METAL DENSITY CHART

METAL DENSITY CHART FOR STEEL & NON-FERROUS METALS

This UK metal density chart provides accurate reference values (kg/m³) for all metals supplied by Chargentum, including:

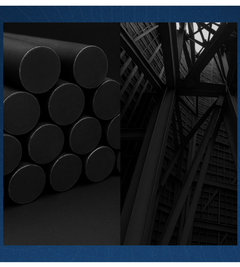
- Structural Steel
- Green Steel
- Engineering Steel
- Alloy Steel
- Tool Steel
- Stainless Steel
- Perforated Sheets
- Seamless Tubes
- Aluminum
- Copper
- Brass

Use these densities for precise weight calculation across beams, angles, hollow sections, plates, sheets, bars, and tubes.

STRUCTURAL & CARBON STEEL

Metal Type	Forms	Density (kg/m³)	Notes
Structural Steel	Universal Beams, Universal Columns, Parallel Flange Channels, T Sections, Plates, Sheets	7,850	Mild steel / S275 / S355
Green Steel	Universal Beams, Universal Columns, Parallel Flange Channels, T Sections, Plates, Sheets	7,850	Eco-friendly, low-carbon
Engineering Steel	Bars, Plates	7,850	High-strength steel
Alloy Steel	Bars, Plates	7,700 – 8,100	Depends on alloy
Tool Steel	Bars, Plates	7,750 – 8,050	Hardness dependent

Applies to: Beams, Columns, Channels, Angles, Plates, Sheets, Perforated Sheets, Round Bars, Square Bars, Hexagonal Bars

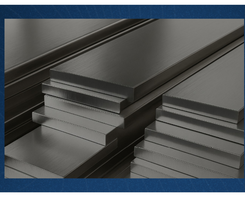


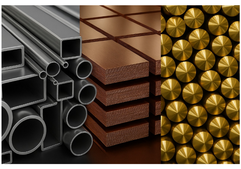
HOLLOW SECTIONS & TUBES

Metal	Shape	Density (kg/m³)	Weight Calculation Formula
Rectangular Hollow Section	Rectangular	7,850	(Outer Volume – Inner Volume) × Density
Square Hollow Section	Square	7,850	(Outer Volume – Inner Volume) × Density
Circular Hollow Section	Circular	7,850	(Outer Volume – Inner Volume) × Density
Seamless Tubes	Round	7,850	(Outer Volume – Inner Volume) × Density

STAINLESS STEEL

Grade	Forms	Density (kg/m³)
304 Stainless Steel	Plates, Sheets, Bars, Tubes	8,000
316 Stainless Steel	Plates, Sheets, Bars, Tubes	8,000
Austenitic Stainless Steel	Plates, Sheets, Bars, Tubes	7,900 – 8,000





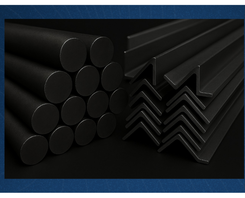
ALUMINIUM, COPPER & BRASS

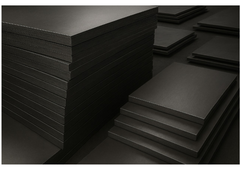
Metal	Forms	Density (kg/m³)
Aluminium	Plates, Sheets, Bars, Tubes	2,700
Copper	Plates, Sheets, Bars, Tubes	8,960
Brass	Plates, Sheets, Bars, Tubes	8,400 – 8,700

Note: Aluminium is approximately one-third the weight of structural steel. Copper and brass are heavier than mild steel.

BARS & ANGLES REFERENCE

Category	Shape	Formula
Equal Angle	Solid	Cross-sectional area × Length × Density
Unequal Angle	Solid	Cross-sectional area × Length × Density
Round Bars	Solid	π × (Radius²) × Length × Density
Square Bars	Solid	Side² × Length × Density
Hexagonal Bars	Solid	(3√3/2 × Side²) × Length × Density





PLATES & SHEETS

Metal	Thickness	Density (kg/m³)	Weight per m²
Steel	1 – 50 mm	7,850	Thickness × 7.85 kg/m² per mm
Aluminium	1 – 50 mm	2,700	Thickness × 2.7 kg/m² per mm
Copper	1 – 50 mm	8,960	Thickness × 8.96 kg/m² per mm
Brass	1 – 50 mm	8,400 – 8,700	Thickness × Density

WHY ACCURATE DENSITY MATTERS

Accurate density is critical for:

- Correct structural load calculation
- Crane lift & transport planning
- Fabrication & material cost estimation
- Reducing material waste
- Accurate weight calculation

USE THE METAL WEIGHT CALCULATOR

You can calculate exact weights for any metal, grade, and form listed in this density chart using the Chargentum Metal Weight Calculator.

- Enter the dimensions of your beam, bar, plate, sheet, hollow section, or tube.
- Select the metal type from the list.
- The calculator will instantly provide the weight.

This makes estimating transport, fabrication, or project loads fast and accurate.

METAL WEIGHT CALCULATOR →

USE THE METAL WEIGHT CALCULATOR FAQS

Explore our Metal Weight Calculator FAQ for detailed instructions, examples, and tips for all metals including steel, aluminum, copper, and brass.

METAL WEIGHT CALCULATOR FAQS →

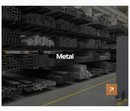
DOWNLOAD METAL DENSITY CHART (PDF)

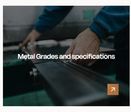
Includes:

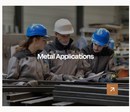
- All metals & grades
- Hollow sections, bars, angles, plates & sheets
- Pre-calculated formulas and tables

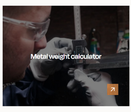
DOWNLOAD FULL METAL DENSITY CHART →

EXPLORE CHARGENTUM METALS, VIEW GRADES & SPECIFICATIONS, DISCOVER METAL APPLICATIONS, AND USE OUR METAL WEIGHT CALCULATOR.









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