



# AVK Australia Holding Pty Ltd

## PRODUCT APPRAISAL REPORT PA 1723 Issue 2

Wang Vari-Gib Couplings

**AS/NZS 4998:2009 Bolted unrestrained couplings for  
waterworks purposes**

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## 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	26 January 2024
Carl Radford, Product Appraisal Manager	WSAA	29 January 2024

## 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 Group, an international manufacturer of valves and fittings for the water, gas, sewerage and fire protection industries. AVK Wang is an operating unit of AVK located in Wangaratta Victoria and manufactures a range of Wang brand and AVK brand stainless-steel repair clamps and pipeline couplings.

This appraisal covers a range of PN16 Wang Vari-Gib couplings including straight barrel couplings, stepped barrel couplings, flanged adaptors and blank end couplings in sizes from DN 80 to DN 675.

The couplings are manufactured in conformance with AS/NZS 4998:2009 *Bolted unrestrained mechanical couplings for water works purposes*.

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

Wang Vari-Gib couplings are distributed exclusively by Viadux Pty Ltd and Reece Limited.

The couplings are available with short barrel and long barrel configurations. The end rings and barrels are either thermal bonded polymeric coated ductile iron or Grade 316 stainless steel. Fasteners are either galvanised steel or Grade 316 stainless steel and the seals are manufactured from Nitrile rubber.

The couplings are designed to suit a wide range of pipe OD's and are suitable for joining spigot ends of pipe manufactured from grey or ductile cast iron, steel, PVC-U, PVC-M, PVC-O and asbestos cement. They are not suitable for joining PE pipes.

The complete range of couplings submitted for appraisal is listed in Section 4 although not all products are contained within the StandardsMark product schedule. Those products that qualify as complying with the type test requirements of AS/NZS 4998 are included in Section 4.

It is acknowledged that a larger range of couplings, including sizes smaller than DN 80 and larger than DN 675, are available and have been widely utilised by Australian Water Agencies over many years, however this Appraisal endorsement is limited to products that have been demonstrated to comply with AS/NZS 4998 type test requirements. Whilst blank end couplings are not specifically contained within AS/NZS 4998 the joints on these fittings are identical to those on the couplings and are therefore considered as acceptable.

AVK Australia Holding Pty Ltd, including the AVK Wang site, holds an ISO 9001 Quality Management System Licence.

The Wang Vari-Gib couplings have ISO Type 5 StandardsMark product certification to AS/NZS 4998:2009 *Bolted unrestrained mechanical couplings for water works purposes*.

This Appraisal has determined that the Wang Vari-Gib couplings meet the requirements of WSA PS 270 – *Mechanical Couplings, Non-End Thrust Restraint for Pressure Applications- Drinking Water, Non-Drinking Water Supply and Sewerage* and are therefore deemed to be 'fit-for-purpose'.

### 1.1 Recommendations

It is recommended that WSAA members, subject to any specific requirements of the member, accept or authorise Wang Vari-Gib couplings in sizes DN 80 to DN 675, as detailed in this report, for use in jointing of pipes, other than PE, in water and sewerage applications in above or below ground applications, provided they are installed in accordance with WSAA Codes and the manufacturer's requirements, where specified.

## 2 THE APPLICANT

The Applicant is AVK Australia Holding Pty Ltd.

## 2.1 The Supplier

The Wang Vari-Gib bolted unrestrained couplings are marketed and distributed exclusively by Viadux Pty Ltd and Reece Limited.

## 2.2 The Manufacturer

AVK Australia Holding 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.

AVK has been manufacturing in Australia for over 20 years and specialises in a range of valves, hydrant, couplings, repair clamps, tapping saddles, pipe fittings and other fittings and specialty products.

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

The stainless-steel components are fabricated at the Wangaratta facility whilst the bare ductile iron components are sourced from China. DI castings are sourced from Jingxian Hengyun Machinery Casting Co Ltd in China. Coatings are applied by AVK Adelaide. Fasteners are supplied by James Glen. Assembly is completed at the AVK Wang manufacturing facility in Wangaratta.

## 3 THE PRODUCT

This appraisal covers a range of PN16 Wang Vari-Gib couplings including straight barrel couplings, stepped barrel couplings, flanged adaptors and blank end couplings in sizes from DN 80 to DN 675.

The couplings are manufactured in conformance with AS/NZS 4998:2009 *Bolted unrestrained mechanical couplings for water works purposes*.

The couplings are available with short barrel and long barrel configurations. The end rings and barrels are either thermal bonded polymeric coated ductile iron or Grade 316 stainless steel. Fasteners are either galvanised steel or Grade 316 stainless steel and the seals are manufactured from Nitrile rubber.

The couplings are designed to suit a wide range of pipe OD's and are suitable for joining spigot ends of pipe manufactured from grey or ductile cast iron, steel, PVC-U, PVC-M, PVC-O and asbestos cement. They are not suitable for joining PE pipes.

The range of couplings is given in Tables 1 to 5 with material options denoted.

Each coupling, except DN 80, has a reach of 24mm.

It is acknowledged that a larger range of couplings are available, including sizes less than DN 80 and greater than DN 675, which have been widely utilised by Australian Water Agencies over many years, however this Appraisal endorsement is limited to products that have been demonstrated to comply to AS/NZS 4998 type test requirements.

Whilst blank end couplings are not specifically contained within AS/NZS 4998 the joints are identical to those on the straight couplings and are therefore considered as conforming for those sizes tested.

The complete range of couplings submitted for appraisal is listed in Tables 1 to 4 although not all products are contained within the StandardsMark product schedule. Those products that qualify as complying with the type test requirements of AS/NZS 4998 are included in the tables.

**TABLE 1 STRAIGHT COUPLINGS - SHORT BARREL**

DN	Reach	Barrel	End Ring	Fasteners
80	88-103	FC	FC	Gal
80	88-103	FC	FC	SS
100	109-133	SS	FC	Gal
100	109-133	SS	FC	SS
125	123-147	FC	FC	Gal
125	123-147	FC	FC	SS
150	158-182	SS	FC	Gal
150	158-182	SS	FC	SS
150	170-194	FC	FC	Gal
150	170-194	FC	FC	SS
150	178-202	FC	FC	Gal
175	178-202	FC	FC	SS
200	214-238	SS	FC	Gal
200	214-238	SS	FC	SS
225	240-264	SS	FC	Gal
225	240-264	FC	SS	SS
300	310-334	SS	FC	Gal
300	310-334	SS	FC	SS
300	330-354	SS	FC	Gal
300	330-354	SS	FC	SS

**TABLE 2 STRAIGHT COUPLINGS - LONG BARREL**

DN	Reach	Barrel	End Ring	Fasteners
80	88-103	FC	FC	Gal
80	88-103	FC	FC	SS
100	109-133	SS	FC	Gal
100	109-133	SS	FC	SS
150	158-182	SS	FC	Gal
150	158-182	SS	FC	SS
200	214-238	SS	FC	Gal
200	214-238	SS	FC	SS
225	240-264	SS	FC	Gal
225	240-264	SS	FC	SS
250	272-296	SS	FC	Gal
250	272-296	SS	FC	Gal

