



## Mechanical Properties

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| 300 Series Austenetic Stainless Steel (A) | Density g/cc (B) | Yield Strength PSI (C) | Ultimate Tensile Strength PSI (C) | Elongation % (C, D) | Apparent Hardness | Corrosion Index (E) |
|---|------------------|------------------------|-----------------------------------|---------------------|-------------------|---------------------|
| <b>303 Stainless Steel</b>                |                  |                        |                                   |                     |                   |                     |
| 303LH                                     | 6.6              | 20,000                 | 39,000                            | 13                  | HRB 39            | B                   |
| MPIF35 equivalent 303L-12                 | 6.6              | 17,000                 | 39,000                            | 17.5                | HRB 21            | B-                  |
| 303LH2                                    | 6.8              | 23,000                 | 48,000                            | 22                  | HRB 34            | B                   |
| MPIF35 equivalent 303L-15                 | 6.6              | 24,000                 | 48,000                            | 15                  | HRB 35            | B-                  |
| 303N                                      | 6.4              | 48,000                 | 57,000                            | 2                   | HRB 68            | B-                  |
| MPIF35 equivalent 303N2-35                | 6.5              | 42,000                 | 55,000                            | 5                   | HRB 63            | C                   |
| 303N2                                     | 6.7              | 46,000                 | 64,000                            | 7.6                 | HRB 70            | B-                  |
| MPIF35 equivalent 303N2-38                | 6.9              | 45,000                 | 68,000                            | 10                  | HRB 70            | C                   |
|   |                  |                        |                                   |                     |                   |                     |
| <b>304 Stainless Steel</b>                |                  |                        |                                   |                     |                   |                     |
| 304LH                                     | 6.7              | 23,000                 | 41,000                            | 15                  | HRB 27            | B                   |
| MPIF35 equivalent 304L-13                 | 6.6              | 18,000                 | 43,000                            | 23                  | HRB 30            | B-                  |
| 304LH2                                    | 6.9              | 20,000                 | 47,000                            | 26                  | HRB 34            | B+                  |
| MPIF35 equivalent 304L-18                 | 6.9              | 26,000                 | 57,000                            | 26                  | HRB 45            | B                   |
| 304N                                      | 6.5              | 49,000                 | 59,000                            | 2                   | HRB 64            | B-                  |
| MPIF35 equivalent 304N2-33                | 6.5              | 40,000                 | 57,000                            | 5                   | HRB 62            | C+                  |

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|---|------------------|------------------------|-----------------------------------|---------------------|-------------------|---------------------|
| <b>Standard 316 Stainless Steel</b>       |                  |                        |                                   |                     |                   |                     |
| 316LH                                     | 6.4              | 24,000                 | 35,000                            | 6                   | HRB 26            | A                   |
| MPIF35 equivalent<br>316H-20              | 6.6              | 25,000                 | 35,000                            | 7                   | HRB 33            | B+                  |
| 316LH2                                    | 6.9              | 21,000                 | 47,000                            | 26                  | HRB 37            | A                   |
| No MPIF equivalent                        |                  |                        |                                   |                     |                   |                     |
| 316N                                      | 6.7              | 34,000                 | 47,000                            | 7                   | HRB 51            | A-                  |
| MPIF35 equivalent<br>316N1-25             | 6.4              | 34,000                 | 41,000                            | 0.5                 | HRB 59            | B                   |
| 316LN2                                    | 6.9              | 50,000                 | 71,000                            | 10                  | HRB 70            | A-                  |
| MPIF35 equivalent<br>316N2-38             | 6.9              | 45,000                 | 70,000                            | 13                  | HRB 65            | B-                  |
|   |                  |                        |                                   |                     |                   |                     |
| <b>316L Enriched Stainless Steel</b>      |                  |                        |                                   |                     |                   |                     |
| 316LEH                                    | 6.4              | 26,000                 | 38,000                            | 7.5                 | HRB 38            | A+                  |
| No MPIF equivalent                        |                  |                        |                                   |                     |                   |                     |
| 316LEH2                                   | 7.0              | 26,000                 | 50,000                            | 16                  | HRB 45            | A+                  |
| No MPIF equivalent                        |                  |                        |                                   |                     |                   |                     |
| 316EN2                                    | 6.9              | 53,000                 | 61,000                            | 3                   | HRB 72            | A-                  |
| No MPIF equivalent                        |                  |                        |                                   |                     |                   |                     |
| 316 full density                          | 7.6 min          | 60000                  | 75000                             | 40                  | HRB70             | A-                  |
| No MPIF equivalent                        |                  |                        |                                   |                     |                   |                     |
|   |                  |                        |                                   |                     |                   |                     |
| <b>347 Stainless Steel</b>                |                  |                        |                                   |                     |                   |                     |
| 347H                                      | 6.6              | 21000                  | 30000                             | 6                   | HRB 32            | B                   |
| No MPIF equivalent                        |                  |                        |                                   |                     |                   |                     |
| 347H2                                     | 6.6              | 50000                  | 55000                             | 2                   | HRB 70            | B                   |
| No MPIF equivalent                        |                  |                        |                                   |                     |                   |                     |

