

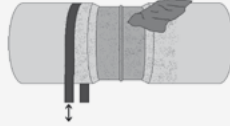
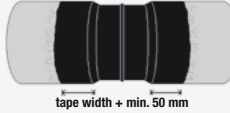
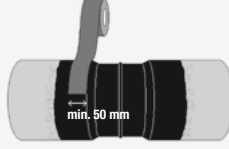
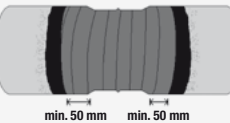
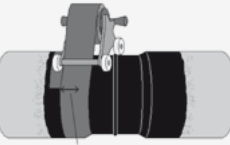
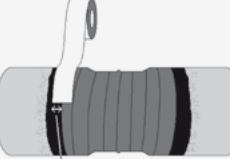




# DENSOLEN® Tape Systems

Installation must be done according to local regulations and usual safety precautions. Follow safety instructions given on **DENSOLEN®-Primer**.

<p><b>Application temperature</b></p> <p>Pipe surface min. +3°C (+5°F) above dew point</p> <p>Ambient -40° up to +60 °C (-40° up to +140 °F)</p> <p><b>DENSOLEN®-HT Primer</b> -10° up to +40 °C (+14° up to +104 °F)</p> <p><b>DENSOLEN®-MT25 Primer</b> -10° up to +50 °C (+14° up to +122 °F)</p> <p><b>DENSOLEN®-HT100 Primer</b> -10° up to +50 °C (+14° up to +122 °F)</p> <p><b>DENSOLEN® Tape</b> -10° up to +50 °C (+14° up to +122°F)</p>	<p>In order to avoid wrinkling due to thermal elongation of the PE carrier film, the temperature difference between pipe surface (before and after tape application) and tape roll should be max. +30 °C (+54 °F).</p> <p>Under prolonged exposure to sunlight, the finished wrapping should be covered with a suitable material (e.g. <b>DENSOLEN®-DRM PP Rockshield</b>).</p>	<p><b>Steel surface condition</b></p> <p>Cleanliness (ISO 8501-1) min. ST2</p> <p>Roughness (ISO 8503-1) 50 - 100 µm</p>
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<p><b>1. Cleaning</b></p>  <ul style="list-style-type: none"> <li>The areas to be coated (steel surface and adjacent factory coating) have to be clean, dry, and free from grease and dust.</li> <li>All contamination which might act as a release agent (e.g. grease, oil, varnishes, temporary protecting paints, coupling agents) have to be completely removed prior to tape application. Use suitable solvent if necessary.</li> </ul>	<p><b>2. Drying</b></p>  <ul style="list-style-type: none"> <li>Humidity and ice have to be removed by drying with a torch flame.</li> </ul>	<p><b>3. Surface Preparation</b></p>  <ul style="list-style-type: none"> <li>Cleaning of steel surface can be done by wire brushing or abrasive blast cleaning.</li> <li>Any existing scale has to be removed by abrasive blast cleaning.</li> </ul>	<p><b>4. Transition to Factory Coating</b></p>  <ul style="list-style-type: none"> <li>Transitions to adjacent factory coating should be bevelled by use of a round shaped rasp (recommended angle: ≤ 30°). Remove grinding dust.</li> </ul>
<p><b>5. Preparation of Factory Coating</b></p>  <ul style="list-style-type: none"> <li>Adjacent factory coating has to be cleaned as minimum in double tape width. Use suitable solvent, if necessary.</li> <li>Cleaned factory coating has to be circumferentially roughened with coarse emery cloth. Remove grinding dust.</li> </ul>	<p><b>6. Priming</b></p>  <p>tape width + min. 50 mm</p> <ul style="list-style-type: none"> <li>Thoroughly stir <b>DENSOLEN®-Primer</b> in original drum until any bottom settings are dissolved. It is essential to use the primer belonging to the tape system.</li> <li>By using a brush or roller apply a thin even coat of primer to the cleaned and dried surface.</li> <li>The factory coating has to be primed in a width of "the cleaned and roughened area" on each side.</li> <li>After use immediately close and seal primer drum. Clean brush or roller with suitable solvent (e.g. white spirit).</li> </ul>	<p><b>7. Priming - Drying</b></p>  <ul style="list-style-type: none"> <li>Let the primer dry until it is tack free.</li> <li>The drying time depends on ambient temperature and air movement (approx. 10-30 min.).</li> <li>The primed surface should be wrapped latest within 6 h. Otherwise or in case of contamination (e.g. dust) the primer coat has to be renewed.</li> </ul>	<p><b>8. Innerwrap</b></p>  <p>min. 50 mm</p> <ul style="list-style-type: none"> <li>In case of hand wrapping (tape width max. 50 mm) start with one circumferential wrap before spirally wrapping the tape. (start of wrapping in 8-10 o'clock position: min. 50 mm on factory coating).</li> <li>Spirally wrap tape (e.g. <b>DENSOLEN®</b> 3-ply tapes with grey side facing the pipe surface) under tension with min. 50% overlap around the pipe.</li> </ul>
<p><b>9. Innerwrap</b></p>  <p>min. 50 mm min. 50 mm</p> <ul style="list-style-type: none"> <li>Tape tension is sufficient, if tape width is narrowed by app. 1% during application.</li> <li>Remove interleaving.</li> <li>The tape wrapping should cover the full circumference of the adjacent factory coating by a width of min. 50 mm.</li> </ul>	<p><b>10. DENSOMAT® Wrapping</b></p>  <p>min. 50 mm</p> <ul style="list-style-type: none"> <li>When using <b>DENSOMAT®</b> wrapping devices, wrapping can start in spiral motion instead of one circumferential wrap (inner- and outerwrap).</li> <li>Select the tape attachment in 8-10 o'clock position so that the overlap of the factory coating is at least 50mm at each point. (Tape attachment → tape width +50mm)</li> </ul>	<p><b>11. Outerwrap</b></p>  <p>half tape width (recommended)</p> <ul style="list-style-type: none"> <li>In case of hand wrapping (tape width max. 50 mm) start with one circumferential wrap before spirally wrapping the tape.</li> <li>The outerwrap should at least fully cover the innerwrap. It is recommended to start wrapping by covering the innerwrap by ½ of tape width.</li> <li>Spirally wrap the outerwrap tape (e.g. <b>DENSOLEN®</b> 3-ply tapes with grey side facing the pipe surface) under tension with min 50% overlap around the pipe.</li> </ul>	<p><b>12. Outerwrap</b></p>  <p>min. 50 mm min. 50 mm</p> <ul style="list-style-type: none"> <li>Tape overlap: Min. 50%.</li> <li>Tape tension is sufficient, if tape width is narrowed by app. 1% during application.</li> <li>Remove interleaving (if applied).</li> </ul>

<p><b>Testing</b></p> <ul style="list-style-type: none"> <li>No wrinkles are allowed in the finished wrapping on visual testing.</li> <li>The wrapping has to be tested for freedom from pores with high voltage holiday detector. Test voltage: 5 kV + 5 kV per mm of coating thickness, max. 25 kV.</li> </ul>	<p><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>It is highly recommended to use <b>DENSOMAT®</b> wrapping devices for application of tapes wider than or equal to 50 mm.</li> <li>In order to ensure that tapes are applied with sufficient wrapping tension, the tape width should be limited to max. 150 mm.</li> </ul>	<ul style="list-style-type: none"> <li>The above application instruction can also be transferred to the wrapping of full pipe length or pipe bends.</li> </ul>
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