DN	Reach	Barrel	End Ring	Fasteners
300	310-334	SS	FC	Gal
300	310-334	SS	FC	SS
300	330-354	SS	FC	Gal
300	330-354	SS	FC	SS
300	342-366	SS	SS	SS
350	346-370	SS	SS	SS
350	360-384	SS	SS	SS
350	370-394	SS	SS	SS
375	380-404	SS	SS	SS
375	396-420	SS	SS	SS
375	402-426	SS	SS	SS
375	410-434	SS	SS	SS
375	422-446	SS	SS	SS
375	426-450	SS	SS	SS
400	436-460	SS	SS	SS
400	444-468	SS	SS	SS
400	447-471	SS	SS	SS
450	455-490	SS	SS	SS
450	488-512	SS	SS	SS
450	498-522	SS	SS	SS
500	510-534	SS	SS	SS
500	522-546	SS	SS	SS
500	530-554	SS	SS	SS
500	542-566	SS	SS	SS
500	552-576	SS	SS	SS
525	560-584	SS	SS	SS
525	565-589	SS	SS	SS
525	574-598	SS	SS	SS
525	580-604	SS	SS	SS
525	596-620	SS	SS	SS
600	602-626	SS	SS	SS
600	608-632	SS	SS	SS
600	620-664	SS	SS	SS
600	630-654	SS	SS	SS
600	640-664	SS	SS	SS
600	648-672	SS	SS	SS
600	654-678	SS	SS	SS
600	658-682	SS	SS	SS



DN	Reach	Barrel	End Ring	Fasteners
600	670694	SS	SS	SS
600	690-714	SS	SS	SS
600	700-724	SS	SS	SS
675	714-738	SS	SS	SS

**TABLE 3 STEPPED COUPLINGS**

DN	Reach		Barrel	End Ring	Fasteners
80-80	88-103	93-108	FC	FC	Gal
80-80	88-103	93-108	FC	FC	SS
80-100	88-103	109-133	FC	FC	Gal
80-100	88-103	109-133	FC	FC	SS
100-150	109-133	158-182	FC	FC	Gal
100-150	109-133	158-182	FC	FC	SS
125-250	123-147	158-182	FC	FC	Gal
125-150	123-147	158-182	FC	FC	SS
200-225	214-238	240-265	FC	FC	Gal
200-225	214-238	240-265	FC	FC	SS
200-300	214-238	310-334	SS	FC	SS
225-250	240-264	272-296	FC	FC	Gal
225-250	240-264	272-296	FC	FC	SS
250-300	272-296	310-334	SS	FC	SS
250-300	272-310	330-354	FC	SS	SS
300-300	310-334	330-354	FC	FC	Gal
300-300	310-334	330-354	FC	FC	SS
300-375	310-334	380-404	FC	SS	SS
300-350	342-366	360-384	SS	SS	SS
300-350	342-366	370-394	SS	SS	SS
350-375	370-394	396-420	SS	SS	SS
350-400	379-394	410-434	SS	SS	SS
375-375	380-404	410-434	SS	SS	SS
375-375	396-420	426-450	SS	SS	SS
375-375	410-434	436-460	SS	SS	SS
375-400	422-446	452-476	SS	SS	SS
450-600	447-471	620-644	SS	SS	SS
450-600	447-471	648-672	SS	SS	SS
450-450	466-490	488-512	SS	SS	SS
450-500	498-522	510-534	SS	SS	SS
450-500	498-522	522-566	SS	SS	SS

DN	Reach		Barrel	End Ring	Fasteners
500-500	510-534	542-566	SS	SS	SS
500-500	530-554	552-576	SS	SS	SS
500-525	552-576	574-598	SS	SS	SS
500-525	552-576	580-604	SS	SS	SS
500-525	552-576	596-620	SS	SS	SS
500-525	574-598	596-620	SS	SS	SS
525-600	574-598	658-682	SS	SS	SS
525-600	596-620	648-672	SS	SS	SS
525-600	596-620	648-672	SS	SS	SS
600-600	620-644	648-672	SS	SS	SS
600-700	658-682	700-724	SS	SS	SS
600-600	660-684	694-714	SS	SS	SS

**TABLE 4 FLANGED ADAPTORS**

DN	Reach	Barrel	End Ring	Fasteners
100	109-133	FC	FC	SS
150	158-182	FC	FC	SS
200	214-238	FC	FC	SS
225	240-264	FC	FC	SS
250	272-296	FC	FC	SS
300	330-354	FC	FC	SS
350	370-394	FC	SS	SS
375	396-420	SS	SS	SS
375	410-434	SS	SS	SS
375	436-460	SS	SS	SS
450	488-512	SS	SS	SS
500	552-576	SS	SS	SS
525	560-584	SS	SS	SS
525	574-598	SS	SS	SS
500	620-644	SS	SS	SS
600	658-682	SS	SS	SS

**TABLE 5 BLANK END COUPLINGS**

DN	Reach	Barrel	End Ring	Fasteners
80	88-103	FC	FC	SS
100	109-133	FC	FC	SS

DN	Reach	Barrel	End Ring	Fasteners
150	158-182	FC	FC	SS
200	214-238	FC	FC	SS
225	240-264	FC	FC	SS
250	272-296	FC	FC	SS
300	310-334	FC	FC	SS
300	330-354	SS	SS	SS
350	370-394	SS	SS	SS
375	396-420	SS	SS	SS
375	410-434	SS	SS	SS
400	436-460	SS	SS	SS
450	488-512	SS	SS	SS
450	498-522	SS	SS	SS
600	648-672	SS	SS	SS

#### 4 SCOPE OF THE APPRAISAL

This appraisal includes PN16 Wang Vari-Gib straight couplings, stepped couplings, flanged adaptors and blank end couplings in DN 80 to DN 675 sizes, as detailed in Tables 1 to 5 and included in the StandardsMark product schedule in Appendix B.

#### 5 APPRAISAL CRITERIA

##### 5.1 Quality Assurance Requirements

The WSAA Product Appraisal Technical Advisory Group accepts bolted unrestrained mechanical couplings for waterworks purposes manufactured in compliance with AS/NZS 4998:2009 *Bolted unrestrained mechanical couplings for water works 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 Vari-Gib couplings have been appraised for compliance with AS/NZS 4998:2009 *Bolted unrestrained mechanical couplings for water works purposes*.

Appraisal criteria are also determined by the WSAA Infrastructure Products and Materials Network 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 270 – Mechanical Couplings, Non-End Thrust Restraint for Pressure Applications- Drinking Water, Non-Drinking Water Supply and Sewerage

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 13894 issued to AVK Australia Holding Pty Ltd by SAI-Global.
- AS/NZS 4998:2009 StandardsMark Product Certification Licence No. SMKP 25236 issued to AVK Australia Holding Pty Ltd by SAI-Global.

Copies of the Quality Assurance and Product Certification licences have been included in Appendix B and are also available from WSAA.

Copies of Quality Assurance certificates have also been supplied for the component suppliers.

### 6.2 Compliance with Performance Requirements

#### 6.2.1 Type Tests

Type test reports have been submitted to demonstrate compliance with the requirements of AS/NZS 4998:2009 for each nominal size coupling from DN 80 to DN 675. The standard nominates that where a coupling range contains two or more couplings of the same nominal size a successful test on one coupling shall qualify the others, provided the same design criteria can be demonstrated. AVK has confirmed that the same design criteria have been used for the range of couplings. Each coupling, except DN 80, has a reach of 24mm. Tyco Water, a NATA certified laboratory, conducted the tests in 2010.

#### 6.2.2 Material Requirements

The Wang Vari-Gib coupling range is manufactured using materials conforming to Table 2.1 of AS/NZS 4998. AVK has provided copies of material test reports to demonstrate compliance.

**TABLE 6 MATERIALS**

Component	Material	Grade	Standard
Barrel	Ductile Iron	450-10	AS1831
	Stainless Steel	316	ASTM A240M
End Rings	Ductile Iron	450-10	AS1831
	Stainless Steel	316	ASTM A240M
Flanged Adaptor	Ductile Iron	450-10	AS1831
End Cap	Ductile Iron	450-10	AS1831
Seals	Elastomer	NBR	AS1646
Fasteners	Stainless Steel	316	ASTM A240M

#### 6.2.3 Polymeric Coating

Ductile iron components are FBE coated in accordance with AS/NZS 4158 by AVK Adelaide.

