



AVK Australia Holding Pty Ltd

PRODUCT APPRAISAL REPORT 1713 Issue 2

Wang Repair, Tapped and Flanged Stainless-Steel Clamps

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

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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.

These products are marketed under the WANG brand and are distributed through Viadux Pty Ltd and Reece Limited.

The Wang 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 Wang 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 Wang 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

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.

2.2 The Supplier

The Wang branded stainless steel repair and off-take clamps are exclusively distributed through Viadux and Reece.

Viadux Pty Ltd, wholly owned by Reece Australia Pty Ltd, is a supplier of water, wastewater and industrial pipeline solutions. It provides products and services for applications throughout the water, irrigation, mining, building, oil & gas, power and process industries.

Reece Australia Pty Ltd is a major public company and Australia's most successful supplier of plumbing and bathroom products with over 450 stores across Australia, more than 4,000 staff and thousands of products.

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.

Wang 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
WANG 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
WANG 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
WANG 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 Wang branded Type R stainless steel repair, tapped and flanged clamps rated as PN 16 in sizes from DN 40 to DN 300.

Wang 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

Wang 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*

Wang 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 Wang 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 Wang 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 Wang 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

Wang 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 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 Wang 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: Wang
- Nominal diameter: e.g., DN150
- Flange or tapping offtake size: e.g., DN150 x dn50
- Pressure Classification: PN16
- Pipe outside diameter range: e.g., 200-210
- 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 WANG CLAMP MARKINGS

9 PACKAGING AND TRANSPORTATION

Wang 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).

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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



STAINLESS STEEL REPAIR CLAMPS
 DN 40 - DN 1200

FAST, PERMANENT REPAIR AND REINFORCEMENT SOLUTION FOR MOST PIPE TYPES AND SIZES



FEATURES

- Manufactured from grade 316 stainless steel for superior corrosion protection
- Nitrile rubber gaskets provide a potable water contact approved seal and insulates against galvanic corrosion
- Fully passivated stainless steel underscores the quality and longevity of the product
- Clamp design permits the installation of a single clamp on a range of pipe diameters
- All sharp surfaces finished to avoid injury to the installer
- Product supplied with detailed installation instructions
- Dry film anti-galling coating employed to minimise galling of the stainless steel fasteners
- Manufacturing facility certified to the ISO 9001 quality assured standard

DESCRIPTION

The use of high quality Stainless Steel and Nitrile Rubber gaskets permits use of the product in a range of applications from reticulated water and sewerage to industrial use

A Repair Clamp's variable OD Range enables a single clamp to adapt to any pipe OD within that variable range. This dramatically reduces the stocking requirement to cater for each individual pipe type and size

APPLICATION

Repair Clamps provide a permanent repair solution for most leaking, cracked or damaged pipe

They are also an effective means of reinforcing old pipe in critical areas or providing an effective seal for decommissioned service connections

TECHNICAL DATA

Size Range: DN 40 - DN 1200

Maximum Operating Pressure:
 Up to 690mm OD: 1600 kPa

Temperature Range:
 -10°C to 60°C

Product Certification:
 AS 4181 Lic. No 5MK1785

-

Note: Wang Repair Clamps should not be used to join pipe and DO NOT provide axial pipe restraint.

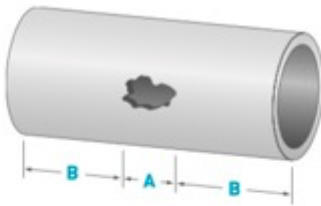
The use of a Vari-Grip Pipe Coupling is recommended for pipe joining applications

CALCULATING THE MINIMUM RECOMMENDED CLAMP LENGTH

When repairing a damaged pipe, it is important to select a clamp of the right length relative to the length of the damage being repaired. For effective sealing, there should be sufficient gasket in contact with the pipe between the edge of the damage and the end of the clamp on each side

The diagram and table below provide a method of ensuring that the selected clamp is no less than the minimum recommended length for an effective seal.

