

# ASTM A252

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## ● Production Standard of ASTM A252

### ● ASTM A252

The ASTM A252 standard covers steel piling pipe that is used in the construction industry for foundation applications. The ASTM A252 steel piling pipe is available in three grades based on strength levels: Gr.1, Gr.2, and Gr.3.

The A252 steel piling pipe is made to requirements that include chemical composition, mechanical properties, and dimensions. The A252 steel piling pipe can be ordered in both welded and seamless steel construction, and each type has its own advantages. Welded steel pipe offers a lower cost option for foundations, while seamless steel pipe provides a higher degree of strength and durability. ASTM A252 Grade 1 and Grade 2 steel piling pipe are suitable for most foundation applications, while Grade 3 steel pipe can be used for high-strength applications.

## ● Dimensions and Sizes of ASTM A252

| Nominal Pipe Size |    | Outside Diameter (mm) | Nominal Wall Thickness Schedule |       |        |        |        |         |        |        |        |        |         |         |
|-------------------|----|-----------------------|---------------------------------|-------|--------|--------|--------|---------|--------|--------|--------|--------|---------|---------|
| NPS               | DN |                       | OD                              | SCH 5 | SCH 10 | SCH 20 | SCH 30 | SCH Sth | SCH 40 | SCH 60 | SCH XS | SCH 80 | SCH 100 | SCH 120 |

|       |      |       |      |      |       |       |      |       |       |       |       |       |       |       |
|-------|------|-------|------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|
| 1/8   | 6    | 10.3  |      | 1.24 |       | 1.45  | 1.73 | 1.73  |       | 2.41  | 2.41  |       |       |       |
| 1/4   | 8    | 13.7  |      | 1.65 |       | 1.85  | 2.24 | 2.24  |       | 3.02  | 3.02  |       |       |       |
| 3/8   | 10   | 17.1  |      | 1.65 |       | 1.85  | 2.31 | 2.31  |       | 3.20  | 3.20  |       |       |       |
| 1/2   | 15   | 21.3  | 1.65 | 2.11 |       | 2.41  | 2.77 | 2.77  |       | 3.73  | 3.73  |       |       |       |
| 3/4   | 20   | 26.7  | 1.65 | 2.11 |       | 2.41  | 2.87 | 2.87  |       | 3.91  | 3.91  |       |       |       |
| 1     | 25   | 33.4  | 1.65 | 2.77 |       | 2.9   | 3.38 | 3.38  |       | 4.55  | 4.55  |       |       |       |
| 1 1/4 | 32   | 42.2  | 1.65 | 2.77 |       | 2.97  | 3.56 | 3.56  |       | 4.85  | 4.85  |       |       |       |
| 1 1/2 | 40   | 48.3  | 1.65 | 2.77 |       | 3.18  | 3.68 | 3.68  |       | 5.08  | 5.08  |       |       |       |
| 2     | 50   | 60.3  | 1.65 | 2.77 |       | 3.18  | 3.91 | 3.91  |       | 5.54  | 5.54  |       |       |       |
| 2 1/2 | 65   | 73    | 2.11 | 3.05 |       | 4.78  | 5.16 | 5.16  |       | 7.01  | 7.01  |       |       |       |
| 3     | 80   | 88.9  | 2.11 | 3.05 |       | 4.78  | 5.49 | 5.49  |       | 7.62  | 7.62  |       |       |       |
| 3 1/2 | 90   | 101.6 | 2.11 | 3.05 |       | 4.78  | 5.74 | 5.74  |       | 8.08  | 8.08  |       |       |       |
| 4     | 100  | 114.3 | 2.11 | 3.05 |       | 4.78  | 6.02 | 6.02  |       | 8.56  | 8.56  |       | 11.13 |       |
| 5     | 125  | 141.3 | 2.77 | 3.40 |       |       | 6.55 | 6.55  |       | 9.53  | 9.53  |       | 12.70 |       |
| 6     | 150  | 168.3 | 2.77 | 3.40 |       |       | 7.11 | 7.11  |       | 10.97 | 10.97 |       | 14.27 |       |
| 8     | 200  | 219.1 | 2.77 | 3.76 | 6.35  | 7.04  | 8.18 | 8.18  | 10.31 | 12.70 | 12.70 | 15.09 | 18.26 | 20.62 |
| 10    | 250  | 273.0 | 3.40 | 4.19 | 6.35  | 7.80  | 9.27 | 9.27  | 12.70 | 12.70 | 15.09 | 18.26 | 21.44 | 25.40 |
| 12    | 300  | 323.8 | 3.96 | 4.57 | 6.35  | 8.38  | 9.53 | 10.31 | 14.27 | 12.70 | 17.48 | 21.44 | 25.40 |       |
| 14    | 350  | 355.6 | 3.96 | 6.35 | 7.92  | 9.53  | 9.53 | 11.13 | 15.09 | 12.70 | 19.05 | 23.83 |       |       |
| 16    | 400  | 406.4 | 4.19 | 6.35 | 7.92  | 9.53  | 9.53 | 12.70 | 16.66 | 12.70 | 21.44 |       |       |       |
| 18    | 450  | 457   | 4.19 | 6.35 | 7.92  | 11.13 | 9.53 | 14.27 | 19.05 | 12.70 | 23.83 |       |       |       |
| 20    | 500  | 508   | 4.78 | 6.35 | 9.53  | 12.70 | 9.53 | 15.09 | 20.62 | 12.70 |       |       |       |       |
| 22    | 550  | 559   | 4.78 | 6.35 | 9.53  | 12.70 | 9.53 |       | 22.23 | 12.70 |       |       |       |       |
| 24    | 600  | 610   | 5.54 | 6.35 | 9.53  | 14.27 | 9.53 | 17.48 | 24.61 | 12.70 |       |       |       |       |
| 26    | 650  | 660   |      | 7.92 | 12.70 |       | 9.53 |       |       | 12.70 |       |       |       |       |
| 28    | 700  | 711   |      | 7.92 | 12.70 | 15.88 | 9.53 |       |       | 12.70 |       |       |       |       |
| 30    | 750  | 762   | 6.35 | 7.92 | 12.70 | 15.88 | 9.53 |       |       | 12.70 |       |       |       |       |
| 32    | 800  | 813   |      | 7.92 | 12.70 | 15.88 | 9.53 | 17.48 |       | 12.70 |       |       |       |       |
| 34    | 850  | 864   |      | 7.92 | 12.70 | 15.88 | 9.53 | 17.48 |       | 12.70 |       |       |       |       |
| 36    | 900  | 914   |      | 7.92 | 12.70 | 15.88 | 9.53 | 19.05 |       | 12.70 |       |       |       |       |
| 38    | 950  | 965   |      |      |       |       | 9.53 |       |       | 12.70 |       |       |       |       |
| 40    | 1000 | 1016  |      |      |       |       | 9.53 |       |       | 12.70 |       |       |       |       |
| 42    | 1050 | 1067  |      |      |       |       | 9.53 |       |       | 12.70 |       |       |       |       |

