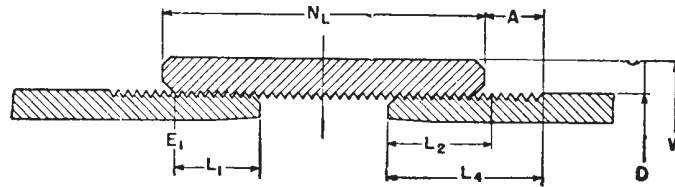


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**FIG. X3.2 Dimensions of Hand Tight Assembly for Use with Table X3.2**

**TABLE X3.2 Basic Threading Data for Standard-Weight Pipe in NPS 8 [DN 200] and Larger, and all Sizes of Extra-Strong and Double-Extra-Strong Weight**

NOTE 1—The taper of threads is 3/4 in./ft [62.5 mm/m] on the diameter.

Pipe			Threads					Coupling			
NPS	DN	Outside Diameter, in. [mm]	Number per Inch	End of Pipe to Hand Tight Plane, in. [mm]	Effective Length, in. [mm]	Total Length, in. [mm]	Pitch Diameter at Hand Tight Plane, in. [mm]	Outside Diameter, in. [mm]	Length, min. in. [mm]	Hand Tight Stand-Off (Number of Threads)	
Designator	Designator	D		L <sub>1</sub>	L <sub>2</sub>	L <sub>4</sub>	E <sub>1</sub>	W	N <sub>L</sub>		
1/8	6	0.405 [10.3]	27	0.1615 [4.1021]	0.2638 [6.7005]	0.3924 [9.9670]	0.37360 [9.48944]	0.563 [14.3]	1 1/16 [27]	3	
1/4	8	0.540 [13.7]	18	0.2278 [5.7861]	0.4018 [10.2057]	0.5946 [15.1028]	0.49163 [12.48740]	0.719 [18.3]	1% [41]	3	
3/8	10	0.675 [17.1]	18	0.240 [6.096]	0.4078 [10.3581]	0.6006 [15.2552]	0.62701 [15.92605]	0.875 [22.2]	1% [41]	3	
1/2	15	0.840 [21.3]	14	0.320 [8.128]	0.5337 [13.5560]	0.7815 [19.8501]	0.77843 [19.77212]	1.063 [27.0]	2 1/8 [54]	3	
3/4	20	1.050 [26.7]	14 1/2	0.339 [8.611]	0.5457 [13.8608]	0.7935 [20.1549]	0.98887 [25.11730]	1.313 [33.4]	2 1/8 [54]	3	
1	25	1.315 [33.4]	11	0.400 [10.160]	0.6828 [17.3431]	0.9845 [25.0063]	1.23863 [31.46120]	1.576 [40.0]	2% [67]	3	
1 1/4	32	1.660 [42.2]	11 1/2	0.420 [10.668]	0.7068 [17.9527]	1.0085 [25.6159]	1.58338 [40.21785]	2.054 [52.2]	2% [70]	3	
1 1/2	40	1.900 [48.3]	11 1/2	0.420 [10.668]	0.7235 [18.3769]	1.0252 [26.0401]	1.82234 [46.28744]	2.200 [55.9]	2 3/4 [70]	3	
2	50	2.375 [60.3]	11 1/2	0.436 [11.074]	0.7565 [19.2151]	1.0582 [26.8783]	2.29627 [58.32526]	2.875 [73.0]	2 1/8 [73]	3	
2 1/2	65	2.875 [73.0]	8	0.682 [17.323]	1.1375 [28.8950]	1.5712 [39.9085]	2.76216 [70.15886]	3.375 [85.7]	4 1/8 [105]	2	
3	80	3.500 [88.9]	8	0.766 [19.456]	1.2000 [30.4800]	1.6337 [41.4960]	3.38850 [86.06790]	4.000 [101.6]	4 1/4 [108]	2	
3 1/2	90	4.000 [101.6]	8	0.821 [20.853]	1.2500 [31.7500]	1.6837 [42.7660]	3.88881 [98.77577]	4.625 [117.5]	4 3/8 [111]	2	
4	100	4.500 [114.3]	8	0.844 [21.438]	1.3000 [33.0200]	1.7337 [44.0360]	4.38713 [111.43310]	5.200 [132.1]	4 1/2 [114]	2	
5	125	5.563 [141.3]	8	0.937 [23.800]	1.4063 [35.7200]	1.8400 [46.7360]	5.44929 [138.41200]	6.296 [159.9]	4 5/8 [117]	2	
6	150	6.625 [168.3]	8	0.958 [24.333]	1.5125 [38.4175]	1.9462 [49.4335]	6.50597 [165.25164]	7.390 [187.7]	4 7/8 [124]	2	
8	200	8.625 [219.1]	8	1.063 [27.000]	1.7125 [43.4975]	2.1462 [54.5135]	8.50003 [215.90076]	9.625 [244.5]	5 1/4 [133]	2	
10	250	10.750 [273.0]	8	1.210 [30.734]	1.9250 [48.8950]	2.3587 [59.9110]	0.62094 [269.77188]	11.750 [298.4]	5 3/4 [146]	2	
12	300	12.750 [323.8]	8	1.360 [34.544]	2.1250 [53.9750]	2.5587 [64.9910]	2.61781 [320.49237]	14.000 [355.6]	6 1/8 [156]	2	
14	350	14.000 [355.6]	8	1.562 [39.675]	2.2500 [57.1500]	2.6837 [68.1660]	3.87263 [352.36480]	15.000 [381.0]	6 3/8 [162]	2	
16	400	16.000 [406.4]	8	1.812 [46.025]	2.4500 [62.2300]	2.8837 [73.2460]	5.87575 [403.24405]	17.000 [432]	6 3/4 [171]	2	
18	450	18.000 [457]	8	2.000 [50.800]	2.6500 [67.3100]	3.0837 [78.3260]	7.87500 [454.02500]	19.000 [483]	7 1/8 [181]	2	
20	500	20.000 [508]	8	2.125 [53.975]	2.8500 [72.3900]	3.2837 [83.4060]	9.87031 [504.70587]	21.000 [533]	7 5/8 [194]	2	

