



AGRU Kunststofftechnik GmbH

PRODUCT APPRAISAL REPORT 1309 Issue 4

AGRU PE100-RC Electrofusion and Spigotted Fittings for PE 100 Pipe

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

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Peer Reviewers

Name/Title	Organisation	Date
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WSAA Expert Panel	WSAA	7 August 2014
Carl Radford, Product Appraisal Manager	WSAA	11 August 2014
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Carl Radford, Product Appraisal Manager	WSAA	14 November 2017
Peter Pittard, WSAA Consultant	WSAA	9 July 2024
Carl Radford, Product Appraisal Manager	WSAA	7 August 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

AGRU Kunststofftechnik GmbH is an Austrian based manufacturer and supplier of plastics piping systems, including electrofusion and spigotted fittings for PE pipes. AGRU Australia Pty Ltd is an Australian based distributor for AGRU plastics products including pipes, fittings semi-finished products, concrete protection and liners.

This appraisal is for a range of PN6, PN10 and PN16 electrofusion fittings including couplers, elbows, tees, reducers, end caps and adaptors and PN10, PN16 and PN25 moulded spigotted fittings including elbows, reducers, tees, end caps and stub flanges for drinking water, non - drinking water and sewerage applications.

This Issue 4 is to replace the previous issue of this Appraisal that expired in November 2022.

The fittings are manufactured in conformance with AS/NZS 4129:2020 *Fittings for polyethylene (PE) pipes for pressure applications*.

The fittings are moulded from PE 100-RC compounds. These compounds have a higher resistance to slow crack growth which is particularly important where the fittings are prone to damage during installation.

The spigotted fittings incorporate long spigots that are suitable for electrofusion or butt-welding.

Whilst AGRU offers an extensive range of fittings for PE pipe the scope of this Appraisal has been limited to those products included in the ISO Type 5 Product Certification schedule.

AGRU Kunststofftechnik GmbH holds an ISO 9001:2015 Quality Management System Licence.

The range of electrofusion and spigotted fittings has ISO Type 5 StandardsMark Product Certification to AS/NZS 4129:2020 *Fittings for polyethylene (PE) pipes for pressure applications*.

This Appraisal has determined that the range of AGRU PE100-CR electrofusion and spigotted fittings, 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 AGRU PE100-CR electrofusion and spigotted fittings, as detailed in this report, for use in drinking water, non-drinking water supply and sewerage applications, provided they are installed in accordance with WSAA Codes and the manufacturers requirements, where specified.

2 THE APPLICANT

The Applicant is AGRU Kunststofftechnik GmbH.

2.1 The Manufacturer

AGRU Kunststofftechnik GmbH is an Austrian based manufacturer of plastics piping systems, including electrofusion and spigotted fittings for PE pipes.

AGRU commenced its plastics products manufacturing operations in Austria in 1948. The company is now a leading supplier of plastics piping systems, semi-finished products, concrete protection liners and plastic lining systems servicing the water, gas, energy, industrial, chemical, building, naval, aeronautical and mining industries.

The family-based company has more than 1400 employees and operates in more than 150 countries worldwide.

2.2 The Supplier

AGRU Australia Pty Ltd is an Australian based distributor for AGRU plastics products including pipes, fittings semi-finished products, concrete protection and liners. The company was established in 1990 primarily to distribute AGRU products in Australia but has now expanded its product range to include complementary products including butt welding and electrofusion welding machines.

Distribution centres are located in Brisbane, Melbourne and Perth.

3 THE PRODUCT

This appraisal is for a range of PN6, PN10 and PN16 electrofusion fittings including couplers, elbows, tees, reducers, end caps and adaptors and PN10, PN16 and PN25 moulded spigotted fittings including elbows, reducers, tees, end caps and stub flanges for drinking water, non - drinking water and sewerage applications.

The fittings are manufactured in conformance with AS/NZS 4129:2020 *Fittings for polyethylene (PE) pipes for pressure applications*.

The spigotted fittings incorporate long spigots that are suitable for electrofusion or butt-welding.

