

APPLICATION METHOD FOR ANODE BRACKET WRAPPING

MARINE PILING TAPE APPLICATION

This document provides information for the installation of the SeaShield 2000FD™ System to anode brackets. It does not provide information on all aspects of the installation of the system and therefore must be used in combination with the SeaShield 2000FD™ System IFU.

The anode bracket shall be a maximum of 20mm thick and 120mm high. The anode shall be temporarily removed from the bracket to facilitate the installation of the SeaShield 2000FD System.

The Marine Piling Tape shall be applied with the correct side facing the pile. This will mean that the backing film, which is not removed, is the side that faces away from the pile surface and that will touch the outer mechanical protection (see Fig. 1).

The Marine Piling Tape shall be positioned so that the width of the roll is equidistant either side of the bracket (see Fig. 2). A circumferential wrap shall start approximately 400mm from the bracket. The wrap shall proceed circumferentially around the pile. The wrap shall pass over the anode bracket and a slot shall be cut in the Marine Piling Tape to allow the anode bracket to pass through the Marine Piling Tape (see Fig. 2). The wrap shall continue around the pile for a second full circumferential wrap. Another slot shall be cut in the Marine Piling Tape to allow the anode bracket to pass through the Marine Piling Tape a second time. Any additional Marine Piling Tape shall be folded up the anode bracket as required. There shall be 2 layers of Marine Piling Tape at any point on the circumferential wrap.

The remaining length of pile above and below the anode bracket shall be wrapped with Marine Piling Tape. The additional wraps of Marine Piling Tape shall overlap onto the circumferential wrap by a minimum of 50mm (see Fig. 3). The remaining length of pile can be wrapped with Marine Piling Tape from the top down or the bottom up depending on access, tidal movement, or other restrictions at site.

The wrapping shall start with 2 full circumferential wraps of the Marine Piling Tape. The wrapping shall then proceed spirally at a 55% overlap. The wrapping shall finish with 2 full circumferential wraps of the Marine Piling Tape. There shall be a minimum of 2 layers of Marine Piling Tape at any point in the area for protection.

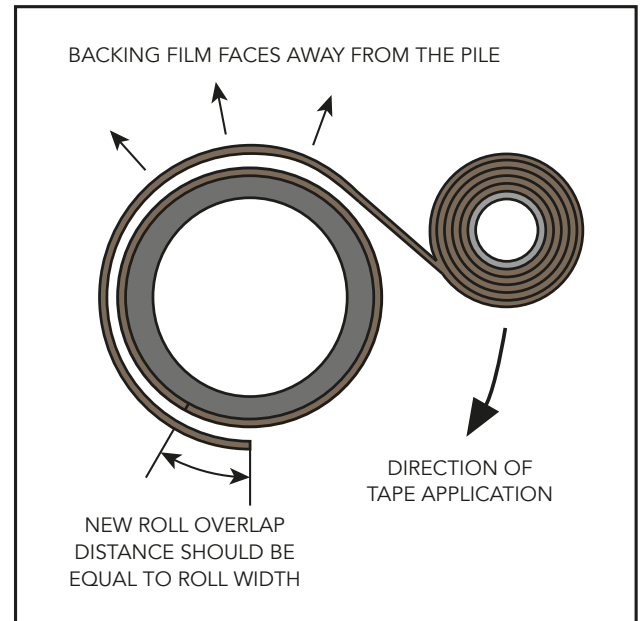


Fig. 1: Correct tape application procedure.

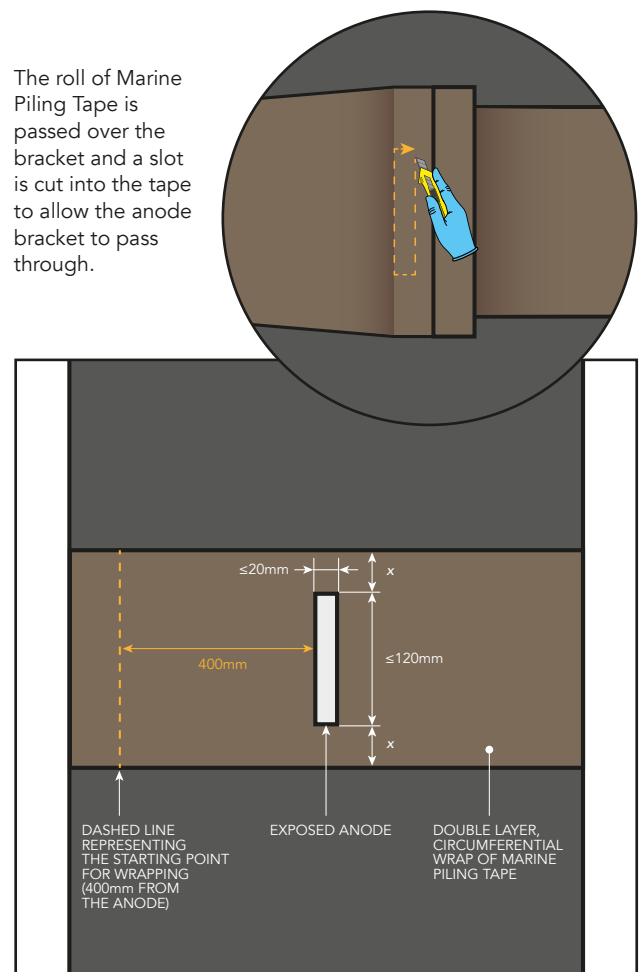


Fig. 2: Marine Piling Tape application to the anode bracket.

