Engineering Specifications
for
SeaShield™ Series 100
Steel, Concrete and Timber Pile Protection

1.0 Scope

1.1 This specification may be used for the materials and application of Denso SeaShield Series 100 for protection of steel, concrete and timber piles.

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 recommendations of the manufacturer regarding application of the specified system.

2.2 The manufacturer of specified materials shall be Denso North America, 9710 Telge Road, Houston, TX 77095, Telephone: 281-821-3355 or 90 Ironside Crescent Unit 12, Toronto, Ontario, Canada M1X1M3 Telephone: 416-291-3435.

E-mail: info@densona.com

3.0 Materials

3.1 Denso S105 Paste™

3.1.1 The Denso S105 Paste 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.

3.1.3 The Denso S105 Paste shall meet the physical specification values listed on the product data sheet.

3.2 Denso Mastics

3.2.1 The Denso Mastics 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 Mastics 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 product data sheet for the type of Denso Mastic required.

3.3 Denso Marine Piling Tape™

3.3.1 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 inert siliceous fillers, inhibitors ad backed with a thin HDPE backing.

3.3.2 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. Superficial oxidation renders surface less tacky. Highly resistant to mineral acids and alkalies.

3.3.3 The Denso Marine Piling Tape shall meet the physical specifications values listed on the product data sheet.

3.4 SeaShield Outercover

3.4.1 The SeaShield Outercover shall be comprised of High Density Polyethylene (HDPE). It shall be new, seamless virgin material. Use of reprocessed resin is prohibited. The sheet shall be uniform throughout, free from dirt, oil and other foreign matter and free from cracks, creases, wrinkles, bubbles, pin holes and any other defects that may affect its service.

3.4.2 The Outercover shall be of a thickness necessary to prevent damage to underlying tape coating. It shall be custom sized according to length of desired protection and width of circumference of pile.

3.4.3 Physical properties of the outercover shall meet or exceed the minimum requirements listed on the product data sheet for the SeaShield Outercover

3.5 Strapping Systems

3.5.1 A select strapping shall be utilized.

3.5.2 A stopper band may be required depending on size of pile.

3.6 SeaShield Foam Blocks for H-Piles (Note: Not to be used with cylindrical piles)

3.6.1 The SeaShield Foam Blocks shall be comprised of polyether polyurethane foam.

3.6.2 The foam blocks shall be wrapped with Densyl™ Tape using a min. 1" (25 mm) overlap.

4.0 General Surface Preparation Requirements

4.1 Remove weld spatter, sharp points and edges.

4.2 Remove marine growth, loose rust, paint and foreign matter by hand and /or power tools cleaning in accordance with SSPC-SP-2, or SP-3, “Hand Tool Cleaning” or “Power Tool Cleaning” respectively.

4.3 A hydraulic whirl away or high pressure water blasting may be used to prepare the surface.

5.0 Application of Denso S105 Paste

5.1 Apply Denso S105 Paste by hand, brush, glove, rag or roller.

5.2 Apply a thin uniform film over the entire surface to be wrapped with Denso Marine Piling Tape. (Note: When applying underwater the primer will be less visible on the pile.)

6.0 Application of Denso Mastics

6.1 To protect complex surfaces and configurations such as brackets, flanges, valves, etc., apply Densyl Mastic or Denso Profiling Mastic by filling and packing to achieve a uniform contour to which tape can be applied without bridging or voids.

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

7.0 Application of Denso Marine Piling Tape to a Cylindrical Pile

7.1 The Denso Marine Piling Tape shall be spirally wrapped onto pile using a 55% overlap which will provide a double thickness of tape throughout. Application shall proceed at the designated low point of the area and proceed upward to the high point creating a weatherboard effect.

7.2 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.

7.3 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.

7.4 Maintain a minimum 6" (150 mm) overlap when overlapping one roll with the end of a new roll.

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

8.0 Application of SeaShield Foam Blocks and Denso Marine Piling Tape for H-Piles

8.1 Insert the wrapped foam blocks into the openings of the H-Piles on each side, ensuring a tight fit.

8.2 The Denso Marine Piling Tape shall be spirally wrapped around the H-Pile using a 55% overlap, which will provide a double thickness of tape throughout. Application shall proceed at the designated low point of the area and proceed upward to the high point creating a weatherboard effect.

8.3 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.

8.4 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.

