Sheet Metal Weight Chart

Estimate material weight per square meter, per square foot, or per full sheet before ordering stock, quoting freight, or checking a fabricated-part mass target.

Calculation Basis

Each material column is calculated from the nominal density below. These are estimating values for quoting and layout work, not certified weights.

MATERIAL SHOWN IN CHART	DENSITY USED	SCOPE
Carbon / structural steel	7,850 kg/m³	Common estimating value for structural steel; confirm the ordered grade when mass is critical
304 stainless steel	7,900 kg/m³	Outokumpu Core 304/4301 published density of 7.9 kg/dm³
Aluminum alloy	2,700 kg/m³	Representative value from Aalco 6082-T6/T651 sheet data; other alloys can differ

Sheet Metal Weight Chart by Thickness

THICKNESS (MM)	STEEL		304 STAINLESS		ALUMINUM	
	KG/M²	LB/FT²	KG/M²	LB/FT²	KG/M²	LB/FT²
0.5	3.93	0.80	3.95	0.81	1.35	0.28
0.8	6.28	1.29	6.32	1.29	2.16	0.44
1.0	7.85	1.61	7.90	1.62	2.70	0.55
1.2	9.42	1.93	9.48	1.94	3.24	0.66
1.5	11.78	2.41	11.85	2.43	4.05	0.83
2.0	15.70	3.22	15.80	3.24	5.40	1.11
2.5	19.63	4.02	19.75	4.05	6.75	1.38
3.0	23.55	4.82	23.70	4.85	8.10	1.66
4.0	31.40	6.43	31.60	6.47	10.80	2.21
5.0	39.25	8.04	39.50	8.09	13.50	2.77
6.0	47.10	9.65	47.40	9.71	16.20	3.32
8.0	62.80	12.86	63.20	12.94	21.60	4.42
10.0	78.50	16.08	79.00	16.18	27.00	5.53

Rounding: Metric values are controlling. Values are calculated from the stated density and rounded to the nearest 0.01 kg/m². Imperial values are converted from the unrounded metric result using 1 kg/m² = 0.204816 lb/ft², then rounded to the nearest 0.01 lb/ft². Use more precision when a rounding difference could affect freight, handling, or a design limit.

Gauge to Sheet Weight: Convert the Material First

Gauge is not a universal thickness unit. The same gauge number can represent different thicknesses in steel, stainless steel, aluminum, or galvanized sheet. First use a material-specific gauge thickness chart or the supplier order documentation to obtain the nominal decimal thickness, then calculate mass using that thickness and the density of the specified grade.

For drawings and purchase orders, state the material specification and thickness in millimeters or decimal inches instead of relying on gauge alone. Also identify whether a coated product is ordered by base-metal thickness, total coated thickness, or a product-standard designation.

How to Calculate Sheet Metal Weight

For a rectangular sheet using metric dimensions:

Mass (kg) = length (m) × width (m) × thickness (mm) × density (kg/m³) ÷ 1,000
Mass per area (kg/m²) = thickness (mm) × density (kg/m³) ÷ 1,000

TERM	DEFINITION
Length	Sheet or developed flat-pattern length in meters
Width	Sheet or developed flat-pattern width in meters
Thickness	Nominal or measured material thickness in millimeters
Density	Value for the specified material grade or alloy in kilograms per cubic meter

Worked example — a 1,000 × 2,000 × 1.5 mm steel sheet at 7,850 kg/m³: 1.000 m × 2.000 m × 1.5 mm × 7,850 kg/m³ ÷ 1,000 = **23.55 kg**. This describes the plain sheet before protective film, coating, packaging, or attached components are added.

Sheet Weight for Common Sheet Sizes

Find the material and thickness in the main chart, then multiply its kg/m² value by the area multiplier below. Calculate with the unrounded density formula rather than a displayed two-decimal chart value.

NOMINAL SHEET SIZE	AREA MULTIPLIER	CALCULATION
1,000 × 2,000 mm	2.0000 m²	kg/m² × 2.0000
1,219.2 × 2,438.4 mm (4 × 8 ft)	2.9729 m²	kg/m² × 2.9729
1,250 × 2,500 mm	3.1250 m²	kg/m² × 3.1250
1,500 × 3,000 mm	4.5000 m²	kg/m² × 4.5000

Example: an exact 4 × 8 ft sheet at 1.0 mm nominal thickness weighs approximately **23.34 kg (51.45 lb)** in steel, **23.49 kg (51.78 lb)** in 304 stainless steel, or **8.03 kg (17.70 lb)** on the aluminum basis used here. Full-sheet pound values are converted from the unrounded kilogram results and rounded to the nearest 0.01 lb.

Why Actual Sheet Metal Weight Can Differ

The density formula is exact for the inputs supplied, but the inputs are not always exact. Review these conditions before treating a chart result as final.