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A new roll of Marine Piling Tape shall overlap onto the previous roll by the width of the roll. For example, if the roll is 300mm wide then the overlap shall be 300mm (see Fig. 1).

The Marine Piling Tape shall be smoothed into position as it is wrapped around the pile.

It is recommended to minimise the amount of time the Marine Piling Tape is exposed to the marine environment. The Marine Piling Tape shall not be left exposed to the marine environment beyond the end of a work shift. Prolonged exposure of the Marine Piling Tape to the tidal, wind and wave conditions of the marine environment may result in damage to the Marine Piling Tape. Should the Marine Piling Tape be exposed to the marine environment for a prolonged length of time it shall be inspected for damage and any damage shall be repaired as described within the relevant Maintenance and Repair document.

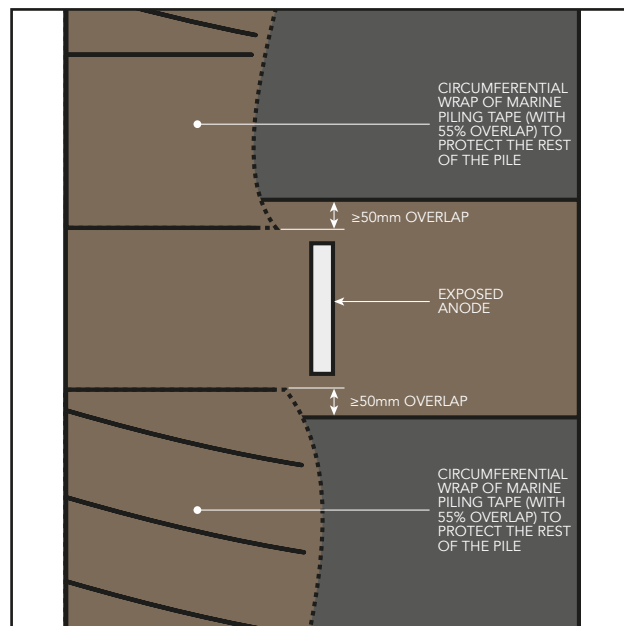


Fig. 3: Sectional view of Marine Piling Tape application to the rest of the pile and overlap onto the initial tape application.

HDPE JACKET APPLICATION

The jacket shall be manufactured to have a length of HDPE where the jacket can overlap onto. This length of HDPE shall have a slot cut into it to allow the anode bracket to pass through the bolting bars. The height of this slot shall be equal to the height of the anode bracket. This length of HDPE shall be lubricated with Paste S105 (see Fig. 4).

The jacket shall be positioned about the pile so that the slot in the length of HDPE is passed around the anode bracket.

The bolting holes shall be aligned to allow insertion of the Clamping Rods. There are 12 bolting holes in a 1.9m height jacket. Three Clamping Tools are required to fit a 1.9m height jacket. The tools may be spaced as indicated in the diagram (see Fig. 5) so that there is an empty bolting hole above and below each Clamping Tool however the Clamping Tools may also be positioned to best suit the position of the anode brackets.

The Clamping Rods shall pass through one of the Clamping Bars first. They shall then pass through both bolting bars before passing through the other Clamping Bar. The Clamping Rods shall be secured using either the M12 nuts or the retaining clip depending on the design of the Clamping Rod.

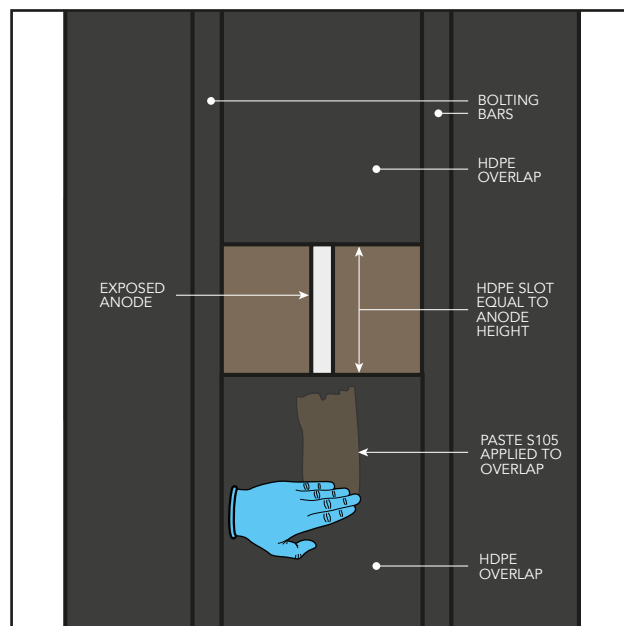


Fig. 4: Folding the cut sections of Marine Piling Tape.