Minimum recommended clamp length = A + 2B



EXAMPLE: CALCULATING MINIMUM CLAMP LENGTH

You require a clamp to repair a DN 300 Sr.2 PVC pipe with a 100mm wide hole

- Determine the minimum required clamp length with formula (A+2B).
 A = Damage dimension = 100mm
 B = Seal length (extract from table below) = 100mm
 Therefore MINIMUM clamp length = (100 + [2x100]) = 300mm.
- Standard clamp length from table below for a DN 300 pipe = 300mm.
 Therefore a standard clamp from the selection chart (page 3 & 4) can be used.
- However if the damage had been more than 100mm in length, a standard clamp (300mm long in this example) would be too short.
- Contact WANG Components in such an instance for assistance for the next available option in clamp length.

MINIMUM REQUIRED SEAL LENGTH 'B'

NOM. PIPE DIA. DN	MIN. SEAL LENGTH 'B' mm	STANDARD CLAMP LENGTHS mm
40 - 80	50	150
100 - 200	65	200
225 - 300	100	300
350 - 600	150	400

REPAIR CLAMPS TYPICAL SPECIFYING SEQUENCE

	K	15	-	600	C	D
K	= Clamp code					
15	= Number of fasteners					
-	= Delineator					
600	= Start of OD range					
C	= Number of clamp segments (see table below)					
D	= Clamp length, mm (see table below)					

WANG REPAIR CLAMPS STANDARD CLAMP CONFIGURATIONS

PRODUCT CODE ENDING	NO. OF CLAMP SEGMENTS			CLAMP LENGTH mm				CLAMP OD RANGE mm
	A	B	C	A	B	C	D	
AA	1			150				5
AB	1				200			10
AC	1					300		10
AD	1						400	10
BD		2					400	20
CD			3				400	30

EXAMPLE: TO DETERMINE THE CONFIGURATION OF A REPAIR CLAMP FROM ITS PRODUCT CODE, EG: K10-490BD

- K10 = 10 bolt clamp
 - 490 = Start of the clamp's OD range
 - BD = 20mm OD range (table above)
 Therefore Clamp OD range is 490 to 510mm
 - B = No. of clamp segments = 2 (table above)
 - D = Clamp length = 400 mm (table above)
- Conclusion
 10 bolt x 2 part Repair Clamp,
 400 mm long with an OD range of 490 to 510mm

REPAIR CLAMPS SELECTION CHART

NOM. PIPE SIZE DN	DICL	STEEL		CICL		AC
	AS/NZS 2280	MSCL AS 1579	GW1 AS 1074	B AS 1724	C AS 2544	AB AS 1711
40			K2-047AA 48mm			
50			K2-059AA 60mm			K2-069AA 69mm
65			K2-076AA 76mm			K2-076AA 79mm
80	K2-095AB 96mm		K2-085AB 89mm	K2-095AB 96mm	K2-095AB 96mm	K2-095AB 96mm
100	K2-120AB 122mm	K2-114AB 114mm	K2-114AB 114mm	K2-120AB 122mm	K2-120AB 122mm	K2-120AB 122mm
125		K2-140AB 140mm	K2-140AB 140mm		K2-140AB 149mm	
150	K2-175AB 177mm	K2-160AB 168mm	K2-160AB 168mm	K2-175AB 177mm	K2-175AB 177mm	K2-175AB 177mm
175					K2-200AB 200mm	
200	K2-230AB 232mm	K2-215AB 218mm		K2-230AB 232mm	K2-230AB 232mm	K2-230AB 232mm
225	K4-250AC 259mm			K4-250AC 259mm	K4-250AC 259mm	K4-250AC 259mm
250	K4-285AC 286mm	K4-270AC 273mm		K4-285AC 286mm	K4-285AC 286mm	K4-285AC 286mm
300	K4-340AC 345mm	K4-320AC 324mm		K4-330AC 334mm	K4-340AC 345mm	K4-330AC 334mm
350		K10-350BD 355mm				
375	K10-410BD 426mm	K10-400BD 406mm		K10-410BD 413mm	K10-410BD 426mm	K10-410BD 413mm
400		K10-450BD 457mm				
450	K10-490BD 507mm	K10-490BD 508mm		K10-490BD 492mm	K10-490BD 507mm	K10-490BD 492mm
500	K15-560CD 560mm	K15-530CD 559mm		K15-530CD 545mm	K15-560CD 560mm	
525						K15-570CD 572mm
600	K15-650CD 667mm	K15-600CD 610mm		K15-650CD 650mm	K15-650CD 667mm	K15-650CD 650mm