The coating is Akzo Nobel Resicoat R4 Fusion Bonded Epoxy which has ISO Type 5 Product Certification. A copy of the licence is held on file by WSAA.

SAI-Global includes auditing of the coating operations during associated StandardsMark product certification surveillance audits.

A copy of the coating procedures and a sample of test results have been provided.

A type test report undertaken by Akzo Nobel has been submitted to demonstrate conformance with the process verification tests nominated in AS/NZS 4158.

#### **6.2.4 Elastomeric Seals**

The NBR elastomeric seals are manufactured by either AVK Gummi in Denmark or Thong Nhat Rubber Company Ruthimex in Vietnam (supplied by Gulf Rubber Australia).

AVK Gummi holds an AS 1646 WaterMark Certificate of Conformity issued by SAI-Global.

Gulf Rubber /Thong Nhat Rubber Company Ruthimex holds an AS 1646 ISO Type 5 Product Certification issued by SAI-Global.

These certificates are deemed acceptable to demonstrate compliance with AS 1646.

Copies of the certificates are held on file by WSAA.

#### **6.2.5 Effect on Water**

AS/NZS 4998 requires compliance with AS/NZS 4020.

A test report undertaken by Australian water Quality Centre (NATA Accreditation N0 1115) on 19<sup>th</sup> December 2019 for Gulf NBR 4811S material is held on file by WSAA to demonstrate compliance with AS/NZS 4020:2018.

A test report undertaken by Australian water Quality Centre (NATA Accreditation N0 1115) on 28<sup>th</sup> August 2020 for AVK Gummi NBR NAW80 material is held on file by WSAA to demonstrate compliance with AS/NZS 4020:2018.

A Certificate of Conformity issued by SAI-Global dated 19th September 2022 for Akzo Nobel Resicoat R4 is held on file by WSAA to demonstrate conformance with AS/NZS 4020:2018.

### **6.3 Design**

Vari-Gib couplings have a long and established history of supply within Australia. The range consists of the following configurations.

- Short barrel DN 80 to DN 300.
- Long Barrel DN 80 to DN 675
- Stepped Couplings, DN 80 to DN 600.
- Flanged Adaptors DN100 to DN 600
- Blank End DN 80 to DN 600

#### **6.3.1 Coupling Barrel Lengths**

AS/NZS 4998 nominates minimum barrel lengths for both short and long barrel couplings and flanged adaptors. The Wang Vari-Gib couplings comply with these requirements. Details of barrel length, for each coupling, is nominated in the Data Sheets attached in Appendix A.

#### **6.3.2 Nominal Joint Deflection**

AS/NZS 4998 requires the manufacturer to nominate the maximum allowable joint deflection allowable at each coupling end, for both minimum and maximum pipe outside diameters, within the nominated coupling reach. See Table 6 for allowable deflections of Vari-Gib couplings.

**TABLE 6**  
**ALLOWABLE JOINT DEFLECTIONS FOR EACH COUPLING END**

Nominal Pipe Size	Maximum Deflection, degrees, at:	
	Min Pipe OD	Max Pipe OD
80-350	3	3
375	2 ½	2 ½
450-525	2	2
600-675	1½	1½

### 6.3.3 Nominal Pipe Setting Gap.

A nominal pipe setting gap for Wang Vari-Gib couplings is given in the Data Sheets attached in Appendix A.

### 6.3.4 Leak tightness

When installed in accordance with the installation manual the couplings are designed to hold pressure with maximum deflection.

### 6.3.4 Fasteners

The fastener materials are Grade 316 stainless steel and the nuts are supplied coated with a Molybond galling prevention compound.

### 6.3.5 Welding

Welding of Wang Vari-Gib stainless steel barrels is carried out in accordance with AS/NZS 1554.6 and is capable of meeting the requirements of the inter-granular corrosion test specified in AS 2205.10.1. All stainless-steel barrels are passivated in accordance with ASTM A380. Test reports have been provided to demonstrate compliance.

## 7 FITTING INSTRUCTIONS, TRAINING AND INSTALLATION

Installation instructions for Wang Vari-Gib couplings are attached in Appendix A.

## 8 PRODUCT MARKING

Wang Vari-Gib couplings have cast-in markings on the DI components while the Stainless-Steel components are marked using a stencil.

- Manufacturers Name: WANG
- Batch Identification: Date of manufacture e.g., 03-03-17
- Nominal Size: DN xxx
- The standard number: AS/NZS 4998
- Reach in millimetres: e.g., 158-182
- PN Rating: PN16
- Maximum angle of deflection: 6 deg
- StandardsMark logo



## FIGURE 1 PRODUCT MARKING

### 9 PACKAGING AND TRANSPORTATION

Wang Vari-Gib couplings are packaged on wooden pallets, protected by corrugated cardboard packing and shrink wrapping.

### 10 PRODUCT WARRANTY

The products are covered by the normal commercial and legal requirements of the *Competition and Consumer Act 2010 (Cth)*. Details of Reece warranty are included in their terms and conditions of sale.

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

Vari-Gib couplings have been approved and used by most Australian Water Utilities for more than a decade.

### 12 OUTCOMES OF EXPERT PANEL PRODUCT REVIEW

There are no outstanding issues.

### 13 FUTURE WORKS

There are no outstanding future items.

### 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, email [carl.radford@wsaa.asn.au](mailto:carl.radford@wsaa.asn.au).

#### 14.1 Issue of Report

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

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

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

## **14.2 Limits on Reliance on Information and Recommendations**

### **14.2.1 Disclaimer of liability**

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**APPENDIX A – PRODUCT LITERATURE**



**VARI-GIB® COUPLINGS**  
DN 40 - DN 1200

NON-RESTRAINED MECHANICAL COUPLINGS FOR CONNECTING PIPES WITH EQUAL OR UNEQUAL DIAMETERS



**FEATURES**

Vari-Gib Couplings can be installed without the need to disassemble, significantly improving speed and ease of installation

The variable OD range of each coupling often enables application on more than one pipe type and size, thereby significantly reducing stockholding requirements

Compatible with most pipe types

Specially designed wedge shaped nitrile rubber gaskets are suitable for use with water, wastewater and gas mediums

Fasteners have a captive head configuration to enable single spanner operation, facilitating ease of field assembly

Fasteners are 316 stainless steel for long life operation. Galvanised mild steel is available in sizes up to DN 300

A three bolt design is used in sizes up to DN 150 for ease of installation

Components are pre-lubricated during assembly to assist installation

An extended range of stepped couplings are now available

Manufacturing facility certified to the ISO 9001 quality assured standard

**DESCRIPTION**

Vari-Gib non-restrained mechanical couplings provide an effective method for connecting pipes with equal or unequal diameters

**APPLICATION**

Vari-Gib Couplings are ideal for joining two pipe ends together and are predominantly used in a maintenance situation where a section of burst or damaged pipeline is repaired by a cut-out and replacement method

Suitable for potable water, wastewater and gas applications. If used on gas piping, prior approval needs to be obtained from the asset manager for its application

Note: Vari-Gib Couplings are not recommended for use on polyethylene pipe.

