Title:	CORE Liner® Pressure Rating US	CORE LINEPIPE
Document and Rev #:	CLP-TB-018r1	
Document Owner:	Applications Engineering	
Revision Date:	28-Apr-2021	

CORE Liner® Pressure Rating

I. Background

CORE Liner® is a pipe-in-pipe system that utilizes an outer steel pipe for structural strength and an inner polymer liner pipe for corrosion resistance. The outer steel pipe is joined using the proprietary Clickweld® mechanical interference fit joining system, eliminating the need for steel welding in the field. The inner polymer liner is joined using electrofusion fittings. CORE Liner® combines the strength of carbon steel and the corrosion resistance of polymers.

II. Allowable Stress Value

ASME B 31.4 defines the allowable stress value to be used for pipe pressure rating calculations in clause 403.2.1 for the general conditions, and in clause 403.11 for cold worked pipe. ASME B31.4 clause 403.11 states that "The allowable stress for pipe that has been cold worked to meet the specified minimum yield strength and is subsequently heated to 600°F (300°C) or higher (welding excepted) shall be derated to 75% of the allowable stress value as defined in para. 403.2.1."

The cold work applied to the CORE Liner® product is intended to form the bell at the pipe end to allow for the use of the Clickweld® joining system. The purpose of the cold work is purely dimensional and is not needed to meet the specified minimum yield strength of the pipe. In addition, the bell is not heat treated after the cold work is applied. Accordingly, the conditions of ASME B31.4 clause 403.11 do not apply to the CORE Liner® product, and as such, the allowable stress value to be used in the pressure rating calculation of CORE Liner® is as described in ASME B31.4 clause 403.2.1.

III. Pressure Rating

The pressure rating of CORE Liner® is calculated as per ASME B31.4 clause 403.2.1 as follows:

$$P = \frac{2tSy}{D} xFxE$$

Where,

P = internal design pressure, psig

t = wall thickness, inch

Sy = specified minimum yield strength (SMYS), psi = 52,000 psi.

D = outside diameter of pipe, inch

F = design factor [= 0.72, refer ASME B31.4 clause 403.2.1]

E = weld joint factor [= 1.00 as per ASME B31.4 Table 403.2.1-1 for electric resistance welded pipe]

Product	Outside Diameter	Wall Thickness	SMYS	Design Factor	Weld Joint Factor	Design Pressure	Pressure Rating
-	D, "	t, "	S_y, psi	F, -	E, -	P, psig	psig
CL440	4.500	0.1574	52,000	0.72	1	2619	2620
CL648	6.625	0.189	52,000	0.72	1	2136	2140
CL671	6.625	0.280	52,000	0.72	1	3165	3160
CL856	8.625	0.220	52,000	0.72	1	1910	1480

The pressure rating is the published internal design pressure of each CORE Liner® product.