The fittings are moulded from PE 100-RC compounds. These compounds have a higher resistance to slow crack growth than regular PE100 compounds which is particularly important where the fittings are prone to damage during installation.

TABLE 1 ELECTROFUSION FITTINGS

Product Code	Product	PN	Size Range
173	Coupler	16	DN 20 to DN 500
373	Coupler (machined)	6, 10, 16	DN 560 to DN 900
		6, 10	DN 1000 to DN 1400
		6	DN 1600
170	45° Elbow	16	DN 20 to DN 225
171	90° Elbow	16	DN 20 to DN 225
174	Endcap	16	DN 20 to DN 315
175	Reducing Tee	16	25/20, 32/20, 32/25, 40/20, 40/25, 40/32, 50/20, 50/25, 50/32, 50/40, 63/20, 63/25, 63/40, 63/50, 75/50, 75/63, 90/50, 90/63, 110/63, 110/90, 125/63, 125/90, 125/110, 160/90, 160/110, 160/125,
176	Tee	16	DN20 to DN 225
177	Concentric Reducer	16	25/20, 32/20, 32/25, 40/20, 40/25, 40/32, 50/25, 50/32, 50/40, 63/32, 63/40, 63/50, 75/50, 75/63, 90/63, 110/63, 110/90, 160/90, 160/110, 225/160
184	Threaded Female Adaptor	16	20xRP1/2, 25xRP3/4, 32xRP1, 40xRP1¼, 50xRP1½, 63xRP2.
185	Threaded Male Adaptor:	16	20xRP1/2, 25xRP3/4, 32xRP1, 40xRP1¼, 50xRP1½, 63xRP2.
186	Threaded Male Adaptor Elbow (90°)	16	20xRP1/2, 25xRP3/4, 32xRP1, 40xRP1¼, 50xRP1½, 63xRP2.
187	Threaded Female Adaptor Elbow (90°):	16	20xRP1/2, 25xRP3/4, 32xRP1, 40xRP1¼, 50xRP1½, 63xRP2.
188	Threaded Male Adaptor Elbow (45°)	16	20xRP1/2, 25xRP3/4, 32xRP1, 40xRP1¼, 50xRP1½, 63xRP2

Product Code	Product	PN	Size Range
189	Threaded Female Adaptor Elbow (45°)	16	20xRP1/2, 25xRP3/4, 32xRP1, 40xRP1¼, 50xRP1½, 63xRP2

TABLE 2 ELONGATED SPIGOTTED FITTINGS

Product Code	SDR Range ¹	PN	Size Range
019	30° Elbow	16	DN 90, DN 110, DN 160
060	45° Elbow	16	DN 20 to DN 315
061	90° Elbow	25	DN 63 to DN 315
062	Stub Flange	16	DN 20 to DN 400
064	End cap	16	DN 20 to DN 315
065	Reducing Tee	16	63/32, 75/63, 63/50, 75/63, 90/63, 90/75, 110/63, 110/75, 110/90, 125/90, 125/110, 160/63, 160/75, 160/90, 160/110, 180/90, 180/110, 180/160, 225/110, 225/160, 225/180, 225/75, 225/90, 315/110, 315/160, 315/225, 315/250, 355/160, 355/225, 355/250, 400/110, 400/160, 400/200, 400/225, 400/250, 400/315
066	Equal Tee	16	DN 20 to DN 400
036	45° Equal Tee	16	DN 20 to DN 315
067	Concentric Reducer	16	25/20, 32/20, 32/25, 40/20, 40/25, 40/32, 50/25, 50/32, 50/40, 63/32, 63/40, 63/50, 75/50
		10, 16	75/63, 90/63, 90/75, 140/125, 160/140, 180/125, 180/160, 250/200, 280/250, 315/200, 315/225, 315/250
		10, 16, 25	110/63, 110/90, 125/63, 125/90, 160/90, 160/110, 160/125, 200/160, 225/160, 250/160, 250/225
068	90° Multi Bend	16	DN 20 to DN 400
069	Eccentric Reducer	16	25/20, 32/25, 40/25, 40/32, 50/32, 63/32, 63/40
		10, 16	63/50, 75/50, 75/63, 90/63, 90/75, 110/63, 110/90, 125/63, 125/90, 125/110, 140/125, 160/90, 160/110, 160/125, 160/140, 180/90, 180/125, 200/160, 200/180, 225/160, 225/180, 225/200, 250/200, 250/225

