

Water Supply and Sewerage Approved Products Manual - February 2006

Water Supply – Steel Pipeline System

Section WPS 06

SPECIFICATIONS		A	
	WPS 06-S1	STEEL PIPES	A
	WPS 06-S2	STEEL FITTINGS	C
PIPES		1	
	TYCO ARC WELDED STEEL PIPE	1	
FITTINGS		2	
	STEEL FITTINGS TO SUIT TYCO ARC WELDED PIPE	2	
EXTERNAL CORROSION PROTECTION		3	

WPS 06-S1 STEEL PIPES

STANDARD	AS 1579:2001 Arc welded steel pipes and fittings for water and waste water
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	<p>Pipe: Structural or analysis grade steel to AS 1594 or 3678</p> <p>Weld: Complete penetration butt welds to AS 1554.1 category SP. Double sided welds are specified</p> <p>Internal lining: Cement mortar to AS 1281 using GP or SR cement and inert aggregate Polyethylene coating to AS 4321 Other linings may be applied as specified by the purchaser</p> <p>External coating: Polyethylene coating to AS 4321 Other linings may be applied as specified by the purchaser</p> <p>Socket lining: Polyethylene coating to AS 4321 Other linings may be applied as specified by the purchaser</p> <p>Joint seal: Approved elastomer to AS 1646.1 and 1646.2 or AS 1646.3</p>
JOINTING	<p>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</p>
EFFECTIVE LENGTH	6, 9 or 12 metre 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. Azko Nobel Interline 876 is currently approved for use as a seal coat.

PIPE SIZES USED BY POWER AND WATER	CURRENTLY USED FOR NEW CONSTRUCTION		NO LONGER USED FOR NEW CONSTRUCTION	
	Nominal Size	Outside Diameter	Nominal Size	Outside Diameter
	DN	mm	DN	mm
	100	114	100	121
	150	168	150	178
	225	257	525	559
	300	337	825	889
	375	419	1100	1206
	450	508		
	600	660		
	750	813		
	1000	1067		

MARKINGS	Unique serial number Place of manufacture Outside diameter Wall thickness Australian standard number i.e. AS1579 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 'AS/NZS 4020'
MARKING METHOD	Legibly and permanently marked on the external surface no closer than 300 mm from an end
USE LIMITS	<ul style="list-style-type: none">• 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

WPS 06-S2 STEEL FITTINGS

STANDARD	AS 1579:2001 Arc welded steel pipes and fittings for water and waste water												
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	<table border="0"> <tr> <td style="padding-right: 10px;">Fitting:</td> <td>Structural or Analysis grade steel to AS 1594 or 3678</td> </tr> <tr> <td>Weld:</td> <td>Complete penetration butt welds to AS 1554.1 category SP. Single sided welds are permitted if full penetration achieved.</td> </tr> <tr> <td>Internal lining:</td> <td>Cement mortar to AS 1281 using GP or SR cement and inert aggregate Polyethylene coating to AS 4321 Other linings may be applied as specified by the purchaser</td> </tr> <tr> <td>External coating:</td> <td>Polyethylene coating to AS 4321 Other coatings may be applied as specified by the purchaser</td> </tr> <tr> <td>Socket lining:</td> <td>Polyethylene coating to AS 4321 Other coatings may be applied as specified by the purchaser</td> </tr> <tr> <td>Joint seal:</td> <td>Approved elastomer to AS 1646.1 and 1646.2 or AS 1646.3</td> </tr> </table>	Fitting:	Structural or Analysis grade steel to AS 1594 or 3678	Weld:	Complete penetration butt welds to AS 1554.1 category SP. Single sided welds are permitted if full penetration achieved.	Internal lining:	Cement mortar to AS 1281 using GP or SR cement and inert aggregate Polyethylene coating to AS 4321 Other linings may be applied as specified by the purchaser	External coating:	Polyethylene coating to AS 4321 Other coatings may be applied as specified by the purchaser	Socket lining:	Polyethylene coating to AS 4321 Other coatings may be applied as specified by the purchaser	Joint seal:	Approved elastomer to AS 1646.1 and 1646.2 or AS 1646.3
Fitting:	Structural or Analysis grade steel to AS 1594 or 3678												
Weld:	Complete penetration butt welds to AS 1554.1 category SP. Single sided welds are permitted if full penetration achieved.												
Internal lining:	Cement mortar to AS 1281 using GP or SR cement and inert aggregate Polyethylene coating to AS 4321 Other linings may be applied as specified by the purchaser												
External coating:	Polyethylene coating to AS 4321 Other coatings may be applied as specified by the purchaser												
Socket lining:	Polyethylene coating to AS 4321 Other coatings may be applied as specified by the purchaser												
Joint seal:	Approved elastomer to AS 1646.1 and 1646.2 or AS 1646.3												
JOINTING	<table border="0"> <tr> <td style="padding-right: 10px;">Types permitted:</td> <td>Butt weld spigots (plain butt joint, butt joint with collar)</td> </tr> <tr> <td></td> <td>Fillet weld spigot-socket (spherical slip-in joint, ball and socket joint)</td> </tr> <tr> <td></td> <td>Flanged</td> </tr> <tr> <td></td> <td>Elastomeric sealed spigot-socket</td> </tr> <tr> <td></td> <td>Combination elastomeric sealed spigot-socket with fillet lock weld</td> </tr> </table>	Types permitted:	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		
Types permitted:	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	<p>Unique serial number Place of manufacture Outside diameter Wall thickness Australian standard number i.e. AS1579 Manufacturer's name or registered trademark For fittings compiling with AS/NZS 4020 'AS/NZS 4020'</p>												
MARKING METHOD	Legibly and permanently marked on the external surface no closer than 300 mm to from an end												
USE LIMITS	<ul style="list-style-type: none"> • 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 												

TYCO ARC WELDED STEEL PIPE

Coating/Lining Options				Jointing Options				
UC	SK ¹	P ²	CL ³	BSJ	BV	SB	SSJ	RRJ
✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁴

NOTES

1. Fusion bonded polyethylene cannot be used as a lining option where welded joints are to be used
2. Paint product is to be specified by purchaser and approved by Power and Water
3. Lining option only
4. Not available in sizes less than DN300
5. Tyco considers flanged pipes as fittings

KEY

Lining/Coating Options

- UC Uncoated
- SK Sintakote - Fusion bonded polyethylene (FBPE)
- P Paint
- CL Cement mortar lining

Jointing Options

- BSJ Ball and socket joint
- BV Plain end with bevel
- SB Plain end with weld band
- SSJ Spherical slip in joint
- RRJ Rubber ring joint

**STEEL FITTINGS TO SUIT
TYCO ARC WELDED PIPE**

Tyco Water



Note: Project specific approval can be sought from Power and Water to fabricate fittings, subject to:

- Fabrication off-site in a suitable workshop
- Agreed procedures for repair / reinstatement of cement mortar lining
- Agreed procedures for repair / reinstatement of external coatings
- Welding of joints is performed by qualified welders
- Agreed procedures for non-destructive testing of welds
- Structural certification by an independent engineer

**EXTERNAL CORROSION PROTECTION
POLYETHYLENE SLEEVING & PETROLATUM SYSTEM
REFER TO SECTION WO 05 CORROSION PROTECTION**