	100	N/A	PN16	105	115	Type R	200mm	SS, NBR	8 Feb 2018
27489010110	2748/90	WANG	Repair Clamp 1 Part	100	N/A	PN16	110	120	Type R	200mm	SS, NBR	8 Feb 2018
27489010113	2748/90	WANG	Repair Clamp 1 Part	100	N/A	PN16	113	123	Type R	200mm	SS, NBR	8 Feb 2018
27489010114	2748/90	WANG	Repair Clamp 1 Part	100	N/A	PN16	114	124	Type R	200mm	SS, NBR	8 Feb 2018
27489010120	2748/90	WANG	Repair Clamp 1 Part	100	N/A	PN16	120	130	Type R	200mm	SS, NBR	8 Feb 2018
27489010130	2748/90	WANG	Repair Clamp 1 Part	100	N/A	PN16	130	140	Type R	200mm	SS, NBR	8 Feb 2018
27489010135	2748/90	WANG	Repair Clamp 1 Part	100	N/A	PN16	135	145	Type R	200mm	SS, NBR	8 Feb 2018
27489010140	2748/90	WANG	Repair Clamp 1 Part	125	N/A	PN16	140	150	Type R	200mm	SS, NBR	8 Feb 2018
27489010145	2748/90	WANG	Repair Clamp 1 Part	125	N/A	PN16	145	155	Type R	200mm	SS, NBR	8 Feb 2018
27489010150	2748/90	WANG	Repair Clamp 1 Part	125	N/A	PN16	150	160	Type R	200mm	SS, NBR	8 Feb 2018
27489010155	2748/90	WANG	Repair Clamp 1 Part	150	N/A	PN16	155	165	Type R	200mm	SS, NBR	8 Feb 2018
27489010158	2748/90	WANG	Repair Clamp 1 Part	150	N/A	PN16	158	168	Type R	200mm	SS, NBR	8 Feb 2018
27489010160	2748/90	WANG	Repair Clamp 1 Part	150	N/A	PN16	160	170	Type R	200mm	SS, NBR	8 Feb 2018

Licence No: SMK1785

Issued Date: 11 February 2023

This schedule supersedes all previously issued schedules



* For details of manufacture, refer to the licensee

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SCHEDULE TO STANDARDSMARK LICENCE

