

## Material: ASTM A 108 Grade 1016

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

**Group:** Ferrous Mild Steel Alloys

**Sub Group:** ASTM A 108 Grade 1016 Carbon Steel Compositions For Forging To Hot-Rolled And Cold-Finished Steel and Steel

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

**Grade Belongs to the Industry:** Steel and Bar

| Chemical Composition |      |               | Heat Treatment                                                                                                                                                                                                   |  |
|----------------------|------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Carbon               | C %  | 0.130 - 0.180 | As Raw or Annealing or Normalizing or Hardening and Tempering                                                                                                                                                    |  |
| Manganese            | Mn % | 0.600 - 0.900 |                                                                                                                                                                                                                  |  |
| Phosphorus           | P %  | 0.040 max.    |                                                                                                                                                                                                                  |  |
| Sulphur              | S %  | 0.050 max.    |                                                                                                                                                                                                                  |  |
| Lead                 | Pb % | Balance       |                                                                                                                                                                                                                  |  |
| Silicon              | Si % | 0.100 max.    |                                                                                                                                                                                                                  |  |
| Iron                 | Fe % | Balance       |                                                                                                                                                                                                                  |  |
| -                    | -    | -             |                                                                                                                                                                                                                  |  |
| -                    | -    | -             | <b>Mechanical Properties</b><br>Tensile Strength in Mpa 380 - 689<br>Yield Strength in Mpa 210 min<br>Elongation in % 13 min.<br>Reduction of Area in % 40 - 50<br>Hardness in HB 111 - 121<br>Impact in Joule - |  |
| -                    | -    | -             |                                                                                                                                                                                                                  |  |
| -                    | -    | -             |                                                                                                                                                                                                                  |  |
| -                    | -    | -             |                                                                                                                                                                                                                  |  |
| -                    | -    | -             |                                                                                                                                                                                                                  |  |
| -                    | -    | -             |                                                                                                                                                                                                                  |  |
| -                    | -    | -             |                                                                                                                                                                                                                  |  |

| Cross Reference Table |          |         |                                                   |
|-----------------------|----------|---------|---------------------------------------------------|
| Material              | Standard | Country | Grade Belong to the Industry                      |
| G10160                | UNS      | USA     | Bars, Wire Rods, Plates, Strip, Sheets and Tubing |
| 1016                  | SAE      | USA     | Bars, Wire Rods and Tubing                        |
| 1016                  | AISI     | USA     | Tubing                                            |
| A 1040 1016           | ASTM     | USA     | Steel                                             |
| A 29 1016             | ASTM     | USA     | Steel and Bar                                     |
| A 510 1016            | ASTM     | USA     | Wire Rods                                         |
| A 512 Grade 1016      | ASTM     | USA     | Tubing                                            |

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