



# AVFI Pty Ltd

## PRODUCT APPRAISAL REPORT 2311

Dismantling Joints

**WSA PS 284 Dismantling Joints**

Published: 21 November 2023

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The following information indicates the changes made to this document.

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## Peer Reviewers

Name/Title	Organisation	Date
Product Appraisal Technical Advisory Group	WSAA	9 November 2023
WSAA Expert Panel	WSAA	9 November 2023
Peter Pittard, WSAA Consultant	WSAA	26 October 2023
Carl Radford, Product Appraisal Manager	WSAA	21 November 2023

## Overview of WSAA

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

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

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

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

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

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

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## 1 EXECUTIVE SUMMARY

AVFI Pty Ltd was established in 1995 as a provider of valves for municipal, industrial and mining applications in Australia. In September 2023 AVFI became a member company of Derwent Industries Pty Ltd.

The dismantling joints are manufactured by Fowry Tech (Shandong) Co Ltd in China. Fowry Tech is a member of the Huihua Valve Group.

This Appraisal is for a range of PN16 dismantling joints in sizes from DN 80 to DN 750. The dismantling joints are manufactured from polymeric coated ductile iron. Other components are Grade 316 stainless steel fasteners and an EPDM seal. The dismantling joints are compatible with AS/NZS 4087 PN 16 flanges.

Dismantling joints are commonly utilised in flanged pipelines to facilitate the removal of a valve, pipe or fitting for maintenance or replacement purposes.

The AVFI dismantling joint range includes the following:

- AFD10 Series restrained joint where end to end tie rods provide restraint and also activate sealing mechanisms for the DJ and both flanged joints. DN 80 to DN 750.
- AFD10 Series unrestrained joint where tie rods are installed through the adjacent flange to activate the sealing mechanism for the DJ and flanged joint. The other flanged joint is assembled normally. DN 80 to DN 750.
- AFD20 Series restrained joint where end to end tie rods provide restraint and activate the sealing mechanisms for both flanged joints. Separate tie rods are screwed into the adjacent flange to activate the DJ sealing mechanism. DN 100 to DN 750.
- AFD20 Series unrestrained joint where tie rods are screwed into the adjacent flange to activate the sealing mechanism for the DJ. Both flanged joints are assembled normally. DN 100 to DN 750.

Other flange specifications, sizes and pressure classifications are available but are not included in the scope of this appraisal.

Both AVFI and Fowry Tech hold ISO 9001:2015 Quality Management System Licences.

This Appraisal has determined that AVFI PN16 dismantling joints in sizes DN 80 to DN 750, as detailed in this report, meet the requirements of WSA PS 284 *Dismantling Joints* 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 AVFI DN 80 to DN 750 PN16 dismantling joints, as detailed in this report, for use in water supply and sewerage pipeline systems provided they are installed in accordance with WSAA codes and manufacturer's requirements.

## 2 THE APPLICANT

The Applicant is AVFI Pty Ltd.

### 2.1 The Supplier

AVFI Pty Ltd was established in 1995 as a provider of valves for municipal, industrial and mining applications in Australia. In October 2014 AVFI Pty Ltd became a member of Pon Holdings BV. In September 2023 Derwent Industries Pty Ltd acquired AVFI Pty Ltd.

AVFI has warehouses in every Australian State and Territory.

### 2.2 The Manufacturer

Fowry Tech (Shandong) Co. Ltd. is located in Binzhou City, Shandong Province, Peoples Republic of China and was established in 2011 by Huihua Valve Industry Co. Huihua has a

history of valve manufacturing dating back to 1984, offering a range of valves including butterfly, check, gate and globe for the export market, under the brand name of Hiwa.

The Huihua group operates three manufacturing facilities located in Shandong China.

The Fowry Tech factory incorporates a foundry operation as well as coating, machining, assembly and testing facilities. It employs more than 150 employees.

Fowry Tech manufactures its own ductile iron components and sources other components locally from ISO 9001 certified suppliers. Fowry Tech has its own rubber moulding facilities under cover of a StandardsMark ISO Type 5 product certification.

The components are inspected and tested for compliance to AVFI drawings and specifications in accordance with their quality procedures.

### 3 THE PRODUCT

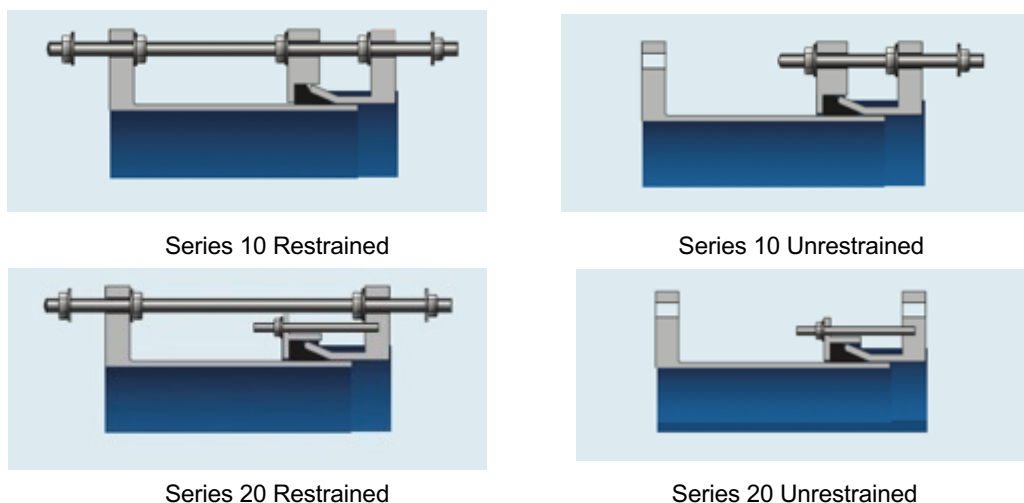
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- AFD10 Series unrestrained joint where tie rods are installed through the adjacent flange to activate the sealing mechanism for the DJ and flanged joint. The other flanged joint is assembled normally. DN 80 to DN 750.
- AFD20 Series restrained joint where end to end tie rods provide restraint and activate the sealing mechanisms for both flanged joints. Separate tie rods are screwed into the adjacent flange to activate the DJ sealing mechanism. DN 100 to DN 750.
- AFD20 Series unrestrained joint where tie rods are screwed into the adjacent flange to activate the sealing mechanism for the DJ. Both flanged joints are assembled normally. DN 100 to DN 750.