Model Identification	Model Name	Brand Name	Product Description	Nominal Size	Offtake Size	Pressure Rating	Minimum Pipe Size	Maximum Pipe Size	Pipe Compatibility	Minimum Clamp Length	Clamp Material	Date Endorsed
2748910198	2748/90	WANG	Repair Clamp 1 Part	150	N/A	PN16	168	178	Type R	200mm	SS, NBR	8 Feb 2018
2748910175	2748/90	WANG	Repair Clamp 1 Part	150	N/A	PN16	175	185	Type R	200mm	SS, NBR	8 Feb 2018
2748910190	2748/90	WANG	Repair Clamp 1 Part	150	N/A	PN16	180	190	Type R	200mm	SS, NBR	8 Feb 2018
2748910195	2748/90	WANG	Repair Clamp 1 Part	150	N/A	PN16	185	195	Type R	200mm	SS, NBR	8 Feb 2018
2748910190	2748/90	WANG	Repair Clamp 1 Part	150, 200	N/A	PN16	190	200	Type R	200mm	SS, NBR	8 Feb 2018
2748910195	2748/90	WANG	Repair Clamp 1 Part	150	N/A	PN16	195	205	Type R	200mm	SS, NBR	8 Feb 2018
2748910197	2748/90	WANG	Repair Clamp 1 Part	175	N/A	PN16	197	207	Type R	200mm	SS, NBR	8 Feb 2018
2748910200	2748/90	WANG	Repair Clamp 1 Part	200	N/A	PN16	200	210	Type R	200mm	SS, NBR	8 Feb 2018
2748910205	2748/90	WANG	Repair Clamp 1 Part	200	N/A	PN16	205	215	Type R	200mm	SS, NBR	8 Feb 2018
2748910210	2748/90	WANG	Repair Clamp 1 Part	200	N/A	PN16	210	220	Type R	200mm	SS, NBR	8 Feb 2018
2748910215	2748/90	WANG	Repair Clamp 1 Part	200	N/A	PN16	215	225	Type R	200mm	SS, NBR	8 Feb 2018
2748910225	2748/90	WANG	Repair Clamp 1 Part	200	N/A	PN16	225	235	Type R	300mm	SS, NBR	8 Feb 2018
2748910230	2748/90	WANG	Repair Clamp 1 Part	200	N/A	PN16	230	240	Type R	200mm	SS, NBR	8 Feb 2018
2748910240	2748/90	WANG	Repair Clamp 1 Part	225	N/A	PN16	240	250	Type R	300mm	SS, NBR	8 Feb 2018
2748910245	2748/90	WANG	Repair Clamp 1 Part	225	N/A	PN16	245	255	Type R	300mm	SS, NBR	8 Feb 2018
2748910250	2748/90	WANG	Repair Clamp 1 Part	225	N/A	PN16	250	260	Type R	300mm	SS, NBR	8 Feb 2018
2748910255	2748/90	WANG	Repair Clamp 1 Part	225	N/A	PN16	255	265	Type R	300mm	SS, NBR	8 Feb 2018
2748910260	2748/90	WANG	Repair Clamp 1 Part	225, 250	N/A	PN16	260	270	Type R	300mm	SS, NBR	8 Feb 2018
2748910265	2748/90	WANG	Repair Clamp 1 Part	250	N/A	PN16	265	275	Type R	300mm	SS, NBR	8 Feb 2018
2748910270	2748/90	WANG	Repair Clamp 1 Part	250	N/A	PN16	270	280	Type R	300mm	SS, NBR	8 Feb 2018
2748910275	2748/90	WANG	Repair Clamp 1 Part	250	N/A	PN16	275	285	Type R	300mm	SS, NBR	8 Feb 2018
2748910280	2748/90	WANG	Repair Clamp 1 Part	250	N/A	PN16	280	290	Type R	300mm	SS, NBR	8 Feb 2018
2748910285	2748/90	WANG	Repair Clamp 1 Part	250	N/A	PN16	285	295	Type R	300mm	SS, NBR	8 Feb 2018
2748910290	2748/90	WANG	Repair Clamp 1 Part	250	N/A	PN16	290	300	Type R	300mm	SS, NBR	8 Feb 2018
2748910295	2748/90	WANG	Repair Clamp 1 Part	250	N/A	PN16	295	305	Type R	300mm	SS, NBR	8 Feb 2018
2748910300	2748/90	WANG	Repair Clamp 1 Part	300	N/A	PN16	300	310	Type R	300mm	SS, NBR	8 Feb 2018
2748910305	2748/90	WANG	Repair Clamp 1 Part	300	N/A	PN16	305	315	Type R	300mm	SS, NBR	8 Feb 2018
2748910310	2748/90	WANG	Repair Clamp 1 Part	300	N/A	PN16	310	320	Type R	400mm	SS, NBR	8 Feb 2018
2748910315	2748/90	WANG	Repair Clamp 1 Part	300	N/A	PN16	315	325	Type R	400mm	SS, NBR	8 Feb 2018
2748910320	2748/90	WANG	Repair Clamp 1 Part	300	N/A	PN16	320	330	Type R	400mm	SS, NBR	8 Feb 2018
2748910323	2748/90	WANG	Repair Clamp 1 Part	300	N/A	PN16	323	333	Type R	400mm	SS, NBR	8 Feb 2018
2748910330	2748/90	WANG	Repair Clamp 1 Part	300	N/A	PN16	330	340	Type R	400mm	SS, NBR	8 Feb 2018
2748920320	2748/90	WANG	Repair Clamp 2 Part	300	N/A	PN16	320	340	Type R	400mm	SS, NBR	8 Feb 2018
2748920322	2748/90	WANG	Repair Clamp 2 Part	300	N/A	PN16	322	342	Type R	400mm	SS, NBR	8 Feb 2018
2748920330	2748/90	WANG	Repair Clamp 2 Part	300	N/A	PN16	330	350	Type R	400mm	SS, NBR	8 Feb 2018
27489110095	2748/91	WANG	Flanged Offtake Clamp 1 Part	80	Up to DN80	PN16	95	100	Type R	400mm	SS, NBR	8 Feb 2018
27489110100	2748/91	WANG	Flanged Offtake Clamp 1 Part	100	Up to DN100	PN16	100	105	Type R	400mm	SS, NBR	8 Feb 2018
27489110105	2748/91	WANG	Flanged Offtake Clamp 1 Part	100	Up to DN100	PN16	105	110	Type R	400mm	SS, NBR	8 Feb 2018
27489110110	2748/91	WANG	Flanged Offtake Clamp 1 Part	100	Up to DN100	PN16	110	115	Type R	400mm	SS, NBR	8 Feb 2018
27489110120	2748/91	WANG	Flanged Offtake Clamp 1 Part	100	Up to DN100	PN16	120	125	Type R	400mm	SS, NBR	8 Feb 2018

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SCHEDULE TO STANDARDSMARK LICENCE