**TECHNICAL DATA**

**Size Range:** DN 40 - DN 1200

Please contact WANG Components for information on additional sizes not detailed in this brochure (most sizes to DN 1200 available)

**Maximum Operating Pressure:** 1600 kPa (up to and including DN 600).

**Temperature Range:** -10°C to 60°C

**Product Certification:** AS/NZS 4998 Lic. No. SMK25236 – applicable up to DN 600

## VARI-GIB COUPLINGS - PN 16 OPERATING PRESSURE

SELECTION CHART: THE WANG COUPLING RANGE EXTENDS BEYOND DN 600. FOR SIZES NOT LISTED BELOW OR FOR FLANGED AN

Nom. Size DN	DICL	STEEL		CICL		AC		ABS <sup>*1</sup>
	AS/NZS 2280	MSCL AS 1579	OWI AS 1074	B AS 1724	C AS 2544	AB AS 1711	CD AS 1711	Series 1 AS 3518
40			KV0047DA? 48mm					KV0047DA? 48mm
50			KV0059DA? 60mm			KV0059DA? 69mm		KV0059DA? 60mm
65			KV0072DA? 76mm			KV0072DA? 79mm		KV0072DA? 75mm
80	KV0088D?? 96mm		KV0088D?? 89mm		KV0088D?? 96mm	KV0088D?? 96mm	KV0088D?? 96mm	KV0088D?? 89mm
100	KV0109A?? 122mm	KV0109A?? 114mm	KV0109A?? 114mm	KV0109A?? 122mm	KV0109A?? 122mm	KV0109A?? 122mm	KV0109A?? 122mm	KV0109A?? 114mm
125		KV0123DA? 140mm	KV0123DA? 140mm					KV0123DA? 140mm
150	KV0158A?? KV0170DA? 177mm	KV0158A?? 168mm	KV0158A?? 168mm	KV0158A?? KV0170DA? 177mm	KV0158A?? KV0170DA? 177mm	KV0158A?? KV0170DA? 177mm	KV0158A?? KV0170DA? 177mm	KV0158A?? 168mm
175								
200	KV0214A?? 232mm	KV0214A?? 218mm		KV0214A?? 232mm	KV0214A?? 232mm	KV0214A?? 232mm	KV0214A?? 232mm	KV0214A?? 225mm
225	KV0240A?? 259mm	KV0240A?? 257mm		KV0240A?? 259mm	KV0240A?? 259mm	KV0240A?? 259mm	KV0240A?? 259mm	KV0240A?? 250mm
250	KV0272A?? 286mm	KV0272A?? 273mm		KV0272A?? 286mm	KV0272A?? 286mm	KV0272A?? 286mm	KV0272A?? 286mm	
300	KV0330A?? 345mm	KV0310A?? 324mm		KV0330A?? 334mm	KV0330A?? 345mm	KV0330A?? 334mm	KV0330A?? 345mm	KV0310A?? 315mm
350		KV0346CDS 356mm						KV0346CDS 355mm
375	KV0410CDS 426mm	KV0396CDS 406mm		KV0410CDS 413mm	KV0410CDS 426mm	KV0410CDS 413mm	KV0410CDS 426mm	KV0396CDS 400mm
400		KV0444CDS KV0436CDS 457mm						KV0436CDS KV0444CDS 450mm
450	KV0498CDS KV0488CDS 507mm	KV0498CDS KV0488CDS 508mm		KV0488CDS 492mm	KV0498CDS KV0488CDS 507mm	KV0488CDS 492mm	KV0498CDS KV0488CDS 507mm	KV0488CDS KV0498CDS 500mm
500	KV0552CDS KV0542CDS 560mm	KV0552CDS KV0542CDS 559mm		KV0530CDS 545mm	KV0542CDS KV0552CDS 560mm			KV0552CDS KV0542CDS 560mm
525		KV0596CDS 610mm				KV0560CDS KV0552CDS 572mm	KV0574CDS 587mm	
600	KV0658CDS KV0648CDS 667mm	KV0648CDS KV0658CDS 660mm		KV0648CDS KV0630CDS 650mm	KV0658CDS KV0648CDS 667mm	KV0648CDS KV0630CDS 650mm	KV0658CDS KV0648CDS 667mm	KV0620CDS 630mm

Select missing End Code from Material Options table. Also see typical specifying sequence

Note: \*1 Min. required pipe rating for coupling application: PN 9 \*2 Min. required pipe rating for coupling application: SN5,000 \*3 Min. required pipe rating

BLANK END COUPLINGS, PLEASE CONTACT WANG COMPONENTS

GRP <sup>2</sup> Series 1 - B5 AS 3571	RC AS 4058	COPPER AS 1432	PVC-U/M/O <sup>3</sup>	
			Series 1 (U) AS/NZS 1477 (M) AS/NZS 4745 (O) AS/NZS 4441	Series 2 (U) AS/NZS 1477 (M) AS/NZS 4745 (O) AS/NZS 4441
		N/A 38mm	KV0047DA? 48mm	
		KV0047DA? 51mm	KV0059DA? 60mm	
		KV0059DA? 64mm	KV0072DA? 75mm	
		KV0072DA? 74mm	KV0088D?? 89mm	
KV0109A?? 122mm		KV0088D?? 101mm	KV0109A?? 114mm	KV0109A?? 122mm
		KV0123DA? 127mm	KV0123DA? 140mm	
KV0158A?? KV0170DA? 177mm	KV0178DA? 197mm	N/A 152mm	KV0158A?? 160mm	KV0158A?? KV0170DA? 177mm
			KV0178DA?? 200mm	
KV0214A?? 232mm		N/A 200mm	KV0214A?? 225mm	KV0214A?? 232mm
KV0240A?? 259mm	KV0272A?? 279mm	KV0214A?? 229mm	KV0240A?? 250mm	KV0240A?? 259mm
KV0272A?? 286mm			KV0272A?? 280mm	KV0272A?? 286mm
KV0330A?? 345mm	KV0346CDS 362mm		KV0310A?? 315mm	KV0330A?? 345mm
KV0396CDS 399mm			KV0346CDS 355mm	
KV0410CDS 426mm	KV0444CDS 445mm		KV0396CDS 400mm	KV0410CDS 426mm
KV0444CDS KV0436CDS 453mm			KV0436CDS KV0444CDS 450mm	
KV0498CDS KV0488CDS 507mm	KV0522CDS 533mm		KV0488CDS KV0498CDS 500mm	KV0498CDS KV0488CDS 507mm
KV0552CDS KV0542CDS 560mm			KV0552CDS KV0542CDS 560mm	
KV0574CDS 587mm	KV0600CDS 616mm			KV0552CDS KV0542CDS 560mm
KV0658CDS KV0648CDS 667mm			KV0620CDS 630mm	KV0658CDS KV0648CDS 667mm

