

# Local Pressure Sewer System Wastewater Network Approved Materials List

June 2023

# Introduction

The pressure sewer system wastewater network approved materials list covers all materials for projects on Christchurch City Council (Council) owned pressure sewer system wastewater infrastructure or pressure sewer system wastewater infrastructure to be vested in Council. The approved materials list both states the manufacturing standard, size and performance requirements for all commonly used pressure sewer system wastewater product types and lists specific products meeting the manufacturing, performance and quality assurance requirements.

This list applies only to the pressure sewer system sections of the wastewater network. Pressure sewer systems use a collection tank and pump at each property to push wastewater through a small diameter network to a discharge point where it discharges into the gravity wastewater network. Presence of pump chambers on properties with a boundary kit at the property boundary connected to 40mm diameter or larger polyethylene sewer mains indicates the wastewater network is a pressure sewer system network. Pressure sewer system wastewater networks are laid out in a similar manner to a water supply network with mains, submains, isolation valves, etc.

Selection of materials and products for installation in a specific location shall consider the particular, site-specific design constraints in conjunction with Council's Infrastructure Design Standards (IDS), Construction Standard Specification (CSS) and approved materials list.

Where installation of materials or products not holding approval occurs, Council retains the right to require replacement with approved products at the cost of the designer, contractor or developer responsible.

# Applying For and Maintaining Approval

## Applying for Approval

Send applications for material approval to [approvedmaterials@ccc.govt.nz](mailto:approvedmaterials@ccc.govt.nz)

Each application for material approval must:

1. State the network or networks where the material is suitable for use
2. State the product type for each product. Product types should be those listed on the approved materials list
3. List the brand name, manufacturer and suppliers for each product
4. Include a third party certificate, complete with accompanying schedule, showing the product complies with the manufacturing standard for the product type as listed on the approved materials list.
5. Include a third party certificate showing the manufacturers quality assurance system complies with ISO 9001.

Material approvals expire on the earliest certification expiry date, that is whichever is earlier of the expiry dates of the manufacturing standard certification or the ISO 9001 certification. Where a certificate is open ended and has no expiry date, we will assume a one-year timeframe for that certificate.

The approved materials committee aims to meet monthly for discussion and consideration of new applications. Approval of applications for existing product types, where the application includes all required information, typically occurs within one to five weeks dependent on when we receive the application relative to the meeting. Where we need more information or approval requires creation of a new product type, longer timeframes will be involved.

## Updating Expired Approvals

Approval expires due to certifications becoming out of date. To re-activate the approval and extend the expiry date, send new manufacturing certificates (including schedules) and/or ISO 9001 certificates to [approvedmaterials@ccc.govt.nz](mailto:approvedmaterials@ccc.govt.nz)

Updates do not require a committee meeting and therefore have shorter periods. Publishing and upload to the Council website of the updated approved materials list occurs eleven times a year on the last day of every month except December. For inclusion in the updated approved materials list new certificates must arrive a minimum of three working days before the end of the month.

Preferably updates should occur before approval expiry. On reaching 3 months past approval expiry, update is no longer possible and approval will require a new application.

# Definitions

## Approval Type Definitions

The approved materials list contains only those products that hold approval or restricted approval for use in Council networks or networks that will be vested in Council. For all approval types the approval applies only for the stated sizes/diameters, pressure ratings, materials and coatings. The following sub-sections list the approval types and conditions applying to each approval type.

### Products listed below approved for use as permitted by IDS and CSS

Products with this approval type hold approval Where a product type has this approval type the specific models and brands listed may be installed where their use is in compliance with Council Infrastructure Design Standards (IDS) and Construction Standard Specifications (CSS).

This approval size only applies up to and including a diameter of 600mm. Sizes larger than 600mm nominal diameter require project specific approval as per section 2.1.2.

### Project specific approval required to use products listed below

Use of products with this approval type requires approval from the Council project manager or subdivision engineer. Prior to issuing approval the Council project manager or subdivision engineer may require evidence showing that the proposed product type provides benefits over product types holding approval for general use as per 2.1.1. Use of these products shall comply with the IDS and CSS.

Where a product holds general approval as per 2.1.1 but the project requires sizes greater than 600mm nominal bore, Council project managers or subdivision engineers will assess the proposed size meets future network requirements and is consistent with sizes already in use.

### Products listed below approved for use as specials only

Use of products approved for use as specials only is limited to short sections as required to avoid service clashes, avoid hazards, or required to be fabricated on-site. Use of these products shall comply with the IDS and CSS.

### Products listed below approved for use during repairs only

Some products preferred for use when installing new infrastructure are not able to be used when conducting maintenance on the network due to the conditions in the trench. Products listed as for use during repairs only provide an alternative solution to permit completion of works.

Use of products approved for use during repairs only shall occur only when conducting planned or reactive works on the existing network. These products shall not be used during the installation of new infrastructure.

For all approval types only the listed makes and models are approved, and only up until the expiry date shown.

## Product Type Definitions

A separate page lists approved makes and models for each product type. Terminology referring to the individual product types can be confusing, to remove confusion we give the following definitions of commonly used terms:

## **Adaptor**

A straight-through fitting with different connection types at each end. Reducers and bends can also act as adaptors but are listed as a reducer or bend. Threaded fittings and fittings incorporating mechanical joints are listed separately.

## **Bend**

Any fitting incorporating a directional change.

## **Branch Saddle**

Electrofusion fitting that requires later tapping of the branch connection, using a separate tool.

## **Coupler**

Straight-through fitting with no diameter change for connecting similar diameter pipes.

## **Diamètre Nominal/Durchmesser Nach Norm (DN)**

Typically used in the designation of PE pipes or fittings, DN is used to indicate the nominal external diameter of pipe.

## **Double Check Valve Backflow Preventer**

Backflow preventor for medium hazard protection. A double check valve Backflow Preventer incorporates two check valves in series and incorporates ports for testing.

## **Dual Check Device Backflow Preventer**

Backflow preventor for low hazard protection. A dual check device backflow preventer incorporates two check valves in series but is not testable.

## **Gate Valve**

Valve that closes by dropping a plate or wedge into the flow. A gate valve has a slot in the invert that the plate or wedge drops into.

## **Nominal Bore (NB)**

NB is used to indicate the nominal or rounded internal diameter of the pipe.

## **Reduced Pressure Zone (RPZ)**

Backflow preventor for high hazard protection. A RPZ incorporates two check valves separated by a pressure monitored chamber capable of venting excess pressure. RPZs incorporate test ports.

## **Reducer**

Tapered or stepped fitting to change the pipe diameter.

## **Sluice Valve**

Valve that closes by dropping a plate or wedge into the flow. A sluice valve has a continuous invert and the plate or wedge matches the shape of and seals against the invert.

## **Stop Cock**

A ball valve specifically for the individual customer connection on each lateral.

## **Tapping Band**

A ring clamped around a pipe allowing the connection of a branch pipe or fitting.

## **Tapping Saddle**

Electrofusion fitting that incorporates a mechanism for tapping the branch connection.

## **Threaded Transition**

Adaptor with a British Standard Pipe (BSP) thread at one end and an alternative connection type at the other. Threaded transitions may be straight-through or incorporate a change in direction.

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# Section 1 Pipes

## Pipe Type

Polyethylene (PE) Pipe

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# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Pipe  
**Material:** Polyethylene (PE)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4130  
**Material Specification:** PE100 Polyethylene to AS/NZS 4131.