**X4. ELONGATION VALUES**

X4.1 Tabulated in Table X4.1 are the minimum elongation values calculated by the equation given in Table 2.

**TABLE X4.1 Elongation Values**

Area, A, in. <sup>2</sup>	Tension Test Specimen			Elongation in 2 in., min, %	
	Nominal Wall Thickness, in.			Specified Tensile Strength, psi	
	3/4-in. Specimen	1-in. Specimen	1 1/2-in. Specimen	48 000	60 000
0.75 and greater	0.994 and greater	0.746 and greater	0.497 and greater	36	30
0.74	0.980–0.993	0.735–0.745	0.490–0.496	36	29
0.73	0.967–0.979	0.726–0.734	0.484–0.489	36	29
0.72	0.954–0.966	0.715–0.725	0.477–0.483	36	29
0.71	0.941–0.953	0.706–0.714	0.471–0.476	36	29
0.70	0.927–0.940	0.695–0.705	0.464–0.470	36	29
0.69	0.914–0.926	0.686–0.694	0.457–0.463	36	29
0.68	0.900–0.913	0.675–0.685	0.450–0.456	35	29
0.67	0.887–0.899	0.666–0.674	0.444–0.449	35	29
0.66	0.874–0.886	0.655–0.665	0.437–0.443	35	29
0.65	0.861–0.873	0.646–0.654	0.431–0.436	35	29
0.64	0.847–0.860	0.635–0.645	0.424–0.430	35	29