See Figure 1 for details.



**FIGURE 1 AVFI DISMANTLING JOINTS**

The AFD20 dismantling joints can utilise fewer tie rods than the AFD10 design and are therefore easier and faster to install.

Other flange specifications, sizes and pressure classifications are available but are not included in the scope of this appraisal.

Detailed installation instructions are provided in Appendix A.

## **4 SCOPE OF THE APPRAISAL**

This Appraisal is for a range of AVFI PN16 restrained and unrestrained dismantling joints in sizes from DN 80 to DN 750, as detailed in Section 3.

## **5 APPRAISAL CRITERIA**

### **5.1 Quality Assurance Requirements**

The WSAA Product Appraisal Technical Advisory Group accepts Dismantling Joints manufactured in compliance with WSA PS 284 *Dismantling Joints*. There is no directly applicable Standard for these products so ISO Type 5 product certification is not required.

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.

Testing is required to be undertaken by an ISO 17025 accredited laboratory as detailed in WSA TN-08.

### **5.2 Performance Requirements**

AVFI Dismantling Joints have been appraised for compliance with WSA PS 284 *Dismantling Joints*.

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

The following Product Specification is relevant to this application:

WSA PS 284 *Dismantling Joints*

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**

AVFI has submitted the following quality certificates:

- ISO 9001:2015 Certificate of Registration No. QEC 29843 issued to AVFI Pty Ltd by Intertek SAI-Global.
- ISO 9001:2015 Certificate of Registration No. CN13/10523 issued to Fowry Tech (Shandong) Co Ltd by SGS.

A copy of the Quality Assurance licences has 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 Materials**

#### **6.2.1.1 Ductile iron components**

The ductile iron components are specified as minimum Grade 400/10. AVFI components are manufactured from Grade 500/7, which is deemed acceptable.

A copy of a test report from SRG Global (NATA Accreditation No.14308) has been submitted to demonstrate compliance

#### **6.2.1.2 Polymeric coating**

AVFI dismantling joints are coated at the Fowry Tech facility using Akzo Nobel Resicoat R4 fusion bonded epoxy, coloured blue. Resicoat is covered by an ISO Type 5 product certification licence. A copy is held on file by WSAA.

A test report, undertaken by Prove Standards and Engineering (NATA Accreditation No. 18640), has been submitted to demonstrate compliance with the process verification requirements of AS/NZS 4158.

A Quality Plan has also been submitted to demonstrate that application and testing is in accordance with the requirements of AS/NZS 4158.

#### **6.2.1.3 Fasteners**

The fasteners utilised with the dismantling joints comply with Grade 316 (A4) property Class 50. Test reports have been supplied to demonstrate compliance.

#### **6.2.1.4 Elastomeric seals**

The EPDM dismantling joint sealing rings are manufactured by Fowry Tech in compliance with AS 1646 and AS 681-1. The seals are covered by ISO Type 5 Product Certification and copies of the licence and product schedule are held on file by WSAA.

### **6.2.2 Flanges**

The dismantling joints are intended to be installed between flanges complying with AS/NZS 4087 PN16. The dismantling joints may also be manufactured to suit other flange dimensions and pressure classifications but are not included in this Appraisal.

### **6.2.3 Type tests**

Type test reports have been submitted for AFD10 DN 80 PN16, AFD20 DN 100 PN16 and AFD20 DN 375 PN16 to demonstrate compliance with the performance requirements of WSA PS 284. The tests include a hydrostatic pressure test at 1.2 x AOP + 0.5MPa for 2 hours and an infiltration test at -80 to -85 kPa for 2 hours. The tests were undertaken by Prove Standards and Engineering Pty Ltd (NATA Accreditation No 18640).

WSA PS 284 requires tests to be conducted on one size from the range DN 80 to DN 300, DN 375 to DN 750 and DN 800 to DN 1200, for a particular PN, to qualify all sizes in the range provided the design principles are the same.

Based on the type tests completed for this report all PN16 joints from DN 80 to DN 750 have been qualified. Where alternative size dismantling joints are required AVFI has agreed to undertake type tests prior to supply.

### **6.2.4 Contact with drinking water**

A Certificate of Conformity from SAI Global dated 19 September 2022 has been submitted to demonstrate compliance of the Resicoat R4 FBE with AS/NZS 4020:2018.

AVI has submitted a copy of a AS/NZS 4020:2018 test report from AWQC dated 19<sup>th</sup> June 2022 for a DN 80 resilient seated gate valve. The surface area of the EPDM rubber in the valve that is in contact with water is 117,264 sq mm. The same EPDM material is used for



the elastomeric seals in the dismantling joints and the surface area in contact with water for a DN 80 dismantling joint is 2,663 sq mm. The compliance of the EPDM seals is therefore deemed to conform to the requirements of AS/NZS 4020:2018.

## 7 FITTING INSTRUCTIONS, TRAINING AND INSTALLATION

Installation Procedures are included in Appendix A. Further guidance is also available from AVFI.

## 8 PRODUCT MARKING

Dismantling joints are marked as follows:

- Manufacturers Name: AVFI
- Product Code: e.g., AFD20-100
- Materials: Body: GGG50 Bolts: Stainless Steel
- Nominal diameter: e.g., DN 600
- Pressure: PN16
- Flange drilling: AS/NZS 4087 PN16
- Serial No: e.g., DJ101910034



**FIGURE 2 EXAMPLE OF MARKING**

## 9 PACKAGING AND TRANSPORTATION

The dismantling joints are placed on timber skid/pallets in quantities depending on number and size and then strapped to the pallet before shrink wrapping.

## 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 AVFI warranty is included in their terms and conditions of sale.

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

The following water agencies and entities have purchased AVFI dismantling joints:

Urban Utilities, Unity Water, Melbourne Water, Lower Murray Water, SEQ Water, Water Corporation WA.

This Appraisal is a pre-requisite to obtain approvals from other water agencies.

## 12 OUTCOMES OF EXPERT PANEL PRODUCT REVIEW

No issues were raised.

## 13 FUTURE WORKS

No future works have been identified.

