Engineering Specifications
for
SeaShield™ Series 80
Marine Pile Protection System

1.0 Scope

1.1 This specification may be used for the materials and application of Denso SeaShield™ Series 80 for steel or concrete pile protection in sheltered environments.

1.2 The Engineer shall select appropriate sections of the specification to insure that the specification is comprehensive for specified work.

2.0 General Requirements

2.1 Contractor shall comply with all written commendations of the manufacturer regarding application of the specified system.

2.2 The supplier of specified materials shall be Denso (Australia) Pty Ltd.

3.0 Materials

3.1 Denso SeaShield™ Primer

3.1.1 The Denso SeaShield™ Primer shall be comprised of saturated petroleum hydrocarbons (petrolatum), inert fillers and passivating agents.

3.1.2 The primer is used to displace moisture, passivate surface oxides and fill surface imperfections on severely corroded areas.

3.1.3 The physical specification values shall meet the values given on the data sheet for the Denso SeaShield™ Primer.

3.2 Denso Mastic

3.2.1 The Denso Mastic shall be comprised of saturated petroleum hydrocarbons (petrolatum), inert fillers, reinforcing fibers and thermal extenders. Variations may contain beads of cellular polymer and flow control additives.

3.2.2 Denso Mastic shall be cold applied self supporting mastic for molding around irregular shaped fittings to provide a suitable profile for applying the Denso Marine Piling Tape.

3.2.3 The physical specification values shall meet the values given on the data sheet for the Denso Mastic.

3.3 Denso Marine Piling Tape

The Denso Marine Piling Tape shall be comprised of a non-woven synthetic fabric carrier fully impregnated and coated with a neutral petrolatum based compound with water displacing agents and wide spectrum biocides and backed with a thin layer of HDPE.

The Denso Marine Piling Tape shall have a character stable in composition and plasticity over a wide temperature range. The tape shall be non-hardening and non-cracking. The tape shall accommodate vibration and extreme movement of substrate. Highly resistant to mineral acids and alkalies.

The Denso Marine Piling Tape shall meet the physical specifications values listed on the specification sheet.

3.4 Bitumen Tape

(Select Denso Ultraflex 1500 or Densopol 80)

Denso Ultraflex 1500 Tape shall be comprised of a heavy-duty PVC backed, bituminous adhesive tape. Densopol 80 shall consist of a heavy-duty PVC backed tape with a reinforced bitumen adhesive.

The selected Denso Ultraflex 1500 or Densopol 80 Tape shall meet the physical specification values listed on the product data sheet.

3.5 Denso Rockmesh CE171

Denso Rockmesh CE171 consists of a high density polyethylene (HDPE), incorporating a special expansion process to provide compressive strength and flexibility. The HDPE shall be extruded into a 4 mm x 5 mm diamond mesh pattern. The Denso Rockmesh CE171 shall meet the physical specification values listed on the Product data sheet.

4.0 Installation

4.1 Cleaning and Surface Preparation

Remove marine growth and foreign matter for the entire length which is to be protected with the Series 80 system. All surface projections, fouling organisms and other surface conditions that would penetrate the tape shall be removed.

The surface can be prepared by scraping, chipping, abrasive blast cleaning, high pressure water jetting, pneumatically or hydraulically driven tools such as scabblers, hull scrubbers, wire brushes, rotary scrapers and needle guns. Also hand tools such as wire brushes, scrapers, and chipping hammers etc. may be used. The choice in method will depend on a number of factors and will need to take into account site conditions and any environmental constraints imposed at site location.

4.2 Application of Denso SeaShield™ Primer

Denso Marine Piling Tape is considered self priming for new substrates. Primer is required in areas of deep pitting, weld scars, spiral and vertical welds.

Denso SeaShield™ Primer is applied to the surface area by gloved hand, cloth, roller or brush, at a spreading rate of 1.0 kg/m^2. It is applied in a circular motion obtaining an even film. All voids and holes shall be filled. Denso SeaShield™ Primer can be applied above or below the water surface.

