

ASTM A312 Pipe Weight Chart

(kg/m & lb/ft | Full Size Range | TP304 / TP316 Stainless Steel Pipes)

ASTM A312 stainless steel pipes are widely used in industries such as oil & gas, chemical processing, and construction. Understanding pipe weight is essential for **cost estimation, transportation planning, and engineering design.**

This page provides a **complete ASTM A312 pipe weight chart**, calculation formulas, and practical engineering data.

ASTM A312 Pipe Weight Chart (kg/m)

Density: 7.93 g/cm³ (Applicable to TP304, TP316, TP321, TP347)

NPS	OD (mm)	SCH 5	SCH 10	SCH 40	SCH 80	SCH 160
1/2"	21.3	0.63	0.85	1.27	1.62	2.06
3/4"	26.7	0.86	1.13	1.69	2.20	2.87
1"	33.4	1.20	1.47	2.50	3.24	4.55
1-1/4"	42.2	1.65	1.98	3.38	4.47	6.14
1-1/2"	48.3	1.98	2.27	4.05	5.41	7.68
2"	60.3	2.64	3.03	5.44	7.48	10.70
2-1/2"	73.0	3.39	3.89	7.66	10.27	14.90
3"	88.9	4.56	5.28	10.25	13.89	20.10
4"	114.3	6.02	6.84	16.07	21.10	30.80
6"	168.3	9.53	10.88	28.26	38.73	56.70
8"	219.1	13.40	15.26	42.55	57.00	84.20
10"	273.0	17.60	19.94	60.32	81.68	121.00
12"	323.9	21.80	24.56	73.81	100.20	150.50

Conversion to lb/ft

Conversion Factor:

1 kg/m = **0.67197 lb/ft**

Example:

10" SCH 40 → 60.32 kg/m ≈ **40.5 lb/ft**

ASTM A312 Pipe Weight Formula (Metric)

$$W=0.02466 \times (D-t) \times t \quad W = 0.02466 \times (D - t) \times t \quad W=0.02466 \times (D-t) \times t$$

Where:

- **W** = Weight (kg/m)
 - **D** = Outside Diameter (mm)
 - **t** = Wall Thickness (mm)
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Pipe Weight Formula (Imperial)

$$W=10.69 \times (D-t) \times t \quad W = 10.69 \times (D - t) \times t \quad W=10.69 \times (D-t) \times t$$

Where:

- **W** = Weight (lb/ft)
 - **D / t** = Inches
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Understanding Pipe Schedule

Schedule	Description	Typical Use
SCH 5	Extra thin wall	Decorative / low-pressure
SCH 10	Thin wall	Chemical / food processing
SCH 40	Standard thickness	General industrial use
SCH 80	Thick wall	Medium to high pressure
SCH 160	Extra thick	High pressure / high temperature

Practical Engineering Data (For Buyers & Exporters)

Container Loading Reference (6m Length Pipes)

Size	Weight per Pipe	Qty in 20GP
2" SCH 40	~32.6 kg	~850 pcs
4" SCH 40	~96.4 kg	~280 pcs
6" SCH 40	~169.5 kg	~160 pcs

Weight vs Cost Insight

- Pipe pricing is typically based on **price per ton**
 - Heavier pipes = higher total cost
 - SCH 80 pipes are usually **30–60% more expensive** than SCH 40
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Tolerance & Weight Deviation

Actual weight may vary due to:

- Wall thickness tolerance (commonly $\pm 12.5\%$)
 - Manufacturing method (seamless vs welded)
 - Surface treatment (pickling, polishing)
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FAQ (SEO Optimized)

What is the density used for ASTM A312 pipe weight calculation?

Typically **7.93 g/cm³** for stainless steel grades like TP304 and TP316.

Is pipe weight the same for all stainless steel grades?

Almost identical, minor variations are negligible in engineering calculations.

Why does actual pipe weight differ from the chart?

Due to manufacturing tolerances and material variations.

Which pipe schedule is most economical?

SCH 40 offers the best balance between strength and cost.