## **14 DISCLAIMER**

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

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

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

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

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

Any enquiries regarding this report should be directed to the Program Manager, Carl Radford, 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).

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

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

#### **14.3 No Updating**

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#### **14.4 No Warranty**

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

## APPENDIX A – PRODUCT LITERATURE

# AFD10 SERIES

## DISMANTLING JOINTS

### DN50-DN1400



AVFI's AFD10 dismantling joints are fittings that provide easy installation and disassembly of flanged pipe and associated equipment including valves, meters and pumps. The AFD10 are widely used for a variety of industries.

#### ADVANTAGES

- ▷ AS/NZS 4020 approved FBE coating.
- ▷ Ductile iron body.
- ▷ 316 Teflon® coated stainless steel tie rods.
- ▷ Fully restrained and unrestrained configurations.
- ▷ Longitudinal ± 25mm adjustment for sizes up to 750mm.
- ▷ Longitudinal ± 30mm adjustment for sizes above 800mm.

#### OPTIONS

- ▷ NBR seal
- ▷ Wide selection of fastener materials and finishes:
  - Galvanized fasteners
  - 304 stainless steel
  - Dacromet® coating on fasteners
  - Galvanised steel 4.8 or 8.8
- ▷ Flange drilling connections to suit a wide range of flanging standards:
  - AS2129 T/ E
  - ANSI 150 - Drilling Only
  - EN 1092
- ▷ PN25 pressure rating



#### TECHNICAL DATA

Size Range	DN80 - DN1400 - Large sizes available on request
Pressure Class	PN16
Coating	AS/NZS 4020 Approved, Fusion Bonded Epoxy
Temperature Range	-10°C to 80°C
Flange Drilling Connection	AS4087 CL16

## AFD10 SERIES

### DISMANTLING JOINTS

The operating principle behind the AFD10 is that the centre sealing flange is drawn closer to the mating flange, thereby compressing the rubber sealing ring to achieve a complete seal. So simple, yet so efficient and practical.

The AFD10 features a single tie rod connecting all three flanges. It is recommended to check with your local authority too confirm that the AFD10 is permitted for your application.

#### TYPICAL APPLICATIONS

- ▷ The dismantling joints are designed to simplify the installation, maintenance and removal of:
    - Isolation valves
    - Non-return valves
    - Control valves
    - Metering & associated equipment
    - Pumps & associated equipment
  - ▷ The dismantling joints are used in many areas, including:
    - Pumping stations
    - Water treatment plants
    - Sewage treatment plants
    - Industrial pipelines
- ▷ A traditional dismantling joint, supplied with a complete set of tie rods as 100% restrained, though on request can be supplied as either 25% or 50% restrained.

Operates Via Single Combined Tie Rods



# AFD10 SERIES

## DISMANTLING JOINTS

### MATERIAL SPECIFICATIONS & PARTS LIST

NO.	DESCRIPTION	MATERIAL
1	Long Flanged Body	Ductile Iron
2	Short Flanged Body	Ductile Iron
3	Middle Flange	Ductile Iron
4	Seal Ring	EPDM (AS1646 Approved)
5	Stud	SS316 with Teflon Coating
6	Washer	SS316
7	Nut	SS316

NOMINAL PRESSURE		PN16
Test	Strength Test	24 Bar
Pressure	Strength Test	17.6 Bar

### DIMENSIONAL DRAWING

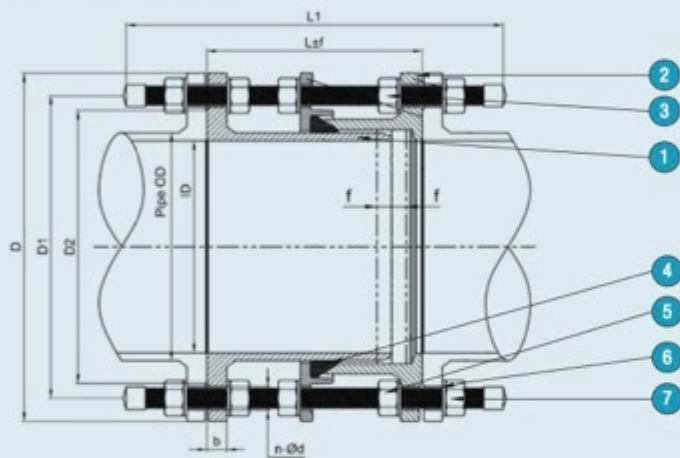


Figure 3. Restrained AFD10 Dismantling Joint



Figure 4. Unrestrained AFD10 Dismantling Joint



### DIMENSIONS (MM)

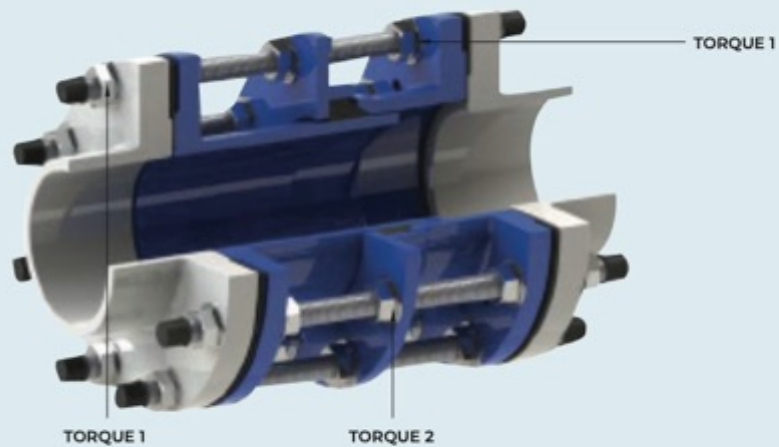
DN	ID	LENGTH		ADJUSTMENT	A54087 PN16				b	M	NO. OF TIE-bar 100% Restrained
		L	L1		D	D1	D2	n-d			
50	44	195	310	±25	150	114	90	4-18	19	M16	4
65	52	195	310	±25	165	127	103	4-18	19	M16	4
80	83	195	340	±25	185	146	122	4-18	19	M16	4
100	101	195	340	±25	215	178	154	4-18	19	M16	4
125	125	200	340	±25	255	210	186	8-18	19	M16	8
150	154	200	350	±25	280	235	211	8-18	19	M16	8
200	206	210	350	±25	335	292	268	8-18	20	M16	8
225	230	220	380	±25	370	324	300	8-18	20	M16	8
250	258	220	380	±25	405	356	328	8-22	22	M20	8
300	307	230	400	±25	455	406	378	12-22	24.5	M20	12
350	359	240	410	±25	525	470	438	12-26	26.5	M24	12
375	395	250	430	±25	550	495	463	12-26	28	M24	12
400	408	250	430	±25	580	521	489	12-26	28	1M24	12
450	456	265	450	±25	640	584	552	12-26	30	M24	12
500	508	275	460	±25	705	641	609	16-26	31.5	M24	16
550	575	285	500	±25	760	699	637	16-30	35	M27	16
600	613	290	500	±25	825	756	720	16-30	36	M27	16
700	711	295	510	±25	910	845	809	20-30	39.5	M27	20
750	764	320	530	±25	995	927	888	20-33	41	M30	20
800	817	320	560	±30	1060	984	942	20-36	43	M33	20
900	911	320	580	±30	1175	1092	1050	24-36	46.5	M33	24
1000	1012	325	600	±30	1255	1175	1133	24-36	50	M33	24
1200	1216	340	640	±30	1490	1410	1368	32-36	57	M33	32
1400	1420	340	640	±30	1680	1615	1573	36-36	50	M33	36

