

# PLATE

## COMMERCIAL AND SPECIFICATION GRADES

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Commercial and Specification Grade Plates are stocked to meet a variety of end use requirements that range from the most unsophisticated storage bin to such highly critical applications as Cryogenic Pressure Vessels.

**LOW CARBON PLATE** is manufactured to three separate carbon ranges that relate to thickness and end use requirements. Plates 3/4" and lighter are produced to the lowest carbon range (.10-.20) for maximum cold forming and welding properties. Sizes 3/4"-1-1/2" the carbon range is (.15-.25) which gives improved machining, while retaining its forming and welding properties.

Plates over 1-1/2" have carbon increasing to (.20-.33), this is a killed steel that provides the best combination of strength, weldability, and structural soundness.

**MEDIUM CARBON PLATE** in the (.40-.50) carbon range is silicon killed and higher carbon for improved strength. Light and medium thicknesses can also be heat treated for greater strength. Machinability is good, but forming and welding properties are limited.

**ASTM A-36 PLATE** is a structural quality product designed for use in welded, bolted, or riveted fabrications such as oil rigs, buildings and bridges. Produced with a min. yield of 36,000 psi, A36 plate can be used in the construction of a variety of lightweight structures and equipment where good welding properties are important.

**ASTM A514B (T-1 & TYPE A REG) STRUCTURAL QUALITY** is a quenched and tempered high strength alloy steel designed for construction type applications and produced to minimum mechanical properties. T-1 plate provides good formability, high strength, toughness at subzero temperatures, and weldability with minimal pre-heat requirements. Stocked in 3/16 through 1-1/2" thick.

### **ABRASION RESISTANT GRADES**

Abrasion resisting is produced to a special carbon-manganese specification, developed specifically for applications requiring superior wear resistance, and will usually outlast ordinary steel grades by a wide margin.

AR360 is a medium strength and hardness; quenched and tempered plate, of modest price, and excellent wear properties.

AR400 is a high hardness, high strength quenched and tempered chrome-moly, boron treated alloy plate with good resistance to atmospheric corrosion and impact abrasion.

+ Reg. TM US Steel Corp.

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**PRESSURE VESSEL QUALITY** plate is produced to tightly controlled ASTM standards in order to provide superior grade of carbon steel plate designed specifically for pressure vessel and boiler applications but also suited to a variety of less demanding commercial applications.

PVQ plate is subject to a specified series of tests to insure conformance to standards.

**ASTM A285 (GRADE C)** in fire box and flange quality designed for fusion welded boilers and pressure vessels where moderate strength and good forming is required.

**ASTM A515 (GRADE 70)** has greater strength than A285 and intended for intermediate and high temperature boilers and pressure vessels. It is a silicon killed, coarse grained steel that requires careful welding techniques.

**ASTM A516 (GRADE 70)** is similar to A515 but is intended for lower temperature applications. It is also silicon killed, but has a finer grain and improved notched toughness. Stocked in an as rolled condition and charpy tested.

**ASTM A572 (GRADE 50) INX-EXTEN** is available with 50,000 psi min strength level. It is moderately priced and offers high strength in combination with good formability and weldability. Atmospheric corrosion resistance is about equal to plain carbon steel. Conform to SAE J410 and Grade 950X.

**PLATE COILS** — Low carbon, black, and pickled and oiled coils are available from 3/16" to 1/2" thick, up to 84" wide for precision roller levelling and cutting to standard and special lengths up to 480".

Ultrasonic Testing and ABS certification available upon request.

Accepted trade practice provides for invoicing of all Plate product based on the theoretical weight of the ordered size, using a density of .2836 pound per cubic inch rounded to the nearest full pound per piece.

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### Average Mechanical Properties

GRADE	TENSILE STRENGTH psi	MINIMUM YIELD psi	ELONGATION IN 2" MIN %	MISC. PROPERTIES
Low Carbon				
3/4" and Under				.10 - .20 Carbon
3/4" - 1 1/2"				.15 - .25 Carbon
Over 1 1/2"				.20 - .33 Carbon
<b>SPEC. GRADE</b>				
ASTM A-36	50,000 to to 80,000	36,000	23	.25 - .29 Carbon
ASTM A514 T1-A	105,000 to 135,000	90,000 to 100,000	17 to 18	.229 to .293 Brinell
AR360	166,000	160,000	15	360 Brinell
AR400	190,000	184,000	15	400 Brinell
ASTM A285 Grade C	55,000 to 65,000	30,000	25	.28 Carbon
ASTM A515 Grade 70	70,000 to 85,000	38,000	17	.31 to .35 Carbon
ASTM A516 Grade 70	70,000 to 85,000	38,000	17	.27 to .31 Carbon
ASTM A572 Grade 50	65,000	50,000	21	.23 Carbon

Ultrasonic testing and ABS certification is available upon request