Pressure Sewerage

CORROSION PROTECTION

Section SPO 04

SPO 04-S1 POLYETHYLENE SLEEVING FOR DI PIPE AND FITTINGS

STANDARD
AS 3680:1989 Polyethylene sleeving for ductile iron pipelines
AS 3681:1989 Guidelines for the application of polyethylene sleeving to ductile iron pipe & fittings

DRAWING
W1-2-17A Mainlaying application of sleeving for corrosion protection of DICL pipes
W1-2-17B Mainlaying application of sleeving for corrosion protection of DICL fittings

DESIGN
Polyethylene sleeving of ductile iron pipelines is intended to prevent surrounding aggressive soils/groundwater contacting the pipeline and causing corrosion. Free flow of ground water within the sleeving is not acceptable and would not be expected occur with properly installed sleeving. The effectiveness of sleeving is not impaired by the presence of condensate or small amounts of water that may be trapped within the sleeve.

MATERIAL
Non-regenerated linear low density polyethylene (nominal melt flow index of 1.0 max)

DIMENSIONS

Nominal size	Layflat tube width (mm)		Nominal size	Layflat tube width (mm)	
	Pipes	Flanged fittings		Pipes	Flanged fittings
80 or 100	350	425	375	875	875
150	425	425	450 or 500	1100	1100
225 or 250	635	635	600	1270	1270
300	725	725	750	1500	1500

Thickness: 200 μm minimum ± 20 μm

Nominal size	Sleeves per roll	Nominal size	Sleeves per roll
80 or 100	30	375	12
150	25	450 or 500	10
225 or 250	17	600	8
300	15	750	7

COLOUR
Sewerage - Cream

MARKING
Manufacturer's name
Date of manufacture (mm/yyyy)
Nominal pipe size
Applicable standard
Number of sleeves per roll (on packaging)
Batch (not in AS 3680)

USE LIMITS
Do not use unrolled lengths of sleeving stored unprotected from sunlight for more than 7 days.

SPO 04-S2 ADHESIVE TAPE FOR SECURING POLYETHYLENE SLEEVING

STANDARD
AS 3680:1989 Polyethylene sleeving for ductile iron pipelines
AS 2400.12:1985 SAA Packaging code Part 12: Adhesive closing and sealing tapes

DESIGN
Pressure sensitive adhesive tape for securing polyethylene sleeving is to have:
- minimum adhesion to steel of 10N for 25mm of width
- minimum breaking strength: 130N for 25mm of width

MATERIALS
PVC, polypropylene or polyethylene

DIMENSIONS
Width: 48 mm minimum
Thickness: As appropriate to achieve minimum breaking strength

SPO 04-S3 STRAP & BUCKLE FOR SECURING POLYETHYLENE SLEEVING

STANDARD
AS 3680:1989 Polyethylene sleeving for ductile iron pipelines

DESIGN
The strap is to have:
- minimum breaking strength of 500N
- maximum elongation of 5% at breaking

The strap buckle is to:
- be of sufficient size and shape to accommodate appropriate strapping
- allow tension of strap to be maintained.

MATERIALS
Polypropylene or other material with similar chemical properties.

DIMENSIONS
Strap Width: 15 mm minimum
Strap Thickness: 0.3 mm minimum

SPO 04-S4 PETROLATUM TAPE SYSTEM

STANDARD	AWWA C217	Cold Applied Petrolatum Tape and Petroleum Wax Tape Coatings for the Exterior of Special Sections, Connections and Fittings for Buried Steel Water Pipelines
	DIN 30672	Coatings of Corrosion Protection Tapes and Heat Shrinkable Material for Pipelines

DESIGN

The petrolatum system comprises four parts being 1) primer paste, 2) mastic, 3) petrolatum tape and 4) overwrap tape. The primer paste is first applied to surfaces free of water droplets and loose rust, scale, mud, paint etc. The mastic is then used to contour all sharp and irregular profiles to prevent bridging and subsequent perforation or tearing of overlying tape. Petrolatum tape having the heavy compound side down is then spirally wound about components without stretching. Tape is overlapped 55% for consistent full double thickness and tape is smoothed by hand to remove voids, ensure intimate contact and seal the tape overlaps. Finally the overwrap plastic tape is spirally wound without stretching to achieve 55% overlap for consistent double thickness. Overwrap provides mechanical protection against backfill, stray electrical current and leaching.

MATERIALS	Primer paste:	Petrolatum (saturated petroleum based hydrocarbons), inert fillers and passivating agents
	Mastic:	Petrolatum (saturated petroleum hydrocarbons), inert fillers, reinforcing synthetic fibres
	Petrolatum tape:	Non-woven synthetic fabric, fully impregnated and coated with neutral petrolatum based compounds and inert fillers
	Overwrap tape:	Plasticised PVC coated with a rubber based adhesive

DIMENSIONS	Petrolatum tape widths:	50, 75, 100, 150, 200 mm
	Overwrap tape widths:	50, 100, 150 mm

MASTIC COVERAGE

Nominal size	Flanges pair (kg)	Nominal size	Flanges pair (kg)
80	2.15	300	8.65
100	2.85	375	10.6
150	4.30	450	12.85
200	5.70	500	14.30
225	6.50	600	17.25
250	7.25	750	21.35

Note: the above quantities are approximate only and depend upon application conditions

PACKAGING	Primer paste:	Tins, boxes or drums
	Mastic:	Blocks
	Primary Tape	Rolls
	Overwrap Tape	Rolls

PACKAGING MARKING: Manufacturer's name or trademark

MARKING METHOD: Legible and durable marking

USE LIMITS

For bolted joints with bituminous coatings (e.g. flanged joints, gibault joints, dismantling joints using galvanised bolts
Do not use where stainless steel bolts are used
Do not use to wrap welded joints of steel pipe having polyethylene coating, e.g Sintakote.

