Iplex Pipelines Australia Pty Limited

PRODUCT APPRAISAL REPORT 2125

Poliplex® PE112 Polyethylene (PE) Pipe

AS/NZS 4130:2018 Polyethylene (PE) pipes for pressure applications

Published: 20 September 2023

Document History

The following information indicates the changes made to this document.

Date	Version
5 September 2023	Client Review
6 September 2023	Peer Review
20 September 2023	Publication

Peer Reviewers

Name/Title	Organisation	Date
Product Appraisal Technical Advisory Group	WSAA	20 September 2023
WSAA Expert Panel	WSAA	20 September 2023
Peter Pittard, WSAA Consultant	WSAA	5 September 2023
Carl Radford, Product Appraisal Manager	WSAA	20 September 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

Iplex Pipelines Australia Pty Limited is a long-established Australian manufacturer and supplier of pipeline products to the water and gas industries. Fletcher Building Industries Ltd acquired the business in 2011.

This Appraisal is for a range of Poliplex® Polyethylene Series 1 PE112 plain wall pipes manufactured in sizes from DN 16 to DN 2000 with pressure classifications from PN4 to PN32 (depending on size) in accordance with the requirements of AS/NZS 4130:2018 – *Polyethylene (PE) pipes for pressure applications*.

The ongoing development of polyethylene material compounds, since HDPE pipes were first introduced into the world in the late 1950's, has progressively improved the performance of PE pipes. SCG has developed a PE112 compound, H112PC, with a higher Minimum Required Strength (MRS = 11.2MPa) than PE100 (MRS = 10.0MPa). This compound meets the PE100 requirements of AS/NZS 4131 *Polyethylene (PE) compounds for pressure pipes and fittings.* PE112 compounds are not included in the Scope of that Standard.

The higher strength PE112 compound allows pipes with the same pressure classification to be manufactured with a reduced wall thickness, when compared to PE100, thereby providing increased bore size and improved flows. PE112 pipes also exhibit improved resistance to slow crack growth which is considered particularly advantageous for pipe rehabilitation techniques including die reduction lining*, pipe bursting, directional drilling and slip lining.

* See Sections 3 and 7 for further details.

Pipes up to DN 140 can be supplied in coil lengths up to 100m depending on size and pressure classification. Larger sizes are typically available in 12 m lengths, although longer lengths can be supplied by arrangement.

Poliplex PE112 pipes are available as black with blue, purple or cream stripes for drinking water, non-drinking water and pressure sewer applications respectively.

Iplex Pipelines Australia Pty Limited has Quality Management System certification to ISO 9001:2015 covering Iplex's Bohle (Townsville QLD) and Thurgoona (Albury NSW) sites.

The PE112 pipe range is not included within the Iplex AS/NZS 4130 ISO Type 5 StandardsMark Product Certification as they cannot be product certified to AS/NZS 4130. This is because PE112 compounds are not included in the Scope of AS/NZS 4131 and whilst AS/NZS 4130 does not nominate specific compound strengths within its Scope, the data provided within that Standard only references PE80 and PE100 compounds. However, AS/NZS 4130 Appendix D *Dimensional requirements of pipes for special applications* provides a method to calculate wall thickness requirements for pipes manufactured using PE compounds with alternative MRS values. Iplex has provided documentation to demonstrate compliance of PE112 material with the requirements of AS/NZS 4131 for PE100 compounds and the pipe with the requirements of AS/NZS 4130 for PE112 classification.

This Appraisal has determined that Iplex PE112 pipes meet the requirements of WSA PS 207 – *Polyethylene (PE) Pipes for Pressure Applications – Water Supply and Sewerage* and WSA PS 215 – *Polyethylene (PE) Property Service Pipes for Pressure Applications – Water Supply* (recognising that the PE112 compound has a higher MRS than PE100) 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 Iplex Poliplex PE112 pipes for pressure water supply and sewerage applications provided the design, installation, acceptance testing and operation are in accordance with the appropriate WSAA Codes, including WSAA member integrated Codes, nominated Australian Standards and manufacturer's requirements.

2 THE APPLICANT

The Applicant is Iplex Pipelines Australia Pty Limited.

2.1 The Manufacturer and Supplier

Iplex Pipelines Australia Pty Limited is a long-established Australian manufacturer and supplier of pipeline products to the water and gas industries. Iplex offers pipeline products for applications including water, sewerage, plumbing, irrigation, mining slurry, gas, and telecommunications and electrical conduits manufactured from a diverse range of polymers and metals including PVC, PE, PP, GRP and DI.

Iplex is a wholly owned business unit of Fletcher Building Industries Limited. The company has manufacturing operations in Innisfail, Townsville, Brisbane, Sydney, Albury, and Adelaide and with sales and distribution centres located in every state of Australia.

The PE112 pipe range is manufactured at Iplex's Bohle (Townsville QLD) and Thurgoona (Albury NSW) sites.

3 THE PRODUCT

This Appraisal is for a range of Poliplex® polyethylene Series 1 PE112 plain wall pipes manufactured in sizes from DN 16 to DN 2000 with pressure classifications from PN4 to PN32 (depending on size) in accordance with AS/NZS 4130:2018 – *Polyethylene (PE) pipes for pressure applications*.

The ongoing development of polyethylene material compounds, since HDPE pipes were first introduced into the world in the late 1950's, has progressively improved the performance of PE pipes. SCG has developed a PE112 compound, H112PC, with a higher minimum required strength (MRS = 11.2MPa) than PE100 (MRS = 10.0MPa). This compound meets the requirements of AS/NZS 4131 *Polyethylene (PE) compounds for pressure pipes and fittings,* although PE112 compounds are not included in the Scope of that Standard.

The higher strength PE112 compound allows pipes with the same pressure classification to be manufactured with a reduced wall thickness, when compared to PE100, thereby providing increased bore size and improved flows. PE112 pipes also exhibit improved resistance to slow crack growth which is considered particularly advantageous for pipe rehabilitation techniques including die reduction lining, pipe bursting, directional drilling and slip lining.

Iplex also offers DN 100 and DN 150 PE112 pipe with outside diameters of nominal 100mm and 150mm respectively to better suit the die reduction lining process for AC pipes.

Die reduction lining is a process that facilitates insertion of a PE pipe into the host pipe to be rehabilitated by passing it through a reducing die whilst under tension. After the PE pipe is pulled through, the tension is released and the PE pipe forms a tight liner within the host pipe. The PE pipe not only provides a smooth inner surface but also serves as an independent structural pipe. See Section 7 for further details.

Pipes up to DN 140 can be supplied in coil lengths up to 100m depending on size and pressure classification. Larger sizes are typically available in 12 m lengths, although longer lengths can be supplied by arrangement.

Poliplex PE112 pipes are available as black with blue, purple or cream stripes for drinking water, non-drinking water and pressure sewer applications respectively.

Poliplex PE112 pipes exhibit the same attributes as PE100 pipes in respect to outside diameters, material mass, handling, pressure ratings and weldability except that they have slightly reduced wall thicknesses. Wall thicknesses are calculated from AS/NZS 4130 Appendix D *Dimensional requirements of pipes for special applications.* See Appendix A for details.

PE compatible fittings including couplings, tapping bands and off-take clamps that are used with PE100 pipe are also suitable for PE112 pipe based on compatible Series 1 outside diameters.

Where non-standard pipe OD's are utilised, only wide tolerance PE compatible fittings are considered suitable. Refer to Iplex for guidance.

Normal electrofusion and butt-welding techniques may be employed when joining PE112 pipes. However, when butt welding PE112 pipe to PE100 pipe, specially manufactured PE adaptor pieces are required to compensate for the different outside diameters.

4 SCOPE OF THE APPRAISAL

This scope of this appraisal is for a range of Poliplex Polyethylene Series 1 PE112 plain wall pipes manufactured in sizes from DN 16 to DN 2000 with pressure classifications from PN4 to PN32 (depending on size) as detailed in Appendix A.

5 APPRAISAL CRITERIA

5.1 Quality Assurance Requirements

The WSAA Product Appraisal Technical Advisory Group accepts PE 100 pipes manufactured in compliance with AS/NZS 4130:2018 *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 Certification Assessment Body (CAB) or by an international accreditation system recognised by JAS-ANZ.

The PE112 pipe range is not included within the Iplex AS/NZS 4130 ISO Type 5 StandardsMark Product Certification as they cannot be product certified to AS/NZS 4130. This is because PE112 compounds are not included in the Scope of AS/NZS 4131 and whilst AS/NZS 4130 does not nominate specific compound strengths within its Scope, the data provided within that Standard only references PE80 and PE100 compounds. However, AS/NZS 4130 Appendix D *Dimensional requirements of pipes for special applications* provides a method to calculate wall thickness requirements for pipes manufactured using PE compounds with alternative MRS values. Iplex has provided documentation to demonstrate compliance of PE112 material with the requirements of AS/NZS 4131 for PE100 compounds and the pipe with the requirements of AS/NZS 4130 for PE112 classification.

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.

5.2 Performance Requirements

Iplex Poliplex PE112 pipe has been appraised for compliance with the requirements of AS/NZS 4130:2018 – *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 Specifications are also relevant to this application:

- WSA PS 207 – *Polyethylene (PE) Pipes for Pressure Applications – Drinking Water, Non-Drinking Water Supply and Sewerage*
- WSA PS 215 – *Polyethylene Pipe (PE) Property Service Pipes (PE) Pipes for Pressure Applications – Drinking Water and Non-Drinking Water Supply*

Copies of the Product Specifications are 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

Iplex has submitted the following quality certificates:

- ISO 9001:2015 Certificate of Registration No. QEC0037 including the Thurgoona and Bohle sites issued to Iplex Pipelines Australia Pty Limited by SAI-Global.
- AS 4130:2018 ISO Type 5 StandardsMark Product Certification Licence No. SMKP20088 for the Thurgoona and Bohle sites issued to Iplex Pipelines Australia Pty Limited by SAI-Global. (Note:PE112 pipe is not included in the product schedule. See section 5.1)

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 Polyethylene (PE) compounds

SCG HDPE H112PC compound is listed in PIPA POP004 as compliant with AS/NZS 4131 and POP013 *Temperature re-rating of PE pipes*, based on PE100 criteria.