4 SCOPE OF THE APPRAISAL

The scope of this appraisal is for PE100-RC electrofusion fittings, detailed in Table 1, and spigotted fittings, detailed in Table 2, and included in the ISO Type 5 StandardsMark Product Certification schedule. See Appendix B.

Whilst AGRU offers an extensive range of fittings for PE pipe, the scope of this Appraisal has been limited to those products included in the Product Certification schedule.

5 APPRAISAL CRITERIA

5.1 Quality Assurance Requirements

The WSAA Product Appraisal Technical Advisory Group accepts electrofusion and spigotted 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

AGRU electrofusion and spigotted fittings for PE pipe 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/76476>

6 COMPLIANCE WITH APPRAISAL CRITERIA

6.1 Compliance with Quality Assurance Requirements

AGRU has submitted the following quality certificates:

- ISO 9001:2015 Certificate of Registration No. 00618/1 issued to AGRU Kunststofftechnik GmbH by Quality Austria.
- AS/NZS 4129:2020 StandardsMark ISO Type 5 Product Certification Licence No. SMK21277 issued to AGRU Kunststofftechnik GmbH by Intertek SAI Global.

Copies of the 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 Type Testing

AGRU has submitted test reports for previous issues of this report to demonstrate compliance with AS/NZS 4129 performance requirements, including additional tests required for crack resistant compounds.

6.2.2 Polyethylene compounds

AGRU has confirmed that the following PE100-RC materials are utilised in moulding the electrofusion and spigotted fittings.

- LyondellBasell Hostalen CRP 100 Resist CR black
- Ineos Eltex Superstress TUB 121 N6000

Both compounds are listed in POP004A as compliant with AS/NZS 4130 and the Eltex TUB 121 N6000 is also denoted in POP004A as having demonstrated conformity to the requirements of POP016 *High Stress Crack Resistant & Raised Crack Resistant PE100 Materials*.

A Kiwa test report has been submitted by Agru to demonstrate compliance of Hostalen CRP 100 Resist CR black with the test requirements detailed in POP016 for PE100-RC materials.

6.2.3 Copper alloy material

The copper alloy utilised in the electrofusion adaptor fittings is CW742R, equivalent to C69300, a lead free Ecobrass. Test reports have been submitted to verify the copper alloy composition and to confirm that the material is dezincification resistant to the requirements of AS 2345.

6.2.4 Effect on Water

Agru has submitted the following test reports to confirm that the compounds used comply with AS/NZS 4020:2108.

- Report No AAL 57923 for Eltex Superstress TUB 121 N6000 undertaken by Eurofins ams (NATA Accreditation No. 15773) on 17th September 2020.
- Report No AAL52430 for Hostalen CRP 100 Resist CR black undertaken by Eurofins ams (NATA Accreditation No. 15773) on 17th September 2020

It is the responsibility of the manufacturer to ensure that AS/NZS 4020 testing requirements for PE100 compounds remain current.

7 FITTING INSTRUCTIONS, TRAINING AND INSTALLATION

A comprehensive range of technical information is available from AGRU.

For the welding of AGRU fittings a universal welding machine with bar code identification that supervises all functions automatically and stores the data is recommended.

8 PRODUCT MARKING

The fittings are marked in accordance with AS/NZS 4129 as follows:

- Manufacturer's name: AGRU
- Date or batch code:
- Nominal size: e.g., DN 110
- Material type: PE100-RC
- Classification: e.g., SDR 11 PN16
- Standard number: AS/NZS 4129
- Certification Mark: StandardsMark 21277

9 PACKAGING AND TRANSPORTATION

AGRU fittings are single bagged in a PE-foil for dust protection and packaged in a cardboard box.