## AFD10 SERIES

### DISMANTLING JOINTS

#### AFD10 Recommended Bolt Tighten Torque for AS4087 CL16 (N.M)

SIZE	BOLT SIZE	BOLT NO.	TORQUE 1	TORQUE 2 (SEALING)
DN50	M16	4	100	100
DN65	M16	4	100	100
DN80	M16	4	100	100
DN100	M16	4	100	100
DN150	M16	8	100	80
DN200	M16	8	100	80
DN225	M16	8	100	80
DN250	M20	8	180	150
DN300	M20	12	180	150
DN350	M24	12	320	210
DN375	M24	12	320	210
DN400	M24	12	320	210
DN450	M24	12	320	240
DN550	M24	16	320	240
DN600	M27	16	440	280
DN750	M27	20	440	280
DN800	M33	20	735	350
DN900	M33	24	735	350
DN1000	M33	24	735	370
DN1200	M33	32	735	400
DN1400	M33	36	800	400



#### ORDERING CHART

MODEL	SIZE	BOLTS	RESTRAINED	ATTACHMENT
AFD10	-050	316	025	T/D - Table D
	-065	304	050	T/E - Table E
	-080	GAL	100	ANSI 150*

**EXAMPLE** AFD10 80mm 316 Bolts 025 Restrained Table E  
AFD10-080-316-025-T/E

\* ANSI 150 Drilling only. PN rating as per standard valve.

54 Enterprise Drive, Bundoora, VIC, 3083  
p. 1300 789 256 | e. sales@avfi.com.au  
avfi.com.au

Designs, material and specifications shown are subject to change without notice due to our continuing program of product development.

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VIC | ACT | NSW | NT | QLD | SA | TAS | WA

# AFD20 SERIES

## DISMANTLING JOINTS

### DN100-DN1400



AVFI's AFD20 dismantling joints are fittings that provide easy installation and disassembly of flanged pipe and associated equipment including valves, meters and pumps. The AFD20 are widely used for a variety of industries.

#### ADVANTAGES

- ▷ AS/NZS 4020 approved FBE coating.
- ▷ Ductile iron body.
- ▷ 316 Teflon® coated stainless steel tie rods.
- ▷ Longitudinal ± 25mm adjustment for sizes up to 600mm.
- ▷ Longitudinal ± 30mm adjustment for sizes above 700mm.

#### OPTIONS

- ▷ NBR seal
- ▷ Wide selection of fastener materials and finishes:
  - Galvanised fasteners 4.8 or 8.8
  - 304 stainless steel
  - Dacromet® coating on fasteners
  - Can be supplied with additional tie rods to fully constrain
- ▷ Flange drilling connections to suit a wide range of flanging standards:
  - AS2129 T/ E
  - ANSI 150 - Drilling Only
  - EN 1092
- ▷ PN25 pressure rating



#### TECHNICAL DATA

Size Range	DN100 - DN1400 - Large sizes available on request
Pressure Class	PN16
Coating	AS/NZS 4020 Approved, Fusion Bonded Epoxy
Temperature Range	-10°C to 80°C
Flange Drilling Connection	AS4087 CL16



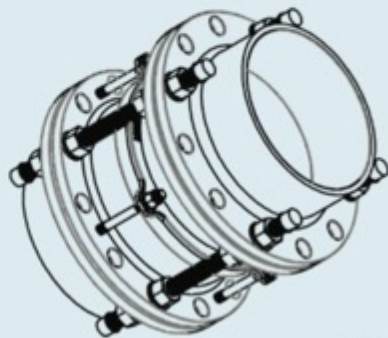
## AFD20 SERIES DISMANTLING JOINTS

The operating principle behind the AFD20 is that the centre sealing flange is drawn closer to the mating flange, thereby compressing the rubber sealing ring to achieve a complete seal. So simple, yet so efficient and practical.

The AFD20 features an end to end tie rod and a separate tie rod for the sealing flange. It is recommended to check with your local authority too confirm that the AFD20 series is permitted for your application.

### TYPICAL APPLICATIONS

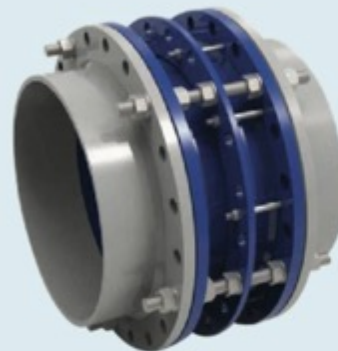
- ▷ The dismantling joints are designed to simplify the installation, maintenance and removal of:
    - Isolation valves
    - Non-return valves
    - Control valves
    - Metering & associated equipment
    - Pumps & associated equipment
  - ▷ The dismantling joints are used in many areas, including:
    - Pumping stations
    - Water treatment plants
    - Sewage treatment plants
    - Industrial pipelines
- ▷ The dismantling joints is supplied with fewer tie rods for easy and fast installation while still offering a secure and rigid dismantling joint.