Iplex has submitted a copy of a test report completed by Exova Materials Technology in Sweden (SWEDAC accredited to ISO/IEC 17025) to determine the long-term hydrostatic strength of the SCG H112PC compound in accordance with ISO 9080. The tests verify a minimum required strength (MRS) of 11.2 MPa and the compound is therefore designated as PE112 in accordance with ISO 12162.

6.2.2 Type Tests

Iplex has submitted copies of Type Test reports undertaken by Iplex Pipelines Technical Centre Laboratory (NATA Accreditation No 1838) to demonstrate compliance of their Poliplex PE112 pipes with the performance requirements of AS/NZS 4130, adjusted appropriately to reflect the higher material strength.

6.2.2.1 *Resistance to Internal Pressure*

AS/NZS 4130 specifies that PE100 pipe is to be tested at 80^0C for a minimum of 165 hours with an applied stress of 5.4MPa and for a minimum of 1000 hours with an applied stress of 5.0 MPa. Based on the ISO 9080 tests undertaken for the H112PC material, at 80^0C an applied stress of 5.8MPa is the lower prediction limit for 165 hours to be exceeded and 5.6MPa for 1000 hours. A resistance to internal pressure test (Test Report No 504N Issue 3) was undertaken on a DN 110 PN12.5 SDR15 PE112 pipe at 80^0C for 5211 hours at an applied stress of 5.85MPa. A resistance to internal pressure test (Test Report No 527) was also undertaken on a DN 225 PN16 SDR12 PE112 pipe at 80^0C for 263 hours at an applied stress of 5.85MPa and 5809 hours at an applied stress of 5.4MPa.

6.2.2.2 *Reversion*

A reversion test (Test Report No 504N Issue 3) undertaken on a test sample taken from a DN 110 PN12.5 SDR15 PE112 pipe measured the maximum reversion at 2.3%. The ASNZS 4130 requirement is that the calculated reversion shall not exceed 3%.

6.2.2.3 *Thermal stability*

A thermal stability test (Test Report No 504N Issue 3) completed on a specimen taken from the inside surface of a DN 110 PN12.5 SDR15 PE112 pipe demonstrated an oxygen induction time of more than 61 minutes at 210^0C. The ASNZS 4130 requirement is for the oxidation induction time to be equal to or greater than 20 minutes at 200^0C.

6.2.2.4 *Slow crack growth resistance*

AS/NZS 4130 specifies that when a PE100 SDR11 pipe is tested for 500 hours at 920kPA the pipe shall not rupture. A slow crack growth resistance test (Exova Report No P-15/10) undertaken on a DN 110 SDR11 PE112 pipe at 920kPa demonstrated a minimum time to failure of 3713 hours.

The type tests undertaken by Iplex are deemed to meet the performance requirements of PE112 pipe.

6.2.3 Suitability for contact with drinking water

The SCG H112PC compound is listed in PIPA POP004 as complying with AS/NZS 4020. A copy of a test report from AWQC dated 9th November 2020 to demonstrate compliance of SCG H112PC to AS/NZS 4020:2018 is also held on file by WSAA.

6.2.4 Colour coding

Poliplex PE112 pipes are coloured in compliance with AS/NZS 4130 as follows:

(a) Solid black pipe with blue stripes no darker than RAL 5012 for drinking water applications.

(b) Solid black pipe with purple stripes no lighter than RAL 310 70 15 nor darker than RAL 330 40 40 or RAL 310 50 30 for non-drinking water applications.

(c) Solid black pipe with cream stripes no lighter than RAL 080 90 20 nor darker than RAL 075 80 20 for pressure sewer applications.

6.2.5 Batch release tests

The Batch Release Test requirements of AS/NZS 4130:2018 Amdt 1:2020 requires a thermal stability test to be undertaken at commencement of production of a batch and at a maximum frequency of 24 hours thereafter. The Standard also requires that clean rework generated from the manufacturers own production of pipe may be used if it is derived from the same grade of resin as used for the relevant production. In such cases the manufacturer shall treat this run as a new batch.

Iplex has provided a copy of their procedures to verify compliance to these requirements.

7 FITTING INSTRUCTIONS, TRAINING, AND INSTALLATION

PE100 pipe has been commonly used in the Australian water industry for many years. The handling, installation and operation of Poliplex PE112 pipes is the same as PE100 pipe except for some specific joining requirements.

The properties of PE112 pipes compared to PE100 pipes allows increased resistance to external surface damage and slow crack growth together with improved wear resistance and reduced wall thickness for the same pressure classification. These qualities make the pipes well suited for such applications as die reduction lining, pipe bursting, directional drilling and slip lining in addition to conventional pipelaying

Die reduction lining projects have been undertaken by Interflow Pty Ltd utilising Iplex Poliplex PE112 pipes (manufactured specifically for Interflow utilising the brand name Titeflow®) for their RediFlow process. The die reduction lining process facilitates insertion of a PE pipe into the host pipe to be rehabilitated by passing it through a reducing die whilst under tension. After the PE pipe is pulled through, the tension is released and the PE pipe forms a tight liner within the host pipe. The PE pipe not only provides a smooth inner surface but also serves as an independent structural pipe.

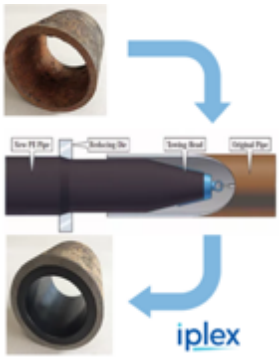

FIGURE 1 DIE REDUCTION LINING PROCESS

Both butt welding and electrofusion welding equipment and conditions are the same for joining PE112 pipe to PE112 and PE100 pipe to PE100 pipe. However, when butt welding PE112 pipe to PE100 pipe it is necessary to use PE adaptors to compensate for the different wall thicknesses of the pipes to be joined.

The adaptors are machined pieces of PE112 pipe with a PE112 equivalent wall thickness on one side and an equivalent PE100 wall thickness on the other. See Figure 2.

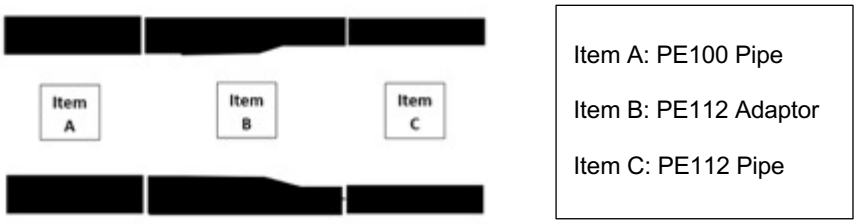

FIGURE 2 EXAMPLE OF ADAPTOR USED FOR JOINING PE112 TO PE100 PIPES

PE compatible fittings including couplings, tapping bands and off-take clamps that are used with PE100 pipe are also suitable for PE112 pipe based on compatible Series 1 outside diameters.

Where non-standard pipe OD's are utilised, only wide tolerance PE compatible fittings are considered suitable. Refer to Iplex for guidance.

For specific design and installation information relating to PE pressure pipelines refer to the WSAA Polyethylene Pipeline Code - WSA 01 available at the WSAA web site www.wsaa.asn.au or AS/NZS 2033:2008 *Installation of polyethylene pipe systems*.

Electrofusion welding, butt fusion and mechanical compression fittings may be used for joining pipe-to-pipe or fitting-to-pipe. All welding shall be performed by welders who have successfully completed training by a Registered Training Organisation, endorsed by the Plastics Industry Pipe Association for the relevant welding method(s).

The Plastics Industry Pipe Association provides technical guidelines for jointing in the following documents.

POP001 *Electrofusion Jointing of Pipe and fittings for Pressure Applications.*

POP003 *Butt Fusion Jointing of PE Pipes and Fittings – Recommended Parameters.*

POP001 contains recommendations for equipment required, for jointing, maintenance, servicing and calibration procedures, records to be kept and the training program to be respected to produce good fusion joints in polyethylene pipes.

POP003 is a guide to the butt fusion of polyethylene pipe using AS/NZS 4130 material as a basis, recommending the butt fusion procedures and parameters as specified in ISO 21307.

Copies of these documents can be downloaded from the PIPA website at www.pipa.com.au

Further information relevant to the transporting, handling and installation of Poliplex pipes is available in relevant technical documents available at www.iplex.com.au

8 PRODUCT MARKING

Poliplex PE112 Pipes are marked in accordance with the requirements of AS/NZS 4130:2018 as follows:

- Product Code: e.g., PBJ15110100
- Manufacturer or Product Name: IPLEX, POLIPLEX BLUELINE or TITEFLOW BLUELINE

- Series: S1
- Dimensions: e.g., DN110
- Pressure: e.g., PN12.5
- SDR: e.g., SDR15
- Pipe Material: H112
- Date of manufacture: yymmdd hh:mm
- Place of manufacture: e.g., 3A03
- The standard number: AS/NZS 4130
- Application information: e.g., RECYCLED WATER – DO NOT DRINK or PUMP SEWAGE – DO NOT DRINK as appropriate.

Example:

PBJ15110100 TITEFLOW ® S1 H112 BLUELINE DN110 PN12.5 SDR15 PE112 {yymmdd} {hh} 3A03

9 PACKAGING AND TRANSPORTATION

Packaging and transportation of PE112 pipe is the same as for PE100 pipe. Additional information on transportation, storage and handling is available in AS/NZS 2033 *Installation of polyethylene pipe systems,* PIPA POP005 *Packaging, Handling and Storage of Polyethylene Pipes and Fittings* and PIPA TN002 *Weathering of PE pipes.*

10 PRODUCT WARRANTY

The products are covered by the normal commercial and legal requirements of the *Competition and Consumer Act 2011 (Cth)*, which covers manufacture to the relevant standard, and details of Iplex's warranty is included in their terms and conditions of sale.

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

This Appraisal is a re-requisite to obtaining water agency acceptance.

A successful installation was undertaken on behalf of Unity Water in July 2021 where a DN 100 Asbestos Cement main in Carol Anne Crescent, Narangba was rehabilitated using DN 110 PN12.5 PE112 pipe. The installation was undertaken using the Interflow RediFlow die reduction lining process. A letter of sponsorship from Unity Water is attached in Appendix C.

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, Phone: 03 8605 7601 email carl.radford@wsaa.asn.au.