Product Code Pipe 00

Note: The WANG Repair Clamp range extends beyond DN600. For sizes and configurations not listed above, please contact WANG Component
 *1 Min. required pipe rating for clamp application: PN9 *2 Min. required pipe rating for clamp application: SN10,000 *3 Min. required pipe rating for clamp application: U-PN9 / M-PN12

AC	ABS*1	GRP**2	RC	COPPER	PVC-U/M**3	
CD AS 1711	SERIES 1 AS 3518	SERIES 1 -B5 AS 3571	AS 4058	AS 1432	SERIES 1 (U) AS/NZS 1477 (M) AS/NZS 4765	SERIES 2 (U) AS/NZS 1477 (M) AS/NZS 4765
	K2-047AA 48mm			N/A 38mm	K2-047AA 48mm	
	K2-059AA 60mm			K2-047AA 51mm	K2-059AA 60mm	
	K2-075AA 75mm			K2-063AA 64mm	K2-075AA 75mm	
K2-095AB 9mm	K2-085AB 89mm			K2-076AA 76mm	K2-085AB 89mm	
K2-120AB 122mm	K2-114AB 114mm	K2-120AB 122mm		K2-095AB 101mm	K2-114AB 114mm	K2-120AB 122mm
	K2-140AB 140mm			K2-120AB 127mm	K2-140AB 140mm	
K2-175AB 177mm	K2-160AB 168mm	K2-175AB 177mm	K2-190AB 197mm	K2-150AB 152mm	K2-160AB 160mm	K2-175AB 177mm
					K2-200AB 200mm	
K2-230AB 232mm	K2-215AB 225mm	K2-230AB 232mm		K2-200AB 203mm	K2-215AB 225mm	K2-230AB 232mm
K4-250AC 259mm	K4-250AC 250mm	K4-250AC 259mm	K4-275AC 279mm	K2-225AB 229mm	K4-250AC 250mm	K4-250AC 259mm
K4-285AC 286mm		K4-285AC 286mm			K4-275AC 280mm	K4-285AC 286mm
K4-340AC 345mm	K4-310AC 315mm	K4-340AC 345mm	K10-350BD 362mm		K4-310AC 315mm	K4-340AC 345mm
	K10-350BD 355mm	K10-390BD 399mm			K10-350BD 355mm	
K10-410BD 426mm	K10-400BD 406mm	K10-410BD 426mm	K10-440BD 445mm		K10-400BD 406mm	K10-410BD 426mm
	K10-450BD 456mm	K10-450BD 453mm			K10-450BD 450mm	
K10-490BD 507mm	K10-490BD 500mm	K10-490BD 507mm	K15-530CD 533mm		K10-490BD 500mm	K10-490BD 507mm
	K15-560CD 566mm	K15-560CD 560mm			K15-560CD 560mm	K15-560CD 560mm
K15-570CD 587mm		K15-570CD 587mm	K15-610CD 616mm			
K15-650CD 667mm	K15-620CD 630mm	K15-650CD 667mm	K15-690CD 699mm		K15-620CD 630mm	K15-650CD 667mm



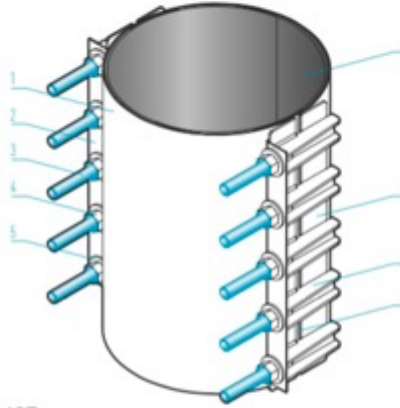
ponents for assistance

STAINLESS STEEL REPAIR CLAMPS

DN 40 - DN 1200

FAST, PERMANENT REPAIR AND REINFORCEMENT SOLUTION FOR MOST PIPE TYPES AND SIZES

SINGLE PART REPAIR CLAMP



PARTS LIST

No.	Description	Material / Standard
1	Skin	316 Stainless Steel / ASTM A240M
2	Locking Plate	316 Stainless Steel / ASTM A240M
3	Studs	316 Stainless Steel - anti-galling compound coated / ASTM A276
4	Nuts	316 Stainless Steel - anti-galling compound coated / AS 1112.1
5	Washers	316 Stainless Steel / ISO 7089
6	Bridge Plate	316 Stainless Steel bonded to gasket ASTM A240M
7	Lugs	316 Stainless Steel / ASTM A240M
8	Flat Bars	316 Stainless Steel / ASTM A276 or A240M
9	Sealing Gasket	Full-circle Nitrile / (NBR) Compound AS 1646 and AS/NZS 4020