DN100 - DN600



DN700 - DN1400



# AFD20 SERIES DISMANTLING JOINTS

## MATERIAL SPECIFICATIONS & PARTS LIST

NO.	DESCRIPTION	MATERIAL
1	Short Flanged Body	Ductile Iron
2	Seal Ring	EPDM (AS1646 Approved)
3	End Ring	Ductile Iron
4	Long Flanged Body	Ductile Iron
5	Stud - Short	SS316 with Teflon Coating
6	Stud - Long	SS316 with Teflon Coating
7	Washer	SS316
8	Nut	SS316

NOMINAL PRESSURE		PN16
Test	Strength Test	24 Bar
Pressure	Strength Test	17.6 Bar

## DIMENSIONAL DRAWING

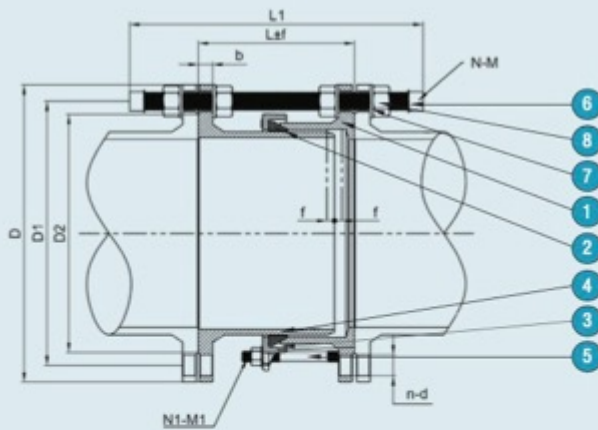


Figure 5. Restrained AFD20 Dismantling Joint

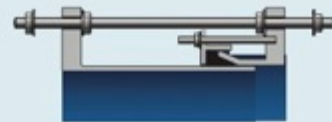
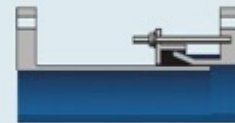


Figure 6. Unrestrained AFD20 Dismantling Joint



## DIMENSIONS (MM)

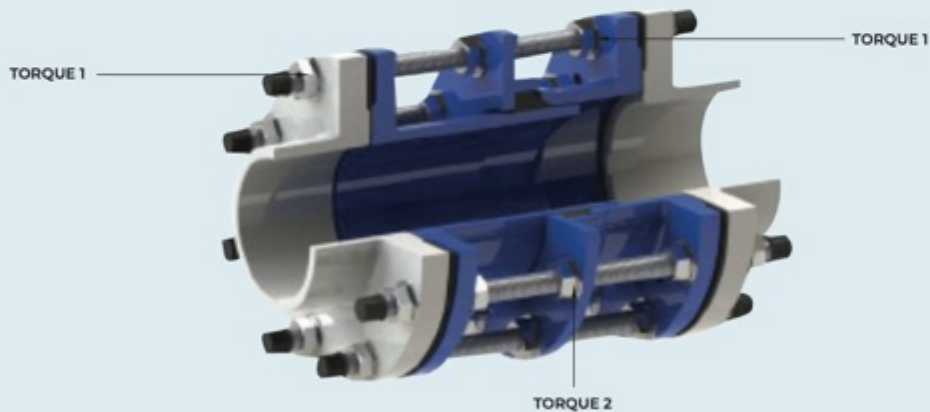
DN	ID	OD	LENGTH		ADJUSTMENT	AS4087 PN16				b	BOLT/NUT			
			L	L1		f	D	D1	D2		n-d	M	N	M1
100	101	118	195	340	±25	215	178	154	4-19	19	M16	4	M12*140	4
125	125	144	200	340	±25	255	210	186	8-19	19	M16	4	M12*140	4
150	154	170	200	350	±25	280	235	211	8-19	19	M16	4	M12*140	4
200	206	222	210	350	±25	335	292	268	8-19	20	M16	4	M12*140	4
225	230	248	220	380	±25	370	324	300	8-19	20	M16	4	M12*140	4
250	258	274	220	380	±25	405	356	328	8-23	22	M20	4	M14*140	4
300	307	326	230	400	±25	455	406	378	12-23	24.5	M20	4	M12*140	6
350	359	378	240	410	±25	525	470	438	12-27	26.5	M24	4	M16*170	6
375	400	406	250	430	±25	550	495	463	12-27	28	M24	4	M16*170	6
400	408	429	250	430	±25	580	521	489	12-27	28	M24	4	M16*170	6
450	456	480	265	450	±25	640	584	552	12-27	30	M24	4	M16*170	6
500	508	532	275	460	±25	705	641	609	16-27	32	M24	4	M16*170	8
600	613	635	290	500	±25	825	756	720	16-31	36	M27	4	M16*170	8
700	711	738	295	510	±30	910	845	606	20-31	39.5	M27	5	M16*180	10
750	750	813	320	530	±30	995	927	888	20-34	41	M30	5	M16*180	10
800	817	842	320	560	±30	1060	984	942	20-37	43	M33	5	M16*180	10
900	911	945	320	580	±30	1175	1092	1050	24-37	47	M33	6	M16*180	12
1000	1012	1048	325	600	±30	1255	1175	1133	24-37	50	M33	6	M16*180	12
1200	1216	1255	340	640	±30	1490	1410	1368	32-37	57	M33	8	M16*180	16
1400	1420	1462	340	640	±30	1680	1615	1573	36-37	50	M33	9	M16*180	18

# AFD20 SERIES

## DISMANTLING JOINTS

### AFD20 Recommended Bolt Tighten Torque for AS4087 CL16 (N.M)

SIZE	BOLT SIZE	BOLT NO.	TORQUE 1	LOCKING BOLT SIZE	LOCKING BOLT NO.	TORQUE 2 (SEALING)
DN100	M16	4	100	M12	4	60
DN150	M16	4	100	M12	4	60
DN200	M16	4	100	M12	4	60
DN225	M16	4	100	M14	4	80
DN250	M20	4	180	M14	4	80
DN300	M20	4	180	M12	6	60
DN350	M24	4	320	M16	6	100
DN375	M24	4	320	M16	6	100
DN400	M24	4	320	M16	6	100
DN450	M24	4	320	M16	6	100
DN500	M24	4	320	M16	8	100
DN600	M27	4	440	M16	8	100
DN700	M27	5	440	M16	10	100
DN800	M33	5	735	M16	10	100
DN900	M33	6	735	M16	12	100
DN1000	M33	6	735	M16	12	100
DN1200	M33	8	735	M16	16	100
DN1400	M33	9	800	M16	18	100



### ORDERING CHART

MODEL	SIZE	BOLTS	RESTRAINED	ATTACHMENT
AFD20	-100	316	R - Restrained	T/D - Table D
	-125	304	U - Unrestrained	T/E - Table E
	-150	GAL		ANSI 150*
	-200			

**EXAMPLE** AFD20 100mm 316 Bolts Restrained Table E  
AFD20-100-316-R-T/E

\* ANSI 150 Drilling only. PN rating as per standard valve.