14.1 Issue of Report

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

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

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.

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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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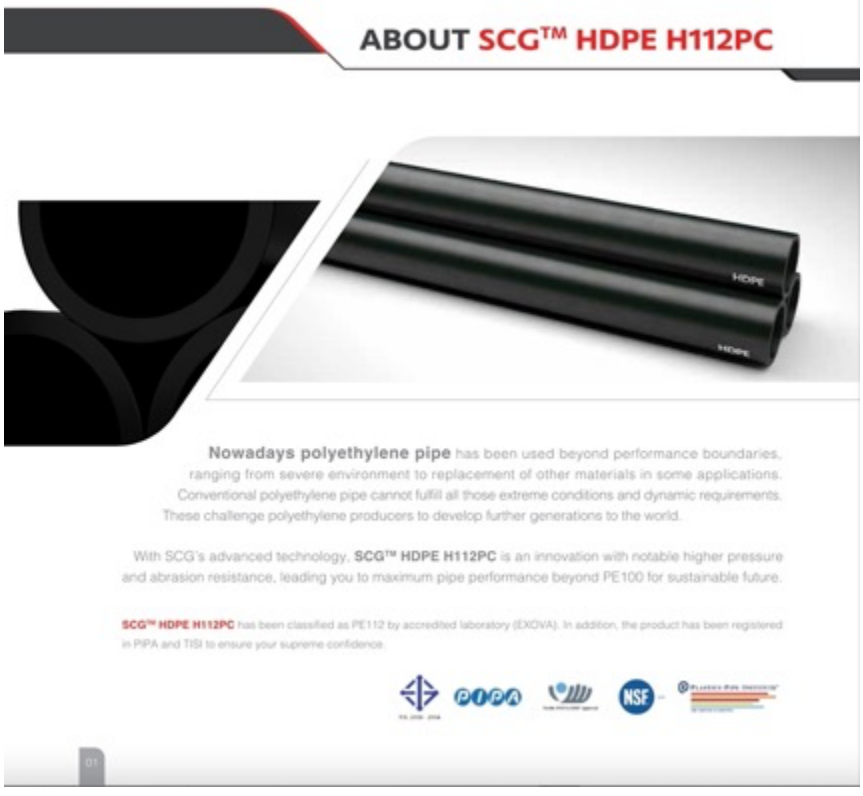
14.4 No Warranty

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

Selected pages of the SCG Brochure for HDPE H112PC compound are included below. Further details are available at:
https://www.scgchemicals.com/en/products-services/product-type/pe/hdpe/grade/h112pc



THE INNOVATION
FOR SUSTAINABLE FUTURE

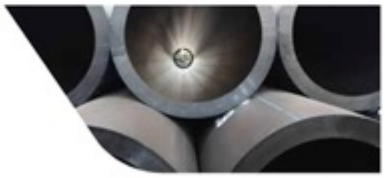
Chemicals Business, SCG is committed to do the business along continuous innovation creating for better living and sustainable development. We strive to add value for our customers, employees, and all stakeholders based on world-class standards that align with good corporate governance and environmental standards.

Customer Values

SCG™ HDPE H112PC is not only material innovation beyond PE100, it also creates a number of benefits to customers including, installation process, and cost efficiency.

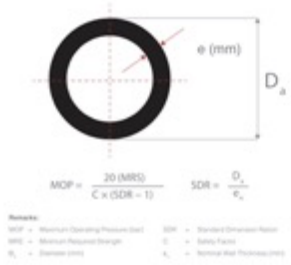
Sustainable Development

SCG™ HDPE H112PC is created through the research and development superior strength performance, providing longer life time service than traditional PE100, resulting in less material consumption for sustainable future.



02

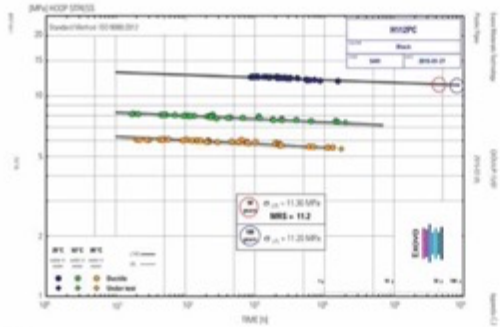
SCG™ HDPE H112PC
Key Benefits : 10% Higher Pressure Withstanding



Basically, the operating pressure is aligned with thickness and strength of materials as shown in this equation. With MRS 11.2 MPa of **SCG™ HDPE H112PC**, the operating pressure is 10% higher than conventional PE100.

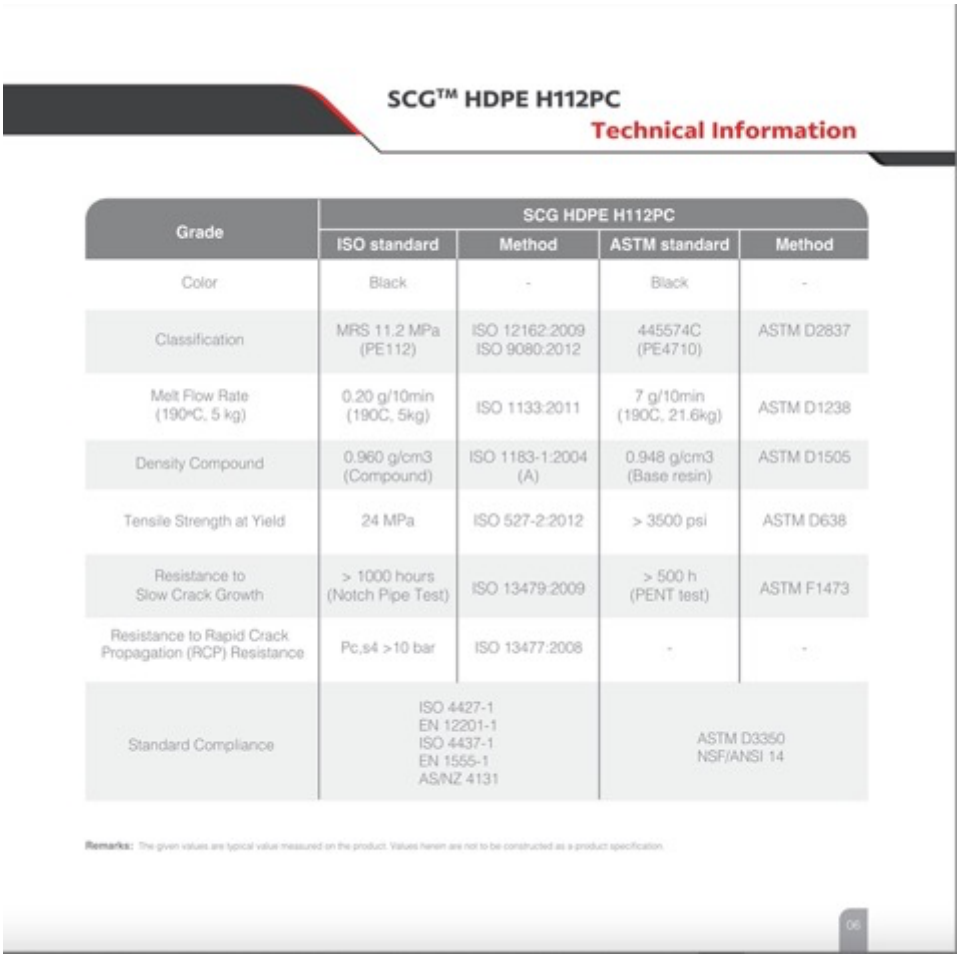
- 10% Thickness Reduction
- Faster Welding Installation
- More Hydraulic Flow Volume
- Improve Project Efficiency

REGRESSION ANALYSIS ACCORDING TO ISO 9080
OF THE BLACK PE PIPE COMPOUND SCG™ HDPE H112PC



CLASSIFICATION
MRS = 11.2 MPa

03



SCG™ HDPE H112PC
Technical Information

Grade	SCG HDPE H112PC			
	ISO standard	Method	ASTM standard	Method
Color	Black	-	Black	-
Classification	MRS 11.2 MPa (PE112)	ISO 12162:2009 ISO 9080:2012	445574C (PE4710)	ASTM D2837
Melt Flow Rate (190°C, 5 kg)	0.20 g/10min (190C, 5kg)	ISO 1133:2011	7 g/10min (190C, 21.6kg)	ASTM D1238
Density Compound	0.960 g/cm3 (Compound)	ISO 1183-1:2004 (A)	0.948 g/cm3 (Base resin)	ASTM D1505
Tensile Strength at Yield	24 MPa	ISO 527-2:2012	> 3500 psi	ASTM D638
Resistance to Slow Crack Growth	> 1000 hours (Notch Pipe Test)	ISO 13479:2009	> 500 h (PENT test)	ASTM F1473
Resistance to Rapid Crack Propagation (RCP) Resistance	Pc,s4 >10 bar	ISO 13477:2008	-	-
Standard Compliance	ISO 4427-1 EN 12201-1 ISO 4437-1 EN 1555-1 AS/NZ 4131		ASTM D3350 NSF/ANSI 14	

Remarks: The given values are typical value measured on the product. Values herein are not to be constructed as a product specification.

