Chemical composition

astm-a333

Element	Grade 6 limit	Requirement
Carbon (C)	≤ 0.30%	Maximum
Manganese (Mn)	0.29–1.06%	Range
Phosphorus (P)	≤ 0.025%	Maximum
Sulfur (S)	≤ 0.025%	Maximum
Silicon (Si)	≥ 0.10%	Minimum
Nickel (Ni)	≤ 0.40%	Maximum
Chromium (Cr)	≤ 0.30%	Maximum
Copper (Cu)	≤ 0.40%	Maximum
Vanadium (V)	≤ 0.08%	Maximum
Niobium (Nb)	≤ 0.02%	Maximum
Molybdenum (Mo)	≤ 0.12%	Maximum

Page note: Note: For Grade 6, manganese may be increased under the standard's carbon-reduction rule, up to a maximum of 1.35%. A higher niobium limit requires agreement between purchaser and manufacturer. The contractual edition and its table notes remain controlling.

ASTM source / basis: ASTM International — ASTM A333/A333M-24.