

Horizontal Monotube Analysis

E = 29000 ksi (Young's Modulus)
k chord = 1.00

	Mvert	Mhoriz	SHEAR Horizontal	SHEAR Vertical	Max Axial
	kip-ft	kip-ft	kips	kips	Kips
Section 1	38.07	73.28	4.50	2.31	4.83
Section 2	35.76	73.70	2.69	1.02	4.83

Local Buckling AASHTO 5.5						
Section 1						
Outside Dia (inches)	Wall Thick (inches)	Yield Str. (ksi)	λ	λ_p	λ_r	λ_{max}
4.000	0.23	42.0	17.70	86.9	180.6	306.5
Compact						

λ width-thickness ratio
 λ_p compact width-thickness ratio
 λ_r non-compact width-thickness ratio
 λ_{max} maximum width-thickness ratio
E 29000 ksi (Young's Modulus)

Local Buckling AASHTO 5.5						
Section 2						
Outside Dia (inches)	Wall Thick (inches)	Yield Str. (ksi)	λ	λ_p	λ_r	λ_{max}
4.000	0.23	42.0	17.70	86.9	180.6	306.5
Compact						

Section 1						
Unbraced Length (ft.)	Pipe Diameter (in.)	Wall Thickness (in.)	Pipe Area (in²)	Chord Yield Str. (ksi)	KL/Rmin	
72.0	4.000	0.226	2.68	42.0	53.95	

Section 2						
Unbraced Length (ft.)	Pipe Diameter (in.)	Wall Thickness (in.)	Pipe Area (in²)	Chord Yield Str. (ksi)	KL/Rmin	
72.0	4.000	0.226	2.68	42.0	53.95	

Group 1	BENDING AND SHEAR STRESSES									
	Mmax kip-ft	S in³	fb ksi	Shear kips	Pipe Area in²	Iv ksi	Axial kips	Area y in²	fa ksi	
	Section 1	81.07	97.26	10.08	5.96	2.68	1.88	4.83	2.68	1.80
	Section 2	81.92	97.26	10.11	2.87	2.68	1.07	4.83	2.68	1.80
	RESULTS									
	Fb ksi	Pv ksi	Fa ksi	Cc	R	KL/R	Fe' ksi	Eqn. 5-17 CSR	Eqn. 5-18 CSR	Eqn. 5-19 CSR
Section 1	27.72	13.86	21.75	116.75	1.33	53.95	51.30	0.454	0.498	0.465
Section 2	27.72	13.86	21.75	116.75	1.33	53.95	51.30	0.442	0.498	0.453

Fb Calculation			
Section 1	Term 1	Term 2	Term 3
Eqn. 5-17	0.072	0.364	0.019
Eqn. 5-18	0.083	0.388	0.019
Eqn. 5-19	0.083	0.364	0.019
Section 2	Term 1	Term 2	Term 3
Eqn. 5-17	0.072	0.365	0.006
Eqn. 5-18	0.083	0.398	0.006
Eqn. 5-19	0.083	0.365	0.006

compact (ksi)	Non-Compact (ksi)	Slender
2	2	2
65	65	65
72.09	72.09	72.09