

## 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.

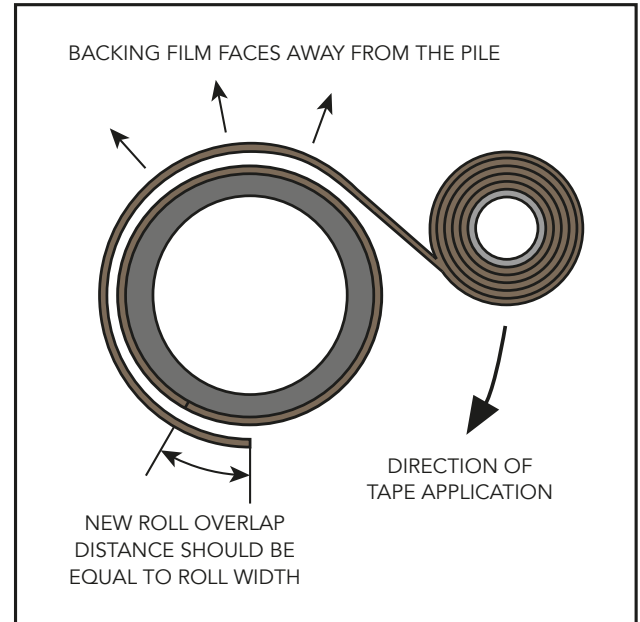


Fig. 1: Correct tape application procedure.

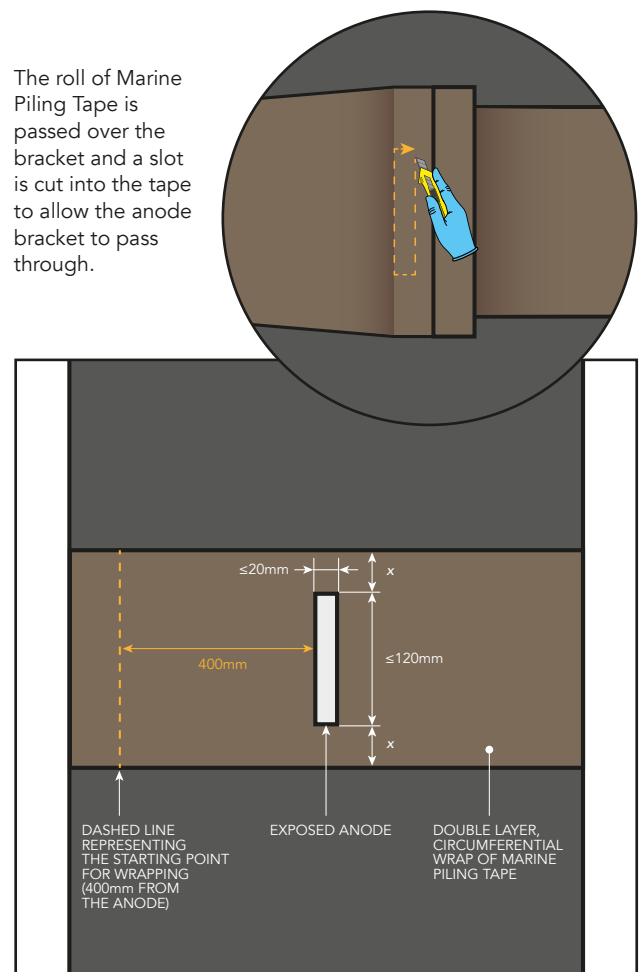


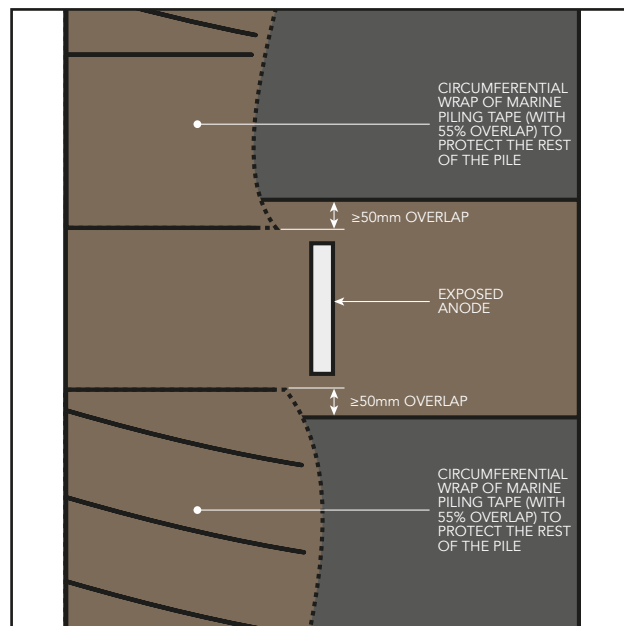
Fig. 2: Marine Piling Tape application to the anode bracket.

## APPLICATION METHOD FOR ANODE BRACKET WRAPPING

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.