**Coating Specification:** Not applicable.

**Pressure Ratings:** PN16 SDR11

**Approved Sizes:** DN40, DN50, DN63, DN75, DN90, DN110, DN125, DN140, DN160 or DN180

**Operational Life:** 100 Years

- Other Requirements:**
- End caps to be retained on pipe until installation.
  - Colours: Pipe shall have a cream jacket or minimum of 4 cream stripes no lighter than RAL 080 90 20 and no darker than RAL 075 80 20.
  - Refer to Appendix 1 - PE Manufacturers Actions memo.

Brand Name	Manufacturer	Supplier	Approval Expires
Cream Jacket	Asmuss Ltd	Asmuss Ltd	24/05/2019
EnviroPressurePipe	Enviro Pipes Pty Ltd	Enviro Pipes Pty Ltd	21/02/2024
EnviroPressurePipe	Enviro Pipes Pty Ltd	Solo Plastics Ltd	21/02/2024
Poliplex (Cream)	Iplex Pipelines NZ Ltd	Humes, Hynds	3/02/2024
310 Series PE100	RX Plastics Ltd	Marley	18/03/2024
J-Pipe (Laterals only)	RX Plastics Ltd	Marley	18/03/2024
TUBI HDPE	Tubi Operations Pty Ltd	Tubi Group Pty Ltd	28/02/2018
Series 1	Waters & Farr Ltd	Hynds	24/08/2023

# Section 2

## Access and Inspection Chambers

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Circular Precast Concrete Manhole Base (SD303)	7
Circular Manhole Cover and Frame (600 Diameter Opening)	8

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Circular Manhole Lid (SD303)  
**Material:** Reinforced Concrete

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** PS3 producer statement certifying manufacture to NZS 3109  
**Material Specification:** Precast Reinforced Concrete. Steel Reinforcing.

**Coating Specification:** N/A  
**Stiffness Ratings:** Design Loading to HN-HO-72  
**Approved Sizes:** 1050 diameter  
**Operational Life:** 100 years.  
**Other Requirements:**

- Concrete Finish: to CSS: Part 3 clause 12.9.
- Exposure Classification: External surfaces to B1 internal surfaces to B2 NZS 3101.
- Not suitable for environments with >0.2ppm H2S.
- Dimensions: As detailed on SD 303 of CSS: Part 3
- Name Plate IE branding: As per AS/NZS 4058.

Brand Name	Manufacturer	Supplier	Approval Expires
Humes Precast Manhole	Humes Pipeline Systems	Humes	27/04/2025
Hyspec	Hynds Pipe Systems Ltd	Hynds	7/04/2024

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Circular Manhole Riser (SD303)  
**Material:** Reinforced Concrete

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

**Performance Requirements**

**Manufacturing Standard:** AS/NZS 4058

**Material Specification:** Precast, Vertically Cast or Spun Reinforced Concrete. Steel Reinforcing.

**Coating Specification:** N/A

**Stiffness Ratings:** Design Loading to HN-HO-72

**Approved Sizes:** 1050 diameter

**Operational Life:** 100 years.

- Other Requirements:**
- Concrete Finish: to CSS: Part 3 clause 12.9.
  - Exposure Classification: External surfaces to B1 internal surfaces to B2 NZS 3101.
  - Not suitable for environments with >0.2ppm H2S.
  - Dimensions: As detailed on SD 303 of CSS: Part 3
  - Name Plate IE branding: As per AS/NZS 4058.
  - Risers shall key into base, lid and other risers. Keyed joints shall create a watertight seal with or without a sealant.

Brand Name	Manufacturer	Supplier	Approval Expires
Humes Precast Manhole	Humes Pipeline Systems	Humes	27/04/2025
Hyspec	Hynds Pipe Systems Ltd	Hynds	7/04/2024

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Circular Manhole Base (SD303)  
**Material:** Reinforced Concrete

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** PS3 producer statement certifying manufacture to NZS 3109  
**Material Specification:** Precast and Spun Reinforced Concrete. Steel Reinforcing.

**Coating Specification:** N/A

**Stiffness Ratings:** Design Loading to HN-HO-72

**Approved Sizes:** 1050 diameter

**Operational Life:** 100 years.

**Other Requirements:**

- Concrete Finish: to CSS: Part 3 clause 12.9.
- Exposure Classification: External surfaces to B1 internal surfaces to B2 NZS 3101.
- Not suitable for environments with >0.2ppm H<sub>2</sub>S.
- Dimensions: As detailed on SD 303 of CSS: Part 3
- Name Plate IE branding: As per AS/NZS 4058.

Brand Name	Manufacturer	Supplier	Approval Expires
Humes Precast Manhole	Humes Pipeline Systems	Humes	27/04/2025
Hyspec	Hynds Pipe Systems Ltd	Hynds	7/04/2024

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Circular Manhole Cover and Frame (600 diameter)  
**Material:** Ductile Iron (DI)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS 3996  
**Material Specification:** Ductile Iron to AS 1831

**Coating Specification:** N/A  
**Stiffness Ratings:** AS 3996 Class D  
**Approved Sizes:** 600mm diameter clear circular opening.  
**Operational Life:** 100 years  
**Other Requirements:**

- Lid shall be hinged.
- Ventilated, unsealed and sealed versions permitted.
- Weight: Maximum lift 30kg
- Covers and frames shall provide for fitment of galvanised safety grills and flood trays.
- Markings: In addition to AS 3996 clause 1.6 markings covers shall be permanently marked "WW" 25mm high and display the manufacturers batch number

Brand Name	Manufacturer	Supplier	Approval Expires
Korum	PAM Saint-Gobain	Pipe and Infrastructure	27/01/2023
Maestro	E J Picardie	Hynds	31/01/2023
Twino	E J Picardie	Hynds	31/01/2023

# Section 3

## Valves and Hydrants

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# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Sluice Valve  
**Material:** Ductile Iron (DI)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS/NZS 2638.2

**Material Specification:** Body: Ductile Iron (DI) to AS/NZS2280. Spindle: 316 Stainless Steel.  
 Seal: EPDM or Nitrile Rubber.

**Coating Specification:** Thermally bonded polymeric coating to AS/NZS 4158.

**Pressure Ratings:** PN16

**Approved Sizes:** 50NB, 65NB, 80NB, 100NB, 125NB and 150NB.

**Operational Life:** 100 Years

**Other Requirements:**

- End Configurations: Flange-Flange OR integral PE100 SDR11 PN16 pipe tails.
- Flanges shall be fully compliant with AS/NZS 4087 Figure B5.
- Operation: Clockwise to open.
- Spindle shall be extendable.
- Valves shall be supplied with a triangular spindle cap secured with a set screw. Spindle cap dimensions as per SD382.
- Name plate markings shall provide traceability of the valve.

Brand Name	Manufacturer	Supplier	Approval Expires
AVK Series 570	AVK Australia Pty Ltd.	Humes	14/02/2024
AVK Series 36/20	AVK Australia Pty Ltd.	Humes	14/02/2024
Derwent Resilient Seated Gate Valve	Derwent Industries Pty Ltd.	Derwent Industries Pty Ltd.	#N/A
Sureflow - Fig 500	AVK Australia Pty Ltd.	Asmuss Water Systems Ltd	14/02/2024
Sureflow - Auslite	AVK Australia Pty Ltd.	Asmuss Water Systems Ltd	14/02/2024
Hawle E2	Hawle Armaturenwerke GmbH	Hynds/Hygrade	31/03/2024
Hawle E3	Hawle Armaturenwerke GmbH	Hynds/Hygrade	31/03/2024
DIMax Resilient Seated Gate Valve	WeFlo Valve Co Ltd.	Reece Group	23/12/2024
Flange-Flange Resilient Seat Gate Valve	Dalian Reliable Industrial Co Ltd.	Daemco Australia Pty Ltd	16/01/2026



# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Swing Check Valve (Non-Testable)  
**Material:** Ductile Iron (DI)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS 4794  
**Material Specification:** Body: Ductile Iron to AS/NZS2280. Disc & Stem: 316 or duplex Stainless Steel. Seals: Elastomeric to AS 1646.  
**Coating Specification:** Thermally bonded polymeric coating to AS/NZS 4158.  
**Pressure Ratings:** PN16  
**Approved Sizes:** 50NB, 65NB, 80NB, 100NB, 125NB and 150NB.  
**Operational Life:** 100 years  
**Other Requirements:**

- End configuration: Flange-Flange OR lugged OR integral PE100 SDR11 PN16 pipe tails.
- Flanges: To meet full requirements of AS/NZS 4087 Figure B5.