Model Identification	Model Name	Brand Name	Product Description	Nominal Size	Offtake Size	Pressure Rating	Minimum Pipe Size	Maximum Pipe Size	Pipe Compatibility	Minimum Clamp Length	Clamp Material	Date Endorsed
27489110125	2748/91	WANG	Flanged Offtake Clamp 1 Part	125	Up to DN100	PN16	125	130	Type R	400mm	SS, NBR	8 Feb 2018
27489110130	2748/91	WANG	Flanged Offtake Clamp 1 Part	125	Up to DN100	PN16	130	135	Type R	400mm	SS, NBR	8 Feb 2018
27489110135	2748/91	WANG	Flanged Offtake Clamp 1 Part	125	Up to DN100	PN16	135	140	Type R	400mm	SS, NBR	8 Feb 2018
27489110140	2748/91	WANG	Flanged Offtake Clamp 1 Part	125	Up to DN100	PN16	140	145	Type R	400mm	SS, NBR	8 Feb 2018
27489110145	2748/91	WANG	Flanged Offtake Clamp 1 Part	125	Up to DN100	PN16	145	150	Type R	400mm	SS, NBR	8 Feb 2018
27489110150	2748/91	WANG	Flanged Offtake Clamp 1 Part	125	Up to DN100	PN16	150	155	Type R	400mm	SS, NBR	8 Feb 2018
27489110155	2748/91	WANG	Flanged Offtake Clamp 1 Part	150	Up to DN100	PN16	155	160	Type R	400mm	SS, NBR	8 Feb 2018
27489110160	2748/91	WANG	Flanged Offtake Clamp 1 Part	150	Up to DN150	PN16	160	165	Type R	400mm	SS, NBR	8 Feb 2018
27489110168	2748/91	WANG	Flanged Offtake Clamp 1 Part	150	Up to DN150	PN16	168	173	Type R	400mm	SS, NBR	8 Feb 2018
27489110175	2748/91	WANG	Flanged Offtake Clamp 1 Part	175	Up to DN150	PN16	175	180	Type R	400mm	SS, NBR	8 Feb 2018
27489110180	2748/91	WANG	Flanged Offtake Clamp 1 Part	150	Up to DN150	PN16	180	185	Type R	400mm	SS, NBR	8 Feb 2018
27489110185	2748/91	WANG	Flanged Offtake Clamp 1 Part	150	Up to DN150	PN16	185	190	Type R	400mm	SS, NBR	8 Feb 2018
27489110190	2748/91	WANG	Flanged Offtake Clamp 1 Part	150	Up to DN150	PN16	190	195	Type R	400mm	SS, NBR	8 Feb 2018
27489120110	2748/91	WANG	Flanged Offtake Clamp 2 Part	100	Up to DN100	PN16	110	120	Type R	400mm	SS, NBR	8 Feb 2018
27489120120	2748/91	WANG	Flanged Offtake Clamp 2 Part	100	Up to DN100	PN16	120	130	Type R	400mm	SS, NBR	8 Feb 2018
27489120135	2748/91	WANG	Flanged Offtake Clamp 2 Part	125	Up to DN100	PN16	135	145	Type R	400mm	SS, NBR	8 Feb 2018
27489120140	2748/91	WANG	Flanged Offtake Clamp 2 Part	125	Up to DN100	PN16	140	150	Type R	400mm	SS, NBR	8 Feb 2018
27489120150	2748/91	WANG	Flanged Offtake Clamp 2 Part	125	Up to DN100	PN16	150	160	Type R	400mm	SS, NBR	8 Feb 2018
27489120160	2748/91	WANG	Flanged Offtake Clamp 2 Part	150	Up to DN150	PN16	160	170	Type R	400mm	SS, NBR	8 Feb 2018
27489120175	2748/91	WANG	Flanged Offtake Clamp 2 Part	150	Up to DN150	PN16	175	185	Type R	400mm	SS, NBR	8 Feb 2018
27489120200	2748/91	WANG	Flanged Offtake Clamp 2 Part	200	Up to DN150	PN16	200	210	Type R	400mm	SS, NBR	8 Feb 2018
27489120210	2748/91	WANG	Flanged Offtake Clamp 2 Part	200	Up to DN150	PN16	210	220	Type R	400mm	SS, NBR	8 Feb 2018
27489120215	2748/91	WANG	Flanged Offtake Clamp 2 Part	200	Up to DN150	PN16	215	225	Type R	400mm	SS, NBR	8 Feb 2018
27489120225	2748/91	WANG	Flanged Offtake Clamp 2 Part	200	Up to DN150 / DN200	PN16	225	235	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120230	2748/91	WANG	Flanged Offtake Clamp 2 Part	200	Up to DN150 / DN200	PN16	230	240	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120250	2748/91	WANG	Flanged Offtake Clamp 2 Part	225	Up to DN150 / DN200-DN225	PN16	250	260	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120255	2748/91	WANG	Flanged Offtake Clamp 2 Part	225	Up to DN150 / DN200-DN225	PN16	255	265	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120260	2748/91	WANG	Flanged Offtake Clamp 2 Part	225	Up to DN150 / DN200-DN225	PN16	260	270	Type R	400 / 600mm	SS, NBR	8 Feb 2018

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SCHEDULE TO STANDARDSMARK LICENCE