4.3 Application of Denso Mastic

To protect complex surfaces and configurations apply Denso Mastic by filling and packing to achieve a uniform contour to which tape can be applied without bridging or voids.

Use Denso Mastic to fill in cavities at the pile/pile cap interfaces.

4.4 Application of Denso Marine Piling Tape on Cylindrical Pile

The Denso Marine Piling Tape shall be wrapped onto the pile using a minimum 55% overlap. Application shall begin at the designated low point indicated in the specifications and drawings and proceed upward to the high point, creating a weatherboard effect.

Hold end of the tape firmly against the starting point and firmly press onto the surface. Unroll the tape, keeping the roll close to the pile. Do not get a long lead of tape as it will tend to fold and gap on the surface being wrapped.

Apply sufficient tension to provide continuous adhesion, but do not stretch the tape. As application proceeds, press out all folds and air pockets that may occur.

Maintain a one roll width overlap when overlapping a roll with the end of a new roll. At the completion of each roll, smooth the overlaps by hand in the direction of the spiral to insure sealing of the overlap.

4.5 Application of SeaShield™ Foam Blocks and Denso Marine Piling Tape for Hexagonal or Universal Piles

Apply a liberal coating of SeaShield™ Primer to the foam block prior to wrapping with Marine Piling Tape with 55% overlap. Ensure that the compound side of the tape is on the outside of the block. Insert the foam blocks that have been pre-wrapped with Denso Marine Piling Tape into the openings of the piles on each side, ensuring a tight fit.

As per section 4.4, application of the Marine Piling Tape shall proceed at the designated low point of the area and proceed upward to the high point, creating a weatherboard effect.

Hold end of the tape firmly against the starting point and firmly press on the surface. Unroll the tape, keeping the roll close to the surface. Do not get a long lead of tape, as it will tend to fold and gap on the surface being wrapped.

Apply sufficient tension to provide continuous adhesion, but do not stretch the tape. As application proceeds, press out all folds and air pockets that may occur.

At the completion of each roll, smooth the overlaps by hand to insure sealing of the overlap.

4.6 Application of Denso Ultraflex 1500 or Densopol 80 Tape

Apply the Denso Ultraflex 1500 or Densopol 80 Tape in the pile protection zone. Commence each new roll with two circumferential wraps, then proceed spirally along the pile progressing with a 55% overlap. This will ensure a double layer of tape all the way. Continue until end of roll.

Denso®
DENSO (AUSTRALIA) PTY LTD
77 - 95 National Boulevard
Campbellfield, VIC 3061
Tel: +61 3 9356 7600
Fax: +61 3 9356 7699
www.densoaustralia.com.au
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Commence each new roll by overlapping the last roll by the same length as the tape width. As wrapping proceeds, smooth by hand to exclude water, air bubbles and wrinkles from under the tape and to aid sealing of overlaps. Repeat process all the way along protection zone, finishing with two complete horizontal turns of the tape.

4.7 Application of Denso Rockemesh CE171

A sheet of Denso Rockmesh CE171 shall be cut to suit the circumference of the pile and tape with allowance for a 100 to 150 mm overlap.

Denso Smart® Band strapping (Figure 1) is then used to secure the Rockmesh CE171 at the top and bottom at most 50 mm from the edge and at gaps not more than 500 mm apart.

Insert the Smart® Band strap teeth uppermost into one end of the buckle. Wrap the strap around the outside of the Rockmesh and insert into the opposite end of the buckle. Pull the buckle through tightly by hand before reverting to the Smart® Band fitting tool to complete tightening. Use the cutter blade on the fitting tool to remove excess strapping.

Ensure that all the buckles are in the same vertical position on the pile near the overlap. If possible, the position of the overlap and buckles should be located on any sheltered side of the piles.

