

SECOND REDETERMINATION ON REMAND
CIRCULAR WELDED NON-ALLOY STEEL PIPE FROM MEXICO:
SCOPE DETERMINATION - GALVAK

In the Matter of: Final Scope Ruling - Antidumping Order on Circular Welded Non-Alloy Steel
Pipe From Mexico,

Secretariat File No. USA-Mex-98-1904-05 (NAFTA Panel Decision, May 16, 2002)

Summary

_____ In accordance with the Panel's remand instructions in the above-referenced case, we have re-examined the Redetermination on Remand, Circular Welded Non-Alloy Steel Pipe from Mexico: Scope Determination - Galvak, March 7, 2003 ("Redetermination") by the Department of Commerce ("the Department") with regard to determining whether 'mechanical tubing' produced by Galvak to ASTM A-787 specifications is within the scope of the Order. After addressing the concerns raised by the NAFTA Panel, we determine that some tubing produced by Galvak to ASTM A-787 is within the scope of the Order. Mechanical tubing is excluded from this Order unless it is manufactured with standard pipe characteristics. If such tubing is manufactured with standard pipe characteristics, the Department considers it to be standard pipe covered by the Order and not mechanical tubing, which is not covered by the Order. Thus, any tubing produced by Galvak to ASTM A-787 which does not conform to the dimensions and characteristics of ASTM

A-53 and fence tubing is outside the scope of the Order, as this is mechanical tubing and is thus excluded.

Analysis and Redetermination

In its second remand to the Department, the NAFTA Panel instructed the Department to determine, based on record evidence, whether the Order applies to the specific mechanical tubing products intended to be exported by Galvak. In its Opinion, the Panel made the following observations:

- A. “the Redetermination does not make a specific scope determination with respect to the products that Galvak intends to export” (Page 2), that the Department failed to make an adequate determination, and failed to address the presumption of whether the merchandise is within, or outside, of the scope of the Order.
- B. “the Redetermination fails to answer the fundamental question: Do the products that Galvak intends to export meet the dimension and characteristics of ASTM A-53 fence tubing?” (Page 3) and that “Commerce should more appropriately have focused its energies on developing the facts concerning each product that Galvak proposed to export.” (Page 5)
- C. “merely citing the dimensional standards set forth in ASTM A-53 for standard pipe does not comprise record evidence to rebut the presumption created by the Order’s exclusionary language. . . . nor does it, as the Panel directed, ‘demonstrate that specific mechanical tubing products are covered by the Order.’” (pages 4-5)
- D. “the Department endeavored to articulate a broad rule concerning all mechanical tubing.” (page 6)

It is appropriate to address each of these points in this redetermination.

A. Whether The Department's Redetermination Failed to Make a Scope Determination

As the Department stated in its March 7, 2003 redetermination, the Department determined that "some tubing produced by Galvak to ASTM A-787 may be within the scope of the Order. Specifically, tubing which conforms to the dimension and characteristics of ASTM A-53 and fence tubing is included within the scope of the Order." See Page 1. Thus, tubing sold by Galvak which has the identical wall thickness, diameter, and length characteristics (*i.e.* lengths of between 18' and 24', and generally 21') as ASTM A-53, or fence tubing, is covered by the scope of the Order. Any tubing sold by Galvak which does not have identical wall thickness, diameter, and length of ASTM A-53 or fence tubing is not included within the scope of the Order.

The Department does not consider tubing which has the identical wall thickness, diameter, and length characteristics as either ASTM A-53 or fence tubing to be mechanical pipe because it is not in custom-designed sizes. As the Panel stated, "the Department may interpret the term 'mechanical tubing' - which is not expressly defined in the Order - but must do so starting from the proposition that 'mechanical tubing' is generally excluded from the Order." See NAFTA Panel Decision, November 19, 2002 at 18. As the Department stated in the Redetermination, tubing manufactured with standard pipe characteristics is not mechanical tubing. The Department stated:

Mechanical tubing is custom designed to meet a customer's specific needs, and manufactured to non-standard specifications. While it is possible that such mechanical tubing *could* be used in certain limited standard pipe applications, its custom design and non-standard specifications are what set it apart from standard pipe. These differences are driven by the intended uses of the product, which in turn drive the industry classification of that product.

Naturally, any tubing which is manufactured to a standard pipe specification (*i.e.* ASTM-A-53) is not mechanical tubing. As the ITC noted, the industry guidelines

for mechanical tubing provide a wide degree of options with respect to size and other characteristics. See ITC Final at 16, Note 51. Thus, it is possible that certain pipe manufactured to ASTM A-53 or A-500 standards could also be classified under ASTM A-787, a mechanical tubing standard. However, unlike line pipe that is dual-stenciled, the Order does not foresee pipe which could be dual-stenciled as A-53 and A-787 to be both standard and mechanical tubing. On the contrary, the ITC's determination indicates a clear separation between standard pipe and mechanical tubing. Thus, the Department determines that mechanical tubing can be manufactured to ASTM A-787 standards, whose specifications and physical characteristics generally will not be recognized as standard pipe. However, if the material is manufactured to standard pipe specifications, and has standard pipe characteristics such as a standard pipe diameter, wall thickness, *etc.*, regardless of whether it is stenciled as ASTM-A-787 or dual-stenciled, the material is standard pipe.

See Redetermination at 16. In addition, comments submitted to the ITC indicate a separation between standard pipe and mechanical pipe based on specific characteristics of the pipe (*i.e.* diameter, wall thickness, and length), as cited specifically by Galvak:

Standard pipe and hot-rolled mechanical tubing are not interchangeable products. As noted, mechanical tubing is custom engineered to fit a particular use designated by the customer. A general purpose standard pipe, of (sic) for that matter another mechanical tubing product, would not meet the specification. There are some industry guidelines for mechanical tubing, such as ASTM A-513, but these guidelines provide a wide degree of size, characteristics and chemistry options, unlike the A-53 standard pipe specification, for example, which provides specific characteristics. The mechanical tubing specifications generally serve as a starting point for a particular customer's Order, whereas the standard pipe specifications are a statement of what the end product should be like.

See Letter from Shearman & Sterling to the Department, July 14, 1998, footnote at page 6. In summary, the Department believes that it has followed the Panel's instructions and found 'mechanical tubing' to be outside of the scope of the Order. However, simply stenciling any pipe or tubing as A-787 is not sufficient to render a product as mechanical tubing. The physical characteristics of the merchandise in question are determining factors as well. Therefore, we do not believe that the Panel's statement that "the Redetermination's reliance on ASTM A-53 thus

perpetuates the presumption that specific mechanical tubing products are covered by the Order unless demonstrated otherwise.” See page 5. Rather, the Department believes that its decision indicates that tubing designated as mechanical is excluded unless otherwise demonstrated by the physical characteristics.