Model Identification	Model Name	Brand Name	Product Description	Nominal Size	Offtake Size	Pressure Rating	Minimum Pipe Size	Maximum Pipe Size	Pipe Compatibility	Minimum Clamp Length	Clamp Material	Date Endorsed
27489120265	2748/91	WANG	Flanged Offtake Clamp 2 Part	225	Up to DN150 / DN200- DN225	PN16	265	275	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120270	2748/91	WANG	Flanged Offtake Clamp 2 Part	250	Up to DN150 / DN200- DN225	PN16	270	280	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120275	2748/91	WANG	Flanged Offtake Clamp 2 Part	250	Up to DN150 / DN200- DN250	PN16	275	285	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120280	2748/91	WANG	Flanged Offtake Clamp 2 Part	250	Up to DN150 / DN200- DN250	PN16	280	290	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120285	2748/91	WANG	Flanged Offtake Clamp 2 Part	250	Up to DN150 / DN200- DN250	PN16	285	295	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120290	2748/91	WANG	Flanged Offtake Clamp 2 Part	250	Up to DN150 / DN200- DN250	PN16	290	300	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120295	2748/91	WANG	Flanged Offtake Clamp 2 Part	250	Up to DN150 / DN200- DN250	PN16	295	305	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120310	2748/91	WANG	Flanged Offtake Clamp 2 Part	300	Up to DN150 / DN200- DN250	PN16	310	320	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120320	2748/91	WANG	Flanged Offtake Clamp 2 Part	300	Up to DN150 / DN200- DN250	PN16	320	330	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120330	2748/91	WANG	Flanged Offtake Clamp 2 Part	300	Up to DN150 / DN200- DN250	PN16	330	340	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489120340	2748/91	WANG	Flanged Offtake Clamp 2 Part	300	Up to DN150 / DN200- DN250	PN16	340	350	Type R	400 / 600mm	SS, NBR	8 Feb 2018
27489210047	2748/92	WANG	Tapped Repair Clamp 1 Part	40	Up to DN25	PN16	47	52	Type R	150mm	SS, NBR	8 Feb 2018
27489210059	2748/92	WANG	Tapped Repair Clamp 1 Part	50	Up to DN32	PN16	59	64	Type R	150mm	SS, NBR	8 Feb 2018
27489210063	2748/92	WANG	Tapped Repair Clamp 1 Part	50	Up to DN40	PN16	63	68	Type R	150mm	SS, NBR	8 Feb 2018
27489210069	2748/92	WANG	Tapped Repair Clamp 1 Part	50	Up to DN40	PN16	69	74	Type R	150mm	SS, NBR	8 Feb 2018
27489210075	2748/92	WANG	Tapped Repair Clamp 1 Part	80	Up to DN50	PN16	75	80	Type R	150mm	SS, NBR	8 Feb 2018
27489210076	2748/92	WANG	Tapped Repair Clamp 1 Part	80	Up to DN50	PN16	76	81	Type R	150mm	SS, NBR	8 Feb 2018
27489210085	2748/92	WANG	Tapped Repair Clamp 1 Part	80	Up to DN50	PN16	85	92	Type R	200mm	SS, NBR	8 Feb 2018
27489210088	2748/92	WANG	Tapped Repair Clamp 1 Part	80	Up to DN50	PN16	88	95	Type R	200mm	SS, NBR	8 Feb 2018
27489210095	2748/92	WANG	Tapped Repair Clamp 1 Part	80	Up to DN50	PN16	95	102	Type R	200mm	SS, NBR	8 Feb 2018
27489210100	2748/92	WANG	Tapped Repair Clamp 1 Part	100	Up to DN50	PN16	100	110	Type R	200mm	SS, NBR	8 Feb 2018
27489210105	2748/92	WANG	Tapped Repair Clamp 1 Part	100	Up to DN50	PN16	105	115	Type R	200mm	SS, NBR	8 Feb 2018
27489210110	2748/92	WANG	Tapped Repair Clamp 1 Part	100	Up to DN50	PN16	110	120	Type R	200mm	SS, NBR	8 Feb 2018
27489210114	2748/92	WANG	Tapped Repair Clamp 1 Part	100	Up to DN50	PN16	114	124	Type R	200mm	SS, NBR	8 Feb 2018
27489210120	2748/92	WANG	Tapped Repair Clamp 1 Part	100	Up to DN50	PN16	120	130	Type R	200mm	SS, NBR	8 Feb 2018

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SCHEDULE TO STANDARDSMARK LICENCE

