CLOCK SPRING®

Application Note
Weld Repair

Clock Spring® composite repair system can be used to reinforce corrosion or other blunt defects that affect the girth weld zone.

Clock Spring® provides hoop reinforcement for pipe damaged by corrosion or other blunt defects by wrapping tightly around the pipe and sharing the hoop load. The cap of a girth weld restricts the Clock Spring® contact with the pipe.

Defects in the weld zone can be repaired by bridging the weld cap with an additional Clock Spring® unit. Clock Springs are installed on either side of the weld; the space between the units is filled with high compressive strength filler and a third unit installed over the filled gap.

Weld Bridge Application Note

Scope:
The following technique will provide structural reinforcement for external corrosion, or other blunt defects associated with the girth weld zone.

The three steps to the process are:

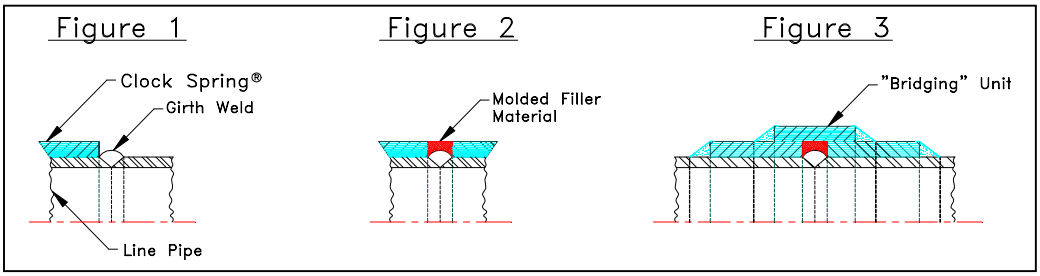
1. Application of Clock Spring® on both sides of the weld.
2. Molding the area between the Clock Spring® units (over the weld bead) with filler material using a single wrap mold.
3. Application of the bridging unit.

Application Guidelines:

1. Only certified installers may apply Clock Spring®.
2. The pipeline operator must inspect the weld zone to ensure that it is free of cracks.
3. Defect shall not exceed the following
    a. 50% pipe wall loss
    b. 30% of the pipe circumference
4. The following additional material is required. Filler kits, single-wrap mold, parting film, tie-down straps, 100-grit sandpaper.

Installation Steps:

1. Install a Clock Spring® unit on each side of the girth weld. (See Figure 1)
   Optional: Six-inch (150 mm) wide Clock Spring® may be used.
2. Remove all extruded material from the area of the girth weld.
3. Allow adhesive to cure and remove the securing filament tape nearest the girth weld.
4. Apply filler material to the area between the Clock Spring® units (over the weld bead). Install the parting film and the single-wrap Clock Spring mold. Tighten the mold using the tie-down straps. (See Figure 2)
5. Remove all extruded filler material.
6. Allow the filler to harden (approximately 1-1/2 hours). Cure time will be affected by temperature.
7. Remove mold, lightly abrade filler and the exterior of the installed Clock Springs, and wipe abraded area.
8. Apply filler material as required to all voids, center and install the “Bridging” Clock Spring® unit over the girth weld in accordance with standard Clock Spring® repair procedures. (See Figure 3)



Simply the smartest pipeline repair decision you can make!

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