



ALLOY CHARACTERISTICS

| ALLOY | TYPE | CHARACTERISTICS & USES |
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| STEEL | | |
| A-36 | SHEET, PLATE, BAR & BEAMS | MOST COMMON TYPE, GOOD WELDING, FORMING & STRENGTH, LOW COST STRUCTURAL STEEL |
| 1018 | BAR & SHEET | MOST COMMON COLD ROLLED GRADE, GOOD STRENGTH, GOOD WELDING & FAIR MACHINING, SMOOTH & STRAIGHT |
| 1045 | PLATE & BAR | MEDIUM CARBON, HIGH STRENGTH, GOOD WELDING, POOR MACHINING, POOR FORMING, MOST COMMON SHAFT MATERIAL |
| 4140 | PLATE & BAR | HIGH STRENGTH, GOOD WEAR & ABRASION RESISTANCE, HEAT TREATABLE |
| 4140 | PLATE & BAR | HIGH STRENGTH, GOOD WEAR & ABRASION RESISTANCE, HEATED TO A HIGHER "ROCK WELL" & POOR MACHINING |
| 12L14 | BARS | LEADED MACHINE STOCK, GREAT MACHINING, POOR WELDING |
| 1144 | BARS | AKA STRESS PROOF, SIMILAR TO 1045, HIGH STRENGTH SHAFT MATERIAL, GOOD WELDING, GOOD MACHINING, EX: KEY STOCK, GEARS, PISTONS |
| 1055 | GRADER BLADE OR CUTTING EDGE | HIGH CARBON STEEL, HIGH STRENGTH, GOOD WELDING, POOR FORMING, ABRASION RESISTANT |
| T-1 | PLATE | 321 BRINNEL HARDNESS, HIGH STRENGTH, GOOD WELDING, GOOD MACHINING, HARD TO BEND, ABRASION RESISTANT |
| AR 200 | SHEET & PLATE | SHEARABLE, FORMABLE, ABRASION RESISTANT, WELDABLE 200 BRINNEL HARDNESS |
| AR 400 | SHEET & PLATE | TOO HARD TO SHEAR, ABRASION RESISTANT, EXTREMELY TOUGH, 400 BRINNEL HARDNESS |
| 1215 | BARS | GREAT MACHINABILITY, POOR WELDING, SCREW MACHINE STOCK |
| 8620 | BARS | GOOD TOUGHNESS, GOOD WELDING, FAIR MACHINABILITY |
| COR-TEN | SHEET & PLATE | HIGHER STRENGTH THAN A36, GOOD CORROSION RESISTANCE, FORMABLE, ADDED COPPER GIVES MATERIAL A BROWNISH HUE |
| GRADE 50 | SHEET & PLATE | HIGHER STRENGTH THAN A36 |
| GRADE 70 | PLATE PRESSURE VESTEL | GOOD MACHINING, GOOD TOUGHNESS, GOOD WELDING, POOR FORMING, LARGE RADIUS REQUIRED |
| GRADE 80 | PLATE PRESSURE VESTEL | GOOD WELDING, GOOD MACHINING, GOOD TOUGHNESS, POOR FORMING, VERY LARGE RADIUS REQUIRED |
| FREE MAX | PLATE | EXCELLENT MACHINABILITY, GOOD WELDING |
| BRASS | | |
| 260 | SHEET | NOT VERY MACHINABLE, GREAT COMBINATION OF FORMABILITY & WORKABILITY, CAN BE WELDED OR SOLDERED |
| 360 | BARS | SUPERIOR MACHINABILITY, CAN BE CUT & SHAPED INTO WHATEVER YOU NEED, FAIR FORMING, CAN BE WELDED OR SOLDERED |
| COPPER | | |
| 110 | SHEET, PLATE & BARS | GOOD FORMING, DRAWING, SPINNING, ELECTRICAL CONDUCTIVITY, CAN BE SUITABLE FOR WELDING AND SOLDERING, GREAT CORROSION RESISTANCE |