DOUBLE PART REPAIR CLAMP



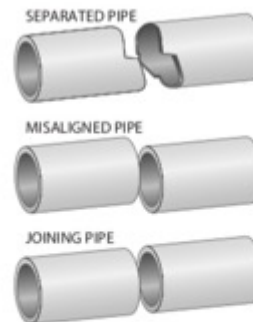
MULTI PART REPAIR CLAMP



REPAIR CLAMPS APPLICATIONS RECOMMENDED



REPAIR CLAMPS APPLICATIONS NOT RECOMMENDED



CLAMPS & COUPLINGS

WANG is one of the leading manufacturers and suppliers of Grade 316 Stainless Steel Repair and Tapped Clamps as well as Couplings for reticulated water, sewerage and gas mains including industrial piping systems.

WANG products have become synonymous with quality and reliability. Our product range is widely utilised and relied upon by Water Authorities and Councils throughout Australia in the installation and maintenance of their supply mains and reticulation network.



WANG products can be sourced through a range of international distributors, their details can be found on our web site.
www.wang.com.au

KWIK CLAMPS

A full circle repair clamp for small bore galvanised steel, copper and PVC pipe. DN 15 - DN 50



HDPE CLAMPS

Provide fast, expedient on-site repair and tapping solutions for HDPE pipe. DN 40 - DN 600



TAPPED CLAMPS

A reliable means of tapping into old, unstable or damaged pipe. DN 50 - DN 1200



TAPPING SADDLES

Permanent tapping solution for both rigid and flexible pipe. DN 40 - DN 450



FLANGED OFFTAKE CLAMPS

A cost effective means of achieving a 'T' connection or under pressure tapping. DN 100 - DN 900



SEWER OB JUNCTION CLAMPS

A quick method of installing a new property service connection on a sewer main. DN 100 - DN 450



VARI GIB COUPLINGS

Non-restrained mechanical couplings for connecting pipes with equal or unequal diameters. DN 40 - DN 1200



HIGH PRESSURE COUPLINGS

Provides a mechanical joint between similar or dissimilar pipes in high pressure environments. DN 150 - DN 2000



SOCKET JOINT LEAK CLAMPS

Provide a permanent and economical seal over a leaking socket-spigot joint. DN 80 - DN 1200



WANG COMPONENTS

CNR GIBSON STREET & SANDFORD ROAD, WANGARATTA, VICTORIA 3677
 PHONE 03 5722 7400 / FAX 03 5722 7444 - EMAIL sales@wang.com.au - WEB www.wang.com.au



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TAPPED OFFTAKE REPAIR CLAMPS DN 50 – DN 1200

FOR TAPPING INTO OLD, UNSTABLE OR DAMAGED PIPE WHERE BOTH TAPPING & REINFORCEMENT ARE A REQUIREMENT



FEATURES

Tapped Offtake Repair Clamps provide rehabilitation to damaged and unstable pipes that require a tapping installation

Offtake is a stainless steel female BSP threaded socket from DN 20 - DN 100 for the connection of threaded valves and fittings

Clamp body provides pipe reinforcement once the pipe is tapped

Each clamp fits a range of pipe diameters

Passivated 316 stainless steel construction maximises corrosion protection and performance life

Full-circle nitrile rubber gasket insulates against galvanic pipe corrosion

Supplied with plastic thread protectors

All sharp surfaces finished to avoid harm to the installer

Dispatched with installation instructions

Dry film anti-galling coating employed to minimise galling of the stainless steel fasteners

Manufacturing facility certified to ISO 9001 Quality Assured Standard

DESCRIPTION

The combination of quality materials and superior design allows this clamp to be utilised in a variety of applications and industries where a tapping is required off an existing pipe