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

11 WATER AGENCY EXPERIENCE WITH THE PRODUCT OR FIELD TESTING REPORT

Agru electrofusion and spigotted fittings have multiple approvals in place with Australian water agencies including South East Water, Yarra Valley Water, Greater Western Water, Hunter Water, Sydney Water, SA Water, Power and Water and Water Corp WA.

12 DISCUSSION

Electrofusion jointing of PE pipelines offers a permanently sealed and jointed system provided the electrofusion process is carried out correctly. The electrofusion jointed PE

pipeline has the potential to have life expectancy equal to and in some cases well beyond other pipeline materials and jointing systems. The PE material is corrosion resistant and correctly made joints are permanently fused to provide a high level of joint integrity against leakage and/or infiltration over the long-term. Similar to other plastic pipe systems, PE is susceptible to fatigue from cyclic pressure changes and additional design considerations must be made if used in a pumped pipeline.

PE pipelines are susceptible to permeation of specific organic chemicals (as are other pipeline systems) and care must be exercised if designing for installation in contaminated ground and/or brownfield sites. Seek further advice from Agru Australia regarding such installations.

13 OUTCOMES OF EXPERT PANEL PRODUCT REVIEW

No issues have been raised.

14 FUTURE WORKS

No future works have been identified.

15 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.

15.1 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.

15.2 Limits on Reliance on Information and Recommendations

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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.

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 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.

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Neither the Publisher(s) nor any person involved in the preparation of this Report [has] [have] any obligation to notify you of any change in the information contained in this Report or of any new information concerning the Publisher(s) or the Product or any other matter.

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

APPENDIX A – PRODUCT LITERATURE

A comprehensive range of literature is available from AGRU at the following links:

<https://agru.com.au/downloads/> or <https://www.agru.at/en/products/agruline-piping-systems/>

AGRULINE electro-socket fittings made of PE 100-RC

E-Coupler injection moulded
(monofilar up to OD 500 mm)
and machined
(bifilar from OD 560 – OD 1400 mm)
SDR 11 OD 20 mm – OD 900 mm
SDR 17 OD 90 mm – OD 1400 mm



E-Elbow 45°
SDR 11 OD 20 mm – OD 225 mm
Monofilar



E-Reducer
SDR 11 OD 20 mm – OD 225 mm
Monofilar



E-Elbow 90°
SDR 11 OD 20 mm – OD 225 mm
Monofilar



E-Tee
SDR 11 OD 20 mm – OD 225 mm
Monofilar



E-End Cap
SDR 11 OD 20 mm – OD 225 mm
Monofilar



Gas flow guard
SDR 11 OD 20 mm – OD 63 mm
Monofilar



E-Adaptor Socket
SDR 11 20 x 1/2 - 63 x 2
Monofilar



E-Tee reduced
SDR 17-11
OD 25/20 mm – OD 160/125 mm
Monofilar





AGRULINE fittings from PE 100-RC

AGRULINE is the piping system with the extensive range of electro-socket fittings, spigot saddles and couplers made of PE 100-RC

- enormous stress crack resistance thanks to robust PE 100-RC
- no sand embedding required, saving costs during laying
- perfectly harmonised for all AGRULINE pipes
- permanently leak-tight connections through butt, socket or electro-socket welding
- simple assembly of the electro-socket fittings thanks to chamfered inlets and long insertion depths
- simple to weld, even where little space is available or terrain is difficult



APPENDIX B - QUALITY CERTIFICATIONS

Copies of the following quality certificates are available from WSAA.