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Outside Diameter (min)	Presure Rating @ 20 Degs C Water	Standard Dimension Ratio	Outside Diameter (max)	Outside Diameter (Avg)	Ovality	Wall thickness	Wall Thickness	Wallt Thickness	Max Design Operating Pressure	Minimum Mean Outside Diameter	MRS / C	Minimum Required Strength	Overall Service (Design) Coefficient	Radius	Anulus Radius	Weight per Metre
OD (min)	Pn	SDR	OD (max)	OD (avg)	O (mm)	T (min)	T (max)	T (avg)	P (Mpa)	Dm (min)	S	MRS (Mpa)	C	(mm)	(mm)	Wght/m (Avg) (kg)
16	12.5	15	16.3	16.2	1.2	1.0	1.2	1.1	1.25	16.0	8.96	11.2	1.25	8.08	6.93	0.05
16	16	12	16.3	16.2	1.2	1.3	1.5	1.4	1.6	16.0	8.96	11.2	1.25	8.08	6.65	0.06
16	20	10	16.3	16.2	1.2	1.6	1.9	1.7	2	16.0	8.96	11.2	1.25	8.08	6.34	0.08
16	25	8	16.3	16.2	1.2	2.0	2.3	2.1	2.5	16.0	8.96	11.2	1.25	8.08	5.97	0.09
16	32	tba	16.3	16.2	1.2	2.4	2.8	2.6	3.2	16.0	8.96	11.2	1.25	8.08	5.48	0.11
20	10	19	20.3	20.2	1.2	1.1	1.3	1.2	1	20.0	8.96	11.2	1.25	10.08	8.92	0.07
20	12.5	15	20.3	20.2	1.2	1.3	1.5	1.4	1.25	20.0	8.96	11.2	1.25	10.08	8.66	0.08
20	16	12	20.3	20.2	1.2	1.6	1.9	1.8	1.6	20.0	8.96	11.2	1.25	10.08	8.30	0.10
20	20	10	20.3	20.2	1.2	2.0	2.3	2.2	2	20.0	8.96	11.2	1.25	10.08	7.92	0.12
20	25	8	20.3	20.2	1.2	2.4	2.8	2.6	2.5	20.0	8.96	11.2	1.25	10.08	7.45	0.14
20	32	tba	20.3	20.2	1.2	3.0	3.4	3.2	3.2	20.0	8.96	11.2	1.25	10.08	6.84	0.16
25	10	19	25.3	25.2	1.2	1.3	1.6	1.4	1	25.0	8.96	11.2	1.25	12.58	11.14	0.10
25	12.5	15	25.3	25.2	1.2	1.6	1.9	1.8	1.25	25.0	8.96	11.2	1.25	12.58	10.81	0.12
25	16	12	25.3	25.2	1.2	2.0	2.4	2.2	1.6	25.0	8.96	11.2	1.25	12.58	10.37	0.15
25	20	10	25.3	25.2	1.2	2.5	2.9	2.7	2	25.0	8.96	11.2	1.25	12.58	9.89	0.18
25	25	8	25.3	25.2	1.2	3.1	3.5	3.3	2.5	25.0	8.96	11.2	1.25	12.58	9.31	0.21
25	32	tba	25.3	25.2	1.2	3.8	4.3	4.0	3.2	25.0	8.96	11.2	1.25	12.58	8.55	0.26
32	10	19	32.3	32.2	1.3	1.7	2.0	1.8	1	32.0	8.96	11.2	1.25	16.08	14.25	0.17
32	12.5	15	32.3	32.2	1.3	2.1	2.4	2.2	1.25	32.0	8.96	11.2	1.25	16.08	13.83	0.20
32	16	12	32.3	32.2	1.3	2.6	3.0	2.8	1.6	32.0	8.96	11.2	1.25	16.08	13.27	0.25
32	20	10	32.3	32.2	1.3	3.2	3.6	3.4	2	32.0	8.96	11.2	1.25	16.08	12.65	0.30
32	25	8	32.3	32.2	1.3	3.9	4.4	4.2	2.5	32.0	8.96	11.2	1.25	16.08	11.91	0.35
32	32	tba	32.3	32.2	1.3	4.8	5.4	5.1	3.2	32.0	8.96	11.2	1.25	16.08	10.93	0.42
40	8	23.4	40.4	40.2	1.4	1.7	2.0	1.8	0.8	40.0	8.96	11.2	1.25	20.10	18.26	0.21
40	10	19	40.4	40.2	1.4	2.1	2.4	2.3	1	40.0	8.96	11.2	1.25	20.10	17.83	0.26
40	12.5	15	40.4	40.2	1.4	2.6	3.0	2.8	1.25	40.0	8.96	11.2	1.25	20.10	17.31	0.31
40	16	12	40.4	40.2	1.4	3.3	3.7	3.5	1.6	40.0	8.96	11.2	1.25	20.10	16.61	0.38
40	20	10	40.4	40.2	1.4	4.0	4.5	4.3	2	40.0	8.96	11.2	1.25	20.10	15.83	0.46
40	25	8	40.4	40.2	1.4	4.9	5.5	5.2	2.5	40.0	8.96	11.2	1.25	20.10	14.91	0.55
40	32	tba	40.4	40.2	1.4	6.1	6.8	6.4	3.2	40.0	8.96	11.2	1.25	20.10	13.69	0.65
50	8	23.4	50.5	50.3	1.4	2.1	2.5	2.3	0.8	50.0	8.96	11.2	1.25	25.13	22.83	0.33
50	10	19	50.5	50.3	1.4	2.6	3.0	2.8	1	50.0	8.96	11.2	1.25	25.13	22.30	0.40
50	12.5	15	50.5	50.3	1.4	3.3	3.7	3.5	1.25	50.0	8.96	11.2	1.25	25.13	21.65	0.49
50	16	12	50.5	50.3	1.4	4.1	4.6	4.4	1.6	50.0	8.96	11.2	1.25	25.13	20.77	0.60
50	20	10	50.5	50.3	1.4	5.0	5.6	5.3	2	50.0	8.96	11.2	1.25	25.13	19.80	0.72
50	25	8	50.5	50.3	1.4	6.1	6.8	6.5	2.5	50.0	8.96	11.2	1.25	25.13	18.65	0.85

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Outside Diameter (min)	Presure Rating @ 20 Degs C Water	Standard Dimension Ratio	Outside Diameter (max)	Outside Diameter (Avg)	Ovality	Wall thickness	Wall Thickness	Wallt Thickness	Max Design Operating Pressure	Minimum Mean Outside Diameter	MRS / C	Minimum Required Strength	Overall Service (Design) Coefficient	Radius	Anulus Radius	Weight per Metre
50	32	tba	50.5	50.3	1.4	7.6	8.4	8.0	3.2	50.0	8.96	11.2	1.25	25.13	17.12	1.01
63	6.3	29.7	63.6	63.3	1.5	2.1	2.5	2.3	0.63	63.0	8.96	11.2	1.25	31.65	29.35	0.42
63	8	23.4	63.6	63.3	1.5	2.7	3.1	2.9	0.8	63.0	8.96	11.2	1.25	31.65	28.77	0.52
63	10	19	63.6	63.3	1.5	3.3	3.8	3.5	1	63.0	8.96	11.2	1.25	31.65	28.10	0.64
63	12.5	15	63.6	63.3	1.5	4.1	4.6	4.4	1.25	63.0	8.96	11.2	1.25	31.65	27.29	0.77
63	16	12	63.6	63.3	1.5	5.2	5.8	5.5	1.6	63.0	8.96	11.2	1.25	31.65	26.18	0.95
63	20	10	63.6	63.3	1.5	6.3	7.1	6.7	2	63.0	8.96	11.2	1.25	31.65	24.96	1.14
63	25	8	63.6	63.3	1.5	7.7	8.6	8.1	2.5	63.0	8.96	11.2	1.25	31.65	23.50	1.35
63	32	tba	63.6	63.3	1.5	9.5	10.6	10.1	3.2	63.0	8.96	11.2	1.25	31.65	21.58	1.61
75	6.3	29.7	75.7	75.4	1.6	2.5	2.9	2.7	0.63	75.0	8.96	11.2	1.25	37.68	34.95	0.59
75	8	23.4	75.7	75.4	1.6	3.2	3.6	3.4	0.8	75.0	8.96	11.2	1.25	37.68	34.26	0.74
75	10	19	75.7	75.4	1.6	4.0	4.5	4.2	1	75.0	8.96	11.2	1.25	37.68	33.46	0.90
75	12.5	15	75.7	75.4	1.6	4.9	5.5	5.2	1.25	75.0	8.96	11.2	1.25	37.68	32.49	1.09
75	16	12	75.7	75.4	1.6	6.1	6.9	6.5	1.6	75.0	8.96	11.2	1.25	37.68	31.17	1.34
75	20	10	75.7	75.4	1.6	7.5	8.4	8.0	2	75.0	8.96	11.2	1.25	37.68	29.72	1.61
75	25	8	75.7	75.4	1.6	9.2	10.2	9.7	2.5	75.0	8.96	11.2	1.25	37.68	27.98	1.91
75	32	tba	75.7	75.4	1.6	11.4	12.6	12.0	3.2	75.0	8.96	11.2	1.25	37.68	25.69	2.28
90	6.3	29.7	90.9	90.5	1.8	3.1	3.5	3.3	0.63	90.0	8.96	11.2	1.25	45.23	41.97	0.85
90	8	23.4	90.9	90.5	1.8	3.8	4.3	4.1	0.8	90.0	8.96	11.2	1.25	45.23	41.14	1.06
90	10	19	90.9	90.5	1.8	4.8	5.3	5.0	1	90.0	8.96	11.2	1.25	45.23	40.18	1.29
90	12.5	15	90.9	90.5	1.8	5.9	6.6	6.2	1.25	90.0	8.96	11.2	1.25	45.23	39.01	1.57
90	16	12	90.9	90.5	1.8	7.4	8.2	7.8	1.6	90.0	8.96	11.2	1.25	45.23	37.43	1.93
90	20	10	90.9	90.5	1.8	9.0	10.0	9.5	2	90.0	8.96	11.2	1.25	45.23	35.69	2.32
90	25	8	90.9	90.5	1.8	11.0	12.2	11.6	2.5	90.0	8.96	11.2	1.25	45.23	33.61	2.75
90	32	tba	90.9	90.5	1.8	13.6	15.1	14.4	3.2	90.0	8.96	11.2	1.25	45.23	30.86	3.28
100	12.5	15	101.0	100.5	2.0	6.5	7.3	6.9	1.25	100.0	8.96	11.2	1.25	50.24	43.34	1.94
100	16	12	101.0	100.5	2.0	8.2	9.1	8.7	1.6	100.0	8.96	11.2	1.25	50.24	41.58	2.38
110	4	45.5	111.0	110.5	2.2	2.4	2.7	2.6	0.4	110.0	8.96	11.2	1.25	55.25	52.68	0.83
110	6.3	29.7	111.0	110.5	2.2	3.7	4.2	4.0	0.63	110.0	8.96	11.2	1.25	55.25	51.28	1.27
110	8	23.4	111.0	110.5	2.2	4.7	5.3	5.0	0.8	110.0	8.96	11.2	1.25	55.25	50.26	1.58
110	10	19	111.0	110.5	2.2	5.8	6.5	6.2	1	110.0	8.96	11.2	1.25	55.25	49.10	1.93
110	12.5	15	111.0	110.5	2.2	7.2	8.0	7.6	1.25	110.0	8.96	11.2	1.25	55.25	47.67	2.34
110	16	12	111.0	110.5	2.2	9.0	10.0	9.5	1.6	110.0	8.96	11.2	1.25	55.25	45.73	2.88
110	20	10	111.0	110.5	2.2	11.0	12.2	11.6	2	110.0	8.96	11.2	1.25	55.25	43.60	3.45
110	25	8	111.0	110.5	2.2	13.5	14.9	14.2	2.5	110.0	8.96	11.2	1.25	55.25	41.06	4.10
110	32	tba	111.0	110.5	2.2	16.7	18.4	17.6	3.2	110.0	8.96	11.2	1.25	55.25	37.70	4.89
125	4	45.5	126.2	125.6	2.5	2.7	3.1	2.9	0.4	125.0	8.96	11.2	1.25	62.80	59.88	1.07
125	6.3	29.7	126.2	125.6	2.5	4.2	4.8	4.5	0.63	125.0	8.96	11.2	1.25	62.80	58.29	1.64

