# ASTM MATERIALS LIST

| | CHEMICAL ANALYSIS % | | | | | | | | MECHANICAL PROPERTIES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ASTM MATERIAL | C MAX. | Mn | P MAX. | S MAX. | Si MAX. | Cr | Mo | Ni | R Kg/mm² | S Kg/mm² min | A % min | Σ % min | |
| A 216–WCB | 0.3 | max.1 | 0.04 | 0.045 | 0.6 | 0.5 | 0.2 | 0.5 | 49.2–66.7 | 25.4 | 22 | 35 | CAST STEEL FOR GENERAL USE |
| A 216–WCC | 0.25 | max.1.2 | 0.04 | 0.045 | 0.6 | 0.5 | 0.2 | 0.5 | 49.2–66.7 | 28 | 22 | 35 | |
| A 352–LCA | 0.25 | max.0.7 | 0.04 | 0.045 | 0.6 | 0.5 | 0.2 | 0.5 | 49.2–59.7 | 21 | 24 | 35 | CARBON AND ALLOY STEELS FOR LOW TEMPERATURE SERVICES |
| A 352–LCB | 0.3 | max.1 | 0.04 | 0.045 | 0.6 | 0.5 | 0.2 | 0.5 | 45.7–63.2 | 24.6 | 24 | 35 | |
| A 352–LCC | 0.25 | max.1.2 | 0.04 | 0.045 | 0.6 | 0.5 | 0.2 | 0.5 | 49.2–66.8 | 21 | 22 | 35 | |
| A 352–LC1 | 0.25 | 0.5–0.8 | 0.04 | 0.045 | 0.6 | | 0.45–0.65 | | 45.7–63.2 | 24.6 | 24 | 35 | |
| A 352–LC2 | 0.25 | 0.5–0.8 | 0.04 | 0.045 | 0.6 | | | 2–3 | 49.2–66.8 | 28 | 24 | 35 | |
| A 352–LC4 | 0.15 | 0.5–0.8 | 0.04 | 0.045 | 0.6 | | | 4–5 | 49.2–66.8 | 28 | 24 | 35 | |
| A 352–LC9 | 0.13 | 0.9 | 0.04 | 0.045 | 0.6 | | | 4–5 | 59.8 | 52.7 | 20 | 30 | |
| A 217–WC1 | 0.25 | 0.5–0.8 | 0.04 | 0.045 | 0.6 | 0.5–0.8 | 0.45–0.65 | | 45.7–63.2 | 24.6 | 24 | 35 | ALLOY STEELS FOR HIGH TEMPERATURE SERVICES |
| A 217–WC4 | 0.05–0.2 | 0.5–0.8 | 0.04 | 0.045 | 0.6 | 0.5–0.9 | 0.45–0.65 | 0.7–1.1 | 49.2–66.8 | 28 | 20 | 35 | |
| A 217–WC5 | 0.05–0.2 | 0.4–0.7 | 0.04 | 0.045 | 0.6 | 1.0–1.5 | 0.9–1.2 | 0.6–1 | 49.2–66.8 | 28 | 20 | 35 | |
| A 217–WC6 | 0.05–0.2 | 0.5–0.8 | 0.04 | 0.045 | 0.6 | 2.0–2.75 | 0.45–0.65 | | 49.2–66.8 | 28 | 20 | 35 | |
| A 217–WC9 | 0.05–0.18 | 0.4–0.7 | 0.04 | 0.045 | 0.6 | 1–1.5 | 0.9–1.2 | | 49.2–66.8 | 28 | 20 | 35 | |
| A 217–WC11 | 0.15–0.21 | 0.5–0.8 | 0.02 | 0.015 | 0.3–0.8 | 1–1.5 | 0.45–0.65 | | 56.2–73.8 | 35 | 18 | 45 | |
| A 217–C5 | 0.20 | 0.4–0.7 | 0.04 | 0.045 | 0.75 | 4–6.5 | 0.45–0.65 | | 83.3–80.8 | 42.2 | 18 | 35 | |