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**TABLE X4.1** *Continued*

Area, A, in. <sup>2</sup>	Tension Test Specimen			Elongation in 2 in., min, %	
	Nominal Wall Thickness, in.			Specified Tensile Strength, psi	
	¾-in. Specimen	1-in. Specimen	1½-in. Specimen	48 000	60 000
0.63	0.834–0.846	0.626–0.634	0.417–0.423	35	29
0.62	0.820–0.833	0.615–0.625	0.410–0.416	35	28
0.61	0.807–0.819	0.606–0.614	0.404–0.409	35	28
0.60	0.794–0.806	0.595–0.605	0.397–0.403	35	28
0.59	0.781–0.793	0.586–0.594	0.391–0.396	34	28
0.58	0.767–0.780	0.575–0.585	0.384–0.390	34	28
0.57	0.754–0.766	0.566–0.574	0.377–0.383	34	28
0.56	0.740–0.753	0.555–0.565	0.370–0.376	34	28
0.55	0.727–0.739	0.546–0.554	0.364–0.369	34	28
0.54	0.714–0.726	0.535–0.545	0.357–0.363	34	28
0.53	0.701–0.713	0.526–0.534	0.351–0.356	34	28
0.52	0.687–0.700	0.515–0.525	0.344–0.350	34	27
0.51	0.674–0.686	0.506–0.514	0.337–0.343	33	27
0.50	0.660–0.673	0.495–0.505	0.330–0.336	33	27
0.49	0.647–0.659	0.486–0.494	0.324–0.329	33	27
0.48	0.634–0.646	0.475–0.485	0.317–0.323	33	27
0.47	0.621–0.633	0.466–0.474	0.311–0.316	33	27
0.46	0.607–0.620	0.455–0.465	0.304–0.310	33	27
0.45	0.594–0.606	0.446–0.454	0.297–0.303	33	27
0.44	0.580–0.593	0.435–0.445	0.290–0.296	32	27
0.43	0.567–0.579	0.426–0.434	0.284–0.289	32	26
0.42	0.554–0.566	0.415–0.425	0.277–0.283	32	26
0.41	0.541–0.553	0.406–0.414	0.271–0.276	32	26
0.40	0.527–0.540	0.395–0.405	0.264–0.270	32	26
0.39	0.514–0.526	0.386–0.394	0.257–0.263	32	26
0.38	0.500–0.513	0.375–0.385	0.250–0.256	32	26
0.37	0.487–0.499	0.366–0.374	0.244–0.249	31	26
0.36	0.474–0.486	0.355–0.365	0.237–0.243	31	26
0.35	0.461–0.473	0.346–0.354	0.231–0.236	31	25
0.34	0.447–0.460	0.335–0.345	0.224–0.230	31	25
0.33	0.434–0.446	0.326–0.334	0.217–0.223	31	25
0.32	0.420–0.433	0.315–0.325	0.210–0.216	30	25
0.31	0.407–0.419	0.306–0.314	0.204–0.209	30	25
0.30	0.394–0.406	0.295–0.305	0.197–0.203	30	25
0.29	0.381–0.393	0.286–0.294	0.191–0.196	30	24
0.28	0.367–0.380	0.275–0.285	0.184–0.190	30	24
0.27	0.354–0.366	0.266–0.274	0.177–0.183	29	24
0.26	0.340–0.353	0.255–0.265	0.170–0.176	29	24
0.25	0.327–0.339	0.246–0.254	0.164–0.169	29	24
0.24	0.314–0.326	0.235–0.245	0.157–0.163	29	24
0.23	0.301–0.313	0.226–0.234	0.151–0.156	29	23
0.22	0.287–0.300	0.215–0.225	0.144–0.150	28	23
0.21	0.274–0.286	0.206–0.214	0.137–0.143	28	23
0.20	0.260–0.273	0.195–0.205	0.130–0.136	28	23
0.19	0.247–0.259	0.186–0.194	0.124–0.129	27	22
0.18	0.234–0.246	0.175–0.185	0.117–0.123	27	22
0.17	0.221–0.233	0.166–0.174	0.111–0.116	27	22
0.16	0.207–0.220	0.155–0.165	0.104–0.110	27	22
0.15	0.194–0.206	0.146–0.154	0.097–0.103	26	21
0.14	0.180–0.193	0.135–0.145	0.091–0.096	26	21
0.13	0.167–0.179	0.126–0.134	0.084–0.090	25	21
0.12	0.154–0.166	0.115–0.125	0.077–0.083	25	20
0.11	0.141–0.153	0.106–0.114	0.071–0.076	25	20
0.10	0.127–0.140	0.095–0.105	0.064–0.070	24	20
0.09	0.114–0.126	0.086–0.094	0.057–0.063	24	19
0.08	0.100–0.113	0.075–0.085	0.050–0.056	23	19
0.07	0.087–0.099	0.066–0.074	0.044–0.049	22	18
0.06	0.074–0.086	0.055–0.065	0.037–0.043	22	18
0.05	0.061–0.073	0.046–0.054	0.031–0.036	21	17
0.04	0.047–0.060	0.035–0.045	0.024–0.030	20	16
0.03	0.034–0.046	0.026–0.034	0.017–0.023	19	16
0.02	0.020–0.033	0.015–0.025	0.010–0.016	17	14
0.01 and less	0.019 and less	0.014 and less	0.009 and less	15	12