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Outside Diameter (min)	Presure Rating @ 20 Degs C Water	Standard Dimension Ratio	Outside Diameter (max)	Outside Diameter (Avg)	Ovality	Wall thickness	Wall Thickness	Wallt Thickness	Max Design Operating Pressure	Minimum Mean Outside Diameter	MRS / C	Minimum Required Strength	Overall Service (Design) Coefficient	Radius	Anulus Radius	Weight per Metre
125	8	23.4	126.2	125.6	2.5	5.3	6.0	5.7	0.8	125.0	8.96	11.2	1.25	62.80	57.14	2.04
125	10	19	126.2	125.6	2.5	6.6	7.4	7.0	1	125.0	8.96	11.2	1.25	62.80	55.81	2.49
125	12.5	15	126.2	125.6	2.5	8.2	9.1	8.6	1.25	125.0	8.96	11.2	1.25	62.80	54.19	3.02
125	16	12	126.2	125.6	2.5	10.2	11.4	10.8	1.6	125.0	8.96	11.2	1.25	62.80	51.99	3.72
125	20	10	126.2	125.6	2.5	12.6	13.9	13.2	2	125.0	8.96	11.2	1.25	62.80	49.57	4.46
125	25	8	126.2	125.6	2.5	15.3	16.9	16.1	2.5	125.0	8.96	11.2	1.25	62.80	46.68	5.29
125	32	tba	126.2	125.6	2.5	18.9	20.9	19.9	3.2	125.0	8.96	11.2	1.25	62.80	42.86	6.32
140	4	45.5	141.3	140.7	2.8	3.1	3.5	3.3	0.4	140.0	8.96	11.2	1.25	70.33	67.07	1.34
140	6.3	29.7	141.3	140.7	2.8	4.8	5.3	5.0	0.63	140.0	8.96	11.2	1.25	70.33	65.28	2.05
140	8	23.4	141.3	140.7	2.8	6.0	6.7	6.3	0.8	140.0	8.96	11.2	1.25	70.33	63.99	2.55
140	10	19	141.3	140.7	2.8	7.4	8.2	7.8	1	140.0	8.96	11.2	1.25	70.33	62.51	3.12
140	12.5	15	141.3	140.7	2.8	9.1	10.1	9.6	1.25	140.0	8.96	11.2	1.25	70.33	60.69	3.79
140	16	12	141.3	140.7	2.8	11.5	12.7	12.1	1.6	140.0	8.96	11.2	1.25	70.33	58.23	4.67
140	20	10	141.3	140.7	2.8	14.1	15.6	14.8	2	140.0	8.96	11.2	1.25	70.33	55.52	5.59
140	25	8	141.3	140.7	2.8	17.1	19.0	18.0	2.5	140.0	8.96	11.2	1.25	70.33	52.28	6.64
140	32	tba	141.3	140.7	2.8	21.2	23.4	22.3	3.2	140.0	8.96	11.2	1.25	70.33	48.00	7.92
150	12.5	15	151.4	150.7	3.0	9.8	10.9	10.3	1.25	150.0	8.96	11.2	1.25	75.35	65.03	4.35
150	16	12	151.4	150.7	3.0	12.3	13.6	13.0	1.6	150.0	8.96	11.2	1.25	75.35	62.39	5.36
160	4	45.5	161.5	160.8	3.2	3.5	3.9	3.7	0.4	160.0	8.96	11.2	1.25	80.38	76.66	1.75
160	6.3	29.7	161.5	160.8	3.2	5.4	6.1	5.8	0.63	160.0	8.96	11.2	1.25	80.38	74.62	2.68
160	8	23.4	161.5	160.8	3.2	6.8	7.6	7.2	0.8	160.0	8.96	11.2	1.25	80.38	73.15	3.33
160	10	19	161.5	160.8	3.2	8.5	9.4	8.9	1	160.0	8.96	11.2	1.25	80.38	71.45	4.07
160	12.5	15	161.5	160.8	3.2	10.4	11.6	11.0	1.25	160.0	8.96	11.2	1.25	80.38	69.37	4.94
160	16	12	161.5	160.8	3.2	13.1	14.5	13.8	1.6	160.0	8.96	11.2	1.25	80.38	66.55	6.09
160	20	10	161.5	160.8	3.2	16.1	17.8	16.9	2	160.0	8.96	11.2	1.25	80.38	63.46	7.30
160	25	8	161.5	160.8	3.2	19.6	21.6	20.6	2.5	160.0	8.96	11.2	1.25	80.38	59.76	8.67
160	32	tba	161.5	160.8	3.2	24.2	26.8	25.5	3.2	160.0	8.96	11.2	1.25	80.38	54.87	10.35
180	4	45.5	181.7	180.9	3.6	3.9	4.4	4.2	0.4	180.0	8.96	11.2	1.25	90.43	86.25	2.21
180	6.3	29.7	181.7	180.9	3.6	6.1	6.8	6.5	0.63	180.0	8.96	11.2	1.25	90.43	83.96	3.38
180	8	23.4	181.7	180.9	3.6	7.7	8.6	8.1	0.8	180.0	8.96	11.2	1.25	90.43	82.30	4.21
180	10	19	181.7	180.9	3.6	9.5	10.6	10.0	1	180.0	8.96	11.2	1.25	90.43	80.39	5.14
180	12.5	15	181.7	180.9	3.6	11.7	13.0	12.4	1.25	180.0	8.96	11.2	1.25	90.43	78.05	6.25
180	16	12	181.7	180.9	3.6	14.8	16.3	15.5	1.6	180.0	8.96	11.2	1.25	90.43	74.88	7.71
180	20	10	181.7	180.9	3.6	18.1	20.0	19.0	2	180.0	8.96	11.2	1.25	90.43	71.40	9.24
180	25	8	181.7	180.9	3.6	22.0	24.3	23.2	2.5	180.0	8.96	11.2	1.25	90.43	67.24	10.97
180	32	tba	181.7	180.9	3.6	27.3	30.1	28.7	3.2	180.0	8.96	11.2	1.25	90.43	61.74	13.10
200	4	45.5	201.8	200.9	4.0	4.4	4.9	4.6	0.4	200.0	8.96	11.2	1.25	100.45	95.81	2.74
200	6.3	29.7	201.8	200.9	4.0	6.8	7.6	7.2	0.63	200.0	8.96	11.2	1.25	100.45	93.27	4.20