APPLICATION

A fast and economical way to tap into old or unstable pipe and repair pipes with damaged service connections. Also provides an effective means of conducting a tapping under pressure

TECHNICAL DATA

Size Range: DN 50 - DN 1200

Offtake Sizes: DN 20 - DN 100
(Depending on host pipe size)

Maximum Operating Pressure:
1600 kPa (up to and including DN 400)

Temperature Range: -10°C to 60°C

Relevant Standards: AS 4181



FLANGED OFFTAKE CLAMPS

DN 100 – DN 900

STAINLESS STEEL FLANGED OFFTAKE CLAMPS FOR 'T' CONNECTIONS ONTO NEW OR EXISTING PIPING SYSTEMS



FEATURES

Flanged offtake clamps provide a flanged 90 degree offtake for connection to valves and other flanged fittings

Enables a pipe to be tapped while under mains pressure, avoiding the need for water supply shut-off

Avoids the need to cut out sections of pipe, making time-consuming reconstructions and supply shut-off's obsolete

Available for most pipe types and sizes

Passivated 316 stainless steel construction maximises performance life

Full-circle nitrile rubber gasket seal

Dispatched with installation instructions

Plastic thread protectors supplied

All rough surfaces finished to avoid harm to the installer

Dry film anti-galling coating employed to minimise galling of the stainless steel fasteners

Manufacturing facility certified to ISO 9001 quality assured standard

DESCRIPTION

The combination of quality materials and superior design allows this clamp to be utilised in a variety of applications and industries where a flange to flange connection is required off an existing pipe

APPLICATION

A flanged offtake clamp is designed to provide a flanged connection off a new or existing pipeline. This clamp is ideal for tapping pipelines under pressure or for hydrant and air valve installations on existing pipelines

TECHNICAL DATA

Size Range: DN 100 - DN 900

Offtake Sizes: DN 80 - DN 300

Maximum Operating Pressure: 1600 kPa (up to and including DN 450)

Flange Drilling and Class Options: PN 16 to AS 4087 with Table C,D compatible drilling (AS 2129)

Temperature Range: -10°C to 60°C

Relevant Standards: AS 4181

Caution: The clamp should NOT be rotated after it is assembled around the pipe



FLANGED OFFTAKE CLAMPS

DN 100 – DN 900

STAINLESS STEEL FLANGED OFFTAKE CLAMPS FOR 'T' CONNECTIONS ONTO NEW OR EXISTING PIPING SYSTEMS



FEATURES

Flanged offtake clamps provide a flanged 90 degree offtake for connection to valves and other flanged fittings

Enables a pipe to be tapped while under mains pressure, avoiding the need for water supply shut-off

Avoids the need to cut out sections of pipe, making time-consuming reconnections and supply shut-off's obsolete

Available for most pipe types and sizes

Passivated 316 stainless steel construction maximises performance life

Full-circle nitrile rubber gasket seal

Dispatched with installation instructions

Plastic thread protectors supplied

All rough surfaces finished to avoid harm to the installer

Dry film anti-galling coating employed to minimise galling of the stainless steel fasteners

Manufacturing facility certified to ISO 9001 quality assured standard

DESCRIPTION

The combination of quality materials and superior design allows this clamp to be utilised in a variety of applications and industries where a flange to flange connection is required off an existing pipe

APPLICATION

A flanged offtake clamp is designed to provide a flanged connection off a new or existing pipeline. This clamp is ideal for tapping pipelines under pressure or for hydrant and air valve installations on existing pipelines

TECHNICAL DATA

Size Range: DN 100 - DN 900

Offtake Sizes: DN 80 - DN 300

Maximum Operating Pressure: 1600 kPa (up to and including DN 450)

Flange Drilling and Class Options: PN 16 to AS 4087 with Table C,D compatible drilling [AS 2129]