B. Whether The Department Failed to Develop Further the Record on Galvak’s Expected Exported Merchandise

The Panel states that “Commerce should more appropriately have focused its energies on developing the facts concerning each product that Galvak proposed to export” during the time prior to the Redetermination. However, as the Panel itself noted, “Galvak submitted very little factual information about the specific products it intends to export, beyond a reference to ‘green house tubing’ as an example of one possible use for its products. Rather, Galvak chose to rely on its legal argument that all products conforming to mechanical tubing standards are excluded from the Order.” See NAFTA Panel Decision, May 16, 2003, page 6. Given the history of Galvak’s refusal to provide further details on the products that it intends to export, the Department decided to rely solely on the evidence which was on the record in making its determination.

In its August 11, 1998 submission, Galvak provided an attachment showing a range of “galvanized mechanical tubing” that Galvak produces and which of these products Galvak was considering for export. See Letter from Shearman & Sterling to the Department, August 11, 1998, Attachment 1. A number of the sizes which Galvak produces conform either to the ASTM A-53 characteristics which were attached in the Department’s Redetermination, or the fence tubing characteristics as submitted by petitioners. See Letter from Schagrin Associates to the Department, August 28, 1998, Exhibit 1. Thus, because the Order covers all pipe produced to ASTM A-53

characteristics at or below 406.4 mm (16 inches) in diameter, except that pipe which is produced to mechanical pipe characteristics, the Department only seeks to include within this Order that pipe which is not “mechanical tubing.”

To illustrate one of Galvak’s products which is within the scope of the Order, the Department analyzed Galvak’s August 11, 1998 submission.¹ Attachment 1 of that submission contains products which Galvak can produce and compares the outside diameter and wall thicknesses of these products to ASTM A-53 products. Attachment 2 provides Galvak’s product brochure. According to Attachment 1, Galvak produces tubing with an outside diameter of 48.26 mm, equivalent to 1.900 (1½) inches. This diameter of pipe is also produced to an ASTM A-53 specification. Similarly, Galvak produces pipe with an outside diameter of 33.4 mm , or 1.315 (1) inch. Both fence tubing and pipe produced to ASTM A-53 exist with this same diameter. See Letter from Shearman & Sterling to the Department, August 11, 1998, at Attachment 1, and Redetermination attachment. While Galvak failed to provide more explicit information on the characteristics of specific wall thickness and diameter sizes, and did not provide any length information, for all of the products that Galvak intends to export, the Department concludes, based on the ASTM A-53 standard and the information submitted by petitioners and Galvak, that Galvak’s products produced with the ASTM A-53 or fence tubing specifications are not mechanical tubing. Should Galvak produce and export either of these diameter sizes of pipe with wall thicknesses which conform to the ASTM A-53 specification or the fence tubing specifications as presented by the petitioner (see Letter from Schagrin Associates to the Department, August 28,

¹The Department acknowledges that this one example does not encompass the entire list of Galvak products that could be covered by the scope of the Order. Thus, the Department provides this example as an aid to understanding which characteristics of Galvak products would be covered by the Order.

1998, Exhibit 1), in wall thicknesses of, for example, 1.83, 2.29, 3.05, 3.68, 5.08, 7.17, or 10.16 mm for 1½ diameter pipe, in lengths of between 18' and 24', then the Department would consider these not to be mechanical tubing, but standard pipe or fence tubing, and thus included in the scope of the Order.

C. Whether Citing the ASTM A-53 Dimensional Standards does not Comprise Record Evidence to Rebut the Presumption Created by the Order's Exclusionary Language

The Department understands that the ASTM A-53 specifications alone do not constitute record evidence. However, the Department finds that citing to the dimensional standards, coupled with the analysis presented above, demonstrates that the tubing produced to the standards cited is not mechanical tubing, but merchandise subject to this Order. The Department reiterates that mechanical tubing is outside of the scope of the Order. However, the Department has also concluded that tubing produced to the diameter, wall thickness, and length specifications of standard pipe and fence tubing are not mechanical tubing, which is a specialized, made-to-order product. Thus, to assist the Department in making its determination, the Department relied upon the specifications in ASTM A-53 and fence tubing in conjunction with the other submissions and information on the record.

D. Whether The Department Articulated a Broad Rule Concerning Mechanical Tubing

Finally, the Panel stated that “the Department endeavored to articulate a broad rule concerning all mechanical tubing” in the Redetermination. The Department respectfully submits that this was necessary given the Panel's request and the lack of certain information provided by Galvak. In its initial remand, the Panel instructed the Department to “re-evaluate whether the

Order applies to Galvak’s mechanical tubing, giving appropriate weight to the fact that the language of the Order on its face excludes all mechanical tubing.” Given this instruction, it is necessary for the Department first to define what is and what is not mechanical tubing. The Department has attempted to do so on a reasonable basis, supported by the facts of the case.

Based on the evidence on the record, and in conformity with the Panel’s instructions, the Department determines that Galvak’s tubing, stenciled as ASTM A-787, which is not manufactured to the same standard diameters, wall thicknesses, and lengths of pipe manufactured to ASTM A-53 or fence tubing, is mechanical tubing, and therefore is excluded from the Order. However, Galvak’s tubing, stenciled as ASTM A-787, but manufactured to the standard diameters, wall thicknesses, and lengths of pipe manufactured to ASTM A-53 or fence tubing, is not mechanical tubing, and therefore is included in the Order. Such products included within the Order are those from the list attached in the Redetermination of 16 inches diameter and below, which is included here, as well as those attached to this redetermination in Attachment 2.

If the Panel affirms this redetermination, we will publish a notice in the Federal Register.