TABLE B1 AGRU KUNSTSTOFFTECHNIK GMBH – MANAGEMENT SYSTEMS

Ing Pesendorfer Strasse 31 Bad Hall Austria	
Quality Systems Standard	ISO 9001:2015
Certification Licence No.	00618/1
Certifying Agency	Quality Austria
First Date of Certification	16 November 1995
Current Date of Certification	10 April 2022
Expiry Date of Certification	11 April 2025

TABLE B2 AGRU KUNSTSTOFFTECHNIK GMBH – PRODUCT CERTIFICATION

Ing Pesendorfer Strasse 31 Bad Hall Austria	
Product Standard/Spec.	AS/NZS 4129:2020
Certificate No.	SMK21277
Issuing Certification Body	Intertek SAI Global
First Date of Certification	11 February 2014
Current Date of Certification	11 June 2024
Expiry Date of Certification	10 February 2029



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CERTIFICATE

Quality Austria - Trainings, Zertifizierungs und Begutachtungs GmbH awards this qualityaustria certificate to the following organisation:

This qualityaustria certificate confirms the application and further development of an effective



AGRU Kunststofftechnik GmbH
AT-4540 Bad Hall, Ing.-Pesendorfer-Straße 31
Plant 1-5

QUALITY MANAGEMENT SYSTEM
complying with the requirements of standard
ISO 9001:2015

Quality Austria - Trainings, Zertifizierungs und Begutachtungs GmbH is accredited according to the Austrian Accreditation Act by the BMWF (Federal Ministry of Science, Research and Economy).

Quality Austria is accredited as an organisation for environmental verification by the BMFLWF (Federal Ministry of Agriculture, Forestry, Environment and Water Management).

Quality Austria is authorized by the VDA (Association of the Automotive Industry).

For accreditation registration details please refer to the applicable decisions or recognition documents.

Quality Austria is the Austrian member of IQNet (International Certification Network).

Production and development of pipes, fittings, semi-finished products and liners for the pipe- and plant manufacturing and large seals with different plastics materials.

Registration No.: 00618/1
Date of initial issue: 16 November 1995
Valid until: 11 April 2025



The validity of the qualityaustria certificate will be maintained by annual surveillance audits and one renewal audit after three years.

Vienna, 10 April 2022



Quality Austria - Trainings, Zertifizierungs und Begutachtungs GmbH,
AT-1010 Vienna, Zelinkagasse 10/3

Signatures removed for security reasons

Mag. Christoph Mondl
General Manager

Mag. Dr. Werner Paar
General Manager

Mag. Dr. Anni Koubek
Specialist representative

Doc. No. FD_24_208
30415574-2886-4200-
5030-819860505827

The current validity of the certificate is documented exclusively on the internet under
<http://www.qualityaustria.com/en/cert> EAC: 14

STANDARDSMARK LICENCE



Intertek SAI Global hereby grants: **AGRU Kunststofftechnik GmbH**

Ing. Pesendorfer Str. 31, Bad Hall, Austria

StandardsMark Licence

Manufactured to:

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

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**Certificate No:
SMK21277**

Originally Certified:
11 February 2014

Current Certification:
11 June 2024

Issued:
11 June 2024

Expires:
10 February 2029



Calin Moldovean

President, Business Assurance

SAI Global Certification Services Pty. Ltd.
Level 7 Suite 7.01 45 Clarence Street
Sydney NSW 2000 Australia

*** For details of manufacture, refer to the licensee**

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SCHEDULE TO STANDARDSMARK LICENCE



Intertek SAI Global hereby grants: **AGRU Kunststofftechnik GmbH**

Ing. Pesendorfer Str. 31, Bad Hall, Austria

Manufactured to:

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

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

Model Identification	Model Name	Brand Name	Product Description	Product Type	Product Application	Size Classification	Pressure Classification	Joint Type	Date Endorsed
170	E-Elbow (45°)	AGRU	Electrofusion Elbow (45°) for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63, 75, 90, 110, 125, 140, 160, 180, 200, 225	PN10 gas, PN16 water	Electrofusion	10 Jun 2024
171	E-Elbow (90°)	AGRU	Electrofusion Elbow (90°) for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63, 75, 90, 110, 125, 140, 160, 180, 200, 225	PN10 gas, PN16 water	Electrofusion	10 Jun 2024
173	E-Coupler	AGRU	Electrofusion Coupling for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450, 500	PN10 gas, PN16 water, PN25 water	Electrofusion	10 Jun 2024
174	E-End Cap	AGRU	Electrofusion Endcap for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315	PN10 gas, PN16 water	Electrofusion	10 Jun 2024
175	E-Tee reduced	AGRU	Electrofusion red Tee for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	25/20, 32/20, 32/25, 40/20, 40/25, 40/32, 50/20, 50/25, 50/32, 50/40, 63/20, 63/25, 63/40, 63/50, 75/50, 75/63, 90/50, 90/63, 110/63, 110/90, 125/63, 125/90, 125/110, 160/63, 160/90, 160/110, 160/125	PN10 gas, PN16 water	Electrofusion	10 Jun 2024
176	E-Tee	AGRU	Electrofusion Tee for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63, 75, 90, 110, 125, 140, 160, 180, 200, 225	PN10 gas, PN16 water	Electrofusion	10 Jun 2024

Certificate No: SMK21277

Issued Date: 11 June 2024

This schedule supersedes all previously issued schedules

* For details of manufacture, refer to the licensee

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Model Identification	Model Name	Brand Name	Product Description	Product Type	Product Application	Size Classification	Pressure Classification	Joint Type	Date Endorsed
177	E-Reducer Concentric	AGRU	Electrofusion Reducer for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	25/20, 32/20, 32/25, 40/20, 40/25, 40/32, 50/25, 50/32, 50/40, 63/32, 63/40, 63/50, 75/50, 75/63, 90/63, 110/63, 110/90, 160/90, 160/110, 225/160	PN10 gas, PN16 water	Electrofusion	10 Jun 2024
184	E-Adaptor Socket female	AGRU	Electrofusion Threaded Female Adaptor for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63	PN10 gas, PN16 water	Electrofusion	10 Jun 2024
185	E-Adaptor Socket male	AGRU	Electrofusion Threaded Male Adaptor for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63	PN10 gas, PN16 water	Electrofusion	10 Jun 2024
186	E-Adaptor Elbow (90°) male	AGRU	Electrofusion Threaded Male Adaptor Elbow (90°) for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63	PN10 gas, PN16 water	Electrofusion	10 Jun 2024
187	E-Adaptor Elbow (90°) female	AGRU	Electrofusion Threaded Female Adaptor Elbow (90°) for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63	PN10 gas, PN16 water	Electrofusion	10 Jun 2024
188	E-Adaptor Elbow (45°) male	AGRU	Electrofusion Threaded Male Adaptor Elbow (45°) for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63	PN10 gas, PN16 water	Electrofusion	10 Jun 2024
189	E-Adaptor Elbow (45°) female	AGRU	DN20xRP1/2 Electrofusion Threaded Male Adaptor Elbow (45°) for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63	PN10 gas, PN16 water	Electrofusion	10 Jun 2024
19	Elongated Elbow (30°)	AGRU	Elongated Elbow (30°) for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	90, 110, 160	PN10, PN16	Spigot	10 Jun 2024
36	Elongated Tee (45°)	AGRU	Elongated Tee (45°) for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315	PN 10, PN16	Spigot	10 Jun 2024
373	E-coupler	AGRU	Electrofusion	Electrofusion	potable water /	1600	PN6	Electrofusion	10 Jun 2024