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|-------------------|--|--|
| ALUMINUM | | |
| 6061 | BAR, SHEET, PLATE, PIPE, TUBE & STRUCTURAL | MOST COMMONLY USED, HIGH STRENGTH, GOOD WELDING NOT GOOD FORMABILITY - IF FORMED, NEEDS A VERY GRADUAL RADIUS. |
| 3003 | DIAMOND PLATE | MOST POPULAR DECORATIVE ALUMINUM FLOOR PLATE LIGHT WEIGHT, SHINY, FORMABLE, WELDABLE, MODERN LOOK |
| 5086 | DIAMOND PLATE | GOOD CORROSION RESISTANCE & FAIR FORMABILITY |
| 5754 | TOP GRIP | EXTRA TRACTION, FORMABLE & WELDABLE |
| 5052 | SHEET & PLATE | FORMABLE & WELDABLE |
| 2024 | BARS & PLATE | HIGH STRENGTH, AIRCRAFT APPLICATION, GOOD MACHINING, POOR WELDING |
| 7075 | BARS & PLATE | HIGH STRENGTH, AIRCRAFT APPLICATION, GOOD MACHINING, POOR WELDING |
| 2011 | BARS | EXCELLENT MACHINABILITY, SCREW MACHINE STOCK, POOR WELDING |
| 2017 | BARS | EXCELLENT MACHINABILITY, SCREW MACHINE STOCK, POOR WELDING |
| 6262 | BARS | EXCELLENT MACHINABILITY, SCREW MACHINE STOCK, POOR WELDING |
| CAST TOOL | JIG PLATE | VERY FLAT, HIGHLY STABLE, POOR WELDING, USED FOR JIGS & FIXTURES, NOT FORMABLE |
| 6063 | STRUCTURAL TUBE & PIPE | MEDIUM STRENGTH, FORMABLE W/ LARGE RADIUS, WELDABLE & MACHINABLE |
| STAINLESS | | |
| 303 | BARS | GOOD MACHINING & POOR WELDING, GOOD CORROSION RESISTANCE |
| 304 | SHEET, PLATE, BAR, TUBE, PIPE & STRUCTURAL | GOOD WELDING & FAIR MACHINING, GOOD CORROSION RESISTANCE |
| 316 | SHEET & ROUNDS | GOOD WELDING, EXCELLENT CORROSION RESISTANCE, FAIR MACHINING, FOOD GRADE, HIGH NICKEL CONTENT |
| 17-4 | ROUNDS | HIGH STRENGTH & GOOD CORROSION RESISTANCE, HEAT TREATABLE, FAIR WELDING |
| TOOL STEEL | | |
| A-2 | BARS | GENERAL PURPOSE THROUGH HARDENING, GOOD WEAR RESISTANCE AND TOUGHNESS WITH LOW DISTORTION |
| D-2 | BARS | HIGH WEAR RESISTANCE, GOOD TOUGHNESS & LOW DISTORTION, THIS MATERIAL IS THE CHOICE WHERE LONG TOOL LIFE IS REQUIRED |
| O-1 | BARS | GENERAL TOOL USE, OIL HARDENING THAT SHOWS LITTLE DISTORTION OR SIZE CHANGE IN HEAT TREATMENT. GOOD DEPTH HARDENING & FINE GRAIN STRUCTURE |
| M-2 | BARS | HIGH WEAR RESISTANCE AFTER HEAT TREATMENT, HARDNESS SAME AS T1, TOUGHNESS HIGHER THAN T1 BY 50%, GOOD FOR DRILL BITS, TAPS, REAMERS |
| P-2 | BARS | PRE-HARDENED TO APPROXIMATELY 300 B.H., REQUIRES NO FURTHER HEAT TREATMENT THEREFORE AVOIDING RISK OF DISTORTION OR CRACKING, CAN STILL BE MACHINED |
| S-7 | BARS | HIGH TOUGHNESS & SHOCK RESISTANT, GOOD FOR GENERAL TOOLING & MOLDING, CAN BE QUENCHED IN AIR OR OIL DEPENDING ON SECTION SIZE |