|    |      |      |      |       |       |       |      |       |       |       |       |       |       |       |      |
|----|------|------|------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|------|
| 44 | 1100 | 1118 |      |       |       |       | 9.53 |       |       | 12.70 |       |       |       |       |      |
| 46 | 1150 | 1168 |      |       |       |       | 9.53 |       |       | 12.70 |       |       |       |       |      |
| 48 | 1200 | 1219 |      |       |       |       | 9.53 |       |       | 12.70 |       |       |       |       |      |
| 52 | 1300 | 1321 | 9.53 | 10.31 | 11.13 | 11.91 | 12.7 | 14.27 | 15.88 | 17.48 | 19.05 | 20.62 | 22.23 | 23.83 | 25.4 |
| 56 | 1400 | 1422 | 9.53 | 10.31 | 11.13 | 11.91 | 12.7 | 14.27 | 15.88 | 17.48 | 19.05 | 20.62 | 22.23 | 23.83 | 25.4 |
| 60 | 1500 | 1524 | 9.53 | 10.31 | 11.13 | 11.91 | 12.7 | 14.27 | 15.88 | 17.48 | 19.05 | 20.62 | 22.23 | 23.83 | 25.4 |
| 64 | 1600 | 1626 | 9.53 | 10.31 | 11.13 | 11.91 | 12.7 | 14.27 | 15.88 | 17.48 | 19.05 | 20.62 | 22.23 | 23.83 | 25.4 |
| 68 | 1700 | 1727 | 9.53 | 10.31 | 11.13 | 11.91 | 12.7 | 14.27 | 15.88 | 17.48 | 19.05 | 20.62 | 22.23 | 23.83 | 25.4 |
| 72 | 1800 | 1829 |      |       |       |       | 12.7 | 14.27 | 15.88 | 17.48 | 19.05 | 20.62 | 22.23 | 23.83 | 25.4 |
| 76 | 1900 | 1930 |      |       |       |       | 12.7 | 14.27 | 15.88 | 17.48 | 19.05 | 20.62 | 22.23 | 23.83 | 25.4 |
| 80 | 2000 | 2032 |      |       |       |       |      | 14.27 | 15.88 | 17.48 | 19.05 | 20.62 | 22.23 | 23.83 | 25.4 |
| 84 |      | 2134 |      |       |       |       |      |       |       |       |       |       |       |       |      |
| 88 |      | 2235 |      |       |       |       |      |       |       |       |       |       |       |       |      |

### ●Chemical Composition of ASTM A252

| Composition, % | C, max | Si, max | Mn, max | P, max | S, max |
|----------------|--------|---------|---------|--------|--------|
| <b>Grade 1</b> | 0.26   | 0.45    | 1.6     | 0.05   | 0.03   |
| <b>Grade 2</b> | 0.26   | 0.45    | 1.6     | 0.05   | 0.03   |
| <b>Grade 3</b> | 0.26   | 0.45    | 1.6     | 0.05   | 0.03   |

Note: The steel shall contain no more than 0.050% phosphorous.

### ●Mechanical Properties Tensile Strength and Yield Strength of ASTM A252

| Tensile Requirements   |              |              |              |
|--|--------------|--------------|--------------|
|  | Grade 1      | Grade 2      | Grade 3      |
| Tensile strength, min, psi [MPa]   | 50 000 [345] | 60 000 [415] | 66 000 [455] |
| Yield point or yield strength, min, psi [MPa]                                    | 30 000 [205] | 35 000 [240] | 45 000 [310] |
| Basic minimum elongation for nominal wall thicknesses 5/16 in. [7.9 mm] or more: |              |              |              |

|  |       |       |      |
|--|-------|-------|------|
| Elongation in 8 in. [203.2 mm], min, %   | 18    | 14    | ...  |
| Elongation in 2 in. [50.8 mm], min, %  | 30    | 25    | 20   |
| For nominal wall thicknesses less than 5/16 in. [7.9 mm], the deduction from the basic minimum elongation in 2 in. [50.8 mm] for each 1/32 in. [0.8 mm] decrease in nominal wall thickness below 5/16 in. [7.9 mm], in percentage points | 1.50A | 1.25A | 1.0A |