



# A-656 Grade 60, 70, 80

## Overview

An 80,000 minimum yield grade used in construction areas where added strength is a concern. This low carbon / high manganese grade achieves it's physical characteristics through the controlled rolled process along with small additions of Vanadium and Columbium. The low carbon provides good welding characteristics and enhanced forming capabilities.

## Chemical Requirements

\*Elements represented in percentage  
– A “-” indicates that element is not defined for that Type.

Element	Composition		
	Type 3	Type 7	Type 8
Carbon, max <sup>A</sup>	0.18	0.18	0.18
Manganese, max <sup>A</sup>	1.65	1.65	1.65
Phosphorus, max	0.025	0.025	0.025
Sulfur, max	0.030	0.030	0.030
Silicon, max	0.60	0.60	0.60
Vanadium, max	0.08	0.15 <sup>B</sup>	0.15 <sup>C</sup>
Nitrogen, max	0.030	0.030	0.030
Columbium	0.008-0.10	0.10 max <sup>B</sup>	0.10 max <sup>C</sup>
Titanium, max	—	—	0.15 <sup>C</sup>

## Tensile Requirements

	Grades 60 [415]	70 [485]	80 [550]
Yield point, min, ksi [MPa]	60 [415]	70 [485]	80 [550]
Tensile strength, ksi [MPa]	70 [485]	80 [550]	90 [620]
Elongation in 8 in. [200 mm], min, %	17 <sup>B</sup>	14 <sup>B</sup>	12 <sup>B</sup>
Elongation in 2 in. [50 mm], min, %	20 <sup>B</sup>	17 <sup>B</sup>	15 <sup>B</sup>