

## Material: ASTM A 1040 1144

### Standard Specification For Carbon Steel Compositions For Forging To Hot-Rolled And Cold-Finished Steel

**Group:** Ferrous Mild Steel Alloys

**Sub Group:** ASTM A 1040 1144 Carbon Steel Compositions For Forging To Hot-Rolled And Cold-Finished Steel

**Application:** Intended for Valve, Pump, General Engineering, Automotive and Other Industries

**Grade Belongs to the Industry:** Steel

| Chemical Composition |      |               | Heat Treatment                                                                                                                                                                                                  |  |
|----------------------|------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Carbon               | C %  | 0.400 - 0.480 | As Raw or Annealing or Normalizing or Hardening and Tempering                                                                                                                                                   |  |
| Manganese            | Mn % | 1.350 - 1.650 |                                                                                                                                                                                                                 |  |
| Phosphorus           | P %  | 0.040 max.    |                                                                                                                                                                                                                 |  |
| Sulphur              | S %  | 0.240 - 0.330 |                                                                                                                                                                                                                 |  |
| Silicon              | Si % | 0.100 max.    |                                                                                                                                                                                                                 |  |
| Iron                 | Fe % | Balance       |                                                                                                                                                                                                                 |  |
| -                    | -    | -             |                                                                                                                                                                                                                 |  |
| -                    | -    | -             | <b>Mechanical Properties</b><br>Tensile Strength in Mpa 585 min.<br>Yield Strength in Mpa 370 min.<br>Elongation in % 5 min.<br>Reduction of Area in % 20 min.<br>Hardness in HB 197 - 321<br>Impact in Joule - |  |
| -                    | -    | -             |                                                                                                                                                                                                                 |  |
| -                    | -    | -             |                                                                                                                                                                                                                 |  |
| -                    | -    | -             |                                                                                                                                                                                                                 |  |
| -                    | -    | -             |                                                                                                                                                                                                                 |  |
| -                    | -    | -             |                                                                                                                                                                                                                 |  |
| -                    | -    | -             |                                                                                                                                                                                                                 |  |
| -                    | -    | -             |                                                                                                                                                                                                                 |  |

| Cross Reference Table |          |         |                                                   |
|-----------------------|----------|---------|---------------------------------------------------|
| Material              | Standard | Country | Grade Belong to the Industry                      |
| G11440                | UNS      | USA     | Bars, Wire Rods, Plates, Strip, Sheets and Tubing |
| 1144                  | SAE      | USA     | Bars, Wire Rods, Plates, Strip, Sheets and Tubing |
| 1144                  | AISI     | USA     | Steel and Bar                                     |
| A 108 Grade 1144      | ASTM     | USA     | Steel and Bar                                     |
| A 29 1144             | ASTM     | USA     | Steel and Bar                                     |
| A 311 1144 Class A    | ASTM     | USA     | Steel and Bar                                     |
| A 311 1144 Class B    | ASTM     | USA     | Steel and Bar                                     |

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