Model Identification	Model Name	Brand Name	Product Description	Nominal Size	Offtake Size	Pressure Rating	Minimum Pipe Size	Maximum Pipe Size	Pipe Compatibility	Minimum Clamp Length	Clamp Material	Date Enforced
27489210130	2748/92	WANG	Tapped Repair Clamp 1 Part	100	Up to DN50	PN16	130	140	Type R	200mm	SS, NBR	8 Feb 2018
27489210140	2748/92	WANG	Tapped Repair Clamp 1 Part	125	Up to DN50	PN16	140	150	Type R	200mm	SS, NBR	8 Feb 2018
27489210145	2748/92	WANG	Tapped Repair Clamp 1 Part	125	Up to DN50	PN16	145	155	Type R	200mm	SS, NBR	8 Feb 2018
27489210150	2748/92	WANG	Tapped Repair Clamp 1 Part	125	Up to DN50	PN16	150	160	Type R	200mm	SS, NBR	8 Feb 2018
27489210160	2748/92	WANG	Tapped Repair Clamp 1 Part	150	Up to DN50	PN16	160	170	Type R	200mm	SS, NBR	8 Feb 2018
27489210168	2748/92	WANG	Tapped Repair Clamp 1 Part	150	Up to DN50	PN16	168	178	Type R	200mm	SS, NBR	8 Feb 2018
27489210175	2748/92	WANG	Tapped Repair Clamp 1 Part	150	Up to DN50	PN16	175	185	Type R	200mm	SS, NBR	8 Feb 2018
27489210185	2748/92	WANG	Tapped Repair Clamp 1 Part	150	Up to DN50	PN16	185	195	Type R	200mm	SS, NBR	8 Feb 2018
27489210190	2748/92	WANG	Tapped Repair Clamp 1 Part	150	Up to DN50	PN16	190	200	Type R	200mm	SS, NBR	8 Feb 2018
27489210200	2748/92	WANG	Tapped Repair Clamp 1 Part	200	Up to DN50	PN16	200	210	Type R	200mm	SS, NBR	8 Feb 2018
27489210205	2748/92	WANG	Tapped Repair Clamp 1 Part	200	Up to DN50	PN16	205	215	Type R	300mm	SS, NBR	8 Feb 2018
27489210210	2748/92	WANG	Tapped Repair Clamp 1 Part	200	Up to DN50	PN16	210	220	Type R	200mm	SS, NBR	8 Feb 2018
27489210225	2748/92	WANG	Tapped Repair Clamp 1 Part	200	Up to DN50	PN16	225	235	Type R	200mm	SS, NBR	8 Feb 2018
27489210230	2748/92	WANG	Tapped Repair Clamp 1 Part	200	Up to DN50	PN16	230	240	Type R	200mm	SS, NBR	8 Feb 2018
27489210240	2748/92	WANG	Tapped Repair Clamp 1 Part	225	Up to DN50	PN16	240	250	Type R	300mm	SS, NBR	8 Feb 2018
27489210250	2748/92	WANG	Tapped Repair Clamp 1 Part	225	Up to DN50	PN16	250	260	Type R	300mm	SS, NBR	8 Feb 2018
27489210255	2748/92	WANG	Tapped Repair Clamp 1 Part	225	Up to DN50	PN16	255	265	Type R	300mm	SS, NBR	8 Feb 2018
27489210260	2748/92	WANG	Tapped Repair Clamp 1 Part	250	Up to DN50	PN16	260	270	Type R	300mm	SS, NBR	8 Feb 2018
27489210265	2748/92	WANG	Tapped Repair Clamp 1 Part	225	Up to DN50	PN16	265	275	Type R	300mm	SS, NBR	8 Feb 2018
27489210275	2748/92	WANG	Tapped Repair Clamp 1 Part	250	Up to DN50	PN16	275	285	Type R	300mm	SS, NBR	8 Feb 2018
27489210285	2748/92	WANG	Tapped Repair Clamp 1 Part	250	Up to DN50	PN16	285	295	Type R	300mm	SS, NBR	8 Feb 2018
27489210295	2748/92	WANG	Tapped Repair Clamp 1 Part	250	Up to DN50	PN16	295	305	Type R	300mm	SS, NBR	8 Feb 2018
7489010047	748/90	AVK	Repair Clamp 1 Part	40	N/A	PN16	47	52	Type R	150mm	SS, NBR	8 Feb 2018
7489010055	748/90	AVK	Repair Clamp 1 Part	50	N/A	PN16	55	60	Type R	150mm	SS, NBR	8 Feb 2018
7489010059	748/90	AVK	Repair Clamp 1 Part	50	N/A	PN16	59	64	Type R	150mm	SS, NBR	8 Feb 2018
7489010063	748/90	AVK	Repair Clamp 1 Part	50	N/A	PN16	63	68	Type R	150mm	SS, NBR	8 Feb 2018
7489010069	748/90	AVK	Repair Clamp 1 Part	50	N/A	PN16	69	74	Type R	150mm	SS, NBR	8 Feb 2018
7489010075	748/90	AVK	Repair Clamp 1 Part	50, 65, 80	N/A	PN16	75	80	Type R	150mm	SS, NBR	8 Feb 2018
7489010076	748/90	AVK	Repair Clamp 1 Part	80	N/A	PN16	76	81	Type R	150mm	SS, NBR	8 Feb 2018
7489010079	748/90	AVK	Repair Clamp 1 Part	65	N/A	PN16	79	84	Type R	150mm	SS, NBR	8 Feb 2018
7489010080	748/90	AVK	Repair Clamp 1 Part	80	N/A	PN16	80	87	Type R	150mm	SS, NBR	8 Feb 2018
7489010085	748/90	AVK	Repair Clamp 1 Part	80	N/A	PN16	85	92	Type R	150mm	SS, NBR	8 Feb 2018

