



## Benefits

Installs without disrupting operations

One hour to backfill from installation

Enhances short-term and long-term safety

Marking band system makes repairs visible to in-line inspection tools

No environmental hazards

No special tools to install

No hot work

No heavy lifting

## General Information

The Clock Spring<sup>®</sup> repair sleeve is a three-part system designed to structurally reinforce and permanently repair external anomalies. The system is composed of a high strength corrosion resistant composite sleeve, a high performance adhesive and a high modulus filler material. The composite sleeve is uniquely coil-shaped and sized to wrap tightly around pipe diameters providing eight individual layers bonded together insuring permanent field repairs and reinforcement of pipe sections. The Clock Spring<sup>®</sup> repair sleeve has been certified by DNV GL in accordance with the ASME PCC-2 and ISO 24817 stds.

## Features

- 50-year DOT accepted repair system for high pressure transmission pipelines
- ASME PCC-2 and ISO 24817 compliant
- Repair sleeve will restore the pipeline to full strength on up to 80 percent wall loss as well as assorted mechanical damage and mill defects.
- Available in 4" through 60" diameter kits, each kit will include a coil, filler, adhesive and tools
- Can be applied on bends and girth welds
- Removes the need for pressure reduction or pipeline shutdown during installation

## Applications

Transmission pipelines - proven permanent repair

Large diameter and limited access <0.5"

Bends and girth welds

Process piping: chemicals, oil, gases, water, and steam

## Features

- ☑ Meets standards of internationally recognized repair codes
- ☑ Marine Adhesive allows for underwater repair application
- ☑ High Temperature system available
- ☑ Simple marking band system makes repairs visible to in-line inspections tools.

## Sleeve Specifications

<b>Use</b>	Clock Spring® is a pipeline reinforcement system and repair sleeve for high pressure transmission pipelines. A continuous coil of pre-tensioned e-glass fiberglass for reinforcement.		
<b>Standard Configuration</b>	Each layer	0.065"/1.6mm	
	Complete, Eight-layer system	0.500"/13mm	
<b>Nominal Thickness</b>	<b>Material (Resin)</b>	<b>Polyester (Standard)</b>	<b>Vinyl Ester (High Temp)</b>
	Service Temperature Range	-51 C to 70 C (-60 F to 158 F)	-51 C to 120 C (-60 F to 248 F)
	Application Temperature Range	-40 C to 48 C (-40 F to 120 F)	-40 C to 82 C (-40 F to 180 F)
<b>Material</b>	Fiberglass and Polyester (Standard)/Vinyl Ester Resin (High Temp)		
<b>Width</b>	305 mm (12 inches) 1'		
<b>Adhesive Specs</b>			
<b>Lap Shear Strength</b>	>1200 PSI		
<b>Shelf Life</b>	12 Months from Date of Manufacture		
<b>Filler Specs</b>			
<b>Compressive Strength</b>	>12,500 PSI		
<b>Shelf Life</b>	12 Months from Date of Manufacture		
<b>Activator Specs</b>			
<b>Shelf Life</b>	12 Months from Date of Manufacture [Refrigeration at 38°F-52°F / 3°C -11°C Will Extend Material Shelf Life an Additional Three (3) Months]		