8.5 Maintain a minimum 6" (150 mm) overlap when overlapping one roll with the end of a new roll.

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

9.0 Application of SeaShield Outercover to a Cylindrical Pile

9.1 Locate the outercover between the elevations indicated in the specifications and drawings.

9.2 Wrap the outercover around the pile with the edge seal strip on the outside of the outercover. A minimum overlap of 3" (75 mm) shall be achieved with tension being applied to form a tight sheath around the pile.

9.3 A strap shall be placed and hand tightened at the water level to ensure a level overlap at the top and bottom of the outercover.

9.4 The top and bottom straps shall be approximately 1" (25 mm) from edge of the outercover (see drawing for details). Additional straps shall be placed equal distance on center from top to bottom. Spacing of straps shall be a min. 10"-12" (250 - 300 mm).

10.0 Application of SeaShield Outercover to an H-Pile

10.2 Locate the outercover between the elevations indicated in the specifications and drawings.

10.3 Wrap the outercover around the pile. A minimum overlap of 3" (75 mm) shall be achieved with tension being applied to form a tight sheath around the pile.

10.4 A strap shall be placed and hand tightened at the water level to ensure a level overlap at the top and bottom of the outercover.

10.5 The top and bottom straps shall be approximately 1" (25 mm) from edge of the outercover (see drawing for details). Additional straps shall be placed equal distance on center from top to bottom. Spacing of straps shall be a min. 10"-12" (250 - 300 mm) depending on the type of strap and environment.

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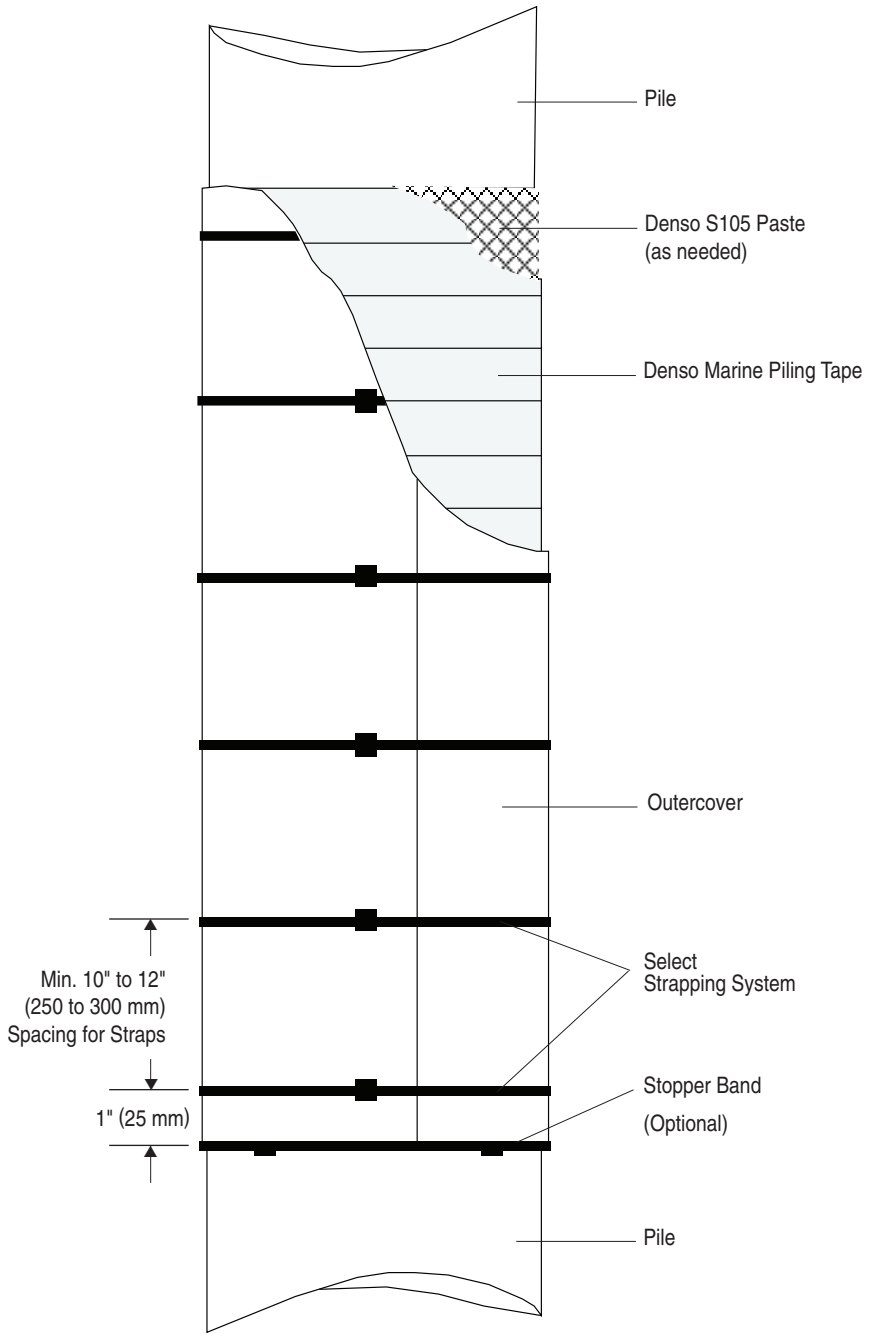