| A 217–C12 | 0.20 | 0.35–0.65 | 0.04 | 0.045 | 1 | 8–10 | 0.9–1.2 | | 63.3–80.8 | 42.2 | 18 | 35 | |
| A 217–CA15 | 0.15 | 1.00 | 0.04 | 0.04 | 1.5 | 11.5–14 | 0.5 | 1 | 63.3–80.8 | 45.7 | 18 | 30 | |
| A 182–F6a | 0.15 | 1.00 | 0.04 | 0.03 | 1 | 11.5–13.5 | | 0.5 | 59.7 | 38.6 | 18 | 35 | |
| A351–CF3 | 0.03 | 1.50 | 0.04 | 0.04 | 2.00 | 17–21 | 0.5 | 8–12 | 49.2 | 21 | 35 | | STAINLESS STEELS FOR CORROSIVE, LOW AND HIGH TEMPERATURE SERVICES |
| A351–CF8 | 0.08 | 1.50 | 0.04 | 0.04 | 2.00 | 18–21 | 0.5 | 8–11 | 49.2 | 21 | 35 | | |
| A351–CF3M | 0.03 | 1.50 | 0.04 | 0.04 | 1.50 | 17–21 | 2–3 | 9–13 | 49.2 | 21 | 30 | | |
| A351–CF8M | 0.08 | 1.50 | 0.04 | 0.04 | 1.50 | 18–21 | 2–3 | 9–12 | 49.2 | 21 | 30 | | |
| A351–CF8C | 0.08 | 1.50 | 0.04 | 0.04 | 2 | 18–21 | 0.5 | 9–12 | 49.2 | 21 | 30 | | |
| A182–F304 | 0.08 | 2 | 0.045 | 0.03 | 1 | 18–20 | | 8–11 | 52.7 | 21 | 30 | 50 | |
| A182–F304L | 0.035 | 2 | 0.045 | 0.03 | 1 | 18–20 | | 8–13 | 49.2 | 17.5 | 30 | 50 | |
| A182–F316 | 0.08 | 2 | 0.045 | 0.03 | 1 | 16–18 | 2–3 | 10–14 | 52.7 | 21 | 30 | 50 | |
| A182–F316L | 0.035 | 2 | 0.045 | 0.03 | 1 | 16–18 | 2–3 | 10–15 | 49.2 | 17.5 | 30 | 50 | |
| A182–F321 | 0.08 | 2 | 0.045 | 0.03 | 1 | 17 min | | 9–12 | 52.7 | 21 | 30 | 50 | |
| A182–F347 | 0.08 | 2 | 0.045 | 0.03 | 1 | 17–20 | | 9–13 | 52.7 | 21 | 30 | 50 | |
| A351–CN7M (Alloy 20) | 0.07 | 1.5 | 0.04 | 0.04 | 1.5 | 2–3 | 27.5–30.5 | 27.5–30.5 | 43.5 | 17.6 | 35 | | HIGHLY ALLOYED CORROSIVE RESISTANCE |
| A351–CD 4MCu (Duplex) | 0.04 | 1 | 0.04 | 0.04 | 1 | 1.75–2.25 | 4.75–6 | 4.75–6 | 70.3 | 49.2 | 16 | | |
| A494–N–12MV (Hastelloy–B) | 0.12 | 1 | 0.04 | 0.03 | 1 | 26–30 | | | 53.4 | 28 | 6 | | |
| A494–CW–12MV (Hastelloy–C) | 0.12 | 1 | 0.04 | 0.03 | 1 | 16–18 | | | 50.6 | 28 | 4 | | |
| A 494–M–35–1 (Monel) | 0.35 | 1.5 | 0.03 | 0.03 | 1.25 | | | | 45.7 | 17.6 | 25 | | |
| AWS A5.13–EDCoCr–A | 0.7–1.4 | 2 | 5 | 3–6 | 2 | 25–32 | 1 | 3 | remainder | 105–162 | 45–53.4 | 5–8 | STELLITE |
| ASTM A 439–D–2C | 2.9 | 1.8–2.4 | 0.08 | | 1–3 | 0.5 max | | 21–24 | 40.7 | 19.7 | 20 | | NI–RESIST |