

Water Supply and Sewerage Approved Products Manual 2024

Water Pipeline Systems – Mild Steel (MS) Water
Pipeline Systems

Section WPS 03

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Abbreviation	In full
AS	Australian Standard
AS/NZS	Australian / New Zealand Standard
WSA PS	Water Services Association Product Specification

1 Pipes

1.1 Mild steel pipe

Compliance	Size DN (mm)	Length (m)	Products	Manufacturers
AS/NZS 1579	150	6		Steel mains
WSA PS - 203	225	9		SINTAKOTE
AS 4321	300	12.2		
AS 1281	375	13.5		
	450			
	500			
	600			
	750			

Notes:

- Not to be installed near electricity transmission lines
- For mains where higher structural strength is required
- Internal and external corrosion protection is required
- SINTAKOTE offers sizes from 168mm OD to 2500mm OD. Larger sizes require approval from a Power and Water representative
- SINKTAKOTE offers Pressure Nominal (PN) of up to 6.8 MPa
- Rubber ring joint (RRJ) requires approval from a Power and Water representative
- High pH can develop in water, particularly in small diameter cement mortar lined pipelines where the water is aggressive and the flow rate is low resulting in long retention time. Seal coatings can be used to restrict leaching from the cement mortar lining. Subject to assessment of the cement mortar lining's effect on elevating pH, the use of a seal coating (like AkzoNobel Interline 876 or equivalent) may be required. In such cases, approval from Power and Water is required before use.

2 Fittings

2.1 Fitting notes

Shall comply with the following standards and specification:

- AS/NZS 1579: Arc-welded steel pipes and fittings for water and wastewater.
- WSA PS – 203: Steel pipes for pressure and non-pressure applications – Drinking water, non-drinking water supply and sewerage.
- AS 4321: Fusion-bonded medium-density polyethylene coating and lining for pipes and fittings.
- AS 1281: Cement mortar lining of steel pipes and fittings.

Sizes DN (mm): 150, 225, 300, 375, 450, 500, 600 and 750.


Notes:

- Approval to use steel mains SINTAKOTE range of fittings.
- Not to be installed near electricity transmission lines.
- For mains where higher structural strength is required.
- Internal and external corrosion protection is required.
- SINTAKOTE offers sizes from 168mm OD to 2500mm OD. Larger sizes require approval from a Power and Water representative.
- SINKTAKOTE offers Pressure Nominal (PN) of up to 6.8 MPa.
- Rubber ring joint (RRJ) requires approval from a Power and Water representative.
- High pH can develop in water, particularly in small diameter cement mortar lined pipelines where the water is aggressive and the flow rate is low resulting in long retention time. Seal coatings can be used to restrict leaching from the cement mortar lining. Subject to assessment of the cement mortar lining's effect on elevating pH, the use of a seal coating (like AkzoNobel Interline 876 or equivalent) may be required. In such cases, approval from Power and Water is required before use.

2.2 Bends

Bends	Products	Manufacturers
11° 22.5° 25° 45° 90°		Steel mains SINTAKOTE

2.3 Tees

Products	Manufacturers
	Steel mains SINTAKOTE

2.4 Reducers

Products	Manufacturers
	Steel mains SINTAKOTE

2.5 Spool

Products	Manufacturers
	Steel mains SINTAKOTE

2.6 Combination

Products	Manufacturers
	Steel mains SINTAKOTE

Note: Steel mains can produce combination fittings but limitations exist for transportation purposes.

3 Specifications

3.1 Steel pipes

Shall comply with the following standard:

- AS 1579:2001 – Arc-welded steel pipes and fittings for water and wastewater.

Design:

- Arc-welded steel pipes with butt-welded seams, either welded longitudinally, circumferentially or spirally.
- The standard defines nominal pipe sizes and the true outside diameters for those pipes. Pipe sizes are not restricted to these nominal sizes, and upon request from the purchaser, can be made to any outside diameter equal to or greater than 114 mm.
- Fittings are protected from corrosion by suitable coating and lining.

Materials:

- Pipes:
 - Structural or analysis grade steel to AS 1594 or 3678.
- Weld:
 - Complete penetration butt welds to AS 1554.1 category SP (structural purpose). Double sided welds are specified.
- Internal lining:
 - Cement mortar to AS 1281 using General Purpose (GP) or Sulphate Resisting (SR) cement and inert aggregate
 - Polyethylene coating to AS 4321
 - Other linings may be applied as specified by the manufacturer.
- External coating:
 - Polyethylene coating to AS 4321
 - Other linings may be applied as specified by the manufacturer.
- Socket lining:
 - Polyethylene coating to AS 4321
 - Other linings may be applied as specified by the manufacturer.
- Joint seal:
 - Approved elastomer to AS 1646.