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It is recommended to fit the middle Clamping Tool first. This Clamping Tool may be partially tensioned to hold the jacket in position while the additional Clamping Tools are positioned. The Clamping Tools shall be tensioned evenly and as much as reasonably possible, simultaneously until the bolting bars are brought completely together, other than where the anode bracket passes through them. The Clamping Tools have the drive direction indicated on their surface by way of a circular arrow. Note that the drive direction for the Clamping Tool is opposite on each side of the Clamping Tool.

The bars of the Clamping Tool shall be brought together at a rate between 50 and 100 mm per minute. A single rotation of the Clamping Tool Drive Rod will result in approximately 6mm of movement in the Clamping Bars. An RPM of between 8 and 17 will therefore achieve the required rate of closure. It is however possible to use an Impact Wrench with an RPM much higher than this range as the load on the Clamping Tool will greatly reduce the actual RPM achieved.

Once the bolting bars have been brought fully together, other than where the anode bracket passes through them, the M12 fasteners shall be fitted into the bolting holes that are not occupied by the Clamping Tools. The M12 fasteners shall be tightened in accordance with the Bolt Tensioning Diagram.

The Clamping Tools shall now be removed. The M12 fasteners shall be fitted to the bolting holes that were occupied by the Clamping Tools. These M12 fasteners shall also be tightened in accordance with the Bolt Tensioning Diagram.

Should there be any exposed tape above or below the jacket or series of stacked jackets, it shall be trimmed as close to the end jacket as possible.

IMPORTANT:

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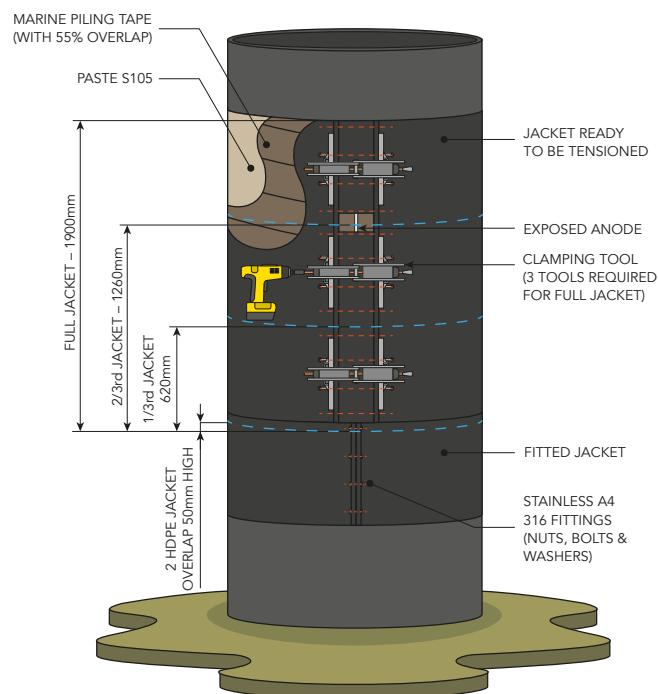


Fig. 5: Correct jacket application around the anode bracket prior to tensioning, with cutaways showing sub-layers of Paste S105 and Marine Piling Tape.

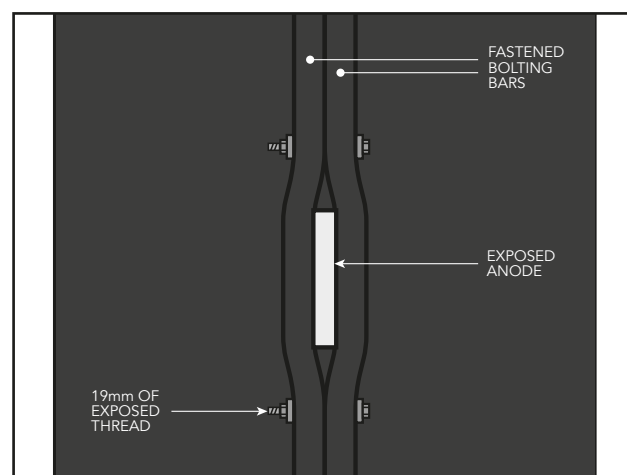


Fig. 6: Finished jacket application with bolting bars tensioned and fastened around the anode bracket.