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Outside Diameter (min)	Presure Rating @ 20 Degs C Water	Standard Dimension Ratio	Outside Diameter (max)	Outside Diameter (Avg)	Ovality	Wall thickness	Wall Thickness	Wallt Thickness	Max Design Operating Pressure	Minimum Mean Outside Diameter	MRS / C	Minimum Required Strength	Overall Service (Design) Coefficient	Radius	Anulus Radius	Weight per Metre
200	8	23.4	201.8	200.9	4.0	8.5	9.5	9.0	0.8	200.0	8.96	11.2	1.25	100.45	91.43	5.22
200	10	19	201.8	200.9	4.0	10.6	11.7	11.1	1	200.0	8.96	11.2	1.25	100.45	89.30	6.38
200	12.5	15	201.8	200.9	4.0	13.0	14.4	13.7	1.25	200.0	8.96	11.2	1.25	100.45	86.71	7.76
200	16	12	201.8	200.9	4.0	16.4	18.1	17.3	1.6	200.0	8.96	11.2	1.25	100.45	83.19	9.56
200	20	10	201.8	200.9	4.0	20.1	22.2	21.1	2	200.0	8.96	11.2	1.25	100.45	79.32	11.46
200	25	8	201.8	200.9	4.0	24.5	27.0	25.8	2.5	200.0	8.96	11.2	1.25	100.45	74.69	13.61
200	32	tba	201.8	200.9	4.0	30.3	33.4	31.9	3.2	200.0	8.96	11.2	1.25	100.45	68.58	16.25
225	4	45.5	227.1	226.1	4.5	4.9	5.5	5.2	0.4	225.0	8.96	11.2	1.25	113.03	107.82	3.47
225	6.3	29.7	227.1	226.1	4.5	7.6	8.5	8.1	0.63	225.0	8.96	11.2	1.25	113.03	104.95	5.31
225	8	23.4	227.1	226.1	4.5	9.6	10.7	10.1	0.8	225.0	8.96	11.2	1.25	113.03	102.88	6.61
225	10	19	227.1	226.1	4.5	11.9	13.2	12.5	1	225.0	8.96	11.2	1.25	113.03	100.49	8.07
225	12.5	15	227.1	226.1	4.5	14.7	16.2	15.5	1.25	225.0	8.96	11.2	1.25	113.03	97.57	9.82
225	16	12	227.1	226.1	4.5	18.4	20.4	19.4	1.6	225.0	8.96	11.2	1.25	113.03	93.61	12.10
225	20	10	227.1	226.1	4.5	22.6	24.9	23.8	2	225.0	8.96	11.2	1.25	113.03	89.26	14.50
225	25	8	227.1	226.1	4.5	27.5	30.4	29.0	2.5	225.0	8.96	11.2	1.25	113.03	84.05	17.22
225	32	tba	227.1	226.1	4.5	34.1	37.6	35.8	3.2	225.0	8.96	11.2	1.25	113.03	77.18	20.56
250	4	45.5	252.3	251.2	5.0	5.5	6.1	5.8	0.4	250.0	8.96	11.2	1.25	125.58	119.79	4.28
250	6.3	29.7	252.3	251.2	5.0	8.5	9.4	9.0	0.63	250.0	8.96	11.2	1.25	125.58	116.61	6.55
250	8	23.4	252.3	251.2	5.0	10.7	11.9	11.3	0.8	250.0	8.96	11.2	1.25	125.58	114.31	8.15
250	10	19	252.3	251.2	5.0	13.2	14.6	13.9	1	250.0	8.96	11.2	1.25	125.58	111.65	9.96
250	12.5	15	252.3	251.2	5.0	16.3	18.0	17.2	1.25	250.0	8.96	11.2	1.25	125.58	108.41	12.11
250	16	12	252.3	251.2	5.0	20.5	22.6	21.6	1.6	250.0	8.96	11.2	1.25	125.58	104.01	14.93
250	20	10	252.3	251.2	5.0	25.1	27.7	26.4	2	250.0	8.96	11.2	1.25	125.58	99.17	17.90
250	25	8	252.3	251.2	5.0	30.6	33.8	32.2	2.5	250.0	8.96	11.2	1.25	125.58	93.39	21.26
250	32	tba	252.3	251.2	5.0	37.9	41.8	39.8	3.2	250.0	8.96	11.2	1.25	125.58	85.75	25.38
280	4	45.5	282.6	281.3	9.8	6.1	6.8	6.5	0.4	280.0	8.96	11.2	1.25	140.65	134.18	5.36
280	6.3	29.7	282.6	281.3	9.8	9.5	10.6	10.0	0.63	280.0	8.96	11.2	1.25	140.65	130.62	8.21
280	8	23.4	282.6	281.3	9.8	12.0	13.3	12.6	0.8	280.0	8.96	11.2	1.25	140.65	128.04	10.22
280	10	19	282.6	281.3	9.8	14.8	16.4	15.6	1	280.0	8.96	11.2	1.25	140.65	125.06	12.49
280	12.5	15	282.6	281.3	9.8	18.3	20.2	19.2	1.25	280.0	8.96	11.2	1.25	140.65	121.43	15.19
280	16	12	282.6	281.3	9.8	23.0	25.3	24.1	1.6	280.0	8.96	11.2	1.25	140.65	116.50	18.73
280	20	10	282.6	281.3	9.8	28.1	31.0	29.6	2	280.0	8.96	11.2	1.25	140.65	111.08	22.45
280	25	8	282.6	281.3	9.8	34.3	37.8	36.0	2.5	280.0	8.96	11.2	1.25	140.65	104.61	26.66
280	32	tba	282.6	281.3	9.8	42.4	46.8	44.6	3.2	280.0	8.96	11.2	1.25	140.65	96.05	31.84
315	4	45.5	317.9	316.5	11.1	6.9	7.7	7.3	0.4	315.0	8.96	11.2	1.25	158.23	150.95	6.78
315	6.3	29.7	317.9	316.5	11.1	10.7	11.9	11.3	0.63	315.0	8.96	11.2	1.25	158.23	146.94	10.38
315	8	23.4	317.9	316.5	11.1	13.5	14.9	14.2	0.8	315.0	8.96	11.2	1.25	158.23	144.04	12.93
315	10	19	317.9	316.5	11.1	16.6	18.4	17.5	1	315.0	8.96	11.2	1.25	158.23	140.69	15.80
315	12.5	15	317.9	316.5	11.1	20.5	22.7	21.6	1.25	315.0	8.96	11.2	1.25	158.23	136.61	19.22

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Outside Diameter (min)	Presure Rating @ 20 Degs C Water	Standard Dimension Ratio	Outside Diameter (max)	Outside Diameter (Avg)	Ovality	Wall thickness	Wall Thickness	Wallt Thickness	Max Design Operating Pressure	Minimum Mean Outside Diameter	MRS / C	Minimum Required Strength	Overall Service (Design) Coefficient	Radius	Anulus Radius	Weight per Metre
315	16	12	317.9	316.5	11.1	25.8	28.5	27.2	1.6	315.0	8.96	11.2	1.25	158.23	131.06	23.70
315	20	10	317.9	316.5	11.1	31.6	34.9	33.3	2	315.0	8.96	11.2	1.25	158.23	124.97	28.41
315	25	8	317.9	316.5	11.1	38.6	42.5	40.5	2.5	315.0	8.96	11.2	1.25	158.23	117.68	33.74
315	32	tba	317.9	316.5	11.1	47.7	52.6	50.2	3.2	315.0	8.96	11.2	1.25	158.23	108.06	40.29
355	4	45.5	358.2	356.6	12.5	7.8	8.6	8.2	0.4	355.0	8.96	11.2	1.25	178.30	170.11	8.60
355	6.3	29.7	358.2	356.6	12.5	12.1	13.4	12.7	0.63	355.0	8.96	11.2	1.25	178.30	165.59	13.18
355	8	23.4	358.2	356.6	12.5	15.2	16.8	16.0	0.8	355.0	8.96	11.2	1.25	178.30	162.32	16.42
355	10	19	358.2	356.6	12.5	18.8	20.7	19.8	1	355.0	8.96	11.2	1.25	178.30	158.55	20.07
355	12.5	15	358.2	356.6	12.5	23.1	25.6	24.4	1.25	355.0	8.96	11.2	1.25	178.30	153.94	24.40
355	16	12	358.2	356.6	12.5	29.1	32.1	30.6	1.6	355.0	8.96	11.2	1.25	178.30	147.70	30.09
355	20	10	358.2	356.6	12.5	35.6	39.3	37.5	2	355.0	8.96	11.2	1.25	178.30	140.83	36.07
355	25	8	358.2	356.6	12.5	43.5	47.9	45.7	2.5	355.0	8.96	11.2	1.25	178.30	132.61	42.84
355	32	tba	358.2	356.6	12.5	53.8	59.3	56.5	3.2	355.0	8.96	11.2	1.25	178.30	121.77	51.16
400	4	45.5	403.6	401.8	14.0	8.7	9.7	9.2	0.4	400.0	8.96	11.2	1.25	200.90	191.68	10.92
400	6.3	29.7	403.6	401.8	14.0	13.6	15.0	14.3	0.63	400.0	8.96	11.2	1.25	200.90	186.59	16.73
400	8	23.4	403.6	401.8	14.0	17.1	18.9	18.0	0.8	400.0	8.96	11.2	1.25	200.90	182.90	20.83
400	10	19	403.6	401.8	14.0	21.1	23.4	22.2	1	400.0	8.96	11.2	1.25	200.90	178.65	25.47
400	12.5	15	403.6	401.8	14.0	26.1	28.8	27.4	1.25	400.0	8.96	11.2	1.25	200.90	173.46	30.98
400	16	12	403.6	401.8	14.0	32.8	36.2	34.5	1.6	400.0	8.96	11.2	1.25	200.90	166.42	38.19
400	20	10	403.6	401.8	14.0	40.2	44.3	42.2	2	400.0	8.96	11.2	1.25	200.90	158.68	45.78
400	25	8	403.6	401.8	14.0	49.0	54.0	51.5	2.5	400.0	8.96	11.2	1.25	200.90	149.43	54.38
400	32	tba	403.6	401.8	14.0	60.6	66.8	63.7	3.2	400.0	8.96	11.2	1.25	200.90	137.21	64.94
450	4	45.5	454.1	452.1	15.6	9.8	10.9	10.4	0.4	450.0	8.96	11.2	1.25	226.03	215.66	13.81
450	6.3	29.7	454.1	452.1	15.6	15.3	16.9	16.1	0.63	450.0	8.96	11.2	1.25	226.03	209.93	21.16
450	8	23.4	454.1	452.1	15.6	19.2	21.3	20.2	0.8	450.0	8.96	11.2	1.25	226.03	205.78	26.36
450	10	19	454.1	452.1	15.6	23.8	26.3	25.0	1	450.0	8.96	11.2	1.25	226.03	201.00	32.23
450	12.5	15	454.1	452.1	15.6	29.3	32.4	30.9	1.25	450.0	8.96	11.2	1.25	226.03	195.17	39.20
450	16	12	454.1	452.1	15.6	36.9	40.7	38.8	1.6	450.0	8.96	11.2	1.25	226.03	187.25	48.33
450	20	10	454.1	452.1	15.6	45.2	49.8	47.5	2	450.0	8.96	11.2	1.25	226.03	178.54	57.94
450	25	8	454.1	452.1	15.6	55.1	60.7	57.9	2.5	450.0	8.96	11.2	1.25	226.03	168.13	68.83
450	32	tba	454.1	452.1	15.6	68.2	75.1	71.6	3.2	450.0	8.96	11.2	1.25	226.03	154.38	82.19
500	4	45.5	504.5	502.3	17.5	10.9	12.1	11.5	0.4	500.0	8.96	11.2	1.25	251.13	239.61	17.04
500	6.3	29.7	504.5	502.3	17.5	17.0	18.8	17.9	0.63	500.0	8.96	11.2	1.25	251.13	233.24	26.12
500	8	23.4	504.5	502.3	17.5	21.4	23.6	22.5	0.8	500.0	8.96	11.2	1.25	251.13	228.64	32.54
500	10	19	504.5	502.3	17.5	26.4	29.2	27.8	1	500.0	8.96	11.2	1.25	251.13	223.33	39.78
500	12.5	15	504.5	502.3	17.5	32.6	36.0	34.3	1.25	500.0	8.96	11.2	1.25	251.13	216.84	48.39
500	16	12	504.5	502.3	17.5	41.0	45.2	43.1	1.6	500.0	8.96	11.2	1.25	251.13	208.04	59.66
500	20	10	504.5	502.3	17.5	50.2	55.3	52.8	2	500.0	8.96	11.2	1.25	251.13	198.36	71.52
500	25	8	504.5	502.3	17.5	61.2	67.4	64.3	2.5	500.0	8.96	11.2	1.25	251.13	186.80	84.96

