

**FIGURE 306A-A: CORROSION PROTECTION OF 2 x DI or 2 x MS UNCOATED FLANGES**

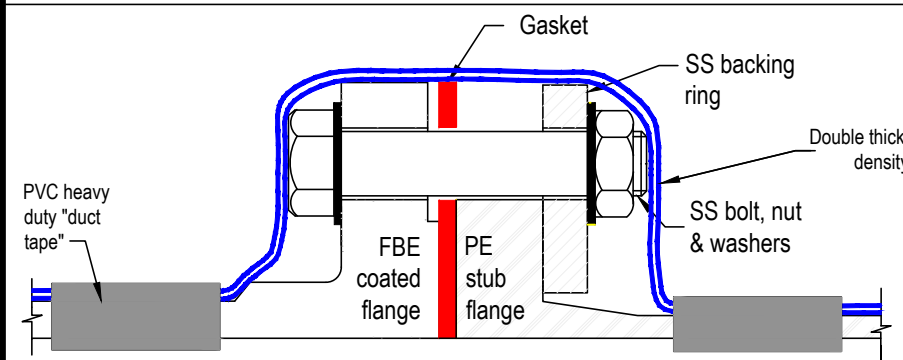
**NOTES on Corrosion Protection:**

- A. Embedment shall be scalloped under the flanges to enable tape to be wound underneath.
- B. Insert nylon or acetyl copolymer thermoplastic based insulation top hats with fasteners into all flange holes when mating flange materials are dissimilar, ie: if both flanges are DI or both flanges are steel, no fastener insulation is required. Where flange insulation is required, test flange insulation in accordance with CORR-24.
- C. FBE coated flange holes shall not be drilled out to make them larger for top hat insertion. Greater than 0.5mm thick sleeving and insulating washers or top hats thin enough to be inserted into flange holes shall be used. This is usually required for M16 & M24 bolt holes.
- D. Corrosion protection described here is required for all steel or ductile iron flange surfaces which do not have a high integrity coating consisting of one of the following:
  - D.A. Heat applied MDPE PE coating to AS4321.
  - D.B. Fusion bonded epoxy coating to AS/NZS 4158.

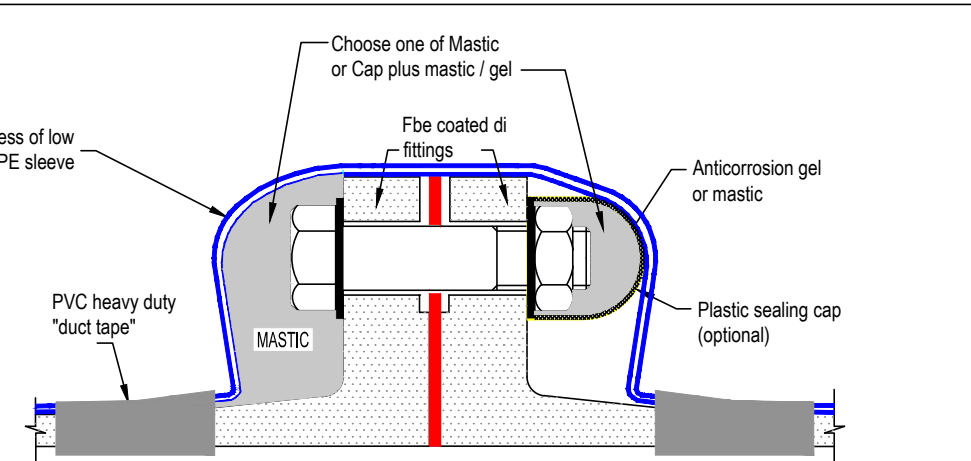
- D.C. Ductile iron pipe with zinc coating to 200 mg/m<sup>2</sup> to BS/EN 545.
- D.D. Ductile iron pipe with polyurethane coating to EN 545 or ISO 2531.
- E. Bare, bitumen coated or painted surfaces are not acceptable coatings. These surfaces will be referred to as uncoated.
- F. All corrosion protection products shall be as per the water agency product catalogue.
- G. Products from a single manufacturer shall be used to ensure compatibility of products. All products shall be applied as per the manufacturers instructions.
- H. **Step 1: Surface Preparation-** All surfaces to be primed shall be prepared to a finish of ST2.5 according to AS 1627.2 class SA2.5. Power wire brush remove all scale, loose rust and old flaking coating. Chisel off all weld splatter and slag.
- I. **Step 2: Primer-** Shall be applied by brush or spray to all uncoated surfaces to a distance of 200mm past coated pipe / fittings. The entire area to be wrapped shall be primed, including all flanges and bolts.