Joseph A. Spetrini
Acting Assistant Secretary
for Import Administration

(Date)

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TABLE X2.2 Dimensions, Weights, and Test Pressures for Plain End Pipe

NPS Designator	DN Designator	Outside Diameter, in. [mm]	Nominal Wall Thickness, in. [mm]	Nominal Weight [Mass] per Unit Length, Plain End, lb/ft [kg/m]	Weight Class	Schedule No.	Test Pressure, ^A psi [kPa]	
							Grade A	Grade B
1/8	6	0.405 [10.3]	0.068 [1.73]	0.24 [0.37]	STD	40	700 [4800]	700 [4800]
			0.095 [2.41]	0.31 [0.47]	XS	80	850 [5900]	850 [5900]
1/4	8	0.540 [13.7]	0.088 [2.24]	0.43 [0.63]	STD	40	700 [4800]	700 [4800]
			0.119 [3.02]	0.54 [0.80]	XS	80	850 [5900]	850 [5900]
3/8	10	0.675 [17.1]	0.091 [2.31]	0.57 [0.84]	STD	40	700 [4800]	700 [4800]
			0.126 [3.20]	0.74 [1.10]	XS	80	850 [5900]	850 [5900]
1/2	15	0.840 [21.3]	0.109 [2.77]	0.85 [1.27]	STD	40	700 [4800]	700 [4800]
			0.147 [3.73]	1.09 [1.62]	XS	80	850 [5900]	850 [5900]
			0.188 [4.78]	1.31 [1.95]	...	160	900 [6200]	900 [6200]
			0.294 [7.47]	1.72 [2.55]	XXS	...	1000 [6900]	1000 [6900]
3/4	20	1.050 [26.7]	0.113 [2.87]	1.13 [1.69]	STD	40	700 [4800]	700 [4800]
			0.154 [3.91]	1.48 [2.20]	XS	80	850 [5900]	850 [5900]
			0.219 [5.56]	1.95 [2.90]	...	160	950 [6500]	950 [6500]
			0.308 [7.82]	2.44 [3.64]	XXS	...	1000 [6900]	1000 [6900]
1	25	1.315 [33.4]	0.133 [3.38]	1.68 [2.50]	STD	40	700 [4800]	700 [4800]
			0.179 [4.55]	2.17 [3.24]	XS	80	850 [5900]	850 [5900]
			0.250 [6.35]	2.85 [4.24]	...	160	950 [6500]	950 [6500]
			0.358 [9.09]	3.66 [5.45]	XXS	...	1000 [6900]	1000 [6900]
1 1/4	32	1.660 [42.2]	0.140 [3.56]	2.27 [3.39]	STD	40	1200 [8300]	1300 [9000]
			0.191 [4.85]	3.00 [4.47]	XS	80	1800 [12 400]	1900 [13 100]
			0.250 [6.35]	3.77 [5.61]	...	160	1900 [13 100]	2000 [13 800]
			0.382 [9.70]	5.22 [7.77]	XXS	...	2200 [15 200]	2300 [15 900]
1 1/2	40	1.900 [48.3]	0.145 [3.68]	2.72 [4.05]	STD	40	1200 [8300]	1300 [9000]
			0.200 [5.08]	3.63 [5.41]	XS	80	1800 [12 400]	1900 [13 100]
			0.281 [7.14]	4.86 [7.25]	...	160	1950 [13 400]	2050 [14 100]
			0.400 [10.16]	6.41 [9.56]	XXS	...	2200 [15 200]	2300 [15 900]
2	50	2.375 [60.3]	0.154 [3.91]	3.66 [5.44]	STD	40	2300 [15 900]	2500 [17 200]
			0.218 [5.54]	5.03 [7.48]	XS	80	2500 [17 200]	2500 [17 200]
			0.344 [8.74]	7.47 [11.11]	...	160	2500 [17 200]	2500 [17 200]
			0.436 [11.07]	9.04 [13.44]	XXS	...	2500 [17 200]	2500 [17 200]
2 1/2	65	2.875 [73.0]	0.203 [5.16]	5.80 [8.63]	STD	40	2500 [17 200]	2500 [17 200]
			0.276 [7.01]	7.67 [11.41]	XS	80	2500 [17 200]	2500 [17 200]
			0.375 [9.52]	10.02 [14.90]	...	160	2500 [17 200]	2500 [17 200]
			0.552 [14.02]	13.71 [20.39]	XXS	...	2500 [17 200]	2500 [17 200]
3	80	3.500 [88.9]	0.125 [3.18]	4.51 [6.72]	...	...	1290 [8900]	1500 [10000]
			0.156 [3.96]	5.58 [8.29]	...	...	1600 [11 000]	1870 [12 900]
			0.188 [4.78]	6.66 [9.92]	...	...	1930 [13 330]	2260 [15 600]
			0.216 [5.49]	7.58 [11.29]	STD	40	2220 [15 300]	2500 [17 200]
			0.250 [6.35]	8.69 [12.93]	...	...	2500 [17 200]	2500 [17 200]
			0.281 [7.14]	9.67 [14.40]	...	...	2500 [17 200]	2500 [17 200]
			0.300 [7.62]	10.26 [15.27]	XS	80	2500 [17 200]	2500 [17 200]
			0.438 [11.13]	14.34 [21.35]	...	160	2500 [17 200]	2500 [17 200]
			0.600 [15.24]	18.60 [27.68]	XXS	...	2500 [17 200]	2500 [17 200]
		
3 1/2	90	4.000 [101.6]	0.125 [3.18]	5.18 [7.72]	...	...	1120 [7700]	1310 [19 000]
			0.156 [3.96]	6.41 [9.53]	...	...	1400 [6700]	1640 [11 300]
			0.188 [4.78]	7.66 [11.41]	...	...	1690 [11 700]	1970 [13 600]
			0.226 [5.74]	9.12 [13.57]	STD	40	2030 [14 000]	2370 [16 300]
			0.250 [6.35]	10.02 [14.92]	...	...	2250 [15 500]	2500 [17 200]
			0.281 [7.14]	11.17 [16.63]	...	...	2500 [17 200]	2500 [17 200]
			0.318 [8.08]	12.52 [18.63]	XS	80	2800 [19 300]	2800 [19 300]
		
4	100	4.500 [114.3]	0.125 [3.18]	5.85 [8.71]	...	...	1000 [6900]	1170 [8100]
			0.156 [3.96]	7.24 [10.78]	...	...	1250 [8600]	1460 [10 100]
			0.188 [4.78]	8.67 [12.91]	...	...	1500 [10 300]	1750 [12 100]
			0.219 [5.56]	10.02 [14.91]	...	...	1750 [12 100]	2040 [14 100]
			0.237 [6.02]	10.80 [16.07]	STD	40	1900 [13 100]	2210 [15 200]
			0.250 [6.35]	11.36 [16.90]	...	...	2000 [13 800]	2330 [16 100]
			0.281 [7.14]	12.67 [18.87]	2250 [15 100]	2620 [18 100]
			0.312 [7.92]	13.97 [20.78]	2500 [17 200]	2800 [19 300]
		
		


