APPLICATION GUIDELINES FOR GUARDIAN BITUWRAP SYSTEMS

This application guide is applicable for the Guardian Bituwrap 41HT, 1000, 1500 & 1650 Tape Systems

PURPOSE:

Application guide for the installation of Bituwrap Tape Systems on line pipe, welded field joints, induction (long radius) pipe bends & other pipeline appurtenances . This system shall provide anti-corrosion for buried pipeline structures or tie-rods

EQUIPMENT LIST

Power wire brush / scraper / abrasive blast cleaning equipment (optional)

Wire Brush, brush cleaning solvent

Scissors / Utility knife, Overalls, eye protection, respirator, gloves, cleaning cloth, hand cleaner, barrier cream

STEEL SUBSTRATE PREPARATION:

The steel substrate shall be dry and free from any deleterious materials such as dirt, grease and loose scale. The steel substrate shall be cleaned in accordance with ISO 8501-1988 St2 Standard. This can be achieved by mechanical wire brush or similar.

If the steel pipe being protected is old and suffered heavy corrosion pitting, the steel surface should be abrasive blast cleaning to Class Sa 2.5 (ISO 5801-1988)

APPLICATION PROCEDURE:

GUARDIAN BITUWRAP PRIMER

Apply an even coat of GUARDIAN Bituwrap primer, approximately 50-75 microns thickness, free from runs, sags to the steel substrate to be wrapped. Primer should extend beyond the area to be wrapped by 25mm to ensure all the steel substrate to be protected is applied with primer under the Bituwrap Tape

For application on welded field joints, the primer shall be applied 50-75 microns thickness, overlapping on to pipe coating (factory applied) by a minimum of 125mm.

Specific Gravity 0.91 (Average)
Drying Time 5 Minutes (Average @ 30°C)
Coverage 7-9 m²/Liter (Average)

Fig.1 Priming pips, rods, and cables Apply GUARDIAN PRIMER to entire area to be wrapped with tape.

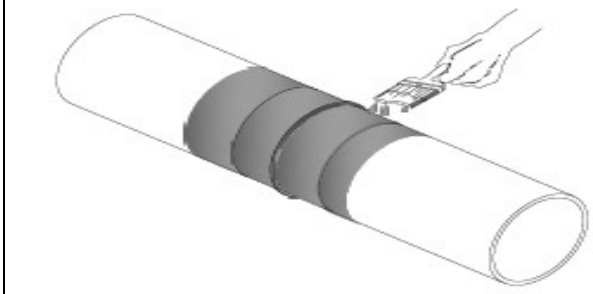

Fig.2 Priming butt-welded joints. Apply GUARDIAN PRIMER to entire area to

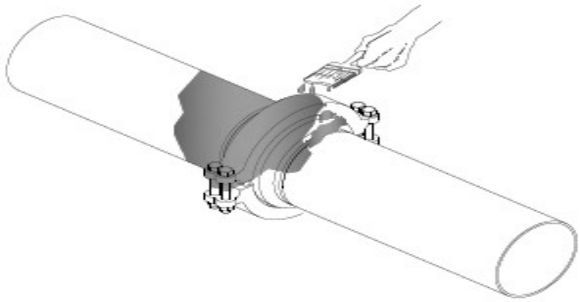

Fig.3 Priming flanges and couplings
Apply GUARDIAN PRIMER to entire area to be wrapped with tape.

APPLICATION GUARDIAN BITUWRAP TAPE

a. Line pipe, Long Radius Pipe Bends, Tie Rods:

Tape Width Selection Guide

≤ 100mm NB - Recommended 50mm width tape
≥ 100mm NB / **≤** 400mm NB - Recommended 100mm width tape
≥ 400mm NB - Recommended 150mm width tape

Select tape width based upon guide above. Remove tape interleaving approximately 300mm apply the adhesive side of the Bituwrap tape firmly to the primed pipe. Unroll the tape about 300mm, peel back the interleaving and wrap the Bituwrap tape spirally ensuring correct alignment. Maintain sufficient tension to ensure that the tape conforms to the surface without gaps. Repeat this, overlapping each turn by at least 25mm or preferably 55% to give double thickness. Start new roll by a minimum 50mm.

Note: Where longitudinal welds are included in the area to be wrapped, apply a 100mm wide strip of the tape longitudinally over the weld and press into the contours before wrapping.

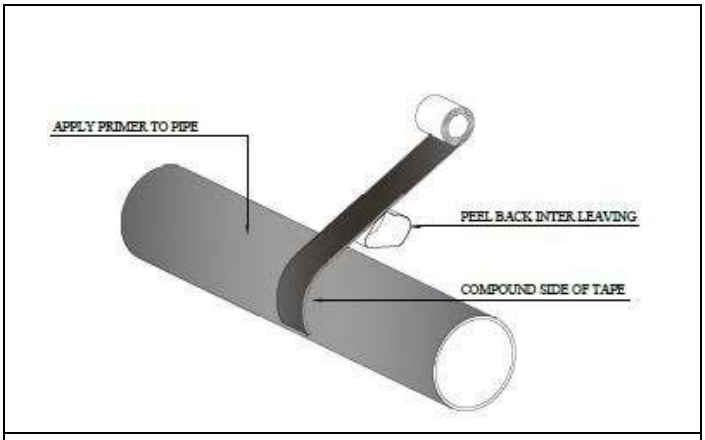

Fig.4 Starting the first roll of tape.