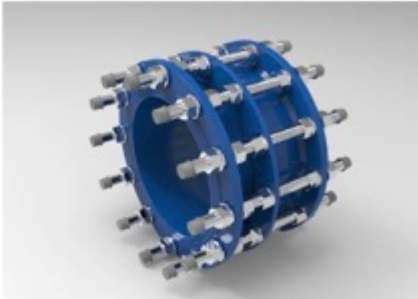
54 Enterprise Drive, Bundoora, VIC, 3083  
p. 1300 789 256 | e. sales@avfi.com.au  
avfi.com.au

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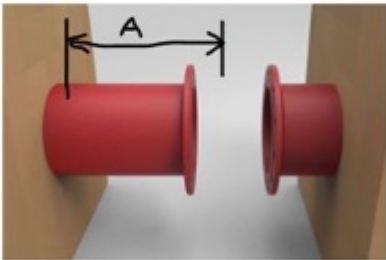
## Installation Manual AFD10 Dismantling Joint

### Product Photo:



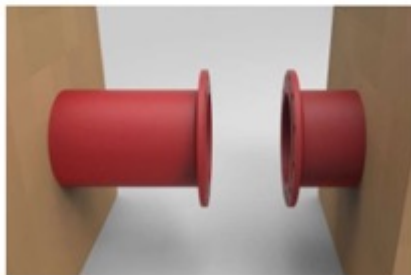
### Installation Precautions: -

1. Ensure adequate space, "A" distance should be longer than the length of the dismantling joint tie rods.



### Installation Steps:

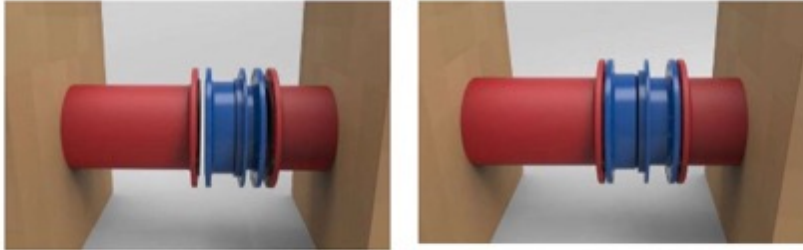
1. Determine the suitable install distance, make sure the install distance is within the adjustable range of the dismantling joint.



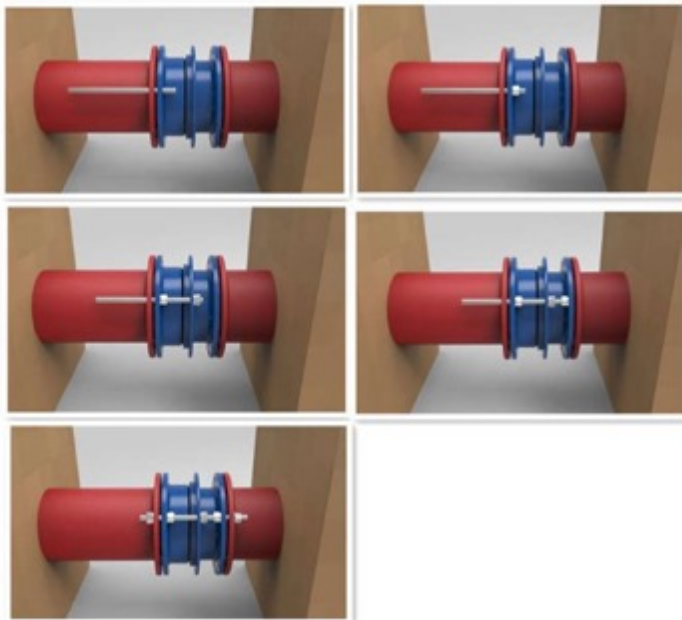
2. Dismantle the fasteners from the dismantling joint and set aside.



3. Using approved mechanical lifting methods, sling the dismantling joint between the pipe flanges and adjust it to ensure the length of the dismantling joint is expanded into the mating flanges with gaskets inserted.

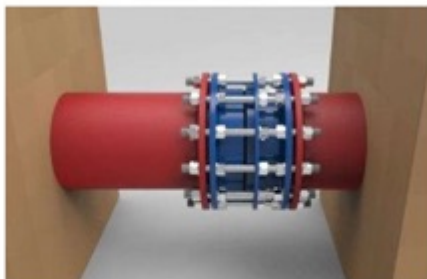


4. Install all tie rods, nuts and washers to complete the connection between the dismantling joint and mating flanges as per below.



5. Tighten the fasteners to complete the installation.

- Tighten all bolts diametrically opposed.
- Tighten end flange to mating flange (refer to recommended torques)
- Tighten middle seal flange (refer to recommended torques)





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## *AFD20 DISMANTLING JOINT INSTALLATION, OPERATION, AND MAINTENANCE MANUAL*

---

### **WARNING**

Caution and appropriate safety checks should be exercised to ensure pipeline is depressurized before the removal and/or loosening of any part and/or connection of the dismantling joint. Only after the system has been depressurized, should the dismantling joint be installed and/or serviced.

**A PRESSURIZED PIPELINE CAN CAUSE SERIOUS INJURY AND/OR PROPERTY DAMAGE**

### **INTRODUCTION**

The majority of this information is common knowledge to experienced valve users. When properly installed in applications for which they were designed, the AFD20 dismantling joints will give long reliable service. This instruction is only a guide for installation. A professional approved valve engineering facility should be utilized for reconditioning or major repairs. We recommend that this entire document be read prior to proceeding with any installation. We take no responsibility for damage or injury to people, property or equipment. It is the sole responsibility of the user to ensure only specially trained valve repair experts perform repairs under the supervision of a qualified supervisor.