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TABLE X2.2 Continued

NPS Designator	DN Designator	Outside Diameter, in. [mm]	Nominal Wall Thickness, in. [mm]	Nominal Weight [Mass] per Unit Length, Plain End, lb/ft [kg/m]	Weight Class	Schedule No.	Test Pressure, A, psi [kPa]	
							Grade A	Grade B
			0.337 [8.56]	15.00 [22.32]	XS	80	2700 [18 600]	2800 [19 300]
			0.438 [11.13]	19.02 [28.32]	...	120	2800 [19 300]	2800 [19 300]
			0.531 [13.49]	22.53 [33.54]	...	160	2800 [19 300]	2800 [19 300]
			0.674 [17.12]	27.57 [41.03]	XXS	...	2800 [19 300]	2800 [19 300]
5	125	5.563 [141.3]	0.156 [3.96]	9.02 [13.41]	...	...	1010 [7000]	1180 [8100]
			0.188 [4.78]	10.80 [16.09]	...	...	1220 [8400]	1420 [9800]
			0.219 [5.56]	12.51 [18.61]	...	...	1420 [9800]	1650 [11 400]
			0.258 [6.55]	14.63 [21.77]	STD	40	1670 [11 500]	1950 [13 400]
			0.281 [7.14]	15.87 [23.62]	...	...	1820 [12 500]	2120 [14 600]
			0.312 [7.92]	17.51 [26.05]	...	...	2020 [13 900]	2360 [16 300]
			0.344 [8.74]	19.19 [28.57]	...	...	2230 [15 400]	2600 [17 900]
			0.375 [9.52]	20.80 [30.94]	XS	80	2430 [16 800]	2800 [19 300]
			0.500 [12.70]	27.06 [40.28]	...	120	2800 [19 300]	2800 [19 300]
			0.625 [15.88]	32.99 [49.11]	...	160	2800 [19 300]	2800 [19 300]
			0.750 [19.05]	38.59 [57.43]	XXS	...	2800 [19 300]	2800 [19 300]
			6	150	6.625 [168.3]	0.188 [4.78]	12.94 [19.27]	...	...	1020 [7000]	1190 [8200]
0.219 [5.56]	15.00 [22.31]	...				...	1190 [8200]	1390 [9600]
0.250 [6.35]	17.04 [25.36]	...				...	1360 [9400]	1580 [10 900]
0.280 [7.11]	18.99 [28.26]	STD				40	1520 [10 500]	1780 [12 300]
0.312 [7.92]	21.06 [31.32]	...				...	1700 [11 700]	1980 [13 700]
0.344 [8.74]	23.10 [34.39]	...				...	1870 [12 900]	2180 [15 000]
0.375 [9.52]	25.05 [37.28]	...				...	2040 [14 100]	2380 [16 400]
0.432 [10.97]	28.60 [42.56]	XS				80	2350 [16 200]	2740 [18 900]
0.562 [14.27]	36.43 [54.20]	...				120	2800 [19 300]	2800 [19 300]
0.719 [18.26]	45.39 [67.56]	...				160	2800 [19 300]	2800 [19 300]
0.864 [21.95]	53.21 [79.22]	XXS				...	2800 [19 300]	2800 [19 300]
8	200	8.625 [219.1]				0.188 [4.78]	16.96 [25.26]	...	...	780 [5400]	920 [6300]
			0.203 [5.16]	18.28 [27.22]	...	...	850 [5900]	1000 [6900]
			0.219 [5.56]	19.68 [29.28]	...	...	910 [6300]	1070 [7400]
			0.250 [6.35]	22.38 [33.31]	...	20	1040 [7200]	1220 [8400]
			0.277 [7.04]	24.72 [36.31]	...	30	1160 [7800]	1350 [9300]
			0.312 [7.92]	27.73 [41.24]	...	...	1300 [9000]	1520 [10 500]
			0.322 [8.18]	28.58 [42.55]	STD	40	1340 [9200]	1570 [10 800]
			0.344 [8.74]	30.45 [45.34]	...	...	1440 [9900]	1680 [11 600]
			0.375 [9.52]	33.07 [49.20]	...	...	1570 [10 800]	1830 [12 600]
			0.406 [10.31]	35.67 [53.08]	...	60	1700 [11 700]	2000 [13 800]
			0.438 [11.13]	38.33 [57.08]	...	...	1830 [12 600]	2130 [14 700]
			0.500 [12.70]	43.43 [64.64]	XS	80	2090 [14 400]	2430 [16 800]
			0.594 [15.09]	51.00 [75.92]	...	100	2500 [17 200]	2800 [19 300]
			0.719 [18.26]	60.77 [90.44]	...	120	2800 [19 300]	2800 [19 300]
			0.812 [20.62]	67.82 [100.92]	...	140	2800 [19 300]	2800 [19 300]
			0.875 [22.22]	72.49 [107.88]	XXS	...	2800 [19 300]	2800 [19 300]
			0.906 [23.01]	74.76 [111.27]	...	160	2800 [19 300]	2800 [19 300]
10	250	10.750 [273.0]	0.188 [4.78]	21.23 [31.62]	...	...	630 [4300]	730 [5000]
			0.203 [5.16]	22.89 [34.08]	...	...	680 [4700]	800 [5500]
			0.219 [5.56]	24.65 [36.67]	...	...	730 [5000]	860 [5900]
			0.250 [6.35]	28.06 [41.75]	...	20	840 [5800]	980 [6800]
			0.279 [7.09]	31.23 [46.49]	...	...	930 [6400]	1090 [7500]
			0.307 [7.80]	34.27 [51.01]	...	30	1030 [7100]	1200 [8300]
			0.344 [8.74]	38.27 [56.96]	...	...	1150 [7900]	1340 [9200]
			0.365 [9.27]	40.52 [60.29]	STD	40	1220 [8400]	1430 [9900]
			0.438 [11.13]	48.28 [71.87]	...	...	1470 [10 100]	1710 [11 800]
			0.500 [12.70]	54.79 [81.52]	XS	60	1670 [11 500]	1950 [13 400]
			0.594 [15.09]	64.49 [95.97]	...	80	1990 [13 700]	2320 [16 000]
			0.719 [18.26]	77.10 [114.70]	...	100	2410 [16 600]	2800 [19 300]
			0.844 [21.44]	89.38 [133.00]	...	120	2800 [19 300]	2800 [19 300]
			1.000 [25.40]	104.23 [155.09]	XXS	140	2800 [19 300]	2800 [19 300]
1.125 [28.57]	115.75 [172.21]	...	160	2800 [19 300]	2800 [19 300]			
12	300	12.750 [323.8]	0.203 [5.16]	27.23 [40.55]	...	...	570 [3900]	670 [4600]
			0.219 [5.56]	29.34 [43.63]	...	...	620 [4300]	720 [5000]
			0.250 [6.35]	33.41 [49.71]	...	20	710 [4900]	820 [5700]
			0.281 [7.14]	37.46 [55.75]	...	...	790 [5400]	930 [6400]
			0.312 [7.92]	41.48 [61.69]	...	...	880 [6100]	1030 [7100]
			0.330 [8.38]	43.81 [65.18]	...	30	930 [6400]	1090 [7500]
			0.344 [8.74]	45.62 [67.90]	...	...	970 [6700]	1130 [7800]
			0.375 [9.52]	49.61 [73.78]	STD	...	1060 [7300]	1240 [8500]