| 400 Series Martensitic Stainless Steel (A) | Density g/cc (B) | Yield Strength PSI (C) | Ultimate Tensile Strength PSI (C) | Elongation % (C, D) | Apparent Hardness | Corrosion Index (E) |
|--|------------------|------------------------|-----------------------------------|---------------------|-------------------|---------------------|
| <b>410 Stainless Steel</b>                 |                  |                        |                                   |                     |                   |                     |
| 410LH                                      | 6.8              | 27000                  | 45000                             | 10                  | HRB 40            | C                   |
| MPIF35 SS-410L-20                          | 6.9              | 26000                  | 48000                             | 10                  | HRB 45            |                     |
| 410LH2                                     | 7.2              | 30,000                 | 50000                             | 25                  | HRB 50            | C                   |
| No MPIF equivalent                         |                  |                        |                                   |                     |                   |                     |
| 410LN                                      | 6.7              | 70,000                 | 80000                             | 2                   | HRB 70            | C                   |
| No MPIF equivalent                         |                  |                        |                                   |                     |                   |                     |
| 410LN2                                     | 6.9              | 70,000                 | 80000                             | 0.5                 | HRC 25            | C-                  |
| No MPIF equivalent                         |                  |                        |                                   |                     |                   |                     |
|  |                  |                        |                                   |                     |                   |                     |
| <b>420 Stainless Steel</b>                 |                  |                        |                                   |                     |                   |                     |
| 420LH2                                     | 6.7              | N/A                    | 50000                             | 0                   | HRC 46            | D +                 |
| No MPIF equivalent                         |                  |                        |                                   |                     |                   |                     |
| 420LN2                                     | 6.7              | N/A                    | 60000                             | 0                   | HRC 42            | D+                  |
| No MPIF equivalent                         |                  |                        |                                   |                     |                   |                     |
|  |                  |                        |                                   |                     |                   |                     |
| Precipitation Hardened 17-4PH SS (A)       | Density g/cc (B) | Yield Strength PSI (C) | Ultimate Tensile Strength PSI (C) | Elongation % (C, D) | Apparent Hardness | Corrosion Index (E) |
| 17-4 PH Condition H900                     | 6.3              | 68000                  | 68000                             | <.5                 | HRB 80            | C+                  |
| 17-4 PH Condition H900                     | 7.1              | 130000                 | 135000                            | 2                   | HRC 25            | C+                  |
| High temp sintered                         |                  |                        |                                   |                     |                   |                     |
|  |                  |                        |                                   |                     |                   |                     |
| Special Non-Ferrous Alloys (A)             | Density g/cc (B) | Yield Strength PSI (C) | Ultimate Tensile Strength PSI (C) | Elongation % (C, D) | Apparent Hardness | Corrosion Index (E) |
| Monel                                      | 7.6              | 16000                  | 35000                             | 15                  | HRF 45            | A+                  |
| Hastelloy C                                | 6.9              | 33000                  | 38000                             | 2                   | HRB 50            | A                   |

Notes: **A** - H = Hydrogen Atmosphere • L = Low Carbon • H2 = High temperature • N = Nitrogen Atmosphere

• N2 = High temperature DA Atmosphere

**B** - Density will vary depending on part configuration

**C** - Mechanical property values represent average values derived from test bars produced with production parameters

**D** - Elongation given as inch/inch in one inch gauge length

**E** - Relative scale with A+ passing ASTM B117 and ASTM B895 testing, C and lower having varying percentages of red rust depending on the components, exposure and application