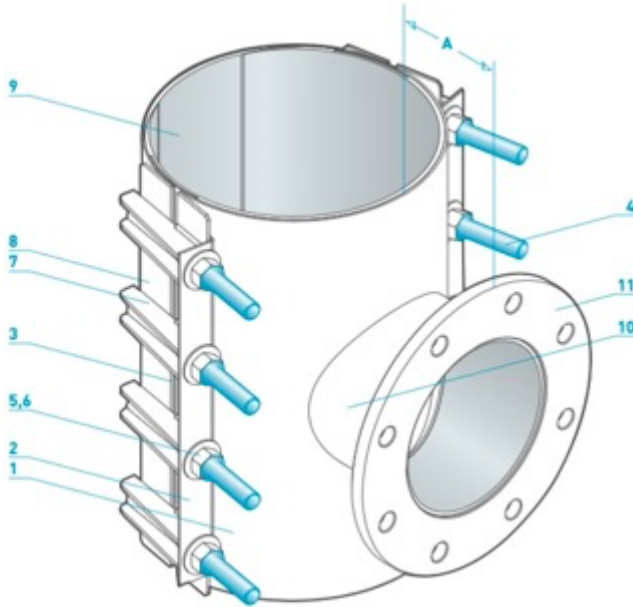
Temperature Range: -10°C to 60°C

Relevant Standards: AS 4181

Caution: The clamp should NOT be rotated after it is assembled around the pipe

FLANGED OFFTAKE CLAMPS DN 100 – DN 900

STAINLESS STEEL FLANGED OFFTAKE CLAMPS FOR 'T' CONNECTIONS ONTO NEW OR EXISTING PIPING SYSTEMS



PARTS LIST

No.	Description / Material / Standard
1	Skin 316 Stainless Steel / ASTM A240M
2	Locking Plate 316 Stainless Steel / ASTM A240M
3	Bridge Plate 316 Stainless Steel bonded to gasket / ASTM A240M
4	Studs / 316 Stainless Steel - anti-galling compound coated / ASTM A276
5	Nuts / 316 Stainless Steel - anti-galling compound coated / AS 1112.1 or DIN 934
6	Washers 316 Stainless Steel / ISO 7089
7	Lugs 316 Stainless Steel / ASTM A276
8	Flats 316 Stainless Steel / ASTM A276
9	Sealing Gasket Full-circle Nitrile (NBR) compound AS 1646 and AS/NZS 4020
10	Offtake Pipe 316 Stainless Steel / ASTM A312M or ASME B36.19M
11	Offtake Flange 316 Stainless Steel / ASTM A240M or A182, AS 4087

- Notes
- For size-on-size tapplings, it is recommended to use the next lowest DN sized shell cutler, in accordance with WSAA Underpressure Tapping code of practice.
 - Wang Flanged Offtake Clamps do not provide axial pipe restraint.

FLANGED OFFTAKE CLAMP DATA

Nominal size DN	Offtake size mm	Clamp length mm	No. of bolts	No. of parts	No. of studs per part	Code prefix	Clamp OD range mm	PN rating
100 - 125	80, 100	400	8	2	4	K8	5	16
150 - 350	80, 100, 150	400	8	2	4	K8	10	16
375 - 450	80, 100, 150	400	10	2	5	K10	10	16
200 - 450	200, 225, 250	600	14	2	7	K14	10	16
300 - 450	300	800	20	2	10	K20	10	16

Other flange classes and drilling patterns may be available upon request.



OFFTAKE DIMENSIONS

Flange Size	A mm
80 - 150	90
200 - 225	105
250 - 300	125

WANG COMPONENTS

CNR GIBSON STREET & SANDFORD ROAD, WANGARATTA, VICTORIA 3677
PHONE 03 5722 7400 / FAX 03 5722 7444 - EMAIL sales@wang.com.au - WEB wang.com.au

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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.

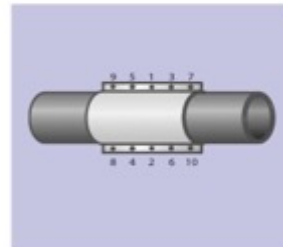
RECOMMENDED EQUIPMENT

- 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

F20:55R1

CLAMPS

INSTALLATION GUIDE

TYPE SPECIFIC INSTRUCTIONS: To be read in conjunction with 'Generic Instructions' overleaf.