 A 53/A 53M

TABLE X2.2 Continued

NPS Designator	DN Designator	Outside Diameter, in. [mm]	Nominal Wall Thickness, in. [mm]	Nominal Weight [Mass] per Unit Length, Plain End, lb/ft [kg/m]	Weight Class	Schedule No.	Test Pressure, ^A psi [kPa]	
							Grade A	Grade B
			0.406 [10.31]	53.57 [79.70]	...	40	1150 [7900]	1340 [9200]
			0.438 [11.13]	57.65 [85.82]	...	...	1240 [8500]	1440 [9900]
			0.500 [12.70]	65.48 [97.43]	XS	...	1410 [9700]	1650 [11 400]
			0.562 [14.27]	73.22 [108.92]	...	60	1590 [11 000]	1850 [12 800]
			0.688 [17.48]	88.71 [132.04]	...	80	1940 [13 400]	2270 [15 700]
			0.844 [21.44]	107.42 [159.86]	...	100	2390 [16 500]	2780 [19 200]
			1.000 [25.40]	125.61 [186.91]	XXS	120	2800 [19 300]	2800 [19 300]
			1.125 [28.57]	139.81 [208.00]	...	140	2800 [19 300]	2800 [19 300]
			1.312 [33.32]	160.42 [238.68]	...	160	2800 [19 300]	2800 [19 300]
14	350	14.000 [355.6]	0.210 [5.33]	30.96 [46.04]	...	...	540 [3700]	630 [4300]
			0.219 [5.56]	32.26 [47.99]	...	...	560 [3900]	660 [4500]
			0.250 [6.35]	36.75 [54.69]	...	10	640 [4400]	750 [5200]
			0.281 [7.14]	41.21 [61.35]	...	...	720 [5000]	840 [5800]
			0.312 [7.92]	45.65 [67.90]	...	20	800 [5500]	940 [6500]
			0.344 [8.74]	50.22 [74.76]	...	...	880 [6100]	1030 [7100]
			0.375 [9.52]	54.62 [81.25]	STD	30	960 [6600]	1120 [7700]
			0.438 [11.13]	63.50 [94.55]	...	40	1130 [7800]	1310 [9000]
			0.469 [11.91]	67.84 [100.94]	...	...	1210 [8300]	1410 [9700]
			0.500 [12.70]	72.16 [107.39]	XS	...	1290 [8900]	1500 [10 300]
			0.594 [15.09]	85.13 [126.71]	...	60	1530 [10 500]	1790 [12 300]
			0.750 [19.05]	106.23 [158.10]	...	80	1930 [13 300]	2250 [15 500]
			0.938 [23.83]	130.98 [194.96]	...	100	2410 [16 600]	2800 [19 300]
			1.094 [27.79]	150.93 [224.65]	...	120	2800 [19 300]	2800 [19 300]
			1.250 [31.75]	170.37 [253.56]	...	140	2800 [19 300]	2800 [19 300]
			1.406 [35.71]	189.29 [281.70]	...	160	2800 [19 300]	2800 [19 300]
			2.000 [50.80]	256.56 [381.83]	...	...	2800 [19 300]	2800 [19 300]
			2.125 [53.97]	269.76 [401.44]	...	...	2800 [19 300]	2800 [19 300]
			2.200 [55.88]	277.51 [413.01]	...	...	2800 [19 300]	2800 [19 300]
			2.500 [63.50]	307.34 [457.40]	...	...	2800 [19 300]	2800 [19 300]
16	400	16.000 [406.4]	0.219 [5.56]	36.95 [54.96]	...	...	490 [3400]	570 [3900]
			0.250 [6.35]	42.09 [62.64]	...	10	560 [3900]	660 [4500]
			0.281 [7.14]	47.22 [70.30]	...	...	630 [4300]	740 [5100]
			0.312 [7.92]	52.32 [77.83]	...	20	700 [4800]	820 [5700]
			0.344 [8.74]	57.57 [85.71]	...	...	770 [5300]	900 [6200]
			0.375 [9.52]	62.64 [93.17]	STD	30	840 [5800]	980 [6800]
			0.438 [11.13]	72.86 [108.49]	...	...	990 [6800]	1150 [7900]
			0.469 [11.91]	77.87 [115.86]	...	...	1060 [7300]	1230 [8500]
			0.500 [12.70]	82.85 [123.30]	XS	40	1120 [7700]	1310 [9000]
			0.656 [16.66]	107.60 [160.12]	...	60	1480 [10 200]	1720 [11 900]
			0.844 [21.44]	136.74 [203.53]	...	80	1900 [13 100]	2220 [15 300]
			1.031 [26.19]	164.98 [245.56]	...	100	2320 [16 000]	2710 [18 700]
			1.219 [30.96]	192.61 [286.64]	...	120	2740 [18 900]	2800 [19 300]
			1.438 [36.53]	223.85 [333.19]	...	140	2800 [19 300]	2800 [19 300]
			1.594 [40.49]	245.48 [365.35]	...	160	2800 [19 300]	2800 [19 300]
18	450	18.000 [457]	0.250 [6.35]	47.44 [70.60]	...	10	500 [3400]	580 [4000]
			0.281 [7.14]	53.23 [79.24]	...	...	560 [3900]	660 [4500]
			0.312 [7.92]	58.99 [87.75]	...	20	620 [4300]	730 [5000]
			0.344 [8.74]	64.93 [96.66]	...	...	690 [4800]	800 [5500]
			0.375 [9.52]	70.65 [105.10]	STD	...	750 [5200]	880 [6100]
			0.406 [10.31]	76.36 [113.62]	...	...	810 [5600]	950 [6500]
			0.438 [11.13]	82.23 [122.43]	...	30	880 [6100]	1020 [7000]
			0.469 [11.91]	87.89 [130.78]	...	...	940 [6500]	1090 [7500]
			0.500 [12.70]	93.54 [139.20]	XS	...	1000 [6900]	1170 [8100]
			0.562 [14.27]	104.76 [155.87]	...	40	1120 [7700]	1310 [9000]
			0.750 [19.05]	138.30 [205.83]	...	60	1500 [10 300]	1750 [12 100]
			0.938 [23.83]	171.08 [254.67]	...	80	1880 [13 000]	2190 [15 100]
			1.156 [29.36]	208.15 [309.76]	...	100	2310 [15 900]	2700 [18 600]
			1.375 [34.92]	244.37 [363.64]	...	120	2750 [19 000]	2800 [19 300]
			1.562 [39.67]	274.48 [408.45]	...	140	2800 [19 300]	2800 [19 300]
			1.781 [45.24]	308.79 [459.59]	...	160	2800 [19 300]	2800 [19 300]
20	500	20.000 [508]	0.250 [6.35]	52.78 [78.55]	...	10	450 [3100]	520 [3600]
			0.281 [7.14]	59.23 [88.19]	...	...	510 [3500]	590 [4100]
			0.312 [7.92]	65.66 [97.67]	...	...	560 [3900]	660 [4500]
			0.344 [8.74]	72.28 [107.60]	...	...	620 [4300]	720 [5000]
			0.375 [9.52]	78.67 [117.02]	STD	20	680 [4700]	790 [5400]
			0.406 [10.31]	84.04 [126.53]	730 [5000]	850 [5900]
			0.438 [11.13]	91.59 [136.37]	790 [5400]	920 [6300]