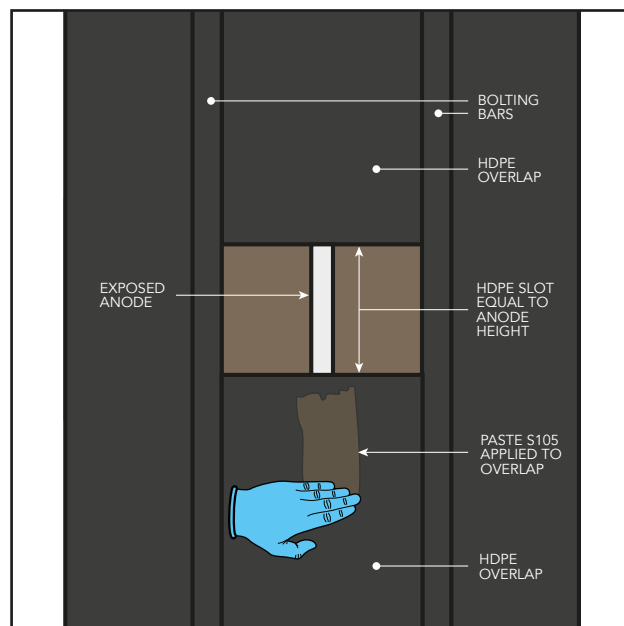
**Fig. 3:** Sectional view of Marine Piling Tape application to the rest of the pile and overlap onto the initial tape application.

## 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 pulling rods. There are 12 bolting holes in a 1.9m height jacket. Three hydraulic 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 hydraulic tool however the hydraulic tools may also be positioned to best suit the position of the anode bracket.



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

The pulling rods shall pass through the cylinder mount first. They shall then pass through one of the jacking bars. The jacking bar shall be positioned so that the recess which can be seen on one side is positioned against the end of the hydraulic cylinder. The pulling rods shall pass through both bolting bars. The other jacking bar shall be positioned on the opposing side of the bolting bars to the first jacking bar and hydraulic cylinder. The M12 nuts on the pulling rods shall be fully tightened on both ends of the pulling rods before the hydraulic tools are tensioned.

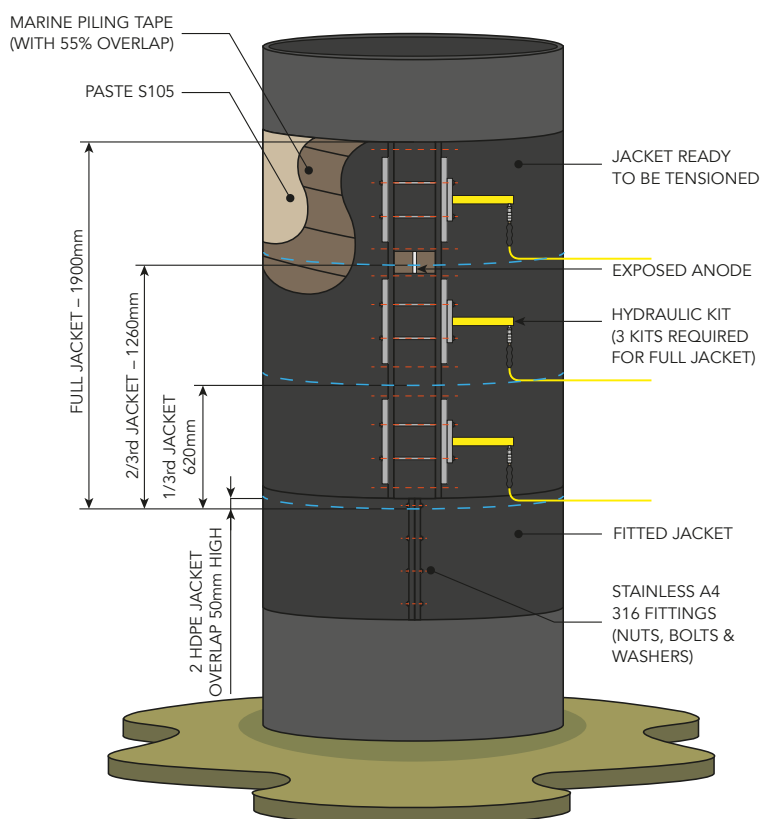
## APPLICATION METHOD FOR ANODE BRACKET WRAPPING

It is recommended to fit the middle hydraulic tool first. This hydraulic tool may be partially tensioned to hold the jacket in position while the additional hydraulic tools are positioned. The hydraulic 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 gauges on the hydraulic tools shall show pressures of approximately 4000 to 6000 psi (275 to 400 Bar).

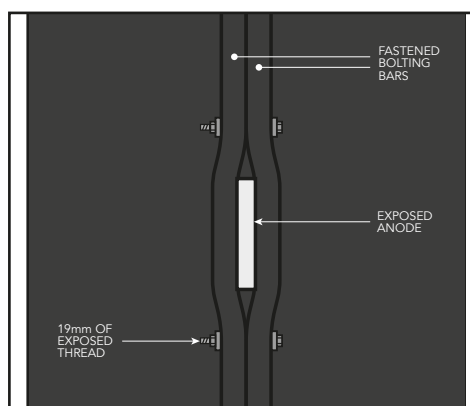
Once the bolting bars have been brought fully together, other than where the anode bracket passes through them, the M12 fasteners shall be fitted into the bolting holes that are not occupied by the hydraulic tools. The M12 fasteners shall be tightened in accordance with the Bolt Tensioning Diagram.

The hydraulic tools shall now be removed. The M12 fasteners shall be fitted to the bolting holes that were occupied by the hydraulic 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.



**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.

### IMPORTANT:

Winn & Coales (Denso) Ltd pursue a policy to develop and continually improve all of our products and therefore information given in this data sheet is intended as a general guide and does not constitute a warranty, specification or risk assessment. These guidelines may not cover all circumstances; however, our sales personnel are committed to assisting the user in establishing the suitability of the product for its intended purpose and additional specific information, including Safety Data Sheets, is available on request. We recommend that installation is carried out with due regard to Health and Safety and in accordance with relevant local statutes and regulations. Any conflict between these guidelines and the specific project specifications must be resolved by the user before work commences. All rights reserved.