The user is responsible for ordering the correct dismantling joint. The user is responsible for ensuring dismantling joints are selected and installed in conformance with the current pressure rating and design temperature requirements. Prior to installation, the dismantling joint should be checked for proper identification to ensure the dismantling joint is of the proper type, material and is of a suitable pressure class and temperature rating to satisfy the requirements of the service application. Do not use any dismantling joint in applications where either the pressure or temperature is higher than the allowable working values. Also dismantling joints should not be used in service media if not compatible with the dismantling joint material of construction, as this will cause chemical attacks, leakage, and dismantling joint failure.

### **GENERAL**

Dismantling joints are installed in pipelines to facilitate the removal and replacement of valves, pipes or fittings in the line. By removing and adjusting certain stud nuts on the dismantling joint, the stud and the loosened flanges can be retracted sufficiently to allow for the removal and replacement of the dismantling joint and associated pipe or fittings in the pipeline.



### RECEIVING INSPECTION AND HANDLING

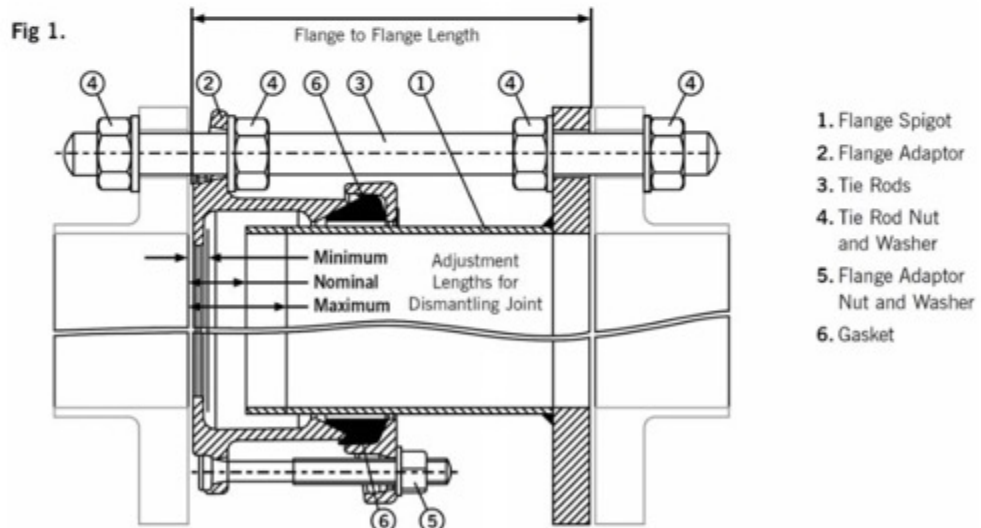
Dismantling joints should be inspected upon receipt to ensure:

- Conformance with all purchase order requirements.
- Correct type, pressure class, size, body and trim materials and end connections.
- Any damage caused during shipping and handling.

The user is advised that specifying an incorrect dismantling joint for the application may result in injuries or property damage. Selecting the correct dismantling joint type, rating, material and connections, in conformance with the required performance requirements is important for proper application and is the sole responsibility of the user.

### INSTALLATION

- Ensure pipeline is completely depressurized before any work is commenced upon the dismantling joint and or its connections
- Carefully remove any packaging and inspect all machined surfaces to make sure they are free of defect, and the inside of the dismantling joint is free of foreign objects.
- Thoroughly clean adjacent piping system to remove any foreign material that could cause damage to the dismantling joint after or during installation.
- Verify that the space available for installation is adequate to allow the dismantling joint to be installed.
- Dismantling joint can be installed in any position.
- Before the installation of dismantling joint, ensure flange connection gasket, studs and nuts meet the relevant standards.



- Remove all tied rods, tied rod washers, and tied rod nuts from the dismantling joint.
- Tighten flange adaptor nuts so that the dismantling joint is at its minimum adjustment length.
- Place dismantling joint into pipeline position with appropriate flange gaskets (sourced separately).



- Secure the spigot end flange of dismantling joint to the pipeline by refitting all tied rods, tied rod washers, and tied rod nuts from the dismantling joint. Tie rod nuts on the spigot flange should be tightened in an opposing crisscross pattern in equal increments to ensure even gasket compression.
- Loosen the flange adaptor nuts to expand the dismantling joint to the point where a secure mating with the pipeline is achieved (ensure you do not exceed the maximum adjustment of the dismantling joint). Tightened the tie rod nuts firstly, then begin to tighten the flange adaptor nuts in an opposing crisscross pattern in equal increments to ensure even gasket compression.
- The system can now be pressurized gradually while checking for any leakage around all connections and gasket. If serious leakage occurs, depressurize the system, and start the installation procedure over. If minor leakage then tightened appropriate nuts to stop any leakage.

#### OPERATION

- After installation, the AFD20 dismantling joint does not require any further labor to operate.
- The gasket and tie rod nuts should be checked periodically in service and tie rods are tightened as necessary if loose or to stop leakage around the gasket. Tighten in a manner to develop even loading on the gasket. Tighten only enough to stop the leak. Over tightening will cause the gasket to fail prematurely

#### MAINTENANCE

- Generally, AFD20 dismantling joints only require periodic inspection to ensure all fittings are still secure and that the dismantling joint is free of any leakage.
- If required tighten any loose fittings and should leakage continue then please refer to the repairs section below.
- Ensure pipeline is completely depressurized before any work is commenced upon the dismantling joint and or its connections.

#### REPAIRS

- Generally, the only justifiable repairs are replacement of gaskets which can be carried out by professional approved valve engineering personnel. Spare gaskets if required can be purchased through AVFI.