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TABLE X2.2 Continued

NPS Designator	DN Designator	Outside Diameter, in. [mm]	Nominal Wall Thickness, in. [mm]	Nominal Weight [Mass] per Unit Length, Plain End, lb/ft [kg/m]	Weight Class	Schedule No.	Test Pressure, ⁴ psi [kPa]	
							Grade A	Grade B
24	600	24.000 [610]	0.469 [11.91]	97.92 [145.70]	...	...	850 [5900]	950 [6500]
			0.500 [12.70]	104.23 [155.12]	XS	30	900 [6200]	1050 [7200]
			0.594 [15.09]	123.23 [183.42]	...	40	1170 [8100]	1250 [8600]
			0.812 [20.62]	166.56 [247.83]	...	60	1460 [10 100]	1710 [11 800]
			1.031 [26.19]	209.06 [311.17]	...	80	1860 [12 800]	2170 [15 000]
			1.281 [32.54]	256.34 [381.53]	...	100	2310 [15 900]	2690 [18 500]
			1.500 [38.10]	296.65 [441.49]	...	120	2700 [18 600]	2800 [19 300]
			1.750 [44.45]	341.41 [508.11]	...	140	2800 [19 300]	2800 [19 300]
			1.969 [50.01]	379.53 [564.81]	...	160	2800 [19 300]	2800 [19 300]
			0.250 [6.35]	63.47 [94.46]	...	10	380 [2600]	440 [3000]
			0.281 [7.14]	71.25 [106.08]	...	...	420 [2900]	490 [3400]
			0.312 [7.92]	79.01 [117.51]	...	...	470 [3200]	550 [3800]
			0.344 [8.74]	86.99 [129.50]	...	...	520 [3600]	600 [4100]
0.375 [9.52]	94.71 [140.88]	STD	20	560 [3900]	660 [4500]			
0.406 [10.31]	102.40 [152.37]	...	...	610 [4200]	710 [4900]			
0.438 [11.13]	110.32 [164.26]	...	...	660 [4500]	770 [5300]			
0.469 [11.91]	117.98 [175.54]	...	...	700 [4800]	820 [5700]			
0.500 [12.70]	125.61 [186.94]	XS	...	750 [5200]	880 [6100]			
0.562 [14.27]	140.81 [209.50]	...	30	840 [5800]	980 [6800]			
0.688 [17.48]	171.45 [255.24]	...	40	1030 [7100]	1200 [8300]			
0.938 [23.83]	231.25 [344.23]	...	...	1410 [9700]	1640 [11 300]			
0.969 [24.61]	238.57 [355.02]	...	60	1450 [10 000]	1700 [11 700]			
1.219 [30.96]	296.86 [441.78]	...	80	1830 [12 600]	2130 [14 700]			
1.531 [38.89]	367.74 [547.33]	...	100	2300 [15 900]	2680 [18 500]			
1.812 [46.02]	429.79 [639.58]	...	120	2720 [18 800]	2800 [19 300]			
2.062 [52.37]	483.57 [719.63]	...	140	2800 [19 300]	2800 [19 300]			
2.344 [59.54]	542.64 [807.63]	...	160	2800 [19 300]	2800 [19 300]			
26	650	26.000 [660]	0.250 [6.35]	68.82 [102.42]	...	...	350 [2400]	400 [2800]
			0.281 [7.14]	77.26 [115.02]	...	...	390 [2700]	450 [3100]
			0.312 [7.92]	85.68 [127.43]	...	10	430 [3000]	500 [3400]
			0.344 [8.74]	94.35 [140.45]	...	...	480 [3300]	560 [3900]
			0.375 [9.52]	102.72 [152.80]	STD	...	520 [3600]	610 [4200]
			0.406 [10.31]	111.08 [165.28]	...	...	560 [3900]	660 [4500]
			0.438 [11.13]	119.69 [178.20]	...	...	610 [4200]	710 [4900]
			0.469 [11.91]	128.00 [190.46]	...	...	650 [4500]	760 [5200]
			0.500 [12.70]	136.30 [202.85]	XS	20	690 [4800]	810 [5600]
			0.562 [14.27]	152.83 [227.37]	...	...	780 [5400]	910 [6300]

⁴ The minimum test pressure for outside diameters and wall thicknesses not listed shall be computed by the formula given below. The computed test pressure shall be used in all cases with the following exceptions:

- (1) When the wall thickness is greater than the heaviest wall thickness shown for a given diameter, the test pressure for the heaviest wall listed shall be the required test pressure.
- (2) For Grades A and B in sizes under NPS 2 [DN 50] when the wall thickness is lighter than the lightest shown for a given diameter, use the test pressure given for the lightest wall thickness of the table for the diameter involved.
- (3) For all sizes of Grade A and B pipe smaller than NPS 2 [DN 50], the test pressure has been arbitrarily assigned. Test pressures for intermediate outside diameters need not exceed those for the next larger listed size.

$$P = 2S/tD$$

where:

- P = minimum hydrostatic test pressure, psi [kPa],
- S = 0.60 times the specified minimum yield strength, psi [kPa],
- t = nominal wall thickness, in. [mm], and
- D = specified outside diameter, in. [mm].