Brand Name	Manufacturer	Supplier	Approval Expires
AVK 41/80-001	AVK Australia Pty Ltd.	Humes	14/02/2024
AVK 41/81-001	AVK Australia Pty Ltd.	Humes	14/02/2024
AVK 41/81-003	AVK Australia Pty Ltd.	Humes	14/02/2024
AVK 41/81-004	AVK Australia Pty Ltd.	Humes	14/02/2024
AVK 41/82-001	AVK Australia Pty Ltd.	Humes	14/02/2024
AVK 41/82-003	AVK Australia Pty Ltd.	Humes	14/02/2024
AVK 41/82-004	AVK Australia Pty Ltd.	Humes	14/02/2024
Ozkan Tilting Disc Check Valve	Ozkan Makina	Hygrade	24/10/2024

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Boundary Kit  
**Material:** Stainless Steel

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** WSA-07  
**Material Specification:** Body, Disc, Ball and Stem: 316 or Duplex Stainless Steel.  
 Seals: Elastomeric to AS1646. Pipe Tails: PE100 to AS/NZS 4131.

**Coating Specification:** N/A

**Pressure Ratings:** PN16

**Approved Sizes:** 32NB, 40NB and 50NB.

**Operational Life:** 100 years

**Other Requirements:**

- Composition: Boundary Kits shall consist of a full bore ball or gate isolation valve, top access swing check non-return valve and a flushing point.
- End Configurations: BSP Thread – BSP Thread or Integral PE100 SDR11 PN16 pipe tails. Pipe tail minimum length 1m.

Brand Name	Manufacturer	Supplier	Approval Expires
		Hygrade	

# Section 4

## Mechanical Couplers & Adaptors

### Fitting Type

Restrained Mechanical Coupler for PE Pipe

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# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Restrained Coupler for PE Pipe  
**Material:** Ductile Iron (DI)

**Approval Type:** Products listed below approved for use during repairs only.

## Performance Requirements

**Manufacturing Standard:** EN 14525

**Material Specification:** Body: Ductile Iron to AS1831. Seals: EPDM or Nitrile Rubber to AS1646. Bolts and nuts as per approved materials listing.

**Coating Specification:** Thermally bonded polymeric coating to AS/NZS 4158

**Pressure Ratings:** PN16

**Approved Sizes:** To suit DN63-DN180 PE100 SDR11 pipes.

**Operational Life:** 100 years

**Other Requirements:**

- End configuration: Mechanical - Mechanical OR Mechanical - Flange. Flanges to meet full requirements of AS/NZS 4087 Figure B5.
- Stainless bolts, where used, shall have an anti-galling coating.
- Nominal size, maximum angle of deflection, nominal pipe setting gap and tightening torque shall be marked on each item.
- Shall be designed specifically for use on PE pipes.
- Stainless steel support liners shall be installed in pipes.

Brand Name	Manufacturer	Supplier	Approval Expires
Super-Maxi Series 621	AVK Australia Pty Ltd.	Humes	14/02/2024
Super-MaxiSeries 623	AVK Australia Pty Ltd.	Humes	14/02/2024
System 2000 Coupler	E Hawle Armaturenwerke GmbH	Hynds	31/03/2024
System 2000 Adaptor	E Hawle Armaturenwerke GmbH	Hynds	31/03/2024

# Section 5

## Electrofusion Fittings

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# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Electrofusion Bends  
**Material:** Polyethylene (PE)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** Polyethylene (PE100) to AS/NZS 4131.

**Coating Specification:** N/A  
**Pressure Ratings:** PN16 SDR11  
**Approved Sizes:** DN40, DN50, DN63, DN75, DN90, DN110, DN125, DN140, DN160 or DN180  
**Operational Life:** 100 years  
**Other Requirements:**

- DN40-63 Approved deflections: 45 degrees.
- DN75-180 Approved deflections: 22.5, 45 and 90 degrees.
- End Configurations: Electrofusion socket - Electrofusion socket.
- Refer to Appendix 1 - PE Manufacturers Actions memo.

Brand Name	Manufacturer	Supplier	Approval Expires
AGRU	Agru Kunststofftechnik Gmbh	Hynds	9/02/2017
Frialen	Friatec Aktiengesellschaft	Humes	31/08/2023
Fusamatic	Fusion Group Ltd	Hynds	5/11/2023
+GF+	Georg Fisher Piping Systems Ltd	Hynds	27/05/2024
Plasson	Plasson Ltd, Israel	Humes, Hynds	3/02/2024
Plastitalia	Plastitalia Spa	Water Supply Products Ltd	2/11/2023
SABfuse	SAB Spa	P & I	2/11/2016

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Electrofusion Tees  
**Material:** Polyethylene (PE)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** Polyethylene (PE100) to AS/NZS 4131.

**Coating Specification:** N/A  
**Pressure Ratings:** PN16 SDR11  
**Approved Sizes:** DN40, DN50, DN63, DN75, DN90, DN110, DN125, DN140, DN160 or DN180  
**Operational Life:** 100 years  
**Other Requirements:**

- End configurations: Electrofusion sockets or spigots.
- Refer to Appendix 1 - PE Manufacturers Actions memo.

Brand Name	Manufacturer	Supplier	Approval Expires
AGRU	Agru Kunststoffechnik Gmbh	Hynds	9/02/2017
Frialen	Friatec Aktiengesellschaft	Humes	31/08/2023
Fusamatic	Fusion Group Ltd	Hynds	5/11/2023
+GF+	Georg Fisher Piping Systems Ltd	Hynds	27/05/2024
Plasson	Plasson Ltd, Israel	Humes, Hynds	3/02/2024
Plastitalia	Plastitalia Spa	Water Supply Products Ltd	2/11/2023
SABfuse	SAB Spa	P & I	2/11/2016

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Electrofusion Couplers  
**Material:** Polyethylene (PE)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** Polyethylene (PE100) to AS/NZS 4131.

**Coating Specification:** N/A  
**Pressure Ratings:** PN16 SDR11  
**Approved Sizes:** DN40, DN50, DN63, DN75, DN90, DN110, DN125, DN140, DN160 or DN180  
**Operational Life:** 100 years  
**Other Requirements:**

- End configurations: Electrofusion socket-Electrofusion socket.
- Refer to Appendix 1 - PE Manufacturers Actions memo.

Brand Name	Manufacturer	Supplier	Approval Expires
AGRU	Agru Kunststoffechnik Gmbh	Hynds	9/02/2017
Frialen	Friatec Aktiengesellschaft	Humes	31/08/2023
Fusamatic	Fusion Group Ltd	Hynds	5/11/2023
+GF+	Georg Fisher Piping Systems Ltd	Hynds	27/05/2024
Plasson	Plasson Ltd, Israel	Humes, Hynds	3/02/2024
Plastitalia	Plastitalia Spa	Water Supply Products Ltd	2/11/2023
SABfuse	SAB Spa	P & I	2/11/2016



# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Electrofusion Reducers  
**Material:** Polyethylene (PE)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** Polyethylene (PE100) to AS/NZS 4131.