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Outside Diameter (min)	Presure Rating @ 20 Degs C Water	Standard Dimension Ratio	Outside Diameter (max)	Outside Diameter (Avg)	Ovality	Wall thickness	Wall Thickness	Wallt Thickness	Max Design Operating Pressure	Minimum Mean Outside Diameter	MRS / C	Minimum Required Strength	Overall Service (Design) Coefficient	Radius	Anulus Radius	Weight per Metre
500	32	tba	504.5	502.3	17.5	75.8	83.4	79.6	3.2	500.0	8.96	11.2	1.25	251.13	171.53	101.46
560	4	45.5	565.0	562.5	19.6	12.2	13.5	12.9	0.4	560.0	8.96	11.2	1.25	281.25	268.36	21.36
560	6.3	29.7	565.0	562.5	19.6	19.0	21.0	20.0	0.63	560.0	8.96	11.2	1.25	281.25	261.23	32.75
560	8	23.4	565.0	562.5	19.6	23.9	26.4	25.2	0.8	560.0	8.96	11.2	1.25	281.25	256.07	40.80
560	10	19	565.0	562.5	19.6	29.6	32.7	31.1	1	560.0	8.96	11.2	1.25	281.25	250.12	49.89
560	12.5	15	565.0	562.5	19.6	36.5	40.3	38.4	1.25	560.0	8.96	11.2	1.25	281.25	242.86	60.68
560	16	12	565.0	562.5	19.6	45.9	50.6	48.2	1.6	560.0	8.96	11.2	1.25	281.25	233.00	74.83
560	20	10	565.0	562.5	19.6	56.2	61.9	59.1	2	560.0	8.96	11.2	1.25	281.25	222.16	89.71
560	25	8	565.0	562.5	19.6	68.6	75.5	72.0	2.5	560.0	8.96	11.2	1.25	281.25	209.21	106.56
560	32	tba	565.0	562.5	19.6	84.8	93.4	89.1	3.2	560.0	8.96	11.2	1.25	281.25	192.11	127.26
630	4	45.5	635.7	632.9	22.1	13.8	15.2	14.5	0.4	630.0	8.96	11.2	1.25	316.43	301.93	27.03
630	6.3	29.7	635.7	632.9	22.1	21.4	23.6	22.5	0.63	630.0	8.96	11.2	1.25	316.43	293.91	41.45
630	8	23.4	635.7	632.9	22.1	26.9	29.7	28.3	0.8	630.0	8.96	11.2	1.25	316.43	288.11	51.63
630	10	19	635.7	632.9	22.1	33.3	36.7	35.0	1	630.0	8.96	11.2	1.25	316.43	281.41	63.13
630	12.5	15	635.7	632.9	22.1	41.1	45.3	43.2	1.25	630.0	8.96	11.2	1.25	316.43	273.24	76.80
630	16	12	635.7	632.9	22.1	51.6	56.9	54.3	1.6	630.0	8.96	11.2	1.25	316.43	262.15	94.70
630	20	10	635.7	632.9	22.1	63.3	69.7	66.5	2	630.0	8.96	11.2	1.25	316.43	249.96	113.53
630	25	8	635.7	632.9	22.1	77.1	84.9	81.0	2.5	630.0	8.96	11.2	1.25	316.43	235.39	134.86
630	32	tba	635.7	632.9	22.1	95.5	105.1	100.3	3.2	630.0	8.96	11.2	1.25	316.43	216.15	161.07
710	4	45.5	716.4	713.2	24.9	15.5	17.2	16.3	0.4	710.0	8.96	11.2	1.25	356.60	340.27	34.32
710	6.3	29.7	716.4	713.2	24.9	24.1	26.6	25.4	0.63	710.0	8.96	11.2	1.25	356.60	331.23	52.63
710	8	23.4	716.4	713.2	24.9	30.3	33.5	31.9	0.8	710.0	8.96	11.2	1.25	356.60	324.69	65.56
710	10	19	716.4	713.2	24.9	37.5	41.4	39.5	1	710.0	8.96	11.2	1.25	356.60	317.15	80.17
710	12.5	15	716.4	713.2	24.9	46.3	51.0	48.7	1.25	710.0	8.96	11.2	1.25	356.60	307.94	97.53
710	16	12	716.4	713.2	24.9	58.2	64.1	61.2	1.6	710.0	8.96	11.2	1.25	356.60	295.44	120.27
710	20	10	716.4	713.2	24.9	71.3	78.5	74.9	2	710.0	8.96	11.2	1.25	356.60	281.70	144.19
710	25	8	716.4	713.2	24.9	86.9	95.7	91.3	2.5	710.0	8.96	11.2	1.25	356.60	265.28	171.28
710	32	tba	716.4	713.2	24.9	107.6	118.4	113.0	3.2	710.0	8.96	11.2	1.25	356.60	243.60	204.55
800	4	45.5	807.2	803.6	28.0	17.5	19.3	18.4	0.4	800.0	8.96	11.2	1.25	401.80	383.41	43.55
800	6.3	29.7	807.2	803.6	28.0	27.2	30.0	28.6	0.63	800.0	8.96	11.2	1.25	401.80	373.22	66.80
800	8	23.4	807.2	803.6	28.0	34.2	37.7	35.9	0.8	800.0	8.96	11.2	1.25	401.80	365.85	83.22
800	10	19	807.2	803.6	28.0	42.3	46.6	44.4	1	800.0	8.96	11.2	1.25	401.80	357.35	101.76
800	12.5	15	807.2	803.6	28.0	52.2	57.5	54.8	1.25	800.0	8.96	11.2	1.25	401.80	346.98	123.80
800	16	12	807.2	803.6	28.0	65.6	72.2	68.9	1.6	800.0	8.96	11.2	1.25	401.80	332.90	152.67
800	20	10	807.2	803.6	28.0	80.3	88.5	84.4	2	800.0	8.96	11.2	1.25	401.80	317.41	183.04
800	25	8	807.2	803.6	28.0	97.9	107.8	102.9	2.5	800.0	8.96	11.2	1.25	401.80	298.91	217.44
800	32	tba	807.2	803.6	28.0	121.2	133.4	127.3	3.2	800.0	8.96	11.2	1.25	401.80	274.48	259.69
900	4	45.5	908.1	904.1	31.5	19.7	21.7	20.7	0.4	900.0	8.96	11.2	1.25	452.03	431.34	55.10

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Outside Diameter (min)	Presure Rating @ 20 Degs C Water	Standard Dimension Ratio	Outside Diameter (max)	Outside Diameter (Avg)	Ovality	Wall thickness	Wall Thickness	Wallt Thickness	Max Design Operating Pressure	Minimum Mean Outside Diameter	MRS / C	Minimum Required Strength	Overall Service (Design) Coefficient	Radius	Anulus Radius	Weight per Metre
900	6.3	29.7	908.1	904.1	31.5	30.6	33.7	32.1	0.63	900.0	8.96	11.2	1.25	452.03	419.88	84.53
900	8	23.4	908.1	904.1	31.5	38.5	42.4	40.4	0.8	900.0	8.96	11.2	1.25	452.03	411.59	105.32
900	10	19	908.1	904.1	31.5	47.6	52.4	50.0	1	900.0	8.96	11.2	1.25	452.03	402.03	128.78
900	12.5	15	908.1	904.1	31.5	58.7	64.7	61.7	1.25	900.0	8.96	11.2	1.25	452.03	390.36	156.68
900	16	12	908.1	904.1	31.5	73.8	81.2	77.5	1.6	900.0	8.96	11.2	1.25	452.03	374.52	193.21
900	20	10	908.1	904.1	31.5	90.4	99.5	94.9	2	900.0	8.96	11.2	1.25	452.03	357.10	231.65
900	25	8	908.1	904.1	31.5	110.2	121.3	115.7	2.5	900.0	8.96	11.2	1.25	452.03	336.28	275.18
900	32	tba	908.1	904.1	31.5	136.4	150.1	143.2	3.2	900.0	8.96	11.2	1.25	452.03	308.79	328.66
1000	4	45.5	1009.0	1004.5	35.0	21.8	24.1	23.0	0.4	1000.0	8.96	11.2	1.25	502.25	479.27	68.01
1000	6.3	29.7	1009.0	1004.5	35.0	34.0	37.5	35.7	0.63	1000.0	8.96	11.2	1.25	502.25	466.54	104.34
1000	8	23.4	1009.0	1004.5	35.0	42.7	47.1	44.9	0.8	1000.0	8.96	11.2	1.25	502.25	457.33	130.00
1000	10	19	1009.0	1004.5	35.0	52.9	58.2	55.5	1	1000.0	8.96	11.2	1.25	502.25	446.70	158.97
1000	12.5	15	1009.0	1004.5	35.0	65.2	71.8	68.5	1.25	1000.0	8.96	11.2	1.25	502.25	433.73	193.41
1000	16	12	1009.0	1004.5	35.0	82.0	90.3	86.1	1.6	1000.0	8.96	11.2	1.25	502.25	416.13	238.52
1000	20	10	1009.0	1004.5	35.0	100.4	110.5	105.5	2	1000.0	8.96	11.2	1.25	502.25	396.78	285.98
1000	25	8	1009.0	1004.5	35.0	122.4	134.8	128.6	2.5	1000.0	8.96	11.2	1.25	502.25	373.65	339.72
1200	4	45.5	1210.0	1205.0	42.0	26.2	28.9	27.6	0.4	1200.0	8.96	11.2	1.25	602.50	574.94	97.87
1200	6.3	29.7	1210.0	1205.0	42.0	40.8	44.9	42.8	0.63	1200.0	8.96	11.2	1.25	602.50	559.66	150.16
1200	8	23.4	1210.0	1205.0	42.0	51.3	56.5	53.9	0.8	1200.0	8.96	11.2	1.25	602.50	548.60	187.11
1200	10	19	1210.0	1205.0	42.0	63.4	69.9	66.6	1	1200.0	8.96	11.2	1.25	602.50	535.85	228.81
1200	12.5	15	1210.0	1205.0	42.0	78.2	86.2	82.2	1.25	1200.0	8.96	11.2	1.25	602.50	520.29	278.38
1200	16	12	1210.0	1205.0	42.0	98.4	108.3	103.3	1.6	1200.0	8.96	11.2	1.25	602.50	499.17	343.32
1200	20	10	1210.0	1205.0	42.0	120.5	132.6	126.6	2	1200.0	8.96	11.2	1.25	602.50	475.94	411.62
1200	25	8	1210.0	1205.0	42.0	146.9	161.7	154.3	2.5	1200.0	8.96	11.2	1.25	602.50	448.19	488.98
1400	4	45.5	1410.0	1405.0	49.0	30.6	33.7	32.1	0.4	1400.0	8.96	11.2	1.25	702.50	670.35	133.10
1400	6.3	29.7	1410.0	1405.0	49.0	47.5	52.4	50.0	0.63	1400.0	8.96	11.2	1.25	702.50	652.53	204.23
1400	8	23.4	1410.0	1405.0	49.0	59.8	65.9	62.9	0.8	1400.0	8.96	11.2	1.25	702.50	639.63	254.49
1400	10	19	1410.0	1405.0	49.0	74.0	81.5	77.7	1	1400.0	8.96	11.2	1.25	702.50	624.75	311.21
1400	12.5	15	1410.0	1405.0	49.0	91.3	100.5	95.9	1.25	1400.0	8.96	11.2	1.25	702.50	606.60	378.64
1400	16	12	1410.0	1405.0	49.0	114.8	126.3	120.5	1.6	1400.0	8.96	11.2	1.25	702.50	581.96	466.96
1400	20	10	1410.0	1405.0	49.0	140.6	154.7	147.6	2	1400.0	8.96	11.2	1.25	702.50	554.86	559.87
1600	4	45.5	1610.0	1605.0	56.0	34.9	38.5	36.7	0.4	1600.0	8.96	11.2	1.25	802.50	765.77	173.73
1600	6.3	29.7	1610.0	1605.0	56.0	54.3	59.9	57.1	0.63	1600.0	8.96	11.2	1.25	802.50	745.39	266.59
1600	8	23.4	1610.0	1605.0	56.0	68.4	75.3	71.8	0.8	1600.0	8.96	11.2	1.25	802.50	730.66	332.20
1600	10	19	1610.0	1605.0	56.0	84.6	93.1	88.8	1	1600.0	8.96	11.2	1.25	802.50	713.66	406.25
1600	12.5	15	1610.0	1605.0	56.0	104.3	114.9	109.6	1.25	1600.0	8.96	11.2	1.25	802.50	692.90	494.28
1600	16	12	1610.0	1605.0	56.0	131.1	144.4	137.8	1.6	1600.0	8.96	11.2	1.25	802.50	664.75	609.58
1800	4	45.5	1816.2	1808.1	-	39.3	43.3	41.3	0.4	1800.0	8.96	11.2	1.25	904.05	862.73	220.15

