

## Material: ASTM A 29 1023

### 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 29 1023 Carbon Steel Compositions For Forging To Hot-Rolled And Cold-Finished Steel and Bar

**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 %  | 0.200 - 0.250  | As Raw or Annealing or Normalizing or Hardening and Tempering |           |
| Manganese            | Mn % | 0.300 - 0.600  |                                                               |           |
| Phosphorus           | P %  | 0.040 max.     |                                                               |           |
| Sulphur              | S %  | 0.050 max.     |                                                               |           |
| Aluminium            | Al % | 0.020 max.     |                                                               |           |
| Copper               | Cu % | 0.200 max.     |                                                               |           |
| Silicon              | Si % | 0.100 max.     |                                                               |           |
| Boron                | B %  | 0.0005 - 0.003 |                                                               |           |
| Niobium              | Nb % | 0.025 max.     | Mechanical Properties                                         |           |
| Vanadium             | V %  | 0.050 max.     | Tensile Strength in Mpa                                       | 370 - 430 |
| Iron                 | Fe % | Balance        | Yield Strength in Mpa                                         | 210 min   |
| -                    | -    | -              | Elongation in %                                               | 15 min.   |
| -                    | -    | -              | Reduction of Area in %                                        | 40 - 50   |
| -                    | -    | -              | Hardness in HB                                                | 111 - 121 |
| -                    | -    | -              | Impact in Joule                                               | -         |

| Cross Reference Table |          |         |                                                   |
|-----------------------|----------|---------|---------------------------------------------------|
| Material              | Standard | Country | Grade Belong to the Industry                      |
| G10230                | UNS      | USA     | Bars, Wire Rods, Plates, Strip, Sheets and Tubing |
| 1023                  | SAE      | USA     | Steel                                             |
| 1023                  | AISI     | USA     | Steel and Bar                                     |
| A 1040 1023           | ASTM     | USA     | Steel                                             |
| A 29 M1023            | ASTM     | USA     | Steel and Bar                                     |
| A 510 1023            | ASTM     | USA     | Wire Rod and Round Wire                           |
| A 513 Grade 1023      | ASTM     | USA     | Tubing                                            |

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