
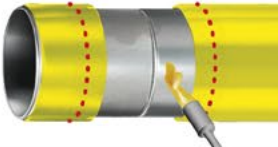

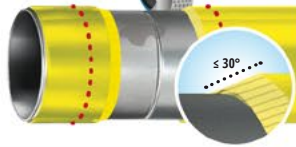

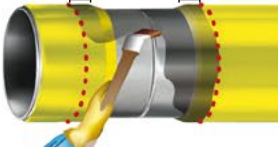

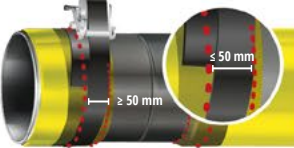





DENSOLEN® Tape Systems

Installation must take place in accordance with customary and local safety standards. The safety instructions for the DENSOLEN®-Primer must be observed.

<p>1. Cleaning</p>  <ul style="list-style-type: none"> The surfaces to be coated (steel surface and adjacent factory coating) must be clean, dry and free of dust and grease. All contamination that impairs adhesion (e.g. grease, oil, primers, temporary corrosion protection, coupling agents, etc.) must be removed prior to application. Use an appropriate solvent if necessary. 	<p>2. Drying</p>  <ul style="list-style-type: none"> Where necessary, remove moisture and ice by drying with a propane gas flame. 	<p>3. Substrate preparation</p>  <ul style="list-style-type: none"> The steel surface can be cleaned with a wire brush or blast de-rusting and must have a surface cleanliness of at least ST2. If the pipe surfaces have not been descaled (cast or mill scale), the scale layer must be removed by blasting. 	<p>4. Transition to factory coating</p>  <ul style="list-style-type: none"> Chamfer the transitions to adjacent factory coating with a spherical rasp (incline $\leq 30^\circ$). Remove swarf.
<p>5. Preparation of the factory coating</p>  <ul style="list-style-type: none"> Include adjacent factory coating of at least twice the width of the tape in the cleaning (use appropriate solvent if necessary). Roughen cleaned factory coating with a rough emery cloth in a circumferential direction. Remove swarf. 	<p>6. Primer</p>  <p>Tape width + min. 50 mm</p> <ul style="list-style-type: none"> Thoroughly stir the DENSOLEN®-Primer in the original container, until no sediment remains, prior to application. Make sure to use the correct primer for the tape system. Evenly coat the cleaned and dried surface with a thin layer using a paint brush or roller. Include the factory coating in the priming to the width of the prepared surface. Immediately seal the primer container after use. Clean the paint brush or roller with petrol (80/110). 	<p>7. Priming - drying time</p>  <ul style="list-style-type: none"> Allow the primer to dry until it is no longer sticky (finger test). The drying time depends on the ambient temperature and air movement (approx. 10 to 30 min.). Wrap the primed surface within no more than 6 hours. In case of longer waiting times or contamination, repeat the priming. 	<p>8. Innerwrap with manual wrapping</p>  <p>≥ 50 mm</p> <ul style="list-style-type: none"> When using manual wrapping, start with a circumferential wrap before spirally wrapping the tape. Tape application in the 8-10 o'clock position: At least 50 mm on the factory coating. Wrap the tape (DENSOLEN® three-ply tapes with inside adhesive layer (the side on the separating film) facing the pipe surface) around the pipe in a spiral pattern, applying even tension, with an overlap of at least 50%.
<p>9. Innerwrap with DENSO MAT®</p>  <p>≥ 50 mm</p> <ul style="list-style-type: none"> When wrapping with the DENSO MAT® wrapping machine, spiral wrapping can commence immediately (applies for inner and outer wrapping). Select the 8-10 o'clock position so that the overlap with the factory coating is at least 50 mm at every point, e.g.: Tape width 50 mm: Tape application min. 75 mm Tape width 100 mm: Tape application min. 100 mm Tape width 150 mm: Tape application min. 100 mm 	<p>10. Important innerwrap parameter</p>  <p>≥ 50 mm</p> <ul style="list-style-type: none"> The tape tension should be selected such that the tape tapers by approximately 1% during application. Remove the separating intermediate layer. The factory coating must be covered by at least 50 mm at every point of the circumference. 	<p>11. Outerwrap</p>  <p>1/2 Tape width (recommended)</p> <ul style="list-style-type: none"> Tape application: The outer wrapping should at least completely cover the inner wrapping. We recommend covering the inner wrapping by half the width of the tape. When using manual wrapping, start with a wrapping in the circumferential direction and then transition to spiral wrapping. When wrapping with the DENSO MAT® wrapping machine, spiral wrapping can commence immediately. Wrap the tape (DENSOLEN® three-ply tapes with inside adhesive layer (the side on the separating film) facing the pipe surface) around the pipe in a spiral pattern, applying even tension. 	<p>12. Important outerwrap parameter</p>  <p>≥ 50 mm</p> <ul style="list-style-type: none"> The tape tension should be selected such that the tape tapers by approximately 1% during application. Tape overlap: Min. 50%. Remove the separating intermediate layer (where present).

<p>Processing temperature</p> <p>Pipe surface min. 3 °C (+5 °F) above the dew point</p> <p>Ambient -40° to +60 °C (-40° to +140 °F)</p> <p>DENSOLEN®-HT Primer -10° to +40 °C (+14° to +104 °F)</p> <p>DENSOLEN®-MT25 Primer -10° to +50 °C (+14° to +122 °F)</p> <p>DENSOLEN®-HT100 Primer -10° to +50 °C (+14° to +122 °F)</p> <p>DENSOLEN® Tape -10° to +50 °C (+14° to +122 °F)</p>	<p>To prevent folds in the coating due to the thermal expansion of the polyethylene film, the temperature difference between the surface of the pipe (before and after application) and the roll of tape should not exceed 30°C (+54°F). In case of strong sunlight, the wrapping should be covered with an appropriate material until the trench is backfilled (e.g. DEPROTEC®-DRM PP rockshield).</p> <p>Steel surface: Surface cleanliness (ISO 8501-1) min. ST2 Surface roughness (ISO 8503-1) 50 - 100 µm</p>
<p>Test</p> <ul style="list-style-type: none"> The tape wrapping must be visually free of folds. The finished coating must be tested with a high voltage tester to confirm that it is free of pores. Test voltage of 5 kV + 5 kV per mm of coating thickness, max. 25 kV. 	<p>Instructions for use</p> <ul style="list-style-type: none"> We strongly recommend using DENSO MAT® wrapping machines for the application of tape widths of 50 mm or more. Tapes with a maximum width of 150 mm should be used to enable application with an adequate wrapping tension. These recommendations for use also apply for coating entire pipe lengths and pipe bends.