DENSO (AUSTRALIA) PTY LTD
77 - 95 National Boulevard
Campbellfield, VIC 3061
Tel: +61 3 9356 7600
Fax: +61 3 9356 7699

www.densoaustralia.com.au

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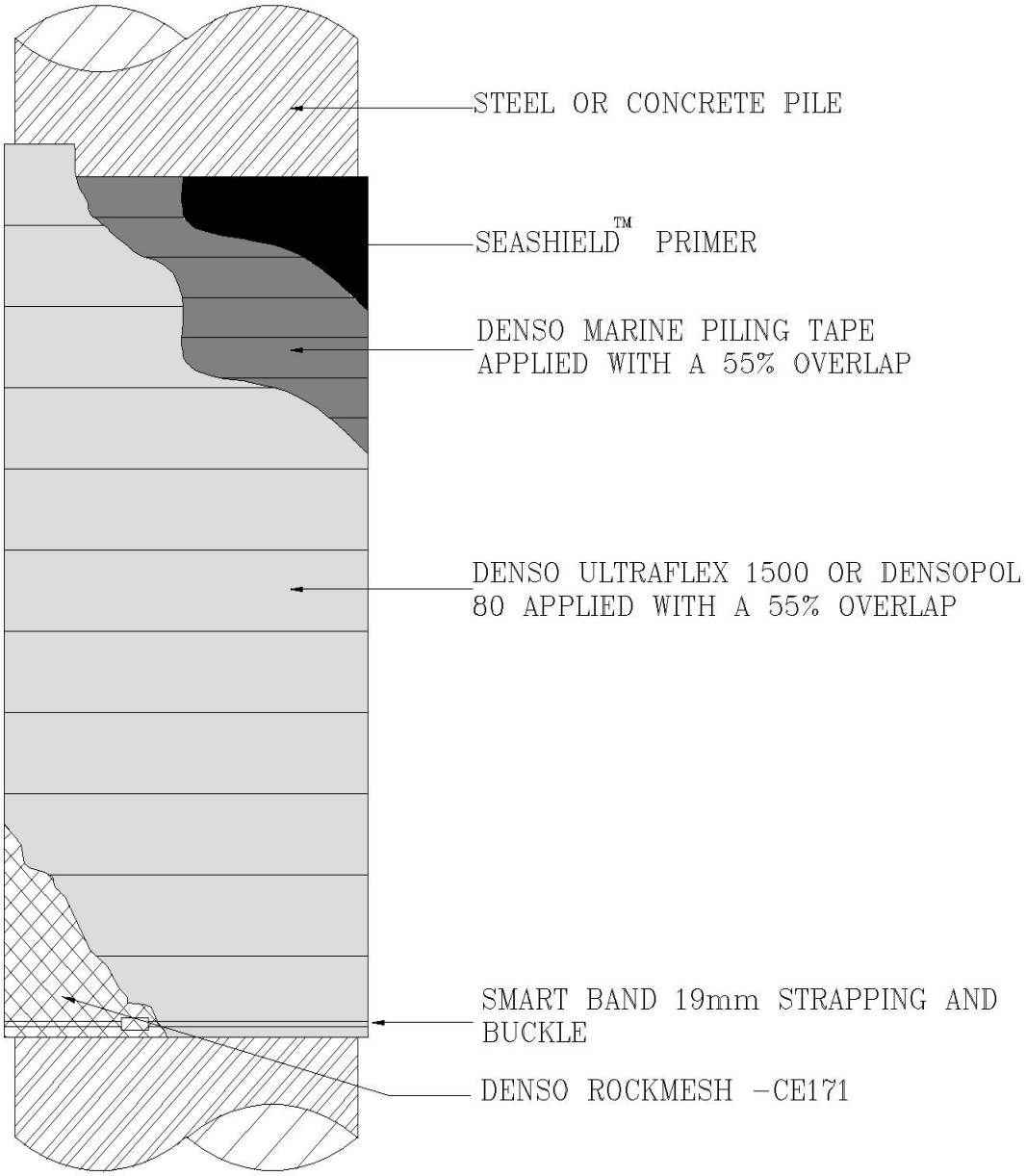

Elevation View

Sheet 1
(Not to Scale)

SeaShield™ Series 80 Pile Protection System

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