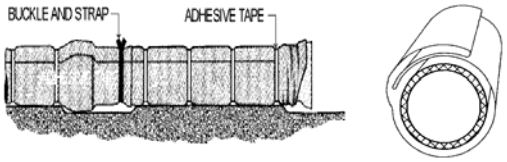
SPO 04-S5 BITUMEN TAPE SYSTEM

STANDARD	AWWA C217	Cold Applied Petrolatum Tape and Petroleum Wax Tape Coatings for the Exterior of Special Sections, Connections and Fittings for Buried Steel Water Pipelines
	DIN 30672	Coatings of Corrosion Protection Tapes and Heat Shrinkable Material for Pipelines
DESIGN	The bitumen tape system comprises of three parts being 1) primer liquid, 2) mastic strip, 3) tape. The primer paste is first applied to surfaces free of water droplets and loose rust, scale, mud, paint etc. The mastic is then used to contour all sharp and irregular profiles to prevent bridging and subsequent perforation or tearing of overlying tape. Tape having the heavy compound side down is then spirally wound about components without stretching. Tape is overlapped 55% for consistent full double thickness and tape is smoothed by hand to remove voids, ensure intimate contact and seal the tape overlaps.	
MATERIALS	Primer liquid:	High softening point bitumen liquid hydrocarbon
	Mastic strip:	Permanent plastic mastic
	Tape:	Non-woven synthetic fabric, fully impregnated and coated with neutral petrolatum based compounds and inert fillers
DIMENSIONS	Mastic strip widths:	50, 100 mm
	Tape widths:	50, 100, 150 mm
PACKAGING	Primer paste:	Tins or drums
	Mastic:	Rolls
	Tape	Rolls
PACKAGING MARKING	Manufacturer's name or trademark	
MARKING METHOD	Legible and durable marking	
USE LIMITS	For bolted joints with bituminous coatings (e.g. flanged joints, gibault joints, dismantling joints using galvanised bolts Do not use where stainless steel bolts are used	

SPO 04-S6 POLYOLEFIN HEAT SHRINK SLEEVES

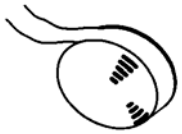
STANDARD	AWWA C217	Heat Shrinkable Cross Linked Polyolefin Coatings for the Exterior of Special Sections, Connections and Fittings for Steel Pipelines
	DIN 30 672	Coatings of Corrosion Protection Tapes and Heat Shrinkable Material for Pipelines
	The following ASTM material properties/performance test methods are also applicable: D 149, D 257, D 570, D 638, D 792, D1000, D1002, D1044, D2240, D2671, E 28, G 8, G 42.	
DESIGN	Heat shrink sleeves are used for external corrosion protection of steel pipelines. They are used to protect exposed steel at joints after welding and to repair damaged external polyethylene or fusion bonded epoxy coatings on steel pipes or fittings. Heat shrink sleeves consist of two components; a cross linked polyethylene sleeve which when heated shrinks to a predetermined dimension; and a heat sensitive corrosion protective adhesive pre-applied to the polyethylene sleeve, which softens on heating to adhere to the steel.	
MATERIALS	Sleeve:	Irradiated and cross linked oriented impermeable polyethylene
	Adhesive coating on sleeve:	Mastic type heat activated adhesive which forms an elastomeric protective layer to prevent ingress of water.
SLEEVE WIDTH	300, 450, 600, 900 mm	
BACKING THICKNESS	Minimum backing thickness of 0.75mm (as supplied and not fully recovered) for use with Tyco Sintakote MSCL pipe	
STORAGE	Store in manufacturer's original packaging and leave unopened until required use Store in dry ventilated area Avoid exposure to direct sunlight, rain, dust or other adverse environments Avoid prolonged storage to temperatures above 35°C	
PACKAGING MARKING	Manufacturer's name or trademark Product name and identification codes Batch or lot number Date of manufacture	

POLYETHYLENE SLEEVING SYSTEM
(for Ductile Iron Pipe and Fittings)



Nominal size DN	Tyco Water
100	✔
150	✔
200	✔
225	✔
250	✔
300	✔
375	✔
450	✔
500	✔
600	✔
750	✔

PETROLATUM TAPE SYSTEM



	Denso[1,2]
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NOTES

1. This system comprises Denso Multi-Purpose Primer, Denso Tape with a minimum of 55% overlap and Denso MP/HD Tape with a minimum of 55% overlap. Use Denso Mastic as necessary to contour sharp or irregular profiles.
2. Denso Mastic and Denso Tape have a maximum service temperature of 55C. For higher service temperatures to 75C, use Densyl Supersoft Mastic and Densyl Tape.

BITUMEN TAPE SYSTEM
(WELDED JOINTS ON PE COATED STEEL PIPE)

	Denso[1, 2, 3]
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NOTES

1. This system comprises Denso Primer D and Denso Ultraflex 1500 tape with a minimum of 55% overlap. Use Densopol Mastic strip as necessary to contour sharp or irregular profiles.
2. For Sintakote repairs, the use of an overwrap tape, Denso MP/HD, is recommended by Tyco in addition to the system described at Note 3 above. The overwrap tape should be installed with a minimum overlap of 10%.
3. For Sintakote repairs, a butyl rubber based primer, Densolen HT Primer can be used with this system in place of Denso Primer D.

POLYOLEFIN HEAT SHRINK SLEEVE

(FOR REPAIRS & WELDED JOINTS ON
SINTAKOTE STEEL PIPELINES)

	Denso (Canusa Wrapid KLS Sleeve)	
	I	

I = Interim Approval

NOTES

1. Average service temperature should be less than 30C. Maximum service temperature 45C.