**Coating Specification:** N/A  
**Pressure Ratings:** PN16 SDR11  
**Approved Sizes:** DN40, DN50, DN63, DN75, DN90, DN110, DN125, DN140, DN160 or 180  
**Operational Life:** 100 years  
**Other Requirements:**

- Total reduction shall not exceed two sizes.
- End configurations: Electrofusion socket-Electrofusion socket.
- Reducers shall be tapered with a max flare angle of 45 degrees and not stepped.
- Refer to Appendix 1 - PE Manufacturers Actions memo.

Brand Name	Manufacturer	Supplier	Approval Expires
AGRU	Agru Kunststoffechnik Gmbh	Hynds	9/02/2017
Frialen	Friatec Aktiengesellschaft	Humes	31/08/2023
Fusamatic	Fusion Group Ltd	Hynds	5/11/2023
+GF+	Georg Fisher Piping Systems Ltd	Hynds	27/05/2024
Plasson	Plasson Ltd, Israel	Humes, Hynds	3/02/2024
Plastitalia	Plastitalia Spa	Water Supply Products Ltd	2/11/2023
SABfuse	SAB Spa	P & I	2/11/2016

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Stub Flange for Electrofusion Connection to Pipe  
**Material:** Polyethylene (PE)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** Polyethylene (PE100) to AS/NZS 4131.

**Coating Specification:** N/A  
**Pressure Ratings:** PN16 SDR11  
**Approved Sizes:** DN63, DN75, DN90, DN110, DN125, DN140, DN160 or DN180  
**Operational Life:** 100 years  
**Other Requirements:**

- End configurations: Spigot (long)-Flange.
- Backing rings shall be installed on each stub flange.
- Refer to Appendix 1 - PE Manufacturers Actions memo.
- Refer to Appendix 2 - CCC Stub Flange and Backing Rings Table.

Brand Name	Manufacturer	Supplier	Approval Expires
AGRU	Agru Kunststoffechnik Gmbh	Hynds	9/02/2017
Frialen	Friatec Aktiengesellschaft	Humes	31/08/2023
Fusamatic	Fusion Group Ltd	Hynds	5/11/2023
+GF+	Georg Fisher Piping Systems Ltd	Hynds	27/05/2024
Plasson	Plasson Ltd, Israel	Humes, Hynds	3/02/2024
Plastitalia	Plastitalia Spa	Water Supply Products Ltd	2/11/2023
SABfuse	SAB Spa	P & I	2/11/2016
EnviroFab Long Spigot Stub Flange	Enviropipes Pty Ltd	Enviropipes Pty Ltd	21/02/2024
PE Slim Flange	Solo Plastics	Humes	16/12/2023
Long Spigot Stub Flange	Strata Precision Plastics	Humes, Hynds, Plumbing World	19/08/2023

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Electrofusion Transition Fitting - Male Thread  
**Material:** Polyethylene (PE)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** Body: Polyethylene (PE100) to AS/NZS 4131. Threaded section: 316 Stainless Steel.

**Coating Specification:** N/A

**Pressure Ratings:** PN16 SDR11

**Approved Sizes:** DN40, DN50 and DN63.

**Operational Life:** 100 years

**Other Requirements:**

- End configurations: electrofusion socket - metal thread (male) OR PE spigot - metal thread (male)
- Approved Deflection: 0 degrees (straight).
- Threaded section shall be metallic.
- Refer to Appendix 1 - PE Manufacturers Actions memo.

Brand Name	Manufacturer	Supplier	Approval Expires
+GF+	Georg Fisher Piping Systems Ltd	Hynds	27/05/2024
Plasson	Plasson Ltd, Israel	Humes, Hynds	3/02/2024
MacPlast	MacPlast SRL	Humes, Hynds	13/12/2024

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Electrofusion Transition Fitting - Female Thread  
**Material:** Polyethylene (PE)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** Body: Polyethylene (PE100) to AS/NZS 4131. Threaded section: 316 Stainless Steel.  
**Coating Specification:** N/A  
**Pressure Ratings:** PN16 SDR11  
**Approved Sizes:** DN40, DN50 and DN63.  
**Operational Life:** 100 years  
**Other Requirements:**

- End configurations: electrofusion socket - metal thread (female) OR PE spigot - metal thread (female)
- Approved Deflection: 0 degrees (straight).
- Threaded section shall be metallic or a metallic insert.
- Refer to Appendix 1 - PE Manufacturers Actions memo.

Brand Name	Manufacturer	Supplier	Approval Expires
+GF+	Georg Fisher Piping Systems Ltd	Hynds	27/05/2024
Plasson	Plasson Ltd, Israel	Humes, Hynds	3/02/2024
MacPlast	MacPlast SRL	Humes, Hynds	13/12/2024

# Section 6

## Butt-Weld Fusion Fittings

<b>Fitting Type</b>	<b>Page</b>
Butt-Weld Bend	24
Fabricated Bend	25
Butt-Weld Tee	26
Butt-Weld Reducer	27
Stub Flange for Butt-Fusion Connection to Pipe	28

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Butt-Weld Bends  
**Material:** Polyethylene (PE)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** Polyethylene (PE100) to AS/NZS 4131.

**Coating Specification:** N/A  
**Pressure Ratings:** PN16 SDR11  
**Approved Sizes:** 75, 90, 110, 125, 160, 180, 200, 250, 315, 355, 400 and 450 OD.  
**Operational Life:** 100 years  
**Other Requirements:**

- Approved deflections: 11.25, 22.5, 45 and 90 degrees.
- End Configurations: Spigot - Spigot.
- Refer to Appendix 1 - PE Manufacturers Actions memo.

Brand Name	Manufacturer	Supplier	Approval Expires
Plastitalia	Plastitalia Spa	Water Supply Products Ltd	2/11/2023

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Fabricated Bend  
**Material:** Polyethylene (PE)

**Approval Type:** Project specific approval required to use products listed below

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** PE100 to AS/NZS 4131

**Coating Specification:** N/A  
**Stiffness Ratings:** PN16 following re-rating as per AS/NZS 4129  
**Approved Sizes:** 75, 90, 110, 125, 160, 180, 200, 250, 315, 355, 400 and 450 OD.  
**Operational Life:** 100 years  
**Other Requirements:**

- End configurations: spigot-spigot.
- Fabricated bends shall use AS/NZS4130 pipe that is either bent following heating or mitre cut and welded.
- Refer to Appendix 1 - PE Manufacturers Actions memo.

Brand Name	Manufacturer	Supplier	Approval Expires
EnviroFab Sweep Bends	Enviropipes Pty Ltd	Enviropipes Pty Ltd	21/02/2024
EnviroFab Segment Bends	Enviropipes Pty Ltd	Enviropipes Pty Ltd	21/02/2024
PN16 Segmented Bends	Strata Precision Plastics	Humes, Hynds, Plumbing World	19/08/2023

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Butt-Weld Tees  
**Material:** Polyethylene (PE)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

### Performance Requirements

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** Polyethylene (PE100) to AS/NZS 4131.

**Coating Specification:** N/A  
**Pressure Ratings:** PN16 SDR11  
**Approved Sizes:** 75, 90, 110, 125, 160, 180, 200, 250, 315, 355, 400 and 450 OD.  
**Operational Life:** 100 years  
**Other Requirements:**

- End configurations: Spigot-Spigot-Spigot.
- Refer to Appendix 1 - PE Manufacturers Actions memo.