**FIGURE 306A-B: CORROSION PROTECTION OF AN UNCOATED FLANGE CONNECTED TO A COATED FITTING**

- J. **Step 3: Mastic-** Apply mastic to create a gradual and smooth transition from the pipe to the outer diameter of the flange. Application around bolt heads only is not acceptable. Apply mastic by hand, ensuring no significant voids are present.
- K. **Step 4: Protective Tape-** Apply petrolatum, butyl or bitumen tape system continuously with 55% overlap, stretching and moulding the tape to limit creases and prevent gaps.
- L. **Step 5: Overwrapping Plastic Tape-** Provide physical and mechanical protection of the corrosion protective tape using a PVC overwrapping tape. Apply with 55% overlap, stretching tape to limit creases and prevent gaps. Where DI pipe and fittings are PE sleeved (after step 4), over wrapping tape is not required.
- M. **Step 6: Coating Defect (holiday) Testing-** Carry out holiday testing to determine the quality of coatings as per note J of drawing MRWA-W-400.



**FIGURE 306A-C: PE STUB FLANGE WITH SS FASTENERS**



**FIGURE 306A-D: CORROSION PROTECTION FOR GALVANISED BOLTS WITH COATED FLANGES**

**GENERAL NOTES:**

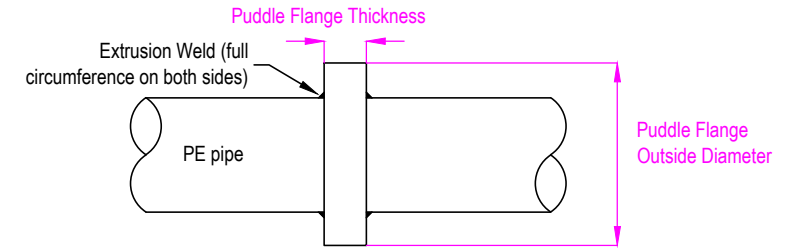
- A. All flanges are to be raised face type.
- B. Steel flanges shall be welded in an ISO9001 accredited workshop. No on site welding of steel flanges is permitted.
- C. For flange, gasket and fastening details, refer to MRWA-W-306B.
- D. Corrosion protection is not required for concrete encased puddle flanges.
- E. Any FBE coated fittings which are damaged to the point where bare metal is exposed shall be repaired with a repair product approved by the manufacturer. Otherwise it shall be quarantined and not installed.

**NOTES Regarding Galvanised Fastener Protection & Corrosive Ground Conditions:**

- Caps and sleeving as shown above are not required where Figure 306A-A or B apply.
- Stainless steel fasteners in corrosive ground (ie: chlorides > 1000 ppm) shall be protected as shown in Figure 306A-D.
- CWW does not accept the use of buried galvanised steel fasteners.
- Either approved mastic or gel plus plastic caps may be used to encapsulate the galvanised fasteners.

**NOTES Regarding Sleeving:**

- A. All Fasteners (gal or SS) shall be sleeve wrapped to prevent contact with soil.
- B. Gal fasteners in the open air (not buried) do not require additional corrosion protection.
- C. Triple wind PVC heavy duty "duct tape" to be min 0.18mm thick and 50mm in diameter around the sleeve to prevent water / air ingress under the sleeve.
- D. Use low density polyethylene sleeve in accordance with AS 3680. Wrap so that any seam is located at top of the pipe.
- E. Ensure that all sleeving between the duct tape on one side and that on the other is not perforated in any way.
- F. Ensure flanges and bolts are clean and free of dirt or contaminants prior to being sleeved.



**FIGURE 306A-E: PE PUDDLE FLANGES**

**TABLE 306A-A: PE PUDDLE FLANGE DIMENSIONS FOR PE MAINS**

PIPE PE MAIN OUTSIDE DIAMETER	FLANGE THICKNESS (mm)
≤DN280	30
≥DN315	40
PIPE PE MAIN OUTSIDE DIAMETER	FLANGE OD (mm)
≤DN500	PIPE OD +100
≥DN560	PIPE OD + (2 x PIPE WALL THICKNESS)

**NOTES Regarding Fused PE Puddle Flanges:**

1. The PE puddle flange shall conform to the dimensions described in Table 306A-A.
2. Puddle flanges cast as part of a thrust fitting (thrust connectors) or welded on puddle flanges are preferred to bolted on mechanical puddle flanges and shall be used where practicable.
3. PE puddle flanges shall be extrusion welded to PE mains.
4. Extrusion welding shall be undertaken in a clean and dry workshop.
5. The extrusion welder shall be qualified to the competency PMBWELD309 or PMBWELD309A or PMBWELD309B.
6. All welds shall be stamped with the welder's name or identification number.

DESIGNED	R. JAGGER	DATE:	31/01/2012
DRAWN:	R. JAGGER	DATE:	31/01/2012
CHECKED:	NAME	DATE	APPROVED: NAME
3	C. RIVETTE	04/04/12	☑ CWW R.CARRUTHERS 04/04/12
2	C.PAXMAN	04/04/12	☑ SEWL G.REYNOLDS 04/04/12
1	R.JAGGER	01/02/12	☑ YVW K.DAWSON 04/04/12
REV	DESCRIPTION	DATE	APPROVED

MELBOURNE RETAIL WATER AGENCIES

MRWA WATER SUPPLY STANDARDS

FLANGE ARRANGEMENTS

NOT TO SCALE

**MRWA-W-306A**

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