Recommended Coupling  
Alternative Coupling  
Pipe OD

MATERIAL OPTIONS

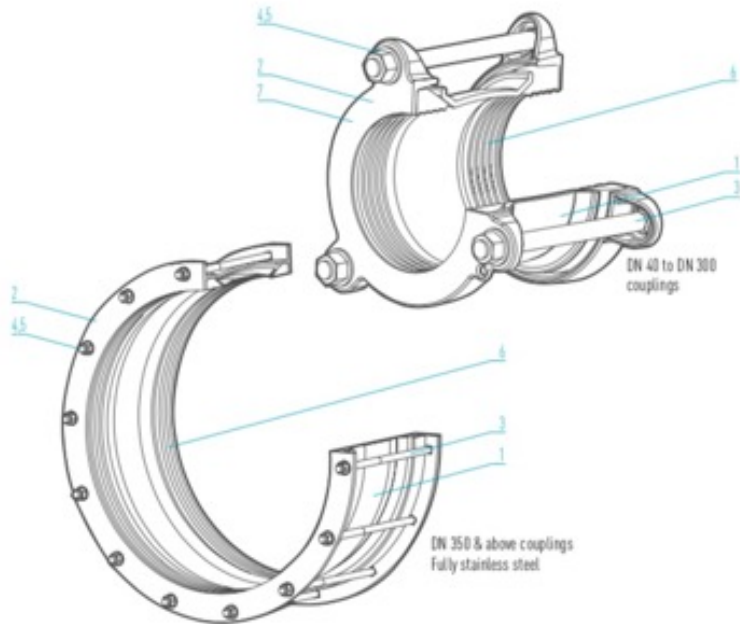
DN	BARREL & FLANGES			BARREL LENGTH		FASTENERS		VARIABLE OPTIONS - END CODE
	DI-FBE COATED	S/STEEL BARREL & DI-FBE FLANGES	STAINLESS STEEL	SHORT - mm	LONG - mm	GALVANNEED	STAINLESS STEEL	
40-65	D			A			S	DAS
	D			A		G		DAG
80	D			A			S	DAS
	D			A		G		DAG
	D				C		S	DCS
	D				C	G		DCG
125 150S 175	D			A			S	DAS
	D			A		G		DAG
100 150		A		A			S	AAS
		A		A		G		AAG
		A			C		S	ACS
		A			C	G		ACG
200 225		A		B			S	ABS
		A		B		G		ABG
		A			C		S	ACS
		A			C	G		ACG
250		A			C		S	ACS
		A			C	G		ACG
		A		C			S	ACS
		A		C		G		ACG
300		A		C			S	ACS
		A			D		S	ADS
		A			D	G		ADG
		A			D	G		ADG
350 (34400-)			C		D		S	CDS

ng for coupling application: U = PN 9 / M = PN 12 / O = PN 16

## VARI-GIB COUPLINGS

### PARTS LIST

No.	Description / Material / Standard
1	Banell Ductile Iron / AS 1831 316 Stainless Steel / ASTM A240M
2	Flanges Ductile Iron / AS 1831 316 Stainless Steel / ASTM A276
3	Bolts 316 Stainless Steel / DIN 603 Mild Steel - Galvanised / DIN 603
4	Nuts 316 Stainless Steel / AS 1112.1 Mild Steel - Galvanised / DIN 603
5	Washers 316 Stainless Steel / ISO 887/ISO 7089 Mild Steel - Galvanised
6	Gasket Nitrile (NBR) Compound AS 1646 and AS/NZS 4020
7	Coating Fusion Coated / AS/NZS 4158



### STRAIGHT COUPLINGS

See pages 6 and 7 for selection options

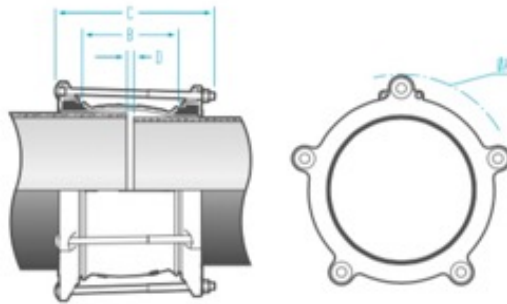


### STEPPED COUPLINGS

See pages 5 for selection options



## VARI-GIB STEPPED COUPLINGS



### TYPICAL SPECIFYING SEQUENCE

	KV	S	0088	0109	D	C	S
KV = Vari-Gib							
S = Stepped							
0088 = OD indicator Smaller end of the coupling							
0109 = OD indicator Larger end of the coupling							
D = DI fusion coated barrel and flanges							
C = Barrel length Select length from the Dimensions Table below C = 176 / D = 214							
S = Fastener material Select from the Materials Table below G = Galvanised / S = 316 stainless steel							

### DIMENSIONS

Nominal Size DN	Smaller end		Larger end		Bolt		Total angular deflection	Barrel length B	Bolt length C	Max pipe gap D	Min pipe gap D	Approx weight kg
	OD range	Flange OD A	OD range	Flange OD A	Qty	Size						
80 / 100	88-103	238	109-133	263	3	M16	6°	176	300	15	12	7.5
100 / 150	109-133	263	158-182	312	3	M16	6°	216	350	80	15	12
125 / 150	123-147	277	158-182	312	3	M16	6°	216	350	80	15	12.5
200 / 225	214-238	371	240-264	399	5	M16	6°	216	350	80	15	21
225 / 250	240-264	399	272-296	431	6	M16	6°	216	350	80	15	24
300 / 300	310-334	490	330-354	510	6	M16	6°	216	350	80	15	33

300+ Fabricated 316 stainless steel stepped couplings available above DN 300. Price and availability upon request

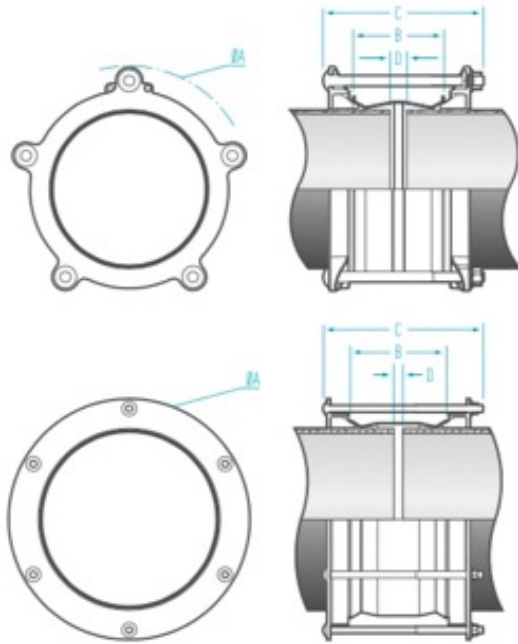
All dimensions in millimetres unless stated otherwise

### MATERIAL OPTIONS

Nominal Size DN	Barrel Ductile Iron FC blue AS/NZS 4158	Flanges Ductile Iron FC blue AS/NZS 4158	Fasteners		Gasket Nitrile rubber
			316 stainless steel	Galv mild steel	
80 / 100	✓	✓	✓	✓	✓
100 / 150	✓	✓	✓	✓	✓
125 / 150	✓	✓	✓	✓	✓
200 / 225	✓	✓	✓	✓	✓
225 / 250	✓	✓	✓	✓	✓
300 / 300	✓	✓	✓	✓	✓

All dimensions in millimetres

# VARI-GIB STRAIGHT COUPLINGS



## TYPICAL SPECIFYING SEQUENCE

	KV	0109	A	A	S
KV	= Vari-Gib				
0109	= OD range Select code from Vari-Gib Selection Chart on pages 2 and 3				
A	= Material options Select from Material Options Table in the Selection Chart A = 316 S/S Barrel with D I-Fusion Coated Flanges C = 316 S/S Barrel and Flanges D = DI Fusion Coated Barrel and Flanges				
A	= Barrel length Select length from Dimensions Table below A = 110 / B = 136 / C = 176 / D = 216				
S	= Fastener material Select from Material Options Table opposite G = Galvanised / S = 316 stainless steel				

