Care, Maintenance, and Inspection of Coiled Tubing

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Care, Maintenance, and Inspection of Coiled Tubing

1 Scope

This recommended practice covers the care, maintenance, and inspection of used low alloy carbon steel coiled tubing. Commonly manufactured coiled tubing outside diameters range from 25.4 mm (1.000 in.) to 88.9 mm (3.5 in.).

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Specification 5ST, *Specification for Coiled Tubing*

ASTM A370 [1], *Standard Test Methods and Definitions for Mechanical Testing of Steel Products*

H. Haga, K. Aoki, and T. Sato (1980a), Welding Phenomena and Welding Mechanisms in High Frequency Electric Resistance Welding—1st Report, *Welding Journal* 59(7), pp. 208–212

H. Haga, K. Aoki, and T. Sato (1980b), The Mechanisms of Formation of Weld Defects in High-Frequency Electric Resistance Welds, *Welding Journal* 59(7), pp. 103s–109s

For a list of other documents associated with this standard, see the Bibliography.

3 Terms, Definitions, Acronyms, and Abbreviations

3.1 Terms and Definitions

For the purpose of this document, the following definitions apply.

3.1.1
Bauschinger Effect
A phenomenon that occurs in polycrystalline metals (including steel), that results in a decrease of the yield strength in one direction due to plastic deformation in another direction such as is caused by service loads, coiling, or straightening.

3.1.2
bed wrap
The wraps of coiled tubing that are adjacent to the cylindrical core of the shipping or usage reel.

3.1.3
cold work
Plastic deformation at such temperatures and rates that substantial increases occur in the strength and hardness of the metal.

NOTE Visible structural changes include changes in grain shape and, in some instances, mechanical twinning or banding.

3.1.4
critical weld(s)
Primary connections in coiled tubing where failure would jeopardize the safety of personnel or equipment and/or be detrimental to the integrity of the coiled tubing string or operation.

NOTE Critical welds include, but are not necessarily limited to, tube-to-tube girth joints and high-pressure end-fitting welds for union connections to swivel joints on coiled tubing reels.

[1] ASTM International, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428, www.astm.org.