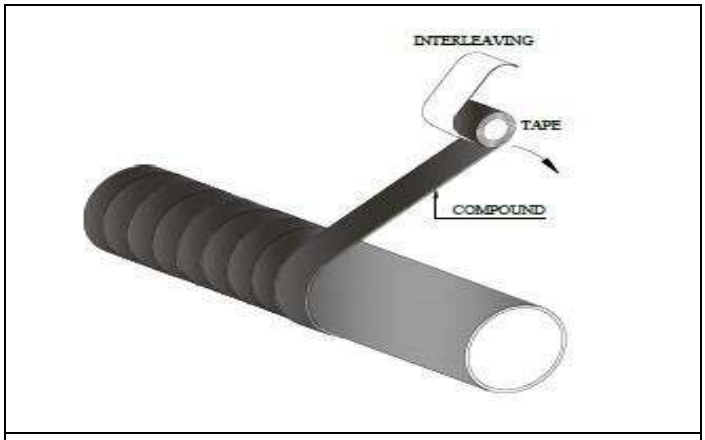

Fig.5 Diagram showing the correct application produce for wrapping tape.

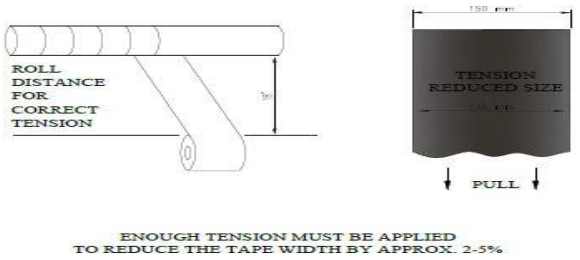

Fig.6 Ensure that tape is applied with the correct amount of tension to reduce width as shown in illustration above.

Fig.7 Staring a new roll of tape.

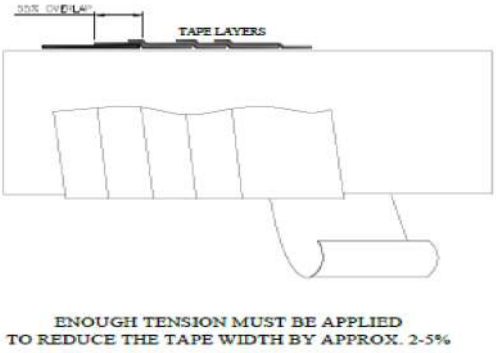

Fig. 8 Overlapping each turn by 55% gives a double thickness.

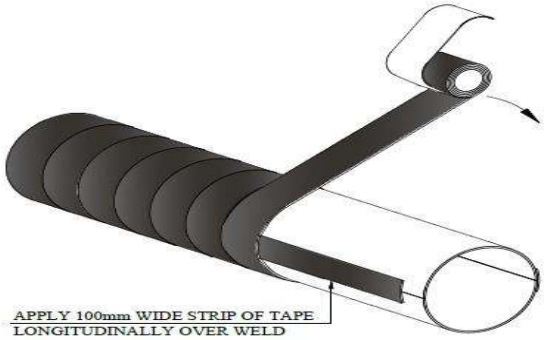

Fig. 9 Wrapping a longitudinal weld.

b. Welded Field Joints:

Proceed as (a.) but start and finish wrapping with a minimum of 75mm overlap (recommended 100mm) on to the existing pipe coating either side of the joint area.

Commence application minimum 75mm onto the factory linepipe coating with a straight circumferential wrap and then proceed with application spirally incorporating a 55% overlap across the welded field joint completing with a straight circumferential wrap extending minimum 75mm onto the adjacent linepipe factory coating.

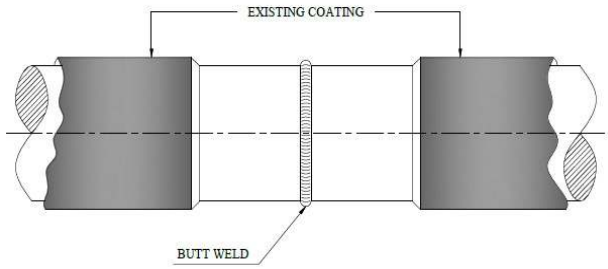

Fig.10 Butt weld and existing coating ready for over wrapping with tape.
NOTE cutback of coating can be 75mm-150mm either side of the weld except on FBE coated pipe.