## DIMENSIONS

OD range		Flange OD A	Bolt		Total angular deflection	Barrel length B		Bolt length C		Max. pipe gap D		Min. pipe gap D		Approx. weight kg
Start	End		Qty	Size		Short	Long	Short	Long	Short	Long	Short	Long	
47	59	191	3	M12	6°	110		200		15		12		4
59	71	198	3	M12	6°	110		200		15		12		4.5
72	84	213	3	M12	6°	110		200		15		12		5
88	103	238	3	M16	6°	110	176	240	300	15	50	12	12	5.5
109	133	263	3	M16	6°	110	176	240	300	15	50	12	12	6.5
123	147	277	3	M16	6°	110		240		15		12		8
158	182	312	3	M16	6°	110	176	240	300	15	50	12	12	7.5
170	194	324	3	M16	6°	110		240		15		12		8.5
178	202	332	4	M16	6°	110		240		15		12		10
214	238	371	5	M16	6°	136	176	240	300	30	50	15	15	11
240	264	399	5	M16	6°	136	176	240	300	30	50	15	15	13
272	296	431	6	M16	6°	136	176	240	300		50		15	14
310	334	490	6	M16	6°	176	216	300	350		80		15	24
330	354	510	6	M16	6°	176	216	300	350		80		15	26
346	370	504	8	M16	6°		216		350		80		15	30
396	420	554	8	M16	5°		216		350		80		15	37
410	434	568	8	M16	5°		216		350		80		15	38
436	460	594	8	M16	4°		216		350		80		15	42
444	468	602	8	M16	4°		216		350		80		15	45
488	512	646	10	M16	4°		216		350		80		15	49.5
498	522	656	10	M16	4°		216		350		80		15	51
522	546	679	12	M16	4°		216		350		80		15	56
530	554	688	12	M16	4°		216		350		80		15	57
542	566	700	12	M16	4°		216		350		80		25	58
552	576	710	12	M16	4°		216		350		80		25	59
560	584	717	12	M16	4°		216		350		80		25	60
574	598	732	12	M16	4°		216		350		80		25	61
596	620	754	14	M16	4°		216		350		80		25	65
620	644	777	14	M16	3°		216		350		80		25	69
630	654	788	14	M16	3°		216		350		80		25	70
648	672	806	14	M16	3°		216		350		80		25	71.5
658	682	816	14	M16	3°		216		350		80		25	72

All dimensions in millimetres unless stated otherwise

## VARI-GIB STRAIGHT COUPLINGS

### MATERIAL OPTIONS

OD Range		Barrel		Flanges		Fasteners		Gasket
Start	End	Ductile Iron FC blue AS/NZS 4158	316 Stainless Steel	Ductile Iron FC Blue AS/NZS 4158	316 Stainless Steel	316 Stainless steel	Galv Mild Steel	Nitrile Rubber
47	59	✓		✓		✓	✓	✓
59	71	✓		✓		✓	✓	✓
72	84	✓		✓		✓	✓	✓
88	103	✓		✓		✓	✓	✓
109	133		✓	✓		✓	✓	✓
123	147	✓		✓		✓	✓	✓
158	182		✓	✓		✓	✓	✓
170	194	✓		✓		✓	✓	✓
178	202	✓		✓		✓	✓	✓
214	238		✓	✓		✓	✓	✓
240	264		✓	✓		✓	✓	✓
272	296		✓	✓		✓	✓	✓
310	334		✓	✓		✓	✓	✓
330	354		✓	✓		✓	✓	✓
346	370		✓		✓	✓		✓
396	420		✓		✓	✓		✓
410	434		✓		✓	✓		✓
436	460		✓		✓	✓		✓
444	468		✓		✓	✓		✓
488	512		✓		✓	✓		✓
498	522		✓		✓	✓		✓
522	546		✓		✓	✓		✓
530	554		✓		✓	✓		✓
542	566		✓		✓	✓		✓
552	576		✓		✓	✓		✓
560	584		✓		✓	✓		✓
574	598		✓		✓	✓		✓
596	620		✓		✓	✓		✓
620	644		✓		✓	✓		✓
630	654		✓		✓	✓		✓
648	672		✓		✓	✓		✓
658	682		✓		✓	✓		✓





## VARI-FLANGED COUPLINGS

### DN 80 - DN 600

ADAPT A STUB ENDED PIPE OR VALVE TO A FITTING OR PIPE WITH A FLANGED FACE



#### FEATURES

Manufactured from grade 316 stainless steel and/or fusion bonded epoxy coated ductile iron, depending on size

Non-standard mating flanges are available to cater for customers individual requirements (a standard flange is considered to be to AS 4087 - PN 16)

A specially designed wedge shaped nitrile rubber gasket provides a potable water approved seal at the coupling end

A 24mm OD range at the coupling end enables the product to adapt to most pipe diameters within a nominal size

Fasteners have a captive head design to facilitate easy in-field assembly

Dry film, anti-galling coating employed on stainless steel fasteners to minimise galling

Manufacturing facility certified to the ISO 9001 quality assured standard

#### DESCRIPTION

Vari-Flanged Couplings are utilised to enable a connection between a stub ended pipe and a mating flanged face.

The use of high quality stainless steel, FBE coated DI and nitrile rubber gaskets permits use of the product in a range of applications from potable water and sewerage to industrial applications

#### APPLICATION

Vari-Flanged Couplings provide an effective and convenient means of converting a plain ended pipe stub to a flange for connection to another flanged pipe, valve or fitting

A Vari-Flanged Coupling's variable OD range (at the coupling end) enables the product to adapt to most pipes diameters within a nominal size range. This dramatically reduces the stocking requirement to cater for each individual pipe type and size

#### TECHNICAL DATA

**Size Range:** DN 80 - DN 600

**Maximum Operating Pressure:** 1600 kPa (up to and including DN 600).

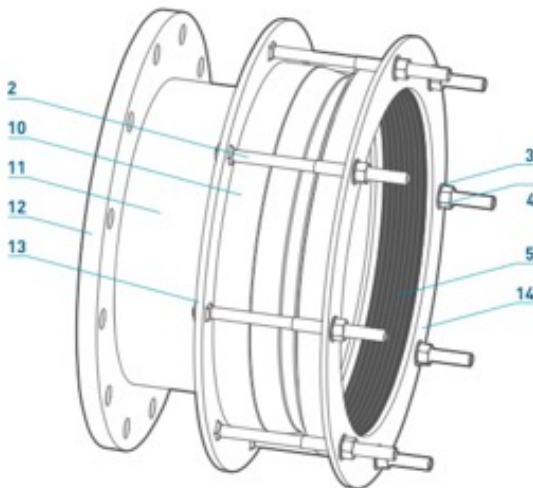
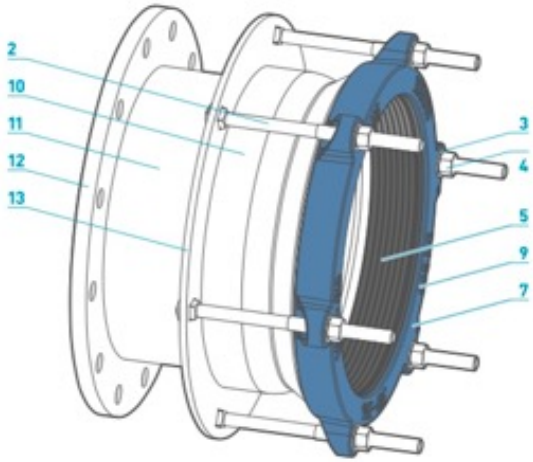
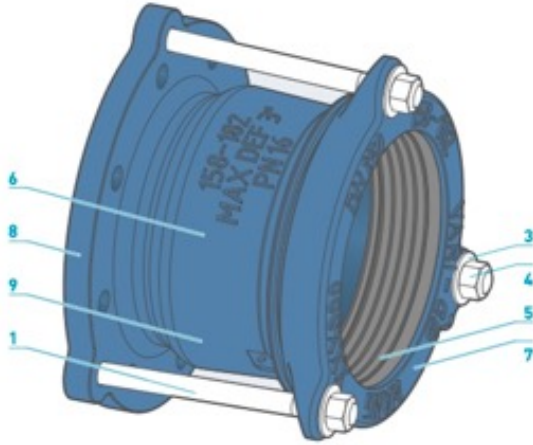
**Temperature Range:** -10°C to 60°C