<b>Brand Name</b>	<b>Manufacturer</b>	<b>Supplier</b>	<b>Approval Expires</b>
Plastitalia	Plastitalia Spa	Water Supply Products Ltd	2/11/2023



# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Butt-Weld Reducers  
**Material:** Polyethylene (PE)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

**Performance Requirements**

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** Polyethylene (PE100) to AS/NZS 4131.

**Coating Specification:** N/A  
**Pressure Ratings:** PN16 SDR11  
**Approved Sizes:** 75, 90, 110, 125, 160, 180, 200, 250, 315, 355, 400 and 450 OD.  
**Operational Life:** 100 years  
**Other Requirements:**

- Total reduction shall not exceed two sizes.
- End configurations: Spigot-Spigot.
- Reducers shall be tapered with a max flare angle of 45 degrees and not stepped.
- Refer to Appendix 1 - PE Manufacturers Actions memo.

Brand Name	Manufacturer	Supplier	Approval Expires
Plastitalia	Plastitalia Spa	Water Supply Products Ltd	2/11/2023

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Stub Flange for Butt-Fusion Connection to Pipe  
**Material:** Polyethylene (PE)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** Polyethylene (PE100) to AS/NZS 4131.

**Coating Specification:** N/A  
**Pressure Ratings:** PN16 SDR11  
**Approved Sizes:** 75, 90, 110, 125, 160, 180, 200, 250, 315, 355, 400 and 450 OD.  
**Operational Life:** 100 years  
**Other Requirements:**

- End configurations: Spigot (short)-Flange.
- Backing rings shall be installed on each stub flange.
- Refer to Appendix 1 - PE Manufacturers Actions memo.
- Refer to Appendix 3 - CCC Stub Flange and Backing Rings Table.

Brand Name	Manufacturer	Supplier	Approval Expires
Short Spigot Stub Flange	Strata Precision Plastics	Humes, Hynds, Plumbing World	19/08/2023
PE Slim Flange	Strata Precision Plastics	Humes, Hynds, Plumbing World	19/08/2023
PE Buttweld Stub Flange	Solo Plastics	Humes	16/12/2023
Plastitalia	Plastitalia Spa	Water Supply Products Ltd	2/11/2023

# Section 7

## Compression Fittings

**Fitting Type**  
Compression Coupler

**Page**  
30

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Compression Couplers  
**Material:** PP/POM

**Approval Type:** Products listed below approved for use during repairs only

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4129

**Material Specification:** Body: Polypropylene (PP) or Polyoxymethylene (POM)  
 Seals: EPDM or Nitrile Rubber

**Coating Specification:** N/A

**Pressure Ratings:** PN16

**Approved Sizes:** DN40, DN50 and DN63.

**Operational Life:** 100 years

**Other Requirements:**

- End configurations: Mechanical socket-Mechanical socket.
- PP/POM support liner to be inserted in DN40-63 pipe before installing fitting.
- Stainless steel support liner to be inserted in DN75-90 pipe before installing fitting.
- Shall only be used where an electrofusion weld is not possible.

Brand Name	Manufacturer	Supplier	Approval Expires
+GF+ iJoint	Georg Fisher Piping Systems Ltd	Hynds	27/05/2024
EasyFit	Hansen Products NZ Ltd	Hansen Products NZ Ltd	29/07/2023
EasyFit ID	Hansen Products NZ Ltd	Hansen Products NZ Ltd	29/07/2023
Philmac	Philmac Pty Ltd	Marley	13/10/2023
Plassim	Plassim Fittings Ltd	Humes, RX Plastics	Expired
Plasson	Plasson Ltd, Israel	Humes, Hynds	3/02/2024
Hydroflow Blueseal	SAB Spa	Asmuss	2/11/2016
Supreme	SAB Spa	P & I	2/11/2016
Talbot	Talis-UK Ltd	Hynds	31/03/2020
Connecto Plus Ultra	Irritec SPA	Water Supply Products Ltd	8/04/2024
Epsilon Series Coupler	Elysee Irrigation Ltd	Waterworks NZ	17/01/2025
Epsilon Series Repair Coupler	Elysee Irrigation Ltd	Waterworks NZ	17/01/2025

# Section 8

## Junctions and Take-Off Fittings

<b>Fitting Type</b>	<b>Page</b>
Electrofusion Tapping Saddle	32
Electrofusion Branch Saddle	33

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Electrofusion Tapping Saddle  
**Material:** Polyethylene (PE100)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** Polyethylene (PE100) to AS/NZS 4131.

**Coating Specification:** N/A  
**Pressure Ratings:** PN16 SDR11  
**Approved Sizes:** DN40, DN50, DN63, DN75, DN90, DN110 and DN125.  
**Operational Life:** 100 years  
**Other Requirements:**

- Approved Tapping Sizes: DN40, DN50 and DN63.
- Tapping diameter shall not exceed 30% of main pipe diameter.
- End configuration: Electrofusion saddle - Electrofusion spigot.
- Tapping saddles shall be monoblock or composite design.
- Tapping saddle shall have integral pipe cutter and pipe shall NOT be tapped prior to fitting being welded and tested.
- Refer to Appendix 1 - PE Manufacturers Actions memo.

Brand Name	Manufacturer	Supplier	Approval Expires
AGRU	Agru Kunststoffechnik Gmbh	Hynds	9/02/2017
Frialen	Friatec Aktiengesellschaft	Humes	31/08/2023
Fusamatic	Fusion Group Ltd	Hynds	5/11/2023
+GF+	Georg Fisher Piping Systems Ltd	Hynds	27/05/2024
Plasson	Plasson Ltd, Israel	Humes, Hynds	3/02/2024
Plastitalia	Plastitalia Spa	P & I	2/11/2023
SABfuse	SAB Spa	P & I	2/11/2016

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Electrofusion Branch Saddle  
**Material:** Polyethylene (PE100)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

## Performance Requirements

**Manufacturing Standard:** AS/NZS 4129  
**Material Specification:** Polyethylene (PE100) to AS/NZS 4131.

**Coating Specification:** N/A  
**Pressure Ratings:** PN16  
**Approved Sizes:** DN40, DN50, DN63, DN75, DN90, DN110 and DN125.  
**Operational Life:** 100 years  
**Other Requirements:**

- Approved Branch Sizes: DN40, DN50 and DN63.
- Tapping dia shall not exceed 30% of main pipe diameter.
- End configuration: Electrofusion saddle - Electrofusion spigot.
- Drill branch saddle AFTER fitting is welded and tested.
- Branch saddles shall have no constriction less than the internal diameter of the connecting pipe.
- Refer to Appendix 1 - PE Manufacturers Actions memo.

Brand Name	Manufacturer	Supplier	Approval Expires
AGRU	Agru Kunststoffechnik Gmbh	Hynds	9/02/2017
Frialen	Friatec Aktiengesellschaft	Humes	31/08/2023
Fusamatic	Fusion Group Ltd	Hynds	5/11/2023
+GF+	Georg Fisher Piping Systems Ltd	Hynds	27/05/2024
Plasson	Plasson Ltd, Israel	Humes, Hynds	3/02/2024
Plastitalia	Plastitalia Spa	P & I	2/11/2023
SABfuse	SAB Spa	P & I	2/11/2016

# Section 9

## Surface Boxes

<b>Surface Box Type</b>	<b>Page</b>
Sluice Valve Box and Cover	35
Boundary Kit Box and Cover - Non-Trafficable	36
Boundary Kit or Flushing Point Box and Cover - Trafficable	37



# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Sluice Valve Box and Cover  
**Material:** Ductile Iron (DI)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

**Performance Requirements**

**Manufacturing Standard:** AS/NZS 3996 or BS 5834-2  
**Material Specification:** Ductile Iron to AS/NZS 2280

**Coating Specification:** N/A  
**Load Ratings:** AS3996 Class D or EN 124 Class C minimum.  
**Approved Sizes:** N/A  
**Operational Life:** 50 years  
**Other Requirements:**

- 225mm x 225mm minimum clear opening.
- Traffic Loading: Minimum AS/NZS 3996 Class D or EN 124 Class C.
- WW shall be permanently marked on lid.
- Lid and cover design shall be secure under traffic loads.

