



# Pipestar Australia Pty Ltd

## PRODUCT APPRAISAL REPORT 1825 Issue 2

Polyethylene Sweep Bends

**AS/NZS 4129:2020 Fittings for polyethylene (PE) pipes for pressure applications**

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## Peer Reviewers

Name/Title	Organisation	Date
Product Appraisal Technical Advisory Group	WSAA	8 December 2018
WSAA Expert Panel	WSAA	8 December 2018
Peter Pittard, WSAA Consultant	WSAA	17 November 2018
Carl Radford, Product Appraisal Manager	WSAA	12 December 2018
Peter Pittard, WSAA Consultant	WSAA	13 January 2024
Carl Radford, Product Appraisal Manager	WSAA	28 February 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

Pipestar Australia Pty Ltd is an Australian based company, established in 2002, specialising in the manufacture of polyethylene sweep bends.

This Appraisal is for a range of polyethylene sweep bends with PN ratings from PN8 to PN25 (SDR 7.4 to SDR 21) in sizes from DN 50 to DN 355 and angles ranging from 11 degrees to 90 degrees.

Pipestar sweep bends are manufactured from AS/NZS 4130 PE pipe in accordance with AS/NZS 4129: 2020 *Fittings for polyethylene (PE) pipes for pressure applications*.

The bends are manufactured in one continuous piece from PE 100 pressure pipe and incorporate long spigots suitable for butt welding or electrofusion joints. The radius of curvature is approximately 3 x diameter.

Pipestar Australia Pty Ltd holds an ISO 9001:2015 Quality Management System Licence.

The Pipestar sweep bends have ISO Type 5 ApprovalMark product certification to AS/NZS 4129: 2020 *Fittings for polyethylene (PE) pipes for pressure applications*.

This Appraisal has determined that Pipestar sweep bends, as detailed in this report, meet the requirements of WSA PS 208 *Plastics Fittings for Pressure Applications with PE Pipe-Drinking Water, Non-Drinking Water Supply and Sewerage* and are considered as 'fit-for-purpose'.

### 1.1 Recommendations

It is recommended that WSAA members, subject to any specific requirements of the member, accept or authorise Pipestar polyethylene sweep bends, as detailed in this report, for use in water supply and sewerage PE pipelines provided the design, installation, and acceptance testing are in accordance with applicable WSAA codes and manufacturer's requirements.

## 2 THE APPLICANT

The Applicant is Pipestar Australia Pty Ltd.

### 2.1 The Manufacturer

Pipestar Australia Pty Ltd is an Australian based company, established in 2002, specialising in the manufacture of polyethylene sweep bends. The factory is located at Sandgate NSW.

## 3 THE PRODUCT

This Appraisal is for a range of polyethylene sweep bends with PN ratings from PN8 to PN25 (SDR 7.4 to SDR 21) in sizes from DN 50 to DN 355 and angles ranging from 11 degrees to 90 degrees.

Pipestar long radius, long spigot sweep bends are manufactured in one continuous piece from PE100 pipe complying with AS/NZS 4130:2018 *Polyethylene (PE) pipes for pressure applications*. The bends are manufactured to comply with AS/NZS 4129: 2020 *Fittings for polyethylene (PE) pipes for pressure applications*.



**FIGURE 1 SWEEP BENDS**

The bends are available in sizes DN 50, DN 63, DN 75, DN 90, DN 110, DN 125, DN 140, DN 160, DN 180, DN 200, DN 225, DN250, DN 280, DN 315, DN 355.

The angles of the bends may be supplied as 11, 22, 30, 45, 60, 75 or 90 degrees. Special requirements can also be custom made.

The available classifications are: PN 25/SDR7.4, PN16/SDR11, PN12.5/SDR13.6, PN10/SDR17 and PN8/SDR21.

## **4 SCOPE OF THE APPRAISAL**

The scope of the appraisal is as defined in Section 3 and included on the ApprovalMark Product Certification Schedule.

## **5 APPRAISAL CRITERIA**

### **5.1 Quality Assurance Requirements**

The WSAA Product Appraisal Technical Advisory Group accepts PE pipe fittings manufactured in compliance with AS/NZS 4129: 2020 *Fittings for polyethylene (PE) pipes for pressure applications* 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**

Pipestar sweep bends have been appraised for compliance with AS/NZS 4129:2020 *Fittings for polyethylene (PE) pipes for pressure applications*.