Clamp	Step	Type Specific Installation Information
Small Diameter Clamp	4	First slide the cartridge gasket out of the clamp and open it at the split running along its length. Then comply with Step 5 below
	5	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
Repair Clamps	–	Follow Generic Instructions
Tapped Repair Clamps	6A	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
Tapping 6A Saddles		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
Flanged 6A Offtake Clamps		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
Sewer OB 6A Junction Clamps		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

- 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
 - Nitrile rubber gaskets are only recommended for use in temperatures ranging from -10° to 60°C
 - Corrosive environments, eg soils with a Chloride content in excess of 1000ppm, can have a detrimental effect on Stainless Steel.
- Where product is intended for use in such environments, additional advice should be sought from AVK WANG prior to installation. It is recommended that periodic assessment and maintenance of the clamp be undertaken in such environments

PIPE COMPATIBILITY SELECTION

CLAMP TYPE	PIPE MATERIAL	PIPE STANDARD
TYPE R CONFIGURATION FOR RIGID PIPE	MSCL	AS 1579
	GW1	AS 1074
	DICL	AS/NZS 2280 ISO 2531
	CICL – CLASS B	AS 1724
	CICL – CLASS C	AS 2544
	CU	AS 1432
	AC – CLASS AB & CD	AS 1711
	RC	AS 4058
	GRP (SN 10000 OR HIGHER)	AS 3571
	TYPE F CONFIGURATION FOR FLEXIBLE PIPE	PVC-U
PVC-M		AS/NZS 4765
PVC-O		AS/NZS 4441

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

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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 ENTEGRO GROUP 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	100mm	SS, NBR	8 Feb 2018
27489010056	2748/90	WANG	Repair Clamp 1 Part	50	N/A	PN16	55	60	Type R	100mm	SS, NBR	8 Feb 2018
27489010059	2748/90	WANG	Repair Clamp 1 Part	50	N/A	PN16	59	64	Type R	100mm	SS, NBR	8 Feb 2018
27489010063	2748/90	WANG	Repair Clamp 1 Part	50	N/A	PN16	63	68	Type R	100mm	SS, NBR	8 Feb 2018
27489010069	2748/90	WANG	Repair Clamp 1 Part	50	N/A	PN16	69	74	Type R	100mm	SS, NBR	8 Feb 2018
27489010075	2748/90	WANG	Repair Clamp 1 Part	50, 65, 80	N/A	PN16	75	80	Type R	100mm	SS, NBR	8 Feb 2018
27489010076	2748/90	WANG	Repair Clamp 1 Part	80	N/A	PN16	76	81	Type R	100mm	SS, NBR	8 Feb 2018
27489010079	2748/90	WANG	Repair Clamp 1 Part	65	N/A	PN16	79	84	Type R	100mm	SS, NBR	8 Feb 2018
27489010080	2748/90	WANG	Repair Clamp 1 Part	80	N/A	PN16	80	87	Type R	100mm	SS, NBR	8 Feb 2018
27489010085	2748/90	WANG	Repair Clamp 1 Part	80	N/A	PN16	85	92	Type R	100mm	SS, NBR	8 Feb 2018
27489010086	2748/90	WANG	Repair Clamp 1 Part	80	N/A	PN16	88	95	Type R	100mm	SS, NBR	8 Feb 2018
27489010096	2748/90	WANG	Repair Clamp 1 Part	80	N/A	PN16	96	102	Type R	100mm	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

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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
2748910168	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
2748910180	2748/90	WANG	Repair Clamp 1 Part	150	N/A	PN16	180	190	Type R	200mm	SS, NBR	8 Feb 2018
2748910185	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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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-DN250	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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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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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
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	285	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-055A	N/A	WANG	Repair Clamp 1 Part	50	N/A	PN16	59	64	Type R	150mm	SS, NBR	8 Feb 2018
KX-088T.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-069T.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	60	Up to DN50	PN16	75	80	Type R	150mm	SS, NBR	8 Feb 2018
KX-076A	N/A	WANG	Repair Clamp 1 Part	60	N/A	PN16	76	81	Type R	150mm	SS, NBR	8 Feb 2018
KX-076T.XXXXA	N/A	WANG	Tapped Repair Clamp 1 Part	60	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-088T.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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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-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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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-293FXXXX	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-295FXXXX	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-296TXXXX	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-310FXXXX	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-320FXXXX	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-330FXXXX	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-340FXXXX	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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