X4.2 Tabulated in Table X4.2 are the minimum elongation values calculated by the equation given in Table 2.


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**TABLE X4.2 Elongation Values**

Area, A, mm <sup>2</sup>	Tension Test Specimen			Elongation in 50 mm, min, %	
	Nominal Wall Thickness, mm			Specified Tensile Strength, MPa	
	19-mm Specimen	25-mm Specimen	38-mm Specimen	330	415
500 and greater	26.3 and greater	20.0 and greater	13.2 and greater	36	30
480-499	25.3-26.2	19.2-19.9	12.7-13.1	36	30
460-479	24.2-25.2	18.4-19.1	12.1-12.6	36	29
440-459	23.2-24.1	17.6-18.3	11.6-12.0	36	29
420-439	22.1-23.1	16.8-17.5	11.1-11.5	35	29
400-419	21.1-22.0	16.0-16.7	10.6-11.0	35	29
380-399	20.0-21.0	15.2-15.9	10.0-10.5	35	28
360-379	19.0-19.9	14.4-15.0	9.5-9.9	34	28
340-359	17.9-18.9	13.6-14.3	9.0-9.4	34	28
320-339	16.9-17.8	12.8-13.5	8.5-8.9	34	27
300-319	15.8-16.8	12.0-12.7	7.9-8.4	33	27
280-299	14.8-15.7	11.2-11.9	7.4-7.8	33	27
260-279	13.7-14.7	10.4-11.1	6.9-7.3	32	26
240-259	12.7-13.6	9.6-10.3	6.4-6.8	32	26
220-239	11.6-12.6	8.8-9.5	5.8-6.3	31	26
200-219	10.5-11.5	8.0-8.7	5.3-5.7	31	25
190-199	10.0-10.4	7.6-7.9	5.0-5.2	30	25
180-189	9.5-9.9	7.2-7.5	4.8-4.9	30	24
170-179	9.0-9.4	6.8-7.1	4.5-4.7	30	24
160-169	8.4-8.9	6.4-6.7	4.2-4.4	29	24
150-159	7.9-8.3	6.0-6.3	4.0-4.1	29	24
140-149	7.4-7.8	5.6-5.9	3.7-3.9	29	23
130-139	6.9-7.3	5.2-5.5	3.5-3.6	28	23
120-129	6.3-6.8	4.8-5.1	3.2-3.4	28	23
110-119	5.8-6.2	4.4-4.7	2.9-3.1	27	22
100-109	5.3-5.7	4.0-4.3	2.7-2.8	27	22
90-99	4.8-5.2	3.6-3.9	2.4-2.6	26	21
80-89	4.2-4.7	3.2-3.5	2.1-2.3	26	21
70-79	3.7-4.1	2.8-3.1	1.9-2.0	25	21
60-69	3.2-3.6	2.4-2.7	1.6-1.8	24	20
50-59	2.7-3.1	2.0-2.3	...	24	19
40-49	2.1-2.6	1.6-1.9	...	23	19
30-39	1.6-2.0	...	...	22	18