**Relevant Standards:**

AS/NZS 4998 - Bolted unrestrained mechanical couplings for waterworks purposes

AS 4020 - Potable water approval

# VARI-FLANGED COUPLINGS



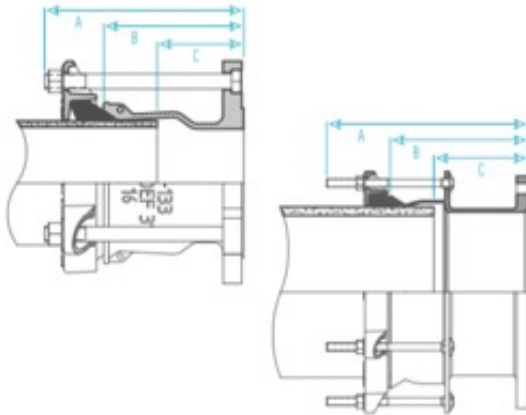
## PARTS LIST

No.	Description	Material / Standard
1	Bolts - Hex	316 stainless steel / AS 1110.1
2	Bolts - Carriage	316 stainless steel / DIN 603
3	Washers	316 Stainless Steel / ISO 687 / ISO 7089
4	Nuts	316 stainless steel / AS 1112.1
5	Coupling Gasket	Nitrile (NBR) Compound / AS 1646 & AS/NZS 4020
6	Body (Barrel & Flange)	Ductile Iron / AS 1831
7	Coupling Flange	Ductile Iron / AS 1831
8	Mating Flange	Ductile Iron / AS 1831 Flange Standard to AS/NZS 4087 (compatible with AS2129 Table-D drilling)
9	Coating	Fusion Coated / AS/NZS 4158
10	Barrel	316 Stainless Steel / ASTM A240M
11	Pipe	316 Stainless Steel / ASME B36.19M
12	Mating Flange	316 Stainless Steel / ASTM A240M or A182 (Flange Standard: Variable to suit customer needs)
13	Centre Bolting Ring	316 Stainless Steel / ASTM A276
14	Coupling Flange	316 Stainless Steel / ASTM A276

## TYPICAL SPECIFYING SEQUENCE

	KV	FA	0109	F	100	D	S	C
KV	= Vari-Gib							
FA	= Flanged Adaptor							
0109	= Start of OD range See adjacent for available OD options							
F	= Flange delineator							
100	= Flange DN size Various flanges available to match coupling from DN 100+							
D	= Material options A = 316 SS barrel with DI fusion coated coupling flanges C = 316 SS barrel and coupling flanges D = DI fusion coated barrel and coupling flanges							
S	= Fastener material - 316 SS							
C	= Flange type C = AS 4087 - PN 16, E = AS 2129 Table E - PN 14, X = DIN flange, Z = ANSI flange							

## VARI-FLANGED COUPLINGS



Fusion Coated Ductile Iron Vari-Flanged Coupling

### DIMENSIONS

Nominal Size IN	Overall Length A	Barrel Length B	Recommended Pipe Offset C
100	215	150	75
150	215	150	75
200	395	270	180
225	395	270	180
250	395	270	180
300	395	270	180
350 +	Information on request		

All dimensions in millimeters unless stated otherwise  
 Note: Dimensions A, B & C are based on PN 16 flat faced flanges to AS 4087  
 Other requested flange specifications may alter these stated dimensions



Stainless Steel / Fusion Coated Ductile Iron Vari-Flanged Coupling

### COUPLINGS DETAILS

Nominal Size IN	OD range		Bolt		Max. achievable angular pipe deflection
	Start	End	Qty	Size	
100	109	133	3	M16	3°
150	158	182	3	M16	3°
200	214	238	5	M16	3°
225	240	264	5	M16	3°
250	272	296	6	M16	3°
300	310	334	6	M16	3°
	330	354	6	M16	3°
350 +	Information on request				

All dimensions in millimeters unless stated otherwise



Fully Stainless Steel Vari-Flanged Coupling



## BLANK END VARI-GIB COUPLING DN 80 - DN 350 +

NON-RESTRAINED MECHANICAL COUPLING BLANK FOR SEALING OFF PIPE ENDS



### FEATURES

The variable OD range of each coupling often enables application on more than one pipe type and size, thereby significantly reducing stockholding requirements

Compatible with most pipe types

Specially designed wedge shaped nitrile rubber gasket is suitable for use with water, wastewater and gas mediums

Fasteners have a captive head configuration to enable single spanner operation, facilitating ease of field assembly

Fasteners are 316 stainless steel for extended longevity

A three bolt design is used in sizes up to DN 150 for ease of installation

A 'Tapping Pad' on the blank end permits a drain flush or sampling point to be added to the system

Manufacturing facility certified to the ISO 9001 Quality Assured Standard

### DESCRIPTION

Vari-Gib non-restrained blank end couplings offer a convenient and effective means of blanking off a pipe end

The design provides a convenient location for a drain flush or sampling point to be incorporated into the system

### APPLICATION

The variable OD Vari-Gib coupling design provides an effective mechanical method of installing a blank-end at a pipe termination point

Suitable for potable water, wastewater and gas applications. If used in a gas application, prior approval needs to be obtained from the asset manager for its use

### TECHNICAL DATA

**Size Range:** DN 80 – DN 300 (see reverse)

**Maximum Operating Pressure:** 1600 kPa

**Temperature Range:** -10° to 60°C

**Relevant Standards:** AS/NZS 4998  
Lic. No SMK25236

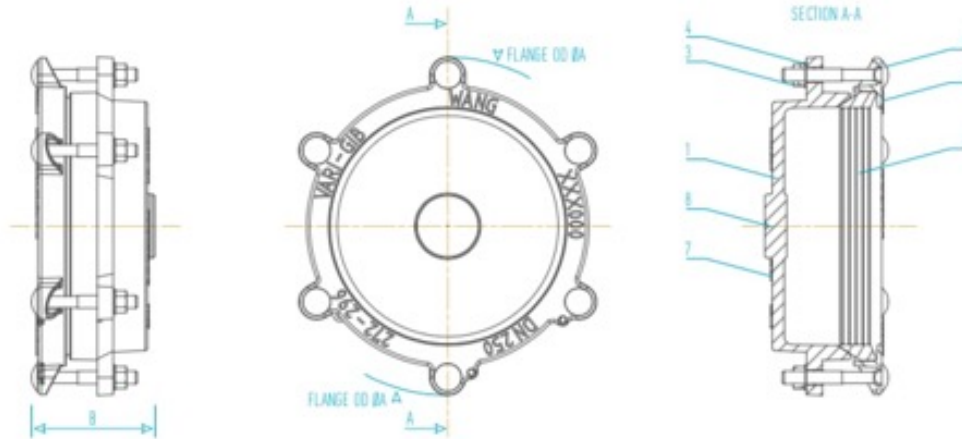
Notes:

1. Product not recommended for use on HDPE pipe
2. Vari-Gib blank ends are a non-restrained mechanical coupling and adequate shoring will be required at the fitting to prevent axial dislodgement under pressure