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

The following Product Specification is also relevant to this application:

WSA PS 208 *Plastics Fittings for Pressure Applications with PE Pipe-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**

Pipestar has submitted the following quality certificates:

- ISO 9001:2015 Certificate of Registration No. AMI-QM 78020 issued to Pipestar Australia Pty Ltd by ApprovalMark International.
- AS 4129:2020 ISO Type 5 ApprovalMark Product Certification Licence No. AMI 74738 issued to Pipestar Australia Pty Ltd by ApprovalMark International.

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

## **6.2 Compliance with Performance Requirements**

### **6.2.1 Pipe**

The pipe utilised for the manufacture of the sweep bends is sourced only from suppliers with ISO Type 5 product certification to AS/NZS 4130. Australian Custom Pipes is Pipestar's preferred supplier and has a current WSAA Appraisal No. 1731 for their PE pipes. Certificates of compliance are also supplied with each pipe delivery.

### **6.2.2 Spigot ends**

Spigot ends comply with AS/NZS 4130. The lengths of the spigot ends are extended to allow for both butt welding and electrofusion welding. Spigot lengths are provided in Appendix A.

### **6.2.3 Wall thickness**

AS/NZS 4129 requires that the wall thickness, when thinned down by bending, shall not be less than the minimum wall thickness required for the nominated PN of the pipe. Pipestar has declared compliance with this requirement.

### **6.2.4 Radius**

The nominated radius is approximately 3 times the diameter. See Appendix A for actual radius dimensions.

### **6.2.5 Contact with drinking water**

The pipe utilised by Pipestar for the manufacture of the sweep bends is ISO Type 5 product certified, which requires AS/NZS 4020 certification. Additional testing is not considered necessary.

## **7 FITTING INSTRUCTIONS, TRAINING AND INSTALLATION**

The use of sweep bends in PE pipelines is common and installation procedures are well established. Pipestar does not provide in field training.

## **8 PRODUCT MARKING**

Pipestar sweep bends are marked using a sticker in accordance with the requirements of AS/NZS 4129 as indicated below and shown in Figure 2:

- Manufacturers Name: Pipestar Australia P/L / ARCBENDS
- PE grade: PE100
- Nominal size: e.g., 280mm
- Classification: e.g., SDR 11 PN 16
- Angle of bend: e.g., 90<sup>0</sup>
- Date of manufacture: e.g., 2023-01-22
- The standard number: AS/NZS 4129
- Product certification mark:



**FIGURE 2 MARKING**

## **9 PACKAGING AND TRANSPORTATION**

Packaging is determined based on the number and size of bends to be delivered. Care is taken to ensure no damage during transit.

## **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 Pipestar's warranty is included in their terms and conditions of sale.

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

QUU has approved sizes from DN 110 to DN 355.

## **12 OUTCOMES OF EXPERT PANEL PRODUCT REVIEW**

There are no outstanding issues.

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

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

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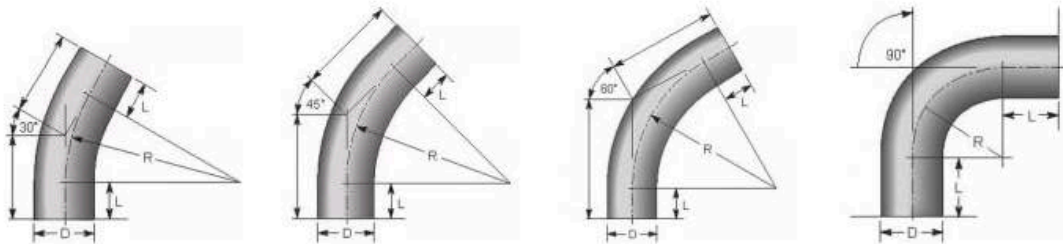
WSAA has not evaluated the extent of the product liability and professional indemnify insurance that the provider of the product maintains. Recipients should ensure that they evaluate the allocation of liability for product defects and any professional advice obtained in relation to the product or its 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****0 – 45 DEGREE SPECIFICATIONS**