Brand Name	Manufacturer	Supplier	Approval Expires
Warrior HB54-1WW	PAM Saint Gobain	Pipe and Infrastructure	29/11/2023
Slam Lock Valve Box	RockHan Technology Co.	Hynds/Hygrade	20/05/2024

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Boundary Kit Box and Cover - Non-Trafficable  
**Material:** Polyethylene (PE)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

**Performance Requirements**

**Manufacturing Standard:** AS 4129  
**Material Specification:** Polyethylene (PE100) to AS/NZS4131.

**Coating Specification:** N/A  
**Load Ratings:** 500kg.  
**Approved Sizes:** Minimum internal dimensions 340mm x 180mm.  
**Operational Life:** 50 years.  
**Other Requirements:**

- WW shall be permanently marked on lid.

Brand Name	Manufacturer	Supplier	Approval Expires

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Boundary Kit or Flushing Point Box and Cover - Trafficable  
**Material:** Ductile Iron (DI)

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

**Performance Requirements**

**Manufacturing Standard:** AS/NZS 3996 or BS 5834-2  
**Material Specification:** Ductile Iron to AS/NZS 2280

**Coating Specification:** N/A  
**Load Ratings:** AS3996 Class D.  
**Approved Sizes:** N/A  
**Operational Life:** 50 years  
**Other Requirements:**

- 380mm x 230mm minimum clear opening.
- Traffic Loading: AS 3996 Class D.
- WW shall be permanently marked on lid.
- Lid and cover design shall be secure under traffic loads.

Brand Name	Manufacturer	Supplier	Approval Expires
Warrior HB36-1WW	PAM Saint Gobain	Pipe and Infrastructure	29/11/2023

# Section 10

## Miscellaneous

<b>Chamber Component</b>	<b>Page</b>
Steel Backing Ring	39
Galvanised Nuts, Bolts and Washers	40
Stainless Nuts, Bolts and Washers	40
Flange Gaskets	41
Camlock Fitting	41

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Steel Backing Ring  
**Material:** Carbon Steel

**Approval Type:** Products listed below approved for use as permitted by IDS and CSS

**Performance Requirements**

**Manufacturing Standard:** AS/NZS 4087  
**Material Specification:** Carbon steel to AS/NZS 3678 Grade 250.

**Coating Specification:** Thermally Bonded Polymeric to AS/NZS 4158  
**Pressure Ratings:** PN16  
**Approved Sizes:** To suit DN63-DN180 stub flanges.  
**Operational Life:** 100 years  
**Other Requirements:**  

- Minimum Thickness: As per AS/NZS 4087.
- Refer to Appendix 2 - CCC Stub Flange and Backing Rings Table.

Brand Name	Manufacturer	Supplier	Approval Expires

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Nuts, Bolts and Washers  
**Material:** Carbon Steel

**Approval Type:** Any product meeting the performance requirements may be used.

## Performance Requirements

**Manufacturing Standard:** AS 4291.1  
**Material Specification:** Carbon Steel

**Coating Specification:** Hot Dip Galvanising to AS/NZS 4680.

**Pressure Ratings:** N/A

**Approved Sizes:** N/A

**Operational Life:** 100 years

**Other Requirements:**

- Tensile Class: 8.8
- Washers shall be installed under nut and bolt head (where the heads are not encapsulated). Washer Thickness: 3mm minimum, 5mm minimum for M24 or larger bolts.
- All exposed metal surfaces including bolt heads and nuts shall be wrapped using a four part system including primer, mastic, petrolatum impregnated tape and tape overwrap.
- Bolt torque shall be between 60-65% of proof stress.

**Network:** Wastewater (LPSS)  
**Product Type:** Nuts, Bolts and Washers  
**Material:** Stainless Steel

**Approval Type:** Any product meeting the performance requirements may be used.

## Performance Requirements

**Manufacturing Standard:** AS 4291.1  
**Material Specification:** 316 or A4 Stainless Steel

**Coating Specification:** N/A

**Pressure Ratings:** N/A

**Approved Sizes:** N/A

**Operational Life:** 100 years

**Other Requirements:**

- Washers shall be installed under nut and bolt head (where the heads are not encapsulated). Washer Thickness: 3mm minimum, 5mm minimum for M24 or larger bolts.
- All exposed metal surfaces including bolt heads and nuts shall be wrapped using a four part system including primer, mastic, petrolatum impregnated tape and tape overwrap.
- Bolt torque shall be between 60-65% of proof stress.

# Approved Materials List

**Network:** Wastewater (LPSS)  
**Product Type:** Flange Gasket  
**Material:** EPDM or Nitrile Rubber

**Approval Type:** Any product meeting the performance requirements may be used.

## Performance Requirements

**Manufacturing Standard:** WSA 109

**Material Specification:** Ethylene Propylene Diene Monomer (EPDM) or Nitrile Butadiene Rubber (NBR)

**Coating Specification:** N/A

**Pressure Ratings:** N/A

**Approved Sizes:** 80NB, 100NB, 150NB, 200NB, 300NB, 375NB, 450NB and 600NB.

**Operational Life:** 100 years

**Other Requirements:**

- Product shall be certified to AS/NZS 4020 or DWI (UK).
- Elastomeric gaskets shall be 3 mm or greater thick.
- Elastomeric gaskets shall be reinforced

**Network:** Wastewater (LPSS)  
**Product Type:** Camlock Fitting  
**Material:** Stainless Steel

**Approval Type:** Any product meeting the performance requirements may be used.

## Performance Requirements

**Manufacturing Standard:**

**Material Specification:** Body: 316L Stainless Steel.  
Seals: Nitrile Rubber to AS 1646.

**Coating Specification:** N/A

**Pressure Ratings:** PN16

**Approved Sizes:** 50NB

**Operational Life:** 50 years.

**Other Requirements:**

- End configurations: male camlock outlet - Male BSP Thread or Female BSP Thread.
- Shall be fitted with stainless steel cam-lock dust cap when not in use.

# **Appendix 1**

## **PE Manufacturers Action Memo**



# Polyethylene Pipe and Fitting Manufacturer

## Actions Memorandum

PE pipe and any approved striping shall only be manufactured from 100% virgin raw materials.

### Quality Assurance records

The manufacturer shall provide quality assurance records, particularly Melt flow rate and Thermal stability testing results, to the Engineer with each batch of pipe and fittings.

The Melt flow rate (MFR) test shall be determined in accordance with ISO 1133. A batch is as defined in clause A3.2 of AS/NZS 4130. The results can be for the resin from which the pipe batch was manufactured.

The MFR of the black or coloured compound shall not deviate by more than 30% from the value nominated by the compound manufacturer in accordance with cl 4.1.2 AS/NZS 4131.

Thermal stability shall be confirmed by determining the oxidation induction time (OIT) of a test specimen taken from the inside surface of the PE pipe and tested in accordance with ISO 11357-6 using oxygen at a test temperature of 200 deg C.

The OIT shall be equal to or greater than 20 minutes in accordance with cl 10.3 AS/NZS 4130.

### Pre-supply Compatibility testing

Prior to the delivery of pipes and fittings, the manufacturer or supplier shall have the following complying tests undertaken by an accredited laboratory with all test results being forwarded to the Engineer.