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TABLE X2.3 Dimensions, Weights, and Test Pressures for Threaded and Coupled Pipe

NPS Designator	DN Designator	Outside Diameter, in. [mm]	Nominal Wall Thickness, in. [mm]	Nominal Weight [Mass] per Unit Length, Threaded and Coupled, lb/ft [kg/m]	Weight Class	Schedule No.	Test Pressure, psi [kPa]	
							Grade A	Grade B
1/6	6	0.405 [10.3]	0.068 [1.73]	0.25 [0.37]	STD	40	700 [4800]	700 [4800]
			0.095 [2.41]	0.32 [0.46]	XS	80	850 [5900]	850 [5900]
1/4	8	0.540 [13.7]	0.088 [2.24]	0.43 [0.63]	STD	40	700 [4800]	700 [4800]
			0.119 [3.02]	0.54 [0.80]	XS	80	850 [5900]	850 [5900]
3/8	10	0.675 [17.1]	0.091 [2.31]	0.57 [0.84]	STD	40	700 [4800]	700 [4800]
			0.126 [3.20]	0.74 [1.10]	XS	80	850 [5900]	850 [5900]
1/2	15	0.840 [21.3]	0.109 [2.77]	0.86 [1.27]	STD	40	700 [4800]	700 [4800]
			0.147 [3.73]	1.09 [1.62]	XS	80	850 [5900]	850 [5900]
			0.294 [7.47]	1.72 [2.54]	XXS	...	1000 [6900]	1000 [6900]
3/4	20	1.050 [26.7]	0.113 [2.87]	1.14 [1.69]	STD	40	700 [4800]	700 [4800]
			0.154 [3.91]	1.48 [2.21]	XS	80	850 [5900]	850 [5900]
			0.308 [7.82]	2.45 [3.64]	XXS	...	1000 [6900]	1000 [6900]
1	25	1.315 [33.4]	0.133 [3.38]	1.69 [2.50]	STD	40	700 [4800]	700 [4800]
			0.179 [4.55]	2.19 [3.25]	XS	80	850 [5900]	850 [5900]
			0.358 [9.09]	3.66 [5.45]	XXS	...	1000 [6900]	1000 [6900]
1 1/4	32	1.660 [42.2]	0.140 [3.56]	2.28 [3.40]	STD	40	1000 [6900]	1100 [7600]
			0.191 [4.85]	3.03 [4.49]	XS	80	1500 [10 300]	1600 [11 000]
			0.382 [9.70]	5.23 [7.76]	XXS	...	1800 [12 400]	1900 [13 100]
1 1/2	40	1.900 [48.3]	0.145 [3.68]	2.74 [4.04]	STD	40	1000 [6900]	1100 [7600]
			0.200 [5.08]	3.65 [5.39]	XS	80	1500 [10 300]	1600 [11 000]
			0.400 [10.16]	6.41 [9.56]	XXS	...	1800 [12 400]	1900 [13 100]
2	50	2.375 [60.3]	0.154 [3.91]	3.68 [5.46]	STD	40	2300 [15 900]	2500 [17 200]
			0.218 [5.54]	5.08 [7.55]	XS	80	2500 [17 200]	2500 [17 200]
			0.436 [11.07]	9.06 [13.44]	XXS	...	2500 [17 200]	2500 [17 200]
2 1/2	65	2.875 [73.0]	0.203 [5.16]	5.85 [8.67]	STD	40	2500 [17 200]	2500 [17 200]
			0.276 [7.01]	7.75 [11.52]	XS	80	2500 [17 200]	2500 [17 200]
			0.552 [14.02]	13.72 [20.39]	XXS	...	2500 [17 200]	2500 [17 200]
3	80	3.500 [88.9]	0.216 [5.49]	7.68 [11.35]	STD	40	2200 [15 200]	2500 [17 200]
			0.300 [7.62]	10.35 [15.39]	XS	80	2500 [17 200]	2500 [17 200]
			0.600 [15.24]	18.60 [27.66]	XXS	...	2500 [17 200]	2500 [17 200]
3 1/2	90	4.000 [101.6]	0.226 [5.74]	9.27 [13.71]	STD	40	2000 [13 800]	2400 [16 500]
			0.318 [8.08]	12.67 [18.82]	XS	80	2800 [19 300]	2800 [19 300]
4	100	4.500 [114.3]	0.237 [6.02]	10.92 [16.23]	STD	40	1900 [13 100]	2200 [15 200]
			0.337 [8.56]	15.20 [22.60]	XS	80	2700 [18 600]	2800 [19 300]
			0.674 [17.12]	27.62 [41.09]	XXS	...	2800 [19 300]	2800 [19 300]
5	125	5.563 [141.3]	0.258 [6.55]	14.90 [22.07]	STD	40	1700 [11 700]	1900 [13 100]
			0.375 [9.52]	21.04 [31.42]	XS	80	2400 [16 500]	2800 [19 300]
			0.750 [19.05]	38.63 [57.53]	XXS	...	2800 [19 300]	2800 [19 300]
6	150	6.625 [168.3]	0.280 [7.11]	19.34 [28.58]	STD	40	1500 [10 300]	1800 [12 400]
			0.432 [10.97]	28.88 [43.05]	XS	80	2300 [15 900]	2700 [18 600]
			0.864 [21.95]	53.19 [79.18]	XXS	...	2800 [19 300]	2800 [19 300]
8	200	8.625 [219.1]	0.277 [7.04]	25.53 [38.07]	...	30	1200 [8300]	1300 [9000]
			0.322 [8.18]	29.35 [43.73]	STD	40	1300 [9000]	1600 [11 000]
			0.500 [12.70]	44.00 [65.41]	XS	80	2100 [14 500]	2400 [16 500]
			0.875 [22.22]	72.69 [107.94]	XXS	...	2800 [19 300]	2800 [19 300]
10	250	10.750 [273.0]	0.279 [7.09]	32.33 [48.80]	...	...	950 [6500]	1100 [7600]
			0.307 [7.80]	35.33 [53.27]	...	30	1000 [6900]	1200 [8300]
			0.365 [9.27]	41.49 [63.36]	STD	40	1200 [8300]	1400 [9700]
			0.500 [12.70]	55.55 [83.17]	XS	60	1700 [11 700]	2000 [13 800]
12	300	12.750 [323.8]	0.330 [8.38]	45.47 [67.72]	...	30	950 [6500]	1100 [7600]
			0.375 [9.52]	51.28 [76.21]	STD	...	1100 [7600]	1200 [8300]
			0.500 [12.70]	66.91 [99.4]	XS	...	1400 [9700]	1600 [11 000]

TABLE X2.4 Table of Minimum Wall Thicknesses on Inspection for Nominal Pipe Wall Thicknesses

NOTE 1—The following equation, upon which this table is based, shall be applied to calculate minimum wall thickness from nominal wall thickness

$$t_n \times 0.875 = t_m$$

where:

t_n = nominal wall thickness, in. [mm], and
 t_m = minimum wall thickness, in. [mm].