Jointing:

- Joint types:
 - Butt weld spigots (plain butt joint, butt joint with collar)
 - Fillet weld spigot-socket (spherical slip-in joint, ball and socket joint)
 - Flanged
 - Elastomeric sealed spigot-socket
 - Combination elastomeric sealed spigot-socket with fillet lock weld.

Effective length:

- 6, 9 or 12 meter lengths normally available. Longer lengths available on special request.

Allowable operating pressure:

- Dependent on pipe diameter, wall thickness and material grade.

Seal coat:

- Leaching of calcium from cement mortar linings can cause the pH of delivered water to exceed water quality guidelines, particularly if flow through new mains is low or mains are smaller than DN450. The provision of a seal coat over the internal surface of the cement mortar lining is strongly recommended for Darwin, Yulara and Borroloola, where water quality parameters accelerate leaching of calcium from cement mortar linings. For Adelaide River, Pine Creek and Kings Canyon, technical advice should be sought from the supplier on the requirement for a seal coat for the proposed duty. Seal coat must satisfy the requirements of ISO 16132 and AS/NZS 4020. AzkoNobel Interline 876 is currently approved for use as a seal coat or equivalent product can be considered.

Pipe sizes used by Power and Water:

Diameter Nominal (DN)	Outside Diameter (OD)
150	168
225	257
300	337
375	419
450	508
600	660
750	813

Markings:

- Unique serial number
- Place of manufacture
- Outside diameter
- Wall thickness
- Australian standard number (i.e. AS 1579)
- Manufacturers name or registered trademark
- For hydrostatically tested pipes only, the rated pressure, in MegaPascals (MPa)
- For non-hydrostatically tested pipes, the words "Not hydrostatically tested"
- For pipes complying with AS/NZS 4020, the words "AS/NZS 4020".

Marking method:

- Legibly and permanently marked on the external surface no closer than 300 mm from an end.

Use limits:

- Welding of joints to be performed by qualified welders
- Welded joints to have reinstatement of protection systems on site
- Special design required for welded installations parallel to high voltage (>66kV) transmission lines
- Polyethylene coating should not be used where there is extended exposure to direct sunlight.
- Use approved paint schemes for aboveground piping
- Medium density fusion bonded polyethylene coating should not be used where there is extended exposure to direct sunlight.

3.2 Steel fittings

Shall comply with the following standard:

- AS 1579:2001 – Arc-welded steel pipes and fittings for water and wastewater.

Design:

- Arc-welded steel fittings with butt-welded seams, either welded longitudinal, circumferential or spiral
- The standard also sets out the nominal fitting sizes and the true outside diameters for those fittings. Fitting sizes are not restricted to these nominal sizes, and upon request from the purchaser, can be made to any outside diameter equal to or greater than 114 mm
- Fittings are protected from corrosion by suitable coating and lining.

Materials:

- Fittings:
 - Structural or analysis grade steel to AS 1594 or 3678.
- Weld:
 - Complete penetration butt welds to AS 1554.1 category SP (structural purpose)
 - Single sided welds are permitted if full penetration is achieved.
- Internal lining:
 - Cement mortar to AS 1281 using General Purpose (GP) or Sulphate Resisting (SR) cement and inert aggregate
 - Polyethylene coating to AS 4321
 - Other linings may be applied as specified by the manufacturer.
- External coating:
 - Polyethylene coating to AS 4321
 - Other linings may be applied as specified by the manufacturer.
- Socket lining:
 - Polyethylene coating to AS 4321
 - Other linings may be applied as specified by the manufacturer.
- Joint seal:
 - Approved elastomer to AS 1646.

Jointing:

- Joint types:
 - Butt weld spigots (plain butt joint, butt joint with collar)
 - Fillet weld spigot-socket (spherical slip-in joint, ball and socket joint)
 - Flanged
 - Elastomeric sealed spigot-socket
 - Combination elastomeric sealed spigot-socket with fillet lock weld.

Markings:

- Unique serial number
- Place of manufacture
- Outside diameter
- Wall thickness
- Australian standard number (i.e. AS 1579)
- Manufacturers name or registered trademark
- For fittings complying with AS/NZS 4020, the words “AS/NZS 4020”.

Marking method:

- Legibly and permanently marked on the external surface no closer than 300 mm from an end.

Use limits:

- Welding of joints to be performed by qualified welders
- Welded joints to have reinstatement of protection systems on site
- Special design required for welded installations parallel to high voltage (>66kV) transmission lines
- Polyethylene coating should not be used where there is extended exposure to direct sunlight.
- Use approved paint schemes for aboveground piping
- Medium density fusion bonded polyethylene coating should not be used where there is extended exposure to direct sunlight.

Contact

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