The tests will apply to each pipe batch (and batch of fittings as applicable) and include two butt fusion welds, two electrofusion joint welds, two electrofusion saddle joint welds and two stub flange butt weld joints, with results being identified by pipe batch number. Where the weld type is not required by the project, testing for that weld type is not required.

- Tensile tests shall be in accordance with ISO 13953
- Peel decohesion tests shall be in accordance with ISO 13954 for pipe diameters 90mm and larger.
- Crushing decohesion tests shall be in accordance with ISO 13955 for pipe diameters smaller than 90mm.
- Saddle decohesion test shall be in accordance with ISO 13956

### Compatibility Statement, welding parameters and witness mark measurements for electrofusion couplers

The following information shall be supplied by the manufacturer or supplier to the Engineer prior to delivery of pipe and fittings.

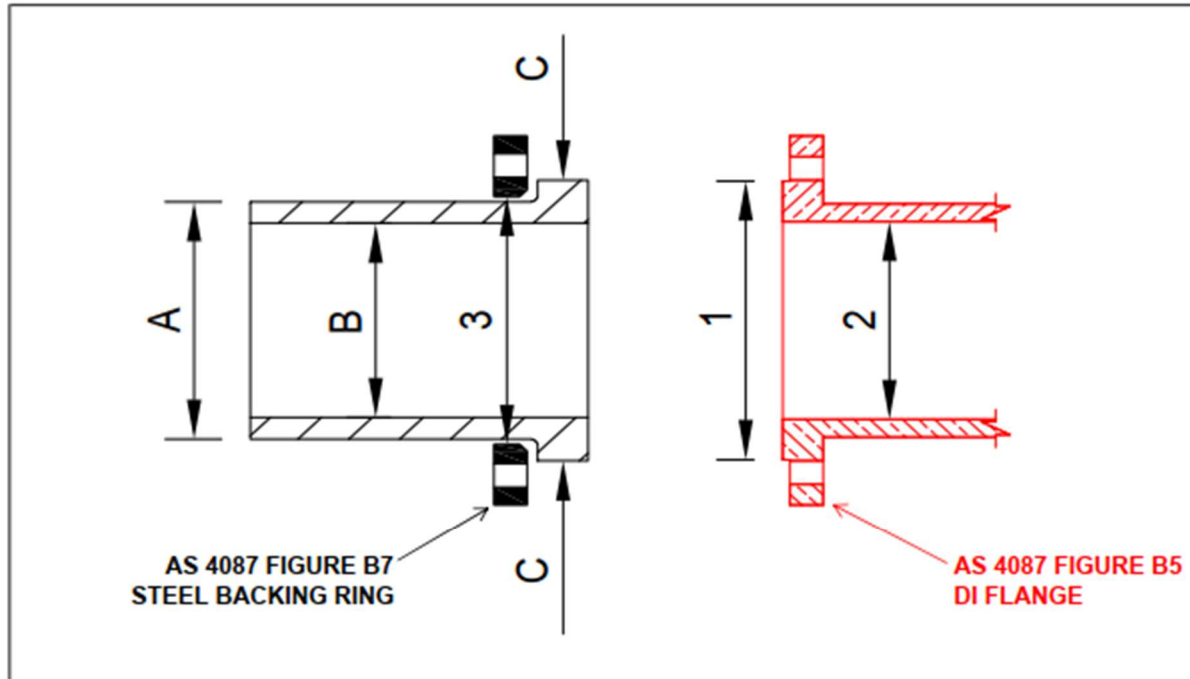
- The manufacturer shall state which fittings and batches of fittings have been tested as compatible with their PE pipe with reference to pipe batch numbers. This testing can apply to more than one project if the two projects are supplied from the same batch.
- Welding parameters for butt fusion and electrofusion couplers which have been confirmed by testing as applicable and compatible for the pipe and fittings shall be supplied, along with the welding plant model details.
- Witness mark measurements for the supplied electrofusion couplers shall be supplied by the manufacturer.

# **Appendix 2**

## **Stub Flange and Backing Ring Table**

# Stub Flange and Backing Ring Tables

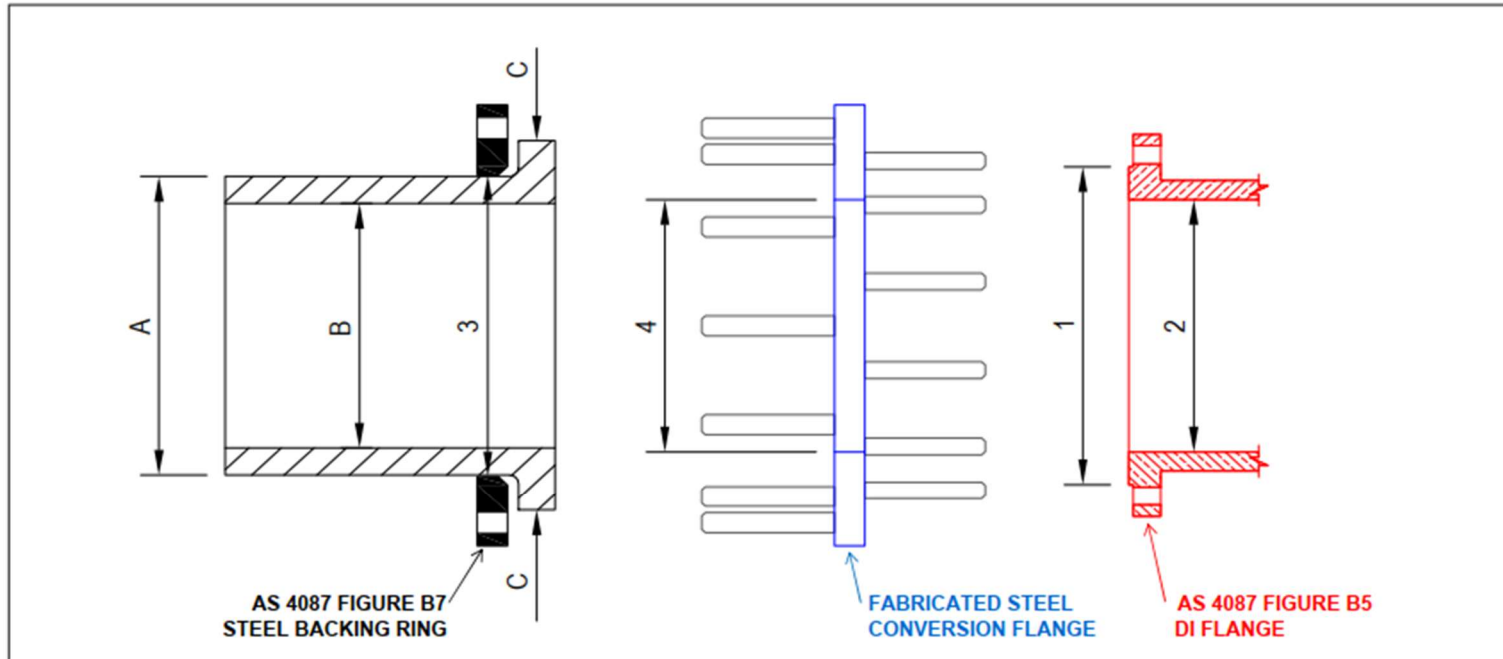
## Conventional PE Stub Flange and Backing Ring



