

Chemical Requirements

STAINLESS STEEL BOLTS, HEX CAP SCREWS AND STUDS



Abstract of ASTM F593 2002

| Alloy Group | UNS Designation | Alloy | Composition, % maximum except as shown | | | | | | | | | |
|--------------------------------------|-----------------|--------|--|------------|------------|--------------|---------|--------------|--------------|--------------|-----------------------|-----------------|
| | | | Carbon | Manganese | Phosphorus | Sulfur | Silicon | Chromium | Nickel | Copper | Molybdenum | others |
| Austenitic Alloys | | | | | | | | | | | | |
| 1 | S30300 | 303 | 0.15 | 2.00 | 0.20 | 0.15 min | 1.00 | 17.0 to 19.0 | 8.0 to 10.0 | ... | 0.60 max ^A | ... |
| 1 | S30323 | 303Se | 0.15 | 2.00 | 0.20 | 0.060 | 1.00 | 17.0 to 19.0 | 8.0 to 10.0 | ... | ... | Se 0.15 min |
| 1 | S30400 | 304 | 0.08 | 2.00 | 0.05 | 0.03 | 1.00 | 18.0 to 20.0 | 8.0 to 10.5 | 1 | ... | ... |
| 1 | S30403 | 304 L | 0.03 | 2.00 | 0.05 | 0.030 | 1.00 | 18.0 to 20.0 | 8.0 to 12.0 | 1 | ... | ... |
| 1 | S30500 | 305 | 0.12 | 2.00 | 0.05 | 0.03 | 1.00 | 17.0 to 19.0 | 10.5 to 13.0 | 1 | ... | ... |
| 1 | S38400 | 384 | 0.08 | 2.00 | 0.05 | 0.030 | 1.00 | 15.0 to 17.0 | 17.0 to 19.0 | ... | 0.50 max ^A | ... |
| 1 | S20300 | XM1 | 0.08 | 5.0 to 6.5 | 0.04 | 0.18 to 0.35 | 1.00 | 16.0 to 18.0 | 5.0 to 6.5 | 1.75 to 2.25 | ... | ... |
| 1 | S30430 | 18-9LW | 0.10 | 2.00 | 0.05 | 0.030 | 1.00 | 17.0 to 19.0 | 8.0 to 10.0 | 3.0 to 4.0 | ... | ... |
| 1 | S30433 | 302HQ | 0.03 | 2.00 | 0.05 | 0.03 | 1.00 | 17.0 to 19.0 | 8.0 to 10.0 | 3.0 to 4.0 | ... | ... |
| 2 | S31600 | 316 | 0.08 | 2.00 | 0.05 | 0.030 | 1.00 | 16.0 to 18.0 | 10.0 to 14.0 | ... | 2.00 to 3.00 | ... |
| 2 | S31603 | 316 L | 0.03 | 2.00 | 0.05 | 0.03 | 1.00 | 16.0 to 18.0 | 10.0 to 14.0 | ... | 2.00 to 3.00 | ... |
| 3 | S32100 | 321 | 0.08 | 2.00 | 0.05 | 0.030 | 1.00 | 17.0 to 19.0 | 9.0 to 12.0 | ... | ... | Ti 5 x C min |
| 3 | S34700 | 347 | 0.08 | 2.00 | 0.05 | 0.03 | 1.00 | 17.0 to 19.0 | 9.0 to 13.0 | ... | ... | Cb+Ta 10xC min |
| Ferritic Alloys | | | | | | | | | | | | |
| 4 | S43000 | 430 | 0.12 | 1.00 | 0.04 | 0.03 | 1.00 | 16.0 to 18.0 | ... | ... | ... | ... |
| 4 | S43020 | 430F | 0.12 | 1.25 | 0.06 | 0.15 min | 1.00 | 16.0 to 18.0 | ... | ... | 0.60 max ^A | ... |
| Martensitic Alloy | | | | | | | | | | | | |
| 5 | S41000 | 410 | 0.15 | 1.00 | 0.04 | 0.03 | 1.00 | 11.5 to 13.5 | ... | ... | ... | ... |
| 5 | S41600 | 416 | 0.15 | 1.25 | 0.06 | 0.15 min | 1.00 | 12.0 to 14.0 | ... | ... | 0.60 max ^A | ... |
| 5 | S41623 | 416Se | 0.15 | 1.25 | 0.06 | 0.06 | 1.00 | 12.0 to 14.0 | ... | ... | ... | Se 0.15 min |
| 6 | S43100 | 431 | 0.20 | 1.00 | 0.04 | 0.030 | 1.00 | 15.0 to 17.0 | 1.25 to 2.50 | ... | ... | ... |
| Precipitation Hardening Alloy | | | | | | | | | | | | |
| 7 | S17400 | 630 | 0.07 | 1.00 | 0.040 | 0.030 | 1.00 | 15.0 to 17.5 | 3.0 to 5.0 | 3.0 to 5.0 | ... | Cb+Ta 0.15-0.45 |

^A At manufacturer's option, determined only when intentionally added.