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Model Identification	Model Name	Brand Name	Product Description	Nominal Size	Offtake Size	Pressure Rating	Minimum Pipe Size	Maximum Pipe Size	Pipe Compatibility	Minimum Clamp Length	Clamp Material	Date Endorsed
749210260	749/92	AVK	Tapped Repair Clamp 1 Part	250	Up to DN50	PN16	260	270	Type R	300mm	SS, NBR	8 Feb 2018
749210265	749/92	AVK	Tapped Repair Clamp 1 Part	225	Up to DN50	PN16	265	275	Type R	300mm	SS, NBR	8 Feb 2018
749210275	749/92	AVK	Tapped Repair Clamp 1 Part	250	Up to DN50	PN16	275	285	Type R	300mm	SS, NBR	8 Feb 2018
749210285	749/92	AVK	Tapped Repair Clamp 1 Part	250	Up to DN50	PN16	265	295	Type R	300mm	SS, NBR	8 Feb 2018
749210295	749/92	AVK	Tapped Repair Clamp 1 Part	250	Up to DN50	PN16	295	305	Type R	300mm	SS, NBR	10 Feb 2023
KX-047A	N/A	WANG	Repair Clamp 1 Part	40	N/A	PN16	47	52	Type R	150mm	SS, NBR	8 Feb 2018
KX-047T.XXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	40	Up to DN25	PN16	47	52	Type R	150mm	SS, NBR	8 Feb 2018
KX-055A	N/A	WANG	Repair Clamp 1 Part	50	N/A	PN16	55	60	Type R	150mm	SS, NBR	8 Feb 2018
KX-059A	N/A	WANG	Repair Clamp 1 Part	50	N/A	PN16	59	64	Type R	150mm	SS, NBR	8 Feb 2018
KX-087T.XXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	50	Up to DN32	PN16	59	64	Type R	150mm	SS, NBR	8 Feb 2018
KX-063A	N/A	WANG	Repair Clamp 1 Part	50	N/A	PN16	63	68	Type R	150mm	SS, NBR	8 Feb 2018
KX-063T.XXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	50	Up to DN40	PN16	63	68	Type R	150mm	SS, NBR	8 Feb 2018
KX-069A	N/A	WANG	Repair Clamp 1 Part	50	N/A	PN16	69	74	Type R	150mm	SS, NBR	8 Feb 2018
KX-087T.XXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	50	Up to DN40	PN16	69	74	Type R	150mm	SS, NBR	8 Feb 2018
KX-075A	N/A	WANG	Repair Clamp 1 Part	55, 65	N/A	PN16	75	80	Type R	150mm	SS, NBR	8 Feb 2018
KX-075T.XXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	80	Up to DN50	PN16	75	80	Type R	150mm	SS, NBR	8 Feb 2018
KX-076A	N/A	WANG	Repair Clamp 1 Part	80	N/A	PN16	76	81	Type R	150mm	SS, NBR	8 Feb 2018
KX-076T.XXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	80	Up to DN50	PN16	76	81	Type R	150mm	SS, NBR	8 Feb 2018
KX-079A	N/A	WANG	Repair Clamp 1 Part	65	N/A	PN16	79	84	Type R	150mm	SS, NBR	8 Feb 2018
KX-080A	N/A	WANG	Repair Clamp 1 Part	80	N/A	PN16	80	87	Type R	150mm	SS, NBR	8 Feb 2018
KX-085A	N/A	WANG	Repair Clamp 1 Part	80	N/A	PN16	85	92	Type R	150mm	SS, NBR	8 Feb 2018
KX-085T.XXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	80	Up to DN50	PN16	85	92	Type R	200mm	SS, NBR	8 Feb 2018
KX-089A	N/A	WANG	Repair Clamp 1 Part	80	N/A	PN16	88	95	Type R	150mm	SS, NBR	8 Feb 2018
KX-089T.XXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	80	Up to DN50	PN16	88	95	Type R	200mm	SS, NBR	8 Feb 2018
KX-095A	N/A	WANG	Repair Clamp 1 Part	80	N/A	PN16	95	102	Type R	150mm	SS, NBR	8 Feb 2018
KX-095F.XXXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	80	Up to DN80	PN16	95	100	Type R	400mm	SS, NBR	8 Feb 2018
KX-095T.XXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	80	Up to DN50	PN16	95	102	Type R	200mm	SS, NBR	8 Feb 2018
KX-100A	N/A	WANG	Repair Clamp 1 Part	100	N/A	PN16	100	110	Type R	200mm	SS, NBR	8 Feb 2018
KX-100F.XXXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	100	Up to DN100	PN16	100	105	Type R	400mm	SS, NBR	8 Feb 2018
KX-100T.XXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	100	Up to DN50	PN16	100	110	Type R	200mm	SS, NBR	8 Feb 2018
KX-105A	N/A	WANG	Repair Clamp 1 Part	100	N/A	PN16	105	115	Type R	200mm	SS, NBR	8 Feb 2018
KX-105F.XXXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	100	Up to DN100	PN16	105	110	Type R	400mm	SS, NBR	8 Feb 2018
KX-105T.XXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	100	Up to DN50	PN16	105	115	Type R	200mm	SS, NBR	8 Feb 2018