Nominal Bore	A (OD of PE)	SDR	B (ID of PE)	Back. Ring Flange Size* (see notes)	C (OD of PE Flange)	1 (OD of 4087 Raised Face)	% of Raised Face Engaged by PE Flange	2 (ID of Fitting)	Step in Bore	3 Backing Ring ID (from POP007)
100	125	13.6	108.6	100	164	154	99%	100	negligible	135
100	125	11.0	102.3	100	164	154	99%	100	negligible	135
150	180	13.6	153.5	150	220	211	99%	150	negligible	188
150	180	11.0	147.3	150	220	211	100%	150	negligible	188

\* Note: Steel Backing Rings Shall Comply With AS 4087 Figure B7

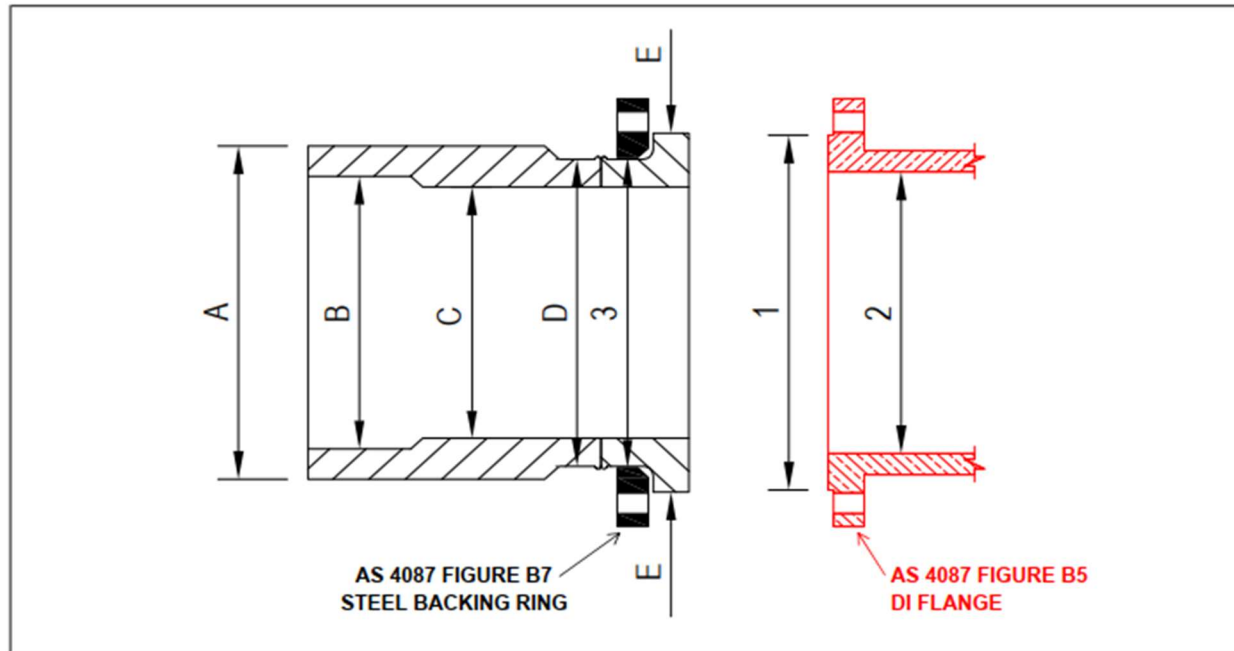
# Conventional PE Stub Flange and Backing Ring with Conversion Flange



Nominal Bore	A (OD of PE Pipe)	SDR	B (ID of PE Pipe)	Back. Ring Flange Size* (from POP007) (see notes)	3 Back. Ring Flange ID (from POP007)	C (OD of PE Flange)	4 (ID of Conversion Flange)	Thickness of Conversion Flange	1 (OD of 4087 Raised Face)	% of Raised Face Engaged by PE Flange	Backing Ring ID (from POP007)	2 (ID of Fitting)	Step in Bore	Conversion Flange
100	125	13.6	106.6	100	135	164	N/A	N/A	154	99%	128	100	negligible	not required
100	125	11.0	102.3	100	135	164	N/A	N/A	154	99%	128	100	negligible	not required
150	180	13.6	153.5	150	188	220	N/A	N/A	211	99%	188	150	negligible	not required
150	180	11.0	147.3	150	188	220	N/A	N/A	211	100%	188	150	negligible	not required
200	250	13.6	213.2	250	288	332	200	30 mm	268	100%	288	200	approx. 12 mm	250 x 200
200	250	11.0	204.5	250	288	332	200	30 mm	268	100%	288	200	approx. 10 mm	250 x 200
300	355	13.6	302.8	350	376	442	300	30 mm	378	100%	376	300	negligible	350 x 300
300	355	11.0	290.5	350	376	442	300	30 mm	378	100%	376	300	approx. 10 mm	350 x 300
300	400	13.6	341.2	400	430	491	300	30 mm	378	100%	430	300	approx. 30 mm	
300	400	11.0	327.3	400	430	491	300	30 mm	378	100%	430	300	approx. 25 mm	
375	450	13.6	383.8	450	470	556	375	30 mm	463	100%	470	375	negligible	
375	450	11.0	368.2	450	470	556	375	30 mm	463	100%	470	375	negligible	

\* Note: Steel Backing Rings Shall Comply With AS 4087 Figure B7

# TYCO Pattern Slimline PE Stub Flange and Backing Ring



Nominal Bore	A (OD of PE Pipe)	SDR	B (ID of PE Pipe)	D (OD of Stub Flange - Flange End)	C (ID of Stub Flange - Flange End)	E (OD of PE Flange)	Back. Ring Flange Size* (see notes)	1 (OD of 4087 Raised Face)	% of Raised Face Engaged by PE Flange	3 Backing Ring ID (from Tyco)	2 (ID of Fitting)	Step in Bore	Conversion Flange
100	125	13.6	106.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
100	125	11.0	102.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
150	180	13.6	153.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
150	180	11.0	147.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
200	250	13.6	213.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
200	250	11.0	204.5	233.0	190.6	271.0	200	268	100%	237	200	approx. 10 mm	not required
300	355	13.6	302.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
300	355	11.0	290.5	327.0	267.5	382.0	300	378	100%	331	300	approx. 30 mm	not required
300	400	13.6	341.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
300	400	11.0	327.3	327.0	267.5	382.0	300	378	100%	331	300	approx. 30 mm	not required
375	450	13.6	383.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
375	450	11.0	368.2	439.0	359.0	465.0	375	463	100%	443	375	approx. 16 mm	not required

Note: red text indicates size is estimated by GHD - not designed by Tyco

\* Note: Steel Backing Rings Shall Comply With AS 4087 Figure B7

## PE to DI Conversion Flange

DN	OD - Flange		OD - Raised Face		PCD		Number of Bolts		Fastener		Hole Size	
	AS 4087	BS10 Table D	AS 4087	BS10 Table D	AS 4087	BS10 Table D	AS 4087	BS10 Table D	AS 4087	BS10 Table D	AS 4087	BS10 Table D
100	215	215	154	154	178	178	4	4	M16	M16	18	18
150	280	280	211	211	235	235	8	8	M16	M16	18	18
200	335	335	268	268	292	292	8	8	M16	M16	18	18
250 <sup>1</sup>	405	405	328	328	356	356	8	8	M20	M20	22	22
300	455	455	378	378	406	406	12	12	M20	M20	22	22
350 <sup>2</sup>	525	525	438	438	470	470	12	12	M24	M24	26	26
375 <sup>3</sup>	550	N/A	463	N/A	495	N/A	12	N/A	M24	N/A	26	N/A
400	580	580	489	489	521	521	12	12	M24	M24	26	26

- Notes:
- <sup>1</sup> used with DN 250 stub flange
  - <sup>2</sup> used with DN355 stub flange
  - <sup>3</sup> there is no DN375 in BS10 Table D