POLIPLEX HIGH STRENGTH PE112 SPECIFICATION Version: 161221

Outside Diameter (min)	Presure Rating @ 20 Degs C Water	Standard Dimension Ratio	Outside Diameter (max)	Outside Diameter (Avg)	Ovality	Wall thickness	Wall Thickness	Wallt Thickness	Max Design Operating Pressure	Minimum Mean Outside Diameter	MRS / C	Minimum Required Strength	Overall Service (Design) Coefficient	Radius	Anulus Radius	Weight per Metre
1800	6.3	29.7	1816.2	1808.1	-	61.1	67.3	64.2	0.63	1800.0	8.96	11.2	1.25	904.05	839.81	337.85
1800	8	23.4	1816.2	1808.1	-	76.9	84.7	80.8	0.8	1800.0	8.96	11.2	1.25	904.05	823.23	421.02
1800	10	19	1816.2	1808.1	-	95.1	104.8	99.9	1	1800.0	8.96	11.2	1.25	904.05	804.11	514.88
1800	12.5	15	1816.2	1808.1	-	117.4	129.2	123.3	1.25	1800.0	8.96	11.2	1.25	904.05	780.76	626.47
1800	16	12	1816.2	1808.1	-	147.5	162.4	155.0	1.6	1800.0	8.96	11.2	1.25	904.05	749.08	772.63
2000	4	45.5	2018.0	2009.0	-	43.7	48.1	45.9	0.4	2000.0	8.96	11.2	1.25	1004.50	958.60	271.76
2000	6.3	29.7	2018.0	2009.0	-	67.9	74.8	71.4	0.63	2000.0	8.96	11.2	1.25	1004.50	933.13	417.07
2000	8	23.4	2018.0	2009.0	-	85.5	94.1	89.8	0.8	2000.0	8.96	11.2	1.25	1004.50	914.71	519.74
2000	10	19	2018.0	2009.0	-	105.7	116.4	111.0	1	2000.0	8.96	11.2	1.25	1004.50	893.46	635.63
2000	12.5	15	2018.0	2009.0	-	130.4	143.6	137.0	1.25	2000.0	8.96	11.2	1.25	1004.50	867.52	773.39

APPENDIX B - QUALITY CERTIFICATIONS

Copies of the following Quality Certificates are available from WSAA

TABLE B1 IPLEX PIPELINES AUSTRALIA PTY LIMITED– MANAGEMENT SYSTEMS

884 Ingham Road Bohle QLD 31 Terry Court Thurgoona NSW	
Quality Systems Standard	ISO 9001:2015
Certification Licence No.	QEC0037
Certifying Agency	SAI Global
First Date of Certification	3 April 1990
Current Date of Certification	17 December 2020
Expiry Date of Certification	9 January 2024

TABLE B2 IPLEX PIPELINES AUSTRALIA PTY LIMITED – PRODUCT CERTIFICATION

884 Ingham Road Bohle QLD 31 Terry Court Thurgoona NSW	
Product Standard/Spec.	AS/NZS 4130:2018
Certificate No.	SMKP20088
Issuing Certification Body	SAI-Global
First Date of Certification	7 May 1999
Current Date of Certification	16 April 2021
Expiry Date of Certification	5 May 2025

CERTIFICATE OF REGISTRATION

This is to certify that:

Iplex Pipelines Australia Pty Limited

ABN 56 079 613 308

Cnr Southpine & Johnstone Roads Strathpine QLD 4500 AUSTRALIA
35 Alfred Road Chipping Norton NSW 2170 AUSTRALIA
31 Terry Court Thurgoona NSW 2640 AUSTRALIA
884 Ingham Road Bohle QLD 4818 AUSTRALIA
Philip Highway Elizabeth SA 5112 AUSTRALIA
9-15 Radford Road Reservoir VIC 3073 AUSTRALIA

operates a

QUALITY MANAGEMENT SYSTEM

which complies with the requirements of

ISO 9001:2015

for the following scope

The design, manufacture and distribution of rigid PVC pipe, conduit and fittings, polyethylene, PB-1 pipe, polypropylene pipe and fittings and associated fittings for the water supply, sewerage, drainage, electrical, mining, gas, rural and telecommunications industries. Scope also includes sourcing and distribution of complementary products.

Certificate No: QEC0037

Issued: 17 December 2020
Originally Certified: 3 April 1990
Expires: 9 January 2024
Current Certification: 17 December 2020

Frank Camasta
Global Head of Technical Services
SAI Global Assurance

Certified System ISO 9001

JAS-ANZ
WWW.JAS-ANZ.ORG/REGISTER

STANDARDSMARK LICENCE

SAI Global hereby grants:

Iplex Pipelines Australia Pty Limited

ABN 56 079 613 308

31 Terry Court, Thurgoona, NSW 2640, Australia

And

884 Ingham Road, Bohle, QLD 4818, Australia

StandardsMark Licence

Manufactured to:

AS/NZS 4130:2018 - Polyethylene (PE) pipes for pressure applications

"the StandardsMark Licensee" the right to use the STANDARDSMARK as shown below only in respect of the goods described and detailed in the Schedule which are produced by the Licensee or on behalf of the Licensee* and which comply with the appropriate Standard referred to above as from time to time amended. The Licence is granted subject to the rules governing the use of the STANDARDSMARK and the Terms and Conditions for certification and licence. The Licensee covenants to comply with all the Rules and Terms and Conditions.

Licence No: SMKP20088

Issued : 16 April 2021
Expires : 5 May 2025

Originally Certified : 7 May 1999
Current Certification : 16 April 2021

Frank Camasta
Global Head of Technical Services
SAI Global Assurance

Certified Product™ Australian Standard

JAS-ANZ
WWW.JAS-ANZ.ORG/REGISTER

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

SAI GLOBAL INFORM. INSPIRE. IMPROVE.

APPENDIX C – FIELD TRIAL

Unitywater
Serving you today, investing in tomorrow.

6-10 Maud St, Maroochydore QLD 4558
33 King Street, Caboolture QLD 4510
Mailing Address
PO Box 953, Caboolture QLD 4510
ABN 86 791 717 472
1300 086 489
unitywater.com

Obj Ref: A6949899

Mr Peter Pittard
WSAA - Product Appraisals
GPO Box 915
Sydney NSW 2001

14/12/2021

Dear Mr Pittard

Sponsorship of Iplex Australia's WSAA Appraisal - PE112 Reduced-Wall Polyethylene pipes.

As part of the Water Services Association of Australia Appraisal Application submitted by Iplex, Unitywater wish to support this application relating to reduced-wall polyethylene pipes that meet a minimum required stress of 11.2 MPa

The pipes submitted for appraisal have a wall thicknesses between PN6.3 to PN32.

During the time period of July 5th to July 8th Interflow successfully completed an installation using the above-mentioned pipe. The installation performed under the product name of 'Titeflow H112', saw the successful rehabilitation of an asbestos cement water pipeline through die-reduction of a reduced-wall PE112 polyethylene pipe located at Carol-Anne Crescent, Narangba.

This 110mm PN12.5 pipeline was designed using Appendix D of AS/NZS 4130, which allowed for a Standard Dimension Ratio (SDR) of 15. This custom SDR leveraged the increased material strength of PE112, allowing it to operate at a pressure of 1250 kPa at 20 degrees Celsius.

In conjunction with Iplex' application, please consider Unitywater a sponsor of this application due to the success of the trial carried out at Carol Anne Crescent.

Yours sincerely

Yvette Skinner
Infrastructure Standards Manager

Cc: Will Zillmann, National Product Manager, Iplex (via email)

APPENDIX D - SUPPLIER CONTACTS

Iplex Pipelines Australia Pty Limited

Head Office

Cnr South Pine & Johnstone Roads,
Brendale Queensland

Sales and Product Enquiries

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Email: QLD/NT: civil.qld@iplexpipelines.com.au

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