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Model Identification	Model Name	Brand Name	Product Description	Nominal Size	Offtake Size	Pressure Rating	Minimum Pipe Size	Maximum Pipe Size	Pipe Compatibility	Minimum Clamp Length	Clamp Material	Date Endorsed
KX-115A	N/A	WANG	Repair Clamp 1 Part	100	N/A	PN16	110	120	Type R	200mm	SS, NBR	8 Feb 2018
KX-115F.XXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	100	Up to DN100	PN16	110	115	Type R	400mm	SS, NBR	8 Feb 2018
KX-115F.XXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	100	Up to DN100	PN16	110	120	Type R	400mm	SS, NBR	8 Feb 2018
KX-115T.XXXA	N/A	WANG	Tapped Repair Clamp 1 Part	100	Up to DN50	PN16	110	120	Type R	200mm	SS, NBR	8 Feb 2018
KX-113A	N/A	WANG	Repair Clamp 1 Part	100	N/A	PN16	113	123	Type R	200mm	SS, NBR	8 Feb 2018
KX-114A	N/A	WANG	Repair Clamp 1 Part	100	N/A	PN16	114	124	Type R	200mm	SS, NBR	8 Feb 2018
KX-114T.XXXA	N/A	WANG	Tapped Repair Clamp 1 Part	100	Up to DN50	PN16	114	124	Type R	200mm	SS, NBR	8 Feb 2018
KX-125A	N/A	WANG	Repair Clamp 1 Part	100	N/A	PN16	120	130	Type R	200mm	SS, NBR	8 Feb 2018
KX-125F.XXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	100	Up to DN100	PN16	120	125	Type R	400mm	SS, NBR	8 Feb 2018
KX-125F.XXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	100	Up to DN100	PN16	120	130	Type R	400mm	SS, NBR	8 Feb 2018
KX-125T.XXXA	N/A	WANG	Tapped Repair Clamp 1 Part	100	Up to DN50	PN16	120	130	Type R	200mm	SS, NBR	8 Feb 2018
KX-125F.XXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	125	Up to DN100	PN16	125	130	Type R	400mm	SS, NBR	8 Feb 2018
KX-135A	N/A	WANG	Repair Clamp 1 Part	100	N/A	PN16	130	140	Type R	200mm	SS, NBR	8 Feb 2018
KX-135F.XXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	125	Up to DN100	PN16	130	135	Type R	400mm	SS, NBR	8 Feb 2018
KX-135T.XXXA	N/A	WANG	Tapped Repair Clamp 1 Part	100	Up to DN50	PN16	130	140	Type R	200mm	SS, NBR	8 Feb 2018
KX-135A	N/A	WANG	Repair Clamp 1 Part	100	N/A	PN16	135	145	Type R	200mm	SS, NBR	8 Feb 2018
KX-135F.XXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	125	Up to DN100	PN16	135	140	Type R	400mm	SS, NBR	8 Feb 2018
KX-135F.XXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	125	Up to DN100	PN16	135	145	Type R	400mm	SS, NBR	8 Feb 2018
KX-145A	N/A	WANG	Repair Clamp 1 Part	125	N/A	PN16	140	150	Type R	200mm	SS, NBR	8 Feb 2018
KX-145F.XXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	125	Up to DN100	PN16	140	145	Type R	400mm	SS, NBR	8 Feb 2018
KX-145F.XXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	125	Up to DN100	PN16	140	150	Type R	400mm	SS, NBR	8 Feb 2018
KX-145T.XXXA	N/A	WANG	Tapped Repair Clamp 1 Part	125	Up to DN50	PN16	140	150	Type R	200mm	SS, NBR	8 Feb 2018
KX-145A	N/A	WANG	Repair Clamp 1 Part	125	N/A	PN16	145	155	Type R	200mm	SS, NBR	8 Feb 2018
KX-145F.XXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	125	Up to DN100	PN16	145	150	Type R	400mm	SS, NBR	8 Feb 2018
KX-145T.XXXA	N/A	WANG	Tapped Repair Clamp 1 Part	125	Up to DN50	PN16	145	155	Type R	200mm	SS, NBR	8 Feb 2018
KX-155A	N/A	WANG	Repair Clamp 1 Part	125	N/A	PN16	150	160	Type R	200mm	SS, NBR	8 Feb 2018
KX-155F.XXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	125	Up to DN100	PN16	150	155	Type R	400mm	SS, NBR	8 Feb 2018
KX-155F.XXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	125	Up to DN100	PN16	150	160	Type R	400mm	SS, NBR	8 Feb 2018
KX-155T.XXXA	N/A	WANG	Tapped Repair Clamp 1 Part	125	Up to DN50	PN16	150	160	Type R	200mm	SS, NBR	8 Feb 2018
KX-155A	N/A	WANG	Repair Clamp 1 Part	150	N/A	PN16	155	165	Type R	200mm	SS, NBR	8 Feb 2018
KX-155F.XXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	150	Up to DN100	PN16	155	160	Type R	400mm	SS, NBR	8 Feb 2018
KX-155A	N/A	WANG	Repair Clamp 1 Part	150	N/A	PN16	158	168	Type R	200mm	SS, NBR	8 Feb 2018

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SCHEDULE TO STANDARDSMARK LICENCE

Model Identification	Model Name	Brand Name	Product Description	Nominal Size	Offtake Size	Pressure Rating	Minimum Pipe Size	Maximum Pipe Size	Pipe Compatibility	Minimum Clamp Length	Clamp Material	Date Endorsed
KX-160A	N/A	WANG	Repair Clamp 1 Part	150	N/A	PN16	160	170	Type R	200mm	SS, NBR	8 Feb 2018
KX-160FXXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	150	Up to DN150	PN16	160	165	Type R	400mm	SS, NBR	8 Feb 2018
KX-160FXXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	150	Up to DN150	PN16	160	170	Type R	400mm	SS, NBR	8 Feb 2018
KX-160TXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	150	Up to DN50	PN16	160	170	Type R	200mm	SS, NBR	8 Feb 2018
KX-165A	N/A	WANG	Repair Clamp 1 Part	150	N/A	PN16	168	178	Type R	200mm	SS, NBR	8 Feb 2018
KX-165FXXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	150	Up to DN150	PN16	168	173	Type R	400mm	SS, NBR	8 Feb 2018
KX-165TXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	150	Up to DN50	PN16	168	178	Type R	200mm	SS, NBR	8 Feb 2018
KX-175A	N/A	WANG	Repair Clamp 1 Part	150	N/A	PN16	175	185	Type R	200mm	SS, NBR	8 Feb 2018
KX-175FXXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	175	Up to DN150	PN16	175	180	Type R	400mm	SS, NBR	8 Feb 2018
KX-175FXXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	150	Up to DN150	PN16	175	185	Type R	400mm	SS, NBR	8 Feb 2018
KX-175TXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	150	Up to DN50	PN16	175	185	Type R	200mm	SS, NBR	8 Feb 2018
KX-180A	N/A	WANG	Repair Clamp 1 Part	150	N/A	PN16	180	190	Type R	200mm	SS, NBR	8 Feb 2018
KX-180FXXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	150	Up to DN150	PN16	180	185	Type R	400mm	SS, NBR	8 Feb 2018
KX-180A	N/A	WANG	Repair Clamp 1 Part	150	N/A	PN16	185	195	Type R	200mm	SS, NBR	8 Feb 2018
KX-180FXXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	150	Up to DN150	PN16	185	190	Type R	400mm	SS, NBR	8 Feb 2018
KX-180TXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	150	Up to DN50	PN16	185	195	Type R	200mm	SS, NBR	8 Feb 2018
KX-190A	N/A	WANG	Repair Clamp 1 Part	180, 200	N/A	PN16	190	200	Type R	200mm	SS, NBR	8 Feb 2018
KX-190FXXXA	N/A	WANG	Flanged Offtake Clamp 1 Part	150	Up to DN150	PN16	190	195	Type R	400mm	SS, NBR	8 Feb 2018
KX-190TXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	150	Up to DN50	PN16	190	200	Type R	200mm	SS, NBR	8 Feb 2018
KX-195A	N/A	WANG	Repair Clamp 1 Part	150	N/A	PN16	195	205	Type R	200mm	SS, NBR	8 Feb 2018
KX-197A	N/A	WANG	Repair Clamp 1 Part	175	N/A	PN16	197	207	Type R	200mm	SS, NBR	8 Feb 2018
KX-200A	N/A	WANG	Repair Clamp 1 Part	200	N/A	PN16	200	210	Type R	200mm	SS, NBR	8 Feb 2018
KX-200FXXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	200	Up to DN150	PN16	200	210	Type R	400mm	SS, NBR	8 Feb 2018
KX-200TXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	200	Up to DN50	PN16	200	210	Type R	200mm	SS, NBR	8 Feb 2018
KX-205A	N/A	WANG	Repair Clamp 1 Part	200	N/A	PN16	205	215	Type R	200mm	SS, NBR	8 Feb 2018
KX-205TXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	200	Up to DN50	PN16	205	215	Type R	300mm	SS, NBR	8 Feb 2018
KX-210A	N/A	WANG	Repair Clamp 1 Part	200	N/A	PN16	210	220	Type R	200mm	SS, NBR	8 Feb 2018
KX-210FXXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	200	Up to DN150	PN16	210	220	Type R	400mm	SS, NBR	8 Feb 2018
KX-210TXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	200	Up to DN50	PN16	210	220	Type R	200mm	SS, NBR	8 Feb 2018
KX-215A	N/A	WANG	Repair Clamp 1 Part	200	N/A	PN16	215	225	Type R	200mm	SS, NBR	8 Feb 2018
KX-215FXXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	200	Up to DN150	PN16	215	225	Type R	400mm	SS, NBR	8 Feb 2018
KX-225A	N/A	WANG	Repair Clamp 1 Part	200	N/A	PN16	225	235	Type R	300mm	SS, NBR	8 Feb 2018
KX-225FXXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	200	Up to DN150 / DN200	PN16	225	235	Type R	400 / 600mm	SS, NBR	8 Feb 2018

