

## Wheatland Tube Co. Mega-Thread Pipe

### Table-1

Mega Thread (A-795-E) Pipe Properties													
Pipe NPS In.	Pipe 't' In.	Pipe ID 'd' In.	Pipe OD 'D' In.	Inside Area 'Ai' In <sup>2</sup>	Metal Area 'Am' In <sup>2</sup>	Wt Per ft. 'w <sub>1</sub> ' Lb.	Wt of Water. 'w <sub>2</sub> ' Lb.	Moment of Inertia 'I' In <sup>4</sup>	Section Mod. 'S' In <sup>3</sup>	Radius of Gyration 'r' In	Weight 'w' Lb/Ft w <sub>1</sub> + w <sub>2</sub>	Hanger Span Ft. (max)	Trapeze Load P Lb. = w+250
1	0.114	1.087	1.315	0.93	0.43	1.46	0.40	0.08	0.12	0.43	1.86	15	278
1 1/4	0.122	1.416	1.660	1.57	0.59	2.00	0.68	0.18	0.21	0.55	2.68	15	290
1 1/2	0.125	1.650	1.900	2.14	0.70	2.37	0.93	0.28	0.29	0.63	3.30	15	299
2	0.129	2.117	2.375	3.52	0.91	3.09	1.53	0.58	0.49	0.80	4.62	15	319

### Table-2

Table 9.1.1.6.1(a) Section Modulus Required (minimum) for Trapeze Member In <sup>3</sup>				
Nominal Diameter of Mega Thread (A-795-E) Pipe Being Supported				
Span of Trapeze 'a' ↓	1 in.	1 ¼ In.	1 ½ In.	2 In.
	Section Modulus Required (Minimum)			
1'-6"	0.08	0.09	0.09	0.10
2'-0"	0.11	0.12	0.12	0.13
2'-6"	0.14	0.15	0.15	0.16
3'-0"	0.17	0.17	0.18	0.19
4'-0"	0.22	0.23	0.24	0.26
5'-0"	0.28	0.29	0.30	0.32
6'-0"	0.33	0.35	0.36	0.38
7'-0"	0.39	0.41	0.42	0.45
8'-0"	0.44	0.46	0.48	0.51
9'-0"	0.50	0.52	0.54	0.57
10'-0"	0.56	0.58	0.60	0.64

The Table is based on a maximum allowable bending stress of 15 ksi and a mid-span concentrated load from a the span of water-filled pipe specified in NFPA 13, Sec. 9.2.2.1, plus 250 lb.



**Contact: Greg Maurer, Manager Technical Services & Quality Assurance**  
**1 Council Avenue, P.O. Box 608, Wheatland, PA 16161**  
**Ph: (724)-342-6851 Ext. 1250**

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### Table-3

<b>ZONE OF INFLUENCE LOAD CAPACITY (Lb) AT THE CENTER OF THE SPAN</b>					
<b>Lateral Sway Brace Spacing (Ft)<sup>a</sup> on Mega Thread (A-795-E) Pipe, (Fy = 30 ksi)<sup>f</sup></b>					
<b>Pipe Diameter (In)</b>	<b>20<sup>b</sup></b>	<b>25<sup>b</sup></b>	<b>30<sup>c</sup></b>	<b>35<sup>c</sup></b>	<b>40<sup>d</sup></b>
<b>1</b>	111	89	73	62	52
<b>1 1/4</b>	197	157	129	111	93
<b>1 1/2</b>	270	216	177	152	127
<b>2<sup>e</sup></b>	452	361	296	254	212

**Notes:**

<sup>a</sup> The tables for the maximum load  $F_{pw}$  in zone of influence are based on specific configurations of mains and branch lines.

<sup>b</sup> Assumes branch lines at center of pipe span and near each support.

<sup>c</sup> Assumes branch lines at third-points of pipe span and near each support.

<sup>d</sup> Assumes branch lines at quarter-points of pipe span and near each support.

<sup>e</sup> Larger diameter pipe may be used when justified by engineering analysis.

<sup>f</sup> ASTM A-795-E has Yield Strength  $F_y = 30$  ksi. Effect on overall stresses in the pipe due to operational stresses is not considered.

### Table-4

#### Sway Brace Load Capacity (Ref. NFPA 13, Section 9.3.5.8.7 (a))

<b>Maximum Horizontal Loads For Sway Brace with <math>kl/r = 100</math> for steel brace <math>F_y = 30</math>ksi</b>							
<b>Mega Thread (A-795-E) Pipe</b>							
<b>Pipe Diameter NPS In.</b>	<b>Metal Area 'Am' In<sup>2</sup></b>	<b>Radius of Gyration 'r' In</b>	<b>Maximum Length for <math>kl/r = 100</math> Ft</b>	<b>Fa Allowable Compressive Stress, psi</b>	<b>Max. Horizontal Load Lb.</b>		
					<b>Angle From 30° - 44°</b>	<b>Angle From 45° - 59°</b>	<b>Angle From 60° - 90°</b>
<b>1</b>	0.43	0.43	3'-6"	11705	2516	3558	4358
<b>1 1/4</b>	0.59	0.55	4'-6"	11705	3448	4876	5972
<b>1 1/2</b>	0.70	0.63	5'-2"	11705	4077	5765	7062
<b>2</b>	0.91	0.80	6'-6"	11705	5324	7528	9222

#### Sway Brace Load Capacity (Ref. NFPA 13, Section 9.3.5.8.7 (b))

<b>Maximum Horizontal Loads For Sway Brace with <math>kl/r = 200</math> for steel brace <math>F_y = 30</math>ksi</b>							
<b>Mega Thread (A-795-E) Pipe</b>							
<b>Pipe Diameter NPS In.</b>	<b>Metal Area 'Am' In<sup>2</sup></b>	<b>Radius of Gyration 'r' In</b>	<b>Maximum LenMTh for <math>kl/r = 200</math> Ft</b>	<b>Fa Allowable Compressive Stress, psi</b>	<b>Max. Horizontal Load Lb.</b>		
					<b>Angle From 30° - 44°</b>	<b>Angle From 45° - 59°</b>	<b>Angle From 60° - 90°</b>
<b>1</b>	0.43	0.43	7'-0"	3730	802	1134	1389
<b>1 1/4</b>	0.59	0.55	9'-0"	3730	1099	1554	1903
<b>1 1/2</b>	0.70	0.63	10'-4"	3730	1299	1837	2250
<b>2</b>	0.91	0.80	13'-0"	3730	1696	2399	2938

#### Sway Brace Load Capacity (Ref. NFPA 13, Section 9.3.5.8.7 (c))

<b>Maximum Horizontal Loads For Sway Brace with <math>kl/r = 300</math> for steel brace <math>F_y = 30</math>ksi</b>							
<b>Mega Thread (A-795-E) Pipe</b>							
<b>Pipe Diameter NPS In.</b>	<b>Metal Area 'Am' In<sup>2</sup></b>	<b>Radius of Gyration 'r' In</b>	<b>Maximum Length for <math>kl/r = 300</math> Ft</b>	<b>Fa Allowable Compressive Stress, psi</b>	<b>Max. Horizontal Load Lb.</b>		
					<b>Angle From 30° - 44°</b>	<b>Angle From 45° - 59°</b>	<b>Angle From 60° - 90°</b>
<b>1</b>	0.43	0.43	10'-6"	1658	356	504	617
<b>1 1/4</b>	0.59	0.55	13'-6"	1658	488	690	846
<b>1 1/2</b>	0.70	0.63	15'-6"	1658	577	816	1000
<b>2</b>	0.91	0.80	19'-6"	1658	754	1066	1306