<b>Diameter (mm)</b>	<b>Long Spigot (mm)</b>	<b>Radius (mm)</b>	<b>Weight Approx. (kg)</b>	
			<b>SDR17</b>	<b>SDR11</b>
<b>D</b>	<b>L</b>	<b>R</b>		
50	125	200	–	0.33
63	125	200	–	0.54
75	125	200	–	0.71
90	140	260	0.80	1.11
110	140	270	1.19	1.73
125	160	403	2.01	2.94
140	160	410	2.54	3.70
160	180	480	3.51	5.22
180	200	430	5.42	7.99
200	250	595	7.23	10.70
225	250	607	9.27	13.70
250	250	620	11.45	16.97
280	350	877	21.77	31.95
315	350	877	27.41	40.56
355	350	877	34.92	51.36

## 46 – 90 DEGREE SPECIFICATIONS

Diameter (mm)	Long Spigot (mm)	Radius (mm)	Weight Approx. (kg)	
D	L	R	SDR17	SDR11
50	125	200	–	0.45
63	125	200	–	0.62
75	125	200	–	0.97
90	140	260	1.15	1.61
110	140	270	1.68	2.45
125	160	403	3.15	4.62
140	160	410	3.99	5.81
160	180	480	5.40	8.04
180	200	430	8.32	12.26
200	250	595	10.93	16.16
225	250	607	14.05	20.76
250	250	620	20.13	29.83
280	350	877	31.97	46.92
315	350	877	41.30	61.12
355	350	877	53.07	78.06

## APPENDIX B - QUALITY CERTIFICATIONS

Copies of the following Quality Certificates are available from WSAA.

### TABLE B1

#### PIPESTAR AUSTRALIA PTY LTD– MANAGEMENT SYSTEMS

6 Mangrove Road, Sandgate. NSW Australia	
Quality Systems Standard	ISO 9001:2015
Certification licence no.	AMI-QM 78020
Certifying agency	ApprovalMark International
First date of certification	29 March 2018
Current date of certification	29 March 2021
Expiry date of certification	29 March 2024

### TABLE B2

#### PIPESTAR AUSTRALIA PTY LTD – PRODUCT CERTIFICATION

6 Mangrove Road, Sandgate. NSW Australia	
Product Standard/Spec.	AS/NZS 4129:2020
Certificate No.	AMI 74738
Issuing certification body	ApprovalMark International
First date of certification	26 November 2018
Current date of certification	26 November 2023
Expiry date of certification	26 November 2028

ISO 9001

# CERTIFICATE OF REGISTRATION



*ApprovalMark International* hereby grants:

**Pipestar Australia Pty Ltd**  
6 Mangrove road, Sandgate  
Australia

Evaluated to:  
**ISO 9001: 2015 - QUALITY MANAGEMENT SYSTEMS**

**THIS COVERS THE FOLLOWING SCOPE:**

"Manufacture and supply of post-formed polyethylene sweep bends"

**Certificate No. AMI-QM 78020**

**Issued:** 29th March 2021  
**Expires:** 29th March 2024

**John PRASAD**  
Director



**Registered by:** ApprovalMark International Pty Ltd (ABN 69 143 259 974) Unit 20, 33 Holbeche Road, Arndell Park NSW 2148 Australia. The assessment was carried with appropriate skill and assessment by ApprovalMark International Pty Ltd; however it will only accept its responsibility for proven negligence. The certificate remains the property of ApprovalMark International Pty Ltd.

ApprovalMark

The product schedule attached to this Product Certification contains 33 pages and has not been included in this report. A copy is available from Pipestar or WSAA.



# CERTIFICATE OF CONFORMITY



*ApprovalMark International* hereby grants:

## PIPESTAR AUSTRALIA PTY LTD

6 Mangrove Road  
Sandgate, NSW 2304  
Australia

### ISO Type 5 Certificate of Conformity

Evaluated to:

### AS/NZS 4129:2020 Fittings for polyethylene (PE) pipes for pressure applications

The ISO Type 5 License shall comply with all the terms and conditions as stipulated by the governance of the operating rules of the ISO Type 5 Scheme and shall comply with the standard requirements at all times including when the standard is amended. The ISO Type 5 License only covers the product which is identified in the attached product schedule.

### Certificate No. AMI 74738

Issued: 26<sup>th</sup> November 2023

Original Issue: 26<sup>th</sup> November 2018

Expires: 26<sup>th</sup> November 2028

### John PRASAD

Director

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[www.approvalmark.com](http://www.approvalmark.com)



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## **APPENDIX C - SUPPLIER CONTACTS**

### **Pipestar Australia Pty Ltd**

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





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