***SAFETY INSTRUCTIONS - to be read before installation and/or purchase***

***PART - 1: GENERAL INFORMATION & SAFETY REQUIREMENTS***

1. The products supplied have been designed with safety in mind. Where hazards cannot be eliminated, the risk has been minimized by the use of guards and other design features. Some hazards cannot be guarded against and the instructions below **MUST BE COMPLIED WITH** for safe operations. These instructions cannot cover all circumstances; **USER** of the product is responsible for using safe-working practices at all times to protect themselves and others, including property.
2. Product are designed for installation in designated area, which are to be kept clean and free of obstructions that may restrict safe access to the controls and maintenance access points.
3. Access to the equipment should be kept restricted to the personnel responsible for installation, operation and maintenance and they must be trained, adequately qualified and supplied with adequate tools for their respective tasks.
4. All personnel that are responsible for installation, operation or maintenance of the equipment, have access to study the product instruction manual **BEFORE** any work is done and they will comply with all local and industry based safety instructions and regulations.
5. Personnel protection safety equipment must be worn where local rules apply.
6. Read these instruction before installation, operation and maintenance of the equipment.
7. Note that the limit of product application and permissible use of the product is according to the respective product design & testing standard and product pressure rating. Operation of the equipment beyond these limits will increase risk from hazards and may lead to premature and hazardous failure of the dismantling joint / accessories.

**WARNING**

**IMPROPER INSTALLATION, OPERATION OR MAINTENANCE OF THE PRODUCT  
COULD RESULT IN SERIOUS INJURY OR DEATH**

***PART - 2: SAFETY INSTRUCTIONS WHILE HANDLING, STORAGE AND USAGE***

1. For handling / lifting the dismantling joint, use devices of adequate capacities certified by competent authorities.
2. Before fitting the dismantling joint to the pipeline, ensure that pressure rating of the dismantling joint is suitable for maximum working pressure / surge pressure that may arise in the pipeline.
3. Before fitting the dismantling joint into the pipeline, ensure dismantling joint material and function is suitable for the application.
4. User shall prevent any unauthorized person to mount, dismantle or remount, operate and repair the dismantling joint.
5. Dismantling joints should be stored in a sealed cool dry environment out of direct sunlight



***SAFETY INSTRUCTIONS - to be read before installation and/or purchase***

***PART - 1: GENERAL INFORMATION & SAFETY REQUIREMENTS***

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## APPENDIX B - QUALITY CERTIFICATIONS

Copies of the following Quality Certification Certificates are also available from WSAA.

**TABLE B1  
AVFI PTY LTD- MANAGEMENT SYSTEMS**

54 Enterprise Drive Bundoora Vic	
Quality Systems Standard	ISO 9001:2015
Certification Licence No.	QEC 29843
Certifying Agency	Intertek SAI Global
First Date of Certification	17 May 2012
Current Date of Certification	31 March 2023
Expiry Date of Certification	26 May 2026

**TABLE B2  
FOWRY TECH (SHANDONG) CO LTD – MANAGEMENT SYSTEMS**

Binzhou City Shandong China	
Quality Systems Standard	ISO 9001:2015
Certification Licence No.	CN13/10523
Certifying Agency	SGS
First Date of Certification	26 December 2012
Current Date of Certification	27 December 2021
Expiry Date of Certification	26 December 2024

# CERTIFICATE OF REGISTRATION

This is to certify that:

**AVFI Pty Ltd**

ABN 83 159 299 242

54 Enterprise Drive Bundoora VIC 3083 AUSTRALIA

operates a

**QUALITY MANAGEMENT SYSTEM**

which complies with the requirements of

**ISO 9001:2015**

for the following scope

The import, assembly and supply or repair of valves for water and waste water industries.

**Certificate Number:**

QEC29843

**Originally Certified:**

17 May 2012

**Current Certification:**

31 March 2023

**Issue Date:**

6 April 2023

**Expiry Date:**

26 May 2026



ISO 9001

JAS-ANZ



[WWW.JAS-ANZ.ORG/REGISTER](http://WWW.JAS-ANZ.ORG/REGISTER)



**Calin Moldovean**

President, Business Assurance

SAI Global Certification Services Pty. Ltd.

650 Lorimer Street

Port Melbourne Victoria 3207

Australia

**Registered by:**

SAI Global Certification Services Pty Ltd (ACN 108 716 669) 650 Lorimer Street Port Melbourne VIC 3207 Australia with SAI Global Pty Limited 650 Lorimer Street Port Melbourne VIC 3207 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 CN13/10523

The management system of

# FOWRY Tech. (Shandong) Co., Ltd.

Business Registration Address: North End of Gongye 2 Road, Sangluoshu Industry Zone, Huimin County, Binzhou City, Shandong Province, P.R. China  
Business Operation Address: North End of Gongye 2 Road, Sangluoshu Industry Zone, Huimin County, Binzhou City, Shandong Province, P.R. China



Unified Social Credit Code 913716215716668341

has been assessed and certified as meeting the requirements of

## ISO 9001:2015

For the following activities

**Design and manufacture of general valves, castings, pipe fittings, joints, relative rubber products and seals**

This certificate is valid from 27 December 2021 until 26 December 2024 and remains valid subject to satisfactory surveillance audits. Recertification audit due a minimum of 60 days before the expiration date. Issue 6. Certified since 26 December 2012



Authorised by



0005

SGS United Kingdom Ltd  
Rocstone Business Park Ellesmere Port Cheshire CH65 3EN UK  
t +44 (0)151 350-6666 f +44 (0)151 350-6600 [www.sgs.com](http://www.sgs.com)

The certification information can be verified on the web site of Certification and Accreditation Administration of the People's Republic of China [www.cca.gov.cn](http://www.cca.gov.cn)

HC SGS 9001 2015 0118 M1

Page 1 of 1



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本证书的有效性依赖于获证客户遵守其获证时所适用的所有适用的法律法规。

## **APPENDIX C - SUPPLIER CONTACTS**

### **AVFI Pty Ltd**

54 Enterprise Drive  
Bundoora VIC 3083

Phone: 1300 789 256

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

Web: <https://www.avfi.com.au/>



**Melbourne Office**

Wurundjeri Country  
Level 8, Suite 8.02  
401 Docklands Drive  
Docklands VIC 3008

**Sydney Office**

Gadigal Country  
Level 6 75 Elizabeth Street  
Sydney NSW 2000  
GPO Box 915  
Sydney NSW 2001

P +61 (0) 3 8605 7600  
email: [info@wsaa.asn.au](mailto:info@wsaa.asn.au)

[www.wsaa.asn.au](http://www.wsaa.asn.au)