CONDITION	EFFECT ON THE ESTIMATE	BETTER APPROACH
Thickness tolerance	Actual sheet may be above or below nominal thickness	Use measured thickness or the ordered product's permitted thickness range for upper- and lower-bound estimates
Alloy or grade	Stainless, aluminum, copper, and other alloy families do not share one density	Use the density published for the exact material designation
Metallic or organic coating	Coating adds mass that a base-metal-only calculation omits	Add the specified coating mass per area or obtain the coated-sheet mass from the supplier
Holes, slots, and large cutouts	Net part mass is lower than the rectangular blank	Use developed CAD area after subtracting removed geometry
Formed geometry	Bending does not create material, but the developed flat length includes bend allowance	Calculate from the released flat pattern, not only the finished part's bounding dimensions
Inserts, fasteners, welds, and sealants	Assembly mass is higher than bare-sheet mass	Add the verified mass of every installed component and joining material
Protective film and packaging	Shipping mass is higher than net metal mass	Use the supplier's packed weight for freight and lifting plans

Laser-cut parts: calculate both net part mass and gross stock consumption. Material nesting, web spacing, edge trim, and remnants affect purchased weight and cost even when they do not remain in the finished part.

Material-Specific Weight Basis

MATERIAL	ESTIMATING BASIS	NOTES
Carbon and structural steel	7,850 kg/m³	A common structural-steel design value, suitable for early quoting and layout estimates. It does not replace the purchased grade, dimensional tolerance, or supplier-reported bundle weight. For galvanized sheet, calculate the steel substrate and specified coating mass separately when the distinction matters.
304 stainless steel	7,900 kg/m³	Specific to Outokumpu Core 304/4301. Do not automatically apply it to every stainless grade: alloy composition changes density. Where corrosion resistance, finish, weld condition, or material traceability matters, confirm the exact grade before release.
Aluminum sheet	2,700 kg/m³	Matches the published value for 6082-T6/T651 sheet. A practical estimating basis for many aluminum comparisons, not a universal density for every alloy. Confirm the selected alloy and temper, because strength, formability, corrosion behavior, and weight can all affect the design.

Design Checks Before Releasing a Drawing

DESIGN CHECK
State the complete material grade, alloy, and temper where applicable
Dimension thickness directly in millimeters or decimal inches; do not leave gauge interpretation to the fabricator
Define whether thickness and inspection apply before or after coating
Separate gross purchased-sheet weight, rectangular blank weight, net flat-pattern weight, and finished assembly weight
Use the developed flat pattern for formed parts and confirm the bend allowance model matches the intended material and tooling
Subtract holes and cutouts when net part mass matters
Add hardware, weld metal, adhesives, gaskets, film, and other non-sheet items to the assembly mass
Identify any maximum part, assembly, shipping, ergonomic-handling, or center-of-gravity requirement on the drawing or project specification
Verify the finished mass on a scale when it controls lifting, transport classification, structural loading, or regulatory compliance

Common Weight-Estimate Problems and Corrective Options

PROBLEM	CORRECTIVE OPTION	TRADE-OFF
Only a gauge number is available	Convert it using the correct material-specific gauge table, then confirm the ordered decimal thickness	Nominal gauge conversion still does not capture supplier tolerance
The alloy is unknown	Use a clearly labeled preliminary density and request the exact material specification	The estimate remains unsuitable for a final mass limit
The part contains many cutouts	Export developed flat area or CAD mass properties from the released model	CAD results are only as accurate as the assigned material, thickness, and geometry
The sheet is coated	Add specified coating mass per area or use supplier data for the finished product	Coating systems and measurement conventions vary
Freight is being quoted	Calculate gross sheets, remnants or skeletons if shipped, pallets, wrapping, and accessories	Packed mass is higher than net product mass
Weight is close to a handling limit	Use maximum permitted thickness and the relevant density to estimate an upper bound for the bare sheet, then weigh the finished item	An upper-bound estimate may overstate normal production mass and still excludes added components unless they are calculated separately

Sources

SOURCE	SUPPORTS
eurocodeapplied.com — Design Properties for Structural Steel	Structural-steel estimating density of approximately 7,850 kg/m³ and the EN design context
Outokumpu Core Range Datasheet	Core 304/4301 density of 7.9 kg/dm³ (0.285 lb/in³)
aalco.co.uk — Aluminium Alloy 6082-T6/T651 Sheet	Density of 2.70 g/cm³ for the representative aluminum sheet in this chart
NIST Special Publication 811	SI usage and the metric-to-US-customary conversions underlying the lb/ft² values

Important: These are calculated estimating values, not certified shipping or lifting weights. The chart uses the nominal densities and nominal thickness stated above. Actual mass changes with alloy or grade, thickness tolerance, coating, protective film, cutouts, hardware, weld metal, and the supplied sheet size. Confirm safety-critical weights from the purchased material and finished part.