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Model Identification	Model Name	Brand Name	Product Description	Product Type	Product Application	Size Classification	Pressure Classification	Joint Type	Date Endorsed
	bifilar		Coupling for use with Polyethylene (PE) pipes	Fitting	sewage water / fuel gas / compressed air				
373	E-coupler bifilar	AGRU	Electrofusion Coupling for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	560, 630, 710, 800, 900	PN6, PN10, PN16	Electrofusion	10 Jun 2024
373	E-coupler bifilar	AGRU	Electrofusion Coupling for use with Polyethylene (PE) pipes	Electrofusion Fitting	potable water / sewage water / fuel gas / compressed air	1000, 1200, 1400	PN6, PN10	Electrofusion	10 Jun 2024
60	Elongated Elbow (45°)	AGRU	Elongated Elbow (45°) for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315	PN 10, PN16	Spigot	10 Jun 2024
61	Elongated Elbow (90°)	AGRU	Elongated Elbow (90°) for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315	PN 10, PN16	Spigot	10 Jun 2024
62	Elongated Stub End	AGRU	Elongated Stub Flange End for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400	PN 10, PN16	Spigot	10 Jun 2024
64	Elongated End Cap	AGRU	Elongated End Cap for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315	PN 10, PN16	Spigot	10 Jun 2024
65	Elongated Reduction Tee	AGRU	Elongated Reduction Tee for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	63/32, 75/63	PN16	Spigot	10 Jun 2024
65	Elongated Reduction Tee	AGRU	Elongated Reduction Tee for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	63/50, 75/63, 90/63, 90/75, 110/63, 110/75, 110/90, 125/75, 125/90, 125/110, 160/63, 160/75, 160/90, 160/110, 180/90, 180/110, 180/160, 200/63, 200/90, 200/110, 200/125, 200/160, 225/75, 225/90, 225/110, 225/160, 225/180, 250/50,	PN 10, PN16	Spigot	10 Jun 2024

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Model Identification	Model Name	Brand Name	Product Description	Product Type	Product Application	Size Classification	Pressure Classification	Joint Type	Date Endorsed
						250/75, 250/110, 250/160, 250/180, 250/200, 315/90, 315/110, 315/125, 315/160, 315/180, 315/225, 315/250, 355/160, 355/225, 355/250, 400/110, 400/160, 400/200, 400/225, 400/250, 400/315			
66	Elongated Tee	AGRU	DN 20 Elongated Tee for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400	PN 10, PN16	Spigot	10 Jun 2024
67	Elongated Concentric Reducer	AGRU	DN 110/63 Elongated Concentric Reducer for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	110/63, 110/90, 125/63, 125/90, 160/90, 160/110, 160/125, 200/160, 225/160, 250/160, 250/225,	PN 10, PN16, PN25	Spigot	10 Jun 2024
67	Elongated Concentric Reducer	AGRU	DN 75/63 Elongated Concentric Reducer for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	75/63, 90/63, 90/75, 140/125, 160/140, 180/125, 180/160, 250/200, 280/250, 315/200, 315/225, 315/250	PN10, PN16	Spigot	10 Jun 2024
67	Elongated Concentric Reducer	AGRU	DN 25/20 Elongated Concentric Reducer for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	25/20, 32/20, 32/25, 40/20, 40/25, 40/32, 50/25, 50/32, 50/40, 63/32, 63/40, 63/50, 75/50	PN 10, PN16	Spigot	10 Jun 2024
68	MULTI Bend (90°)	AGRU	DN 20 Multi Bend (90°) for use with Polyethylene (PE) pipes	MULTI Fitting	potable water / sewage water / fuel gas / compressed air	20, 25, 32, 40, 50, 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400	PN 10, PN16	Spigot	10 Jun 2024
69	Reducer Excentric	AGRU	DN 63/50 Elongated Excentric Reducer for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	63/50, 75/50, 75/63, 90/63, 90/75, 110/63, 110/90, 125/63, 125/90, 125/110, 140/125,	PN10, PN16	Spigot	10 Jun 2024

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						160/90, 160/110, 160/125, 160/140, 180/90, 180/125, 200/160, 200/180, 225/160, 225/180, 225/200, 250/200, 250/225,			
69	Reducer Eccentric	AGRU	DN 25/20 Elongated Eccentric Reducer for use with Polyethylene (PE) pipes	Elongated Fitting	potable water / sewage water / fuel gas / compressed air	25/20, 32/25, 40/25, 40/32, 50/32, 63/32, 63/40,	PN 10, PN16	Spigot	10 Jun 2024

End of Record

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APPENDIX C - SUPPLIER CONTACTS

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