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Model Identification	Model Name	Brand Name	Product Description	Nominal Size	Offtake Size	Pressure Rating	Minimum Pipe Size	Maximum Pipe Size	Pipe Compatibility	Minimum Clamp Length	Clamp Material	Date Endorsed
KX-293FXXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	250	Up to DN150 / DN200-DN250	PN16	290	300	Type R	400 / 600mm	SS, NBR	8 Feb 2018
KX-295A	N/A	WANG	Repair Clamp 1 Part	250	N/A	PN16	295	305	Type R	300mm	SS, NBR	8 Feb 2018
KX-295FXXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	250	Up to DN150 / DN200-DN250	PN16	295	305	Type R	400 / 600mm	SS, NBR	8 Feb 2018
KX-296TXXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	250	Up to DN50	PN16	295	305	Type R	300mm	SS, NBR	8 Feb 2018
KX-300A	N/A	WANG	Repair Clamp 1 Part	300	N/A	PN16	300	310	Type R	300mm	SS, NBR	8 Feb 2018
KX-305A	N/A	WANG	Repair Clamp 1 Part	300	N/A	PN16	305	315	Type R	300mm	SS, NBR	8 Feb 2018
KX-310A	N/A	WANG	Repair Clamp 1 Part	300	N/A	PN16	310	320	Type R	400mm	SS, NBR	8 Feb 2018
KX-310FXXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	300	Up to DN150 / DN200-DN250	PN16	310	320	Type R	400 / 600mm	SS, NBR	8 Feb 2018
KX-315A	N/A	WANG	Repair Clamp 1 Part	300	N/A	PN16	315	325	Type R	400mm	SS, NBR	8 Feb 2018
KX-320A	N/A	WANG	Repair Clamp 1 Part	300	N/A	PN16	320	330	Type R	400mm	SS, NBR	8 Feb 2018
KX-320B	N/A	WANG	Repair Clamp 2 Part	300	N/A	PN16	320	340	Type R	400mm	SS, NBR	8 Feb 2018
KX-320FXXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	300	Up to DN150 / DN200-DN250	PN16	320	330	Type R	400 / 600mm	SS, NBR	8 Feb 2018
KX-322B	N/A	WANG	Repair Clamp 2 Part	300	N/A	PN16	322	342	Type R	400mm	SS, NBR	8 Feb 2018
KX-323A	N/A	WANG	Repair Clamp 1 Part	300	N/A	PN16	323	333	Type R	400mm	SS, NBR	8 Feb 2018
KX-330A	N/A	WANG	Repair Clamp 1 Part	300	N/A	PN16	330	340	Type R	400mm	SS, NBR	8 Feb 2018
KX-330B	N/A	WANG	Repair Clamp 2 Part	300	N/A	PN16	330	350	Type R	400mm	SS, NBR	8 Feb 2018
KX-330FXXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	300	Up to DN150 / DN200-DN250	PN16	330	340	Type R	400 / 600mm	SS, NBR	8 Feb 2018
KX-340FXXXB	N/A	WANG	Flanged Offtake Clamp 2 Part	300	Up to DN150 / DN200-DN250	PN16	340	350	Type R	400 / 600mm	SS, NBR	8 Feb 2018

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APPENDIX C - SUPPLIER CONTACTS

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