# BLANK END VARI-GIB COUPLING

## DN 80 - DN 350 +

NON-RESTRAINED MECHANICAL BLANK FOR SEALING OFF PIPE ENDS



### STANDARD BLANK END VARI-GIB COUPLING DATA

Nom Size mm	Clamp OD Range. mm		Bolts		Flange OD BA. mm	Overall Length B. mm	Approx Weight. kg
	Start	End	Qty	Size			
80	88	103	3	M16	238	140	6.3
100	109	133	3	M16	243	150	8.9
150	158	182	3	M16	312	150	11.6
200	214	238	5	M16	371	150	17.1
225	240	264	5	M16	399	150	19.3
250	272	296	6	M16	431	150	23.9
300	318	334	6	M16	490	220	33.9
300	330	354	6	M16	510	220	36.2
350 +	Information on request						

Note: 1. Overall Length (B) is only indicative and will vary depending on the pipe OD  
 2. Maximum pipe insertion length within the fitting is recommended

### PARTS LIST

No.	Description / Material / Standard
1	Body - cast end cap & barrel Ductile iron / AS 1831
2	Coupling flange Ductile iron / AS 1831
3	Nuts 316 stainless steel / anti-galling compound coated / AS 1112.1
4	Washers 316 stainless steel / ISO 887 / ISO 7089
5	Cap head bolts - M16 x 125mm 316 stainless steel / DIN 603
6	Coupling gasket Nitrile (NBR) Compound / AS 1646 & AS/NZS 4020
7	Coating Fusion coated / AS/NZS 4158
8	Tapping point

### BLANK END VARI-GIB COUPLING TYPICAL SPECIFYING SEQUENCE

Example	KV	B	100	D	S
KV = Vari-Gib					
B = Blank End					
100 = applicable pipe dia (DN) Select from above - Standard Data table					
D = DI Fusion Coated Body and Flanges					
S = 316 Stainless Steel Fasteners					



### 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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## VARI-GIB COUPLINGS

### INSTALLATION GUIDE

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
- Gasket lubricant approved for use with potable water (required if the factory applied lubricant has dried up due to prolonged storage)

### INITIAL PREPARATION

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

- 1 Align the pipes to be joined, ensuring the pipe ends are concentric and the 'Recommended Pipe Gaps' (indicated below) are applied. Hold the coupling centrally across the aligned pipes and draw left and right coupling end locator marks on the pipe

#### RECOMMENDED PIPE GAPS

COUPLING	MINIMUM GAP mm	MAXIMUM GAP mm
KV0047 to KV0178	12	15
KV0214 to KV0272	15	30
KV0310 to KV0530	15	80
KV0542 +	25	80

- 2 Loosen the nuts sufficiently to the point where the coupling components are all slack and unrestricted. There is generally no need to dismantle the coupling prior to installation. If the gaskets appear dry and or adhere to the end flanges or barrel, lubricate all surfaces of the gasket with the approved lubricant as required

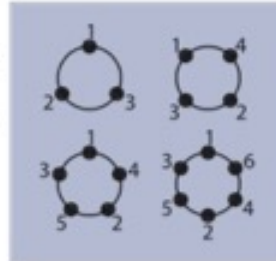
- 3 Slide the loosely assembled coupling all the way up one of the pipes (generally the preinstalled pipe). Bring the other pipe (generally the new section of pipe being joined) into place, maintaining the Recommended Pipe Gaps and concentricity between pipe ends. Slide the coupling down over the second pipe to a central position by matching the coupling ends to the locator marks on each pipe (step 1)

Note : When joining two pipes of varying outer diameter (OD), position the coupling end with the nuts to lie on the side of the smallest pipe OD. Where one pipe wall is smoother or the pipe OD smaller than the other, a greater offset allowance might have to be made towards that side to compensate for that end of the coupling retracting more than the other.

## **WANG** VARI-GIB COUPLINGS

### INSTALLATION GUIDE CONTINUED

- Please read ALL information on both sides of this guide prior to installation
- 4 Tighten the nuts in small increments in a diametric sequence (see adjacent diagram), ensuring that the coupling barrel and flanges are kept centred around the pipe. Be also mindful of the central location of the coupling in relation to the locator marks (step 1)



- 5 For the final stage of the installation, tighten the bolts to the recommended tension specified in the table below (and on the barrels of stainless steel Vari-Gibs) using a Tension Wrench. ALWAYS RETENSION STUDS after 20 to 30 minutes in order to compensate for loss in initial tension due to rubber gasket relaxation

#### RECOMMENDED TENSIONS

Coupling	'O'PVC Pipe (Nm)	All Other Pipe (Nm)
KV0047 to KV0072	40	50
KV0088 to KV0123	40	70
KV0158 to KV0272	60	70
KV0310 + 70 80		

#### IMPORTANT – PLEASE READ PRIOR TO INSTALLATION

- WANG Vari-Gib Couplings DO NOT provide axial pipe restraint. Therefore if used above ground or in a non back-filled trench, ensure that BOTH the coupling and pipes are axially restrained by external means
- WANG Vari-Gib Couplings are NOT suitable for use on HDPE pipe
- Prior to use of any WANG Vari-Gib Coupling on 'O'PVC pipe, please contact WANG Components to assess the suitability of product application and for any special installation instructions
- 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 WANG Components prior to installation. It is recommended that periodic assessment and maintenance of the coupling be undertaken in such environments

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

F20:70R9

## APPENDIX B - QUALITY CERTIFICATIONS

Copies of the following Quality Certificates are available from WSAA.

### TABLE B1 AVK AUSTRALIA HOLDING PTY LTD - MANAGEMENT SYSTEMS

559A Grand Junction Rd Wingfield SA 5013	
Quality Systems Standard	ISO 9001:2015
Certification licence no.	QEC 13894
Certifying agency	SAI Global
First date of certification	30 April 2001
Current date of certification	15 June 2021
Expiry date of certification	14 February 2024

### TABLE B2 AVK AUSTRALIA HOLDING PTY LTD - PRODUCT CERTIFICATION

Cnr Sanford Rd and Gibson St Wangaratta Vic,	
Product Standard/Spec	AS/NZS 4998:2009
Certificate No.	SMKP25236
Certifying Agency	SAI Global
First date of certification	24 February 2012
Current date of certification	21 February 2022
Expiry date of certification	23 February 2027





# 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 26 June 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: 26 June 2021

Originally Certified: 30 April 2001

Expires: 14 February 2024

Current Certification: 15 June 2021

Frank Camasta  
Global Head of Technical Services  
SAI Global Assurance



ISO 9001



JAS-ANZ



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/>



The product schedule for this certification is 28 pages and has not been included here. The complete schedule may be obtained from AVK, WSAA or at the following link:

<https://register.saiglobal.com/Client/PrintSchedule/schedules/Temp/Certificate%20SMK40397%2020210519.pdf>



 **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/NZS 4998:2009 - Bolted unrestrained mechanical couplings for waterworks 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: SMKP25236**

**Issued :** 21 February 2022  
**Expires :** 23 February 2027

**Originally Certified :** 24 February 2012  
**Current Certification :** 21 February 2022



Calin Moldovean  
President, Business Assurance  
SAI Global Assurance

  
Australian Standard

\* 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") 680 George Street, Sydney NSW 2000, 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](http://www.saiglobal.com), for the list of product models.

 **SAI GLOBAL**  
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**APPENDIX C – SUPPLIER CONTACTS****AVK AUSTRALIA HOLDING PTY LTD**

559A Grand Junction Road, Wingfield, SA

Tel: (08) 8368 0900

Email: [enquiries@avkau.com.au](mailto:enquiries@avkau.com.au)

Website: <https://www.avkcivil.com.au/en-au>

**VIADUX PTY LTD****Townsville**

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Email: [cct.sales@viadux.com.au](mailto:cct.sales@viadux.com.au)

**Gold Coast**

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**Darwin**

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Website: <https://www.viadux.com.au/>

**REECE CIVIL**

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