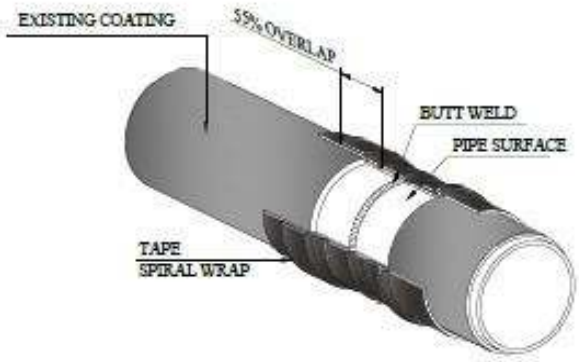

Fig.11 **NOTE** method of wrapping.
-Starting with one circumferential turn onto factory coating.
-Then change to spiral wrap with 55% overlap over weld area.
-Finish with one circumferential turn over factory coating the opposite side of the weld, Overlap tape at least 75mm existing coating.

c. Flange Joints:

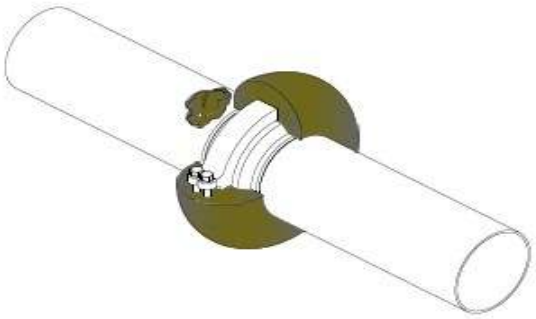

Fig.12 Profiling the joint with **GUARDIAN**

MASTIC HT.

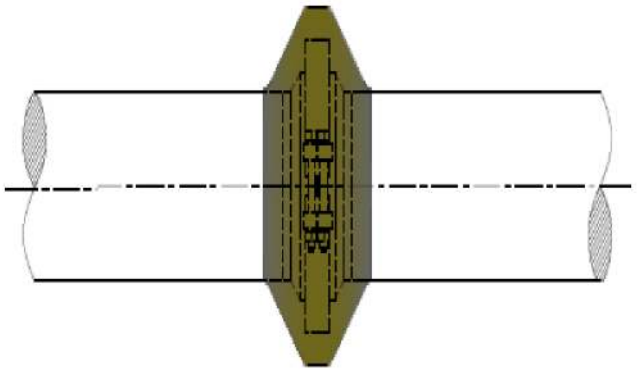

Fig.13 Make sure the mastic is pushed into all crevices and that is forms a smooth profile for wrapping.

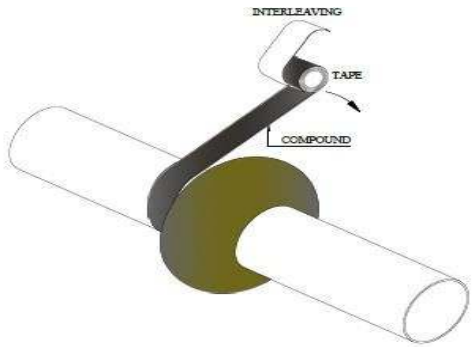

Fig.14 Butt weld and existing coating ready for over wrapping with tape.
NOTE cutback of coating can be 75mm-150mm either side of the weld except on FBE coated pipe.

COATING REPAIRS:

Cut away and remove loose coating from damaged area and smooth or chamfer edges. Clean area thoroughly then prime the exposed metal extending 50mm either side of the damage. Repair the damaged area with a patch of tape. Wrap the section of pipe as (b).

Fig.15 Damaged pipe coating.

Fig.16 Remove loose or damaged area then clean thoroughly.

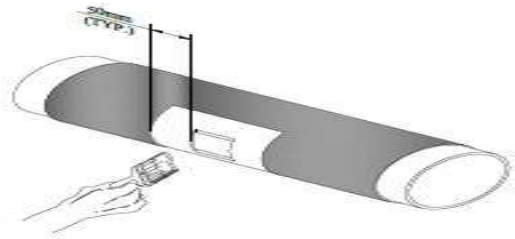

Fig.17 Smooth edges and prim area at least 50mm onto sound coating.

Fig.18 repair damaged are with a patch of tape overlapping at least 25mm onto primed sound coating area before wrapping with tape as (b)

Fig.19 Overwrap repair as (b)

INSPECTION:

Ensure that the entire surface is covered with no gaps or air pockets Holiday test at 10kV for single layer and 15kV for double layer.

Fig.20 Example for gaps air pocket
(see repair product figs 15-19)

Fig.21 Adhesion can be tested by pulling/removing a 50mm wide coupon of tape from the surface.

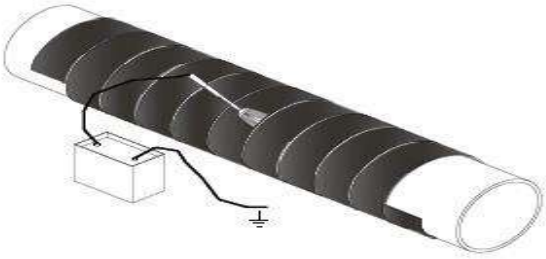

Fig.22 Perform holiday test using a ring or brass (10kv for single later and 15kv for double).