The wall thickness is expressed to three decimal places the fourth decimal place being carried forward or dropped in accordance with Practice E 2.1.
 NOTE 2—This table is a master table covering wall thicknesses available in the purchase of different classifications of pipe, but it is not meant to imply that all of the walls listed therein are obtainable under this specification.

Nominal Wall Thickness (t_n), in. [mm]	Minimum Wall Thickness on Inspection (t_m), in. [mm]	Nominal Wall Thickness (t_n), in. [mm]	Minimum Wall Thickness on Inspection (t_m), in. [mm]	Nominal Wall Thickness (t_n), in. [mm]	Minimum Wall Thickness on Inspection (t_m), in. [mm]
0.068 [1.73]	0.060 [1.52]	0.294 [7.47]	0.257 [6.53]	0.750 [19.05]	0.656 [16.66]
0.088 [2.24]	0.077 [1.96]	0.300 [7.62]	0.262 [6.65]	0.812 [20.62]	0.710 [18.03]
0.091 [2.31]	0.080 [2.03]	0.307 [7.80]	0.269 [6.83]	0.844 [21.44]	0.739 [18.77]
0.095 [2.41]	0.083 [2.11]	0.308 [7.82]	0.270 [6.86]	0.864 [21.94]	0.756 [19.20]
0.109 [2.77]	0.095 [2.41]	0.312 [7.92]	0.273 [6.93]	0.875 [22.22]	0.766 [19.46]
0.113 [2.87]	0.099 [2.51]	0.318 [8.08]	0.278 [7.06]	0.906 [23.01]	0.793 [20.14]
0.119 [3.02]	0.104 [2.64]	0.322 [8.18]	0.282 [7.16]	0.936 [23.82]	0.821 [20.85]
0.125 [3.18]	0.109 [2.77]	0.330 [8.38]	0.289 [7.34]	0.968 [24.59]	0.847 [21.51]
0.126 [3.20]	0.110 [2.79]	0.337 [8.56]	0.295 [7.49]	1.000 [25.40]	0.875 [22.22]
0.133 [3.38]	0.116 [2.95]	0.343 [8.71]	0.300 [7.62]	1.031 [26.19]	0.902 [22.91]
0.140 [3.56]	0.122 [3.10]	0.344 [8.74]	0.301 [7.65]	1.062 [26.97]	0.929 [23.60]
0.145 [3.68]	0.127 [3.23]	0.358 [9.09]	0.313 [7.95]	1.094 [27.79]	0.957 [24.31]
0.147 [3.73]	0.129 [3.28]	0.365 [9.27]	0.319 [8.10]	1.125 [28.58]	0.984 [24.99]
0.154 [3.91]	0.135 [3.43]	0.375 [9.52]	0.328 [8.33]	1.156 [29.36]	1.012 [25.70]
0.156 [3.96]	0.136 [3.45]	0.382 [9.70]	0.334 [8.48]	1.219 [30.96]	1.067 [27.08]
0.179 [4.55]	0.157 [3.99]	0.400 [10.16]	0.350 [8.89]	1.250 [31.75]	1.094 [27.79]
0.187 [4.75]	0.164 [4.17]	0.406 [10.31]	0.355 [9.02]	1.281 [32.54]	1.121 [28.47]
0.188 [4.78]	0.164 [4.17]	0.432 [10.97]	0.378 [9.60]	1.312 [33.32]	1.148 [29.16]
0.191 [4.85]	0.167 [4.24]	0.436 [11.07]	0.382 [9.70]	1.343 [34.11]	1.175 [29.85]
0.200 [5.08]	0.175 [4.44]	0.437 [11.10]	0.382 [9.70]	1.375 [34.92]	1.203 [30.56]
0.203 [5.16]	0.178 [4.52]	0.438 [11.13]	0.383 [9.73]	1.406 [35.71]	1.230 [31.24]
0.216 [5.49]	0.189 [4.80]	0.500 [12.70]	0.438 [11.13]	1.438 [36.53]	1.258 [31.95]
0.218 [5.54]	0.191 [4.85]	0.531 [13.49]	0.465 [11.81]	1.500 [38.10]	1.312 [33.32]
0.219 [5.56]	0.192 [4.88]	0.552 [14.02]	0.483 [12.27]	1.531 [38.89]	1.340 [34.04]
0.226 [5.74]	0.198 [5.03]	0.562 [14.27]	0.492 [12.50]	1.562 [39.67]	1.367 [34.72]
0.237 [6.02]	0.207 [5.26]	0.594 [15.09]	0.520 [13.21]	1.594 [40.49]	1.395 [35.43]
0.250 [6.35]	0.219 [5.56]	0.600 [15.24]	0.525 [13.34]	1.750 [44.45]	1.531 [38.89]
0.258 [6.55]	0.226 [5.74]	0.625 [15.88]	0.547 [13.89]	1.781 [45.24]	1.558 [39.57]
0.276 [7.01]	0.242 [6.15]	0.656 [16.66]	0.574 [14.58]	1.812 [46.02]	1.586 [40.28]
0.277 [7.04]	0.242 [6.15]	0.674 [17.12]	0.590 [14.99]	1.968 [49.99]	1.722 [43.74]
0.279 [7.09]	0.244 [6.20]	0.688 [17.48]	0.602 [15.29]	2.062 [52.37]	1.804 [45.82]
0.280 [7.11]	0.245 [6.22]	0.719 [18.26]	0.629 [15.98]	2.344 [59.54]	2.051 [52.10]
0.281 [7.14]	0.246 [6.25]				

Attachment 2

Fence Tubing

Diameter (In)	Diameter (mm)	Wall Thickness (In)	Wall Thickness (mm)
1 (1-3/8 OD)	33.4	.072	1.83
		.080	2.03
		.104	2.64
1¼ (1-5/8 OD)	42.16	.072	1.83
		.085	2.16
		.111	2.82
1½ (2 OD)	48.26	.072	1.83
		.090	2.29
		.120	3.05
2 (2½ OD)	60.33	.072	1.83
		.095	2.41
		.130	3.30
2½ (3 OD)	73.03	.110	2.79
		.160	4.06
3 (3½ OD)	88.9	.160	4.06
3½ (4 OD)	101.6	.160	4.06

ASTM A-53, Schedule 10

Diameter (Inches)	Outside Diameter (In)	Wall Thickness (In)
1/8	.405	.049
1/4	.540	.065
3/8	.675	.065
½	.840	.083
¾	1.05	.083
1	1.315	.109
1¼	1.660	.109
1½	1.900	.109

2	2.375	.109
2½	2.875	.120
3	3.5	.120
3½	4.0	.120
4	4.5	.120
5	5.563	.134
6	6.625	.134
8	8.625	.148
10	10.75	.165
12	12.75	.180
14	14	.250
16	16	.250