Elevation View

Sheet 1
(Not to Scale)

SeaShield Series 100
Splashzone Protection System

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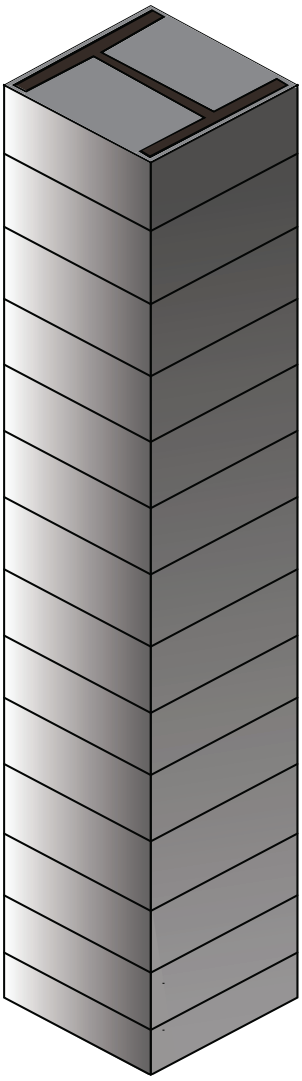
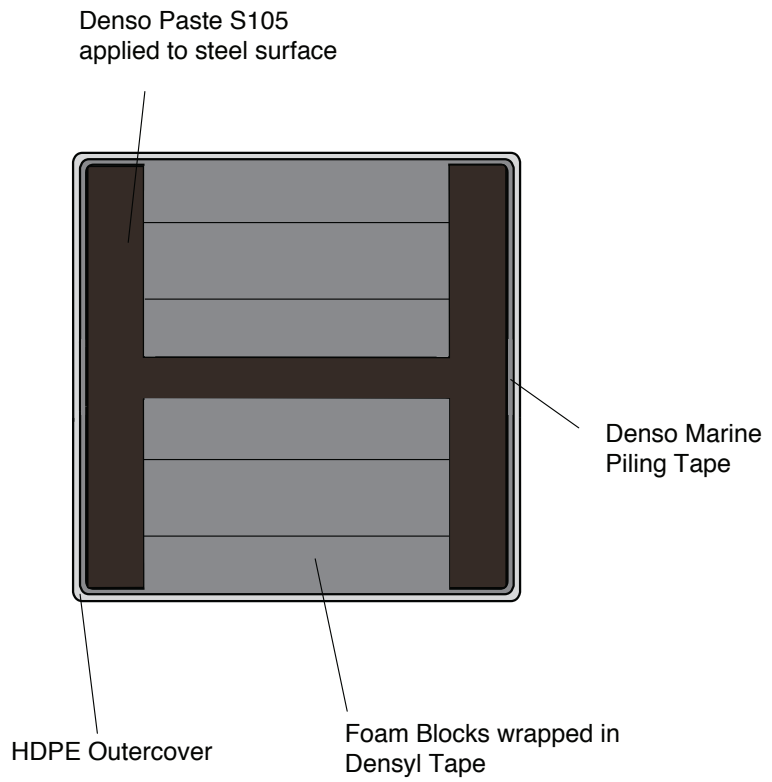


Elevation View



Plan View

Elevation View Showing Strapping System

Sheet 2
(Not to Scale)

SeaShield Series 100
Steel H-Pile Protection System

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