

| 钢级 Grade | 化学成分 % Chemical Composition, % | | | | | | | | | | | | | | | 脱氧方法 Deoxidation Method | 交货状态 Condition of supply | 拉伸试验 Tensile Test | | | | V型冲击试验 Impact Test | | |
|-------------|-----------------------------------|---------------|------|-------|-------|-------------------|-------------------|-------------------|-----------|---------|-----------|-----------|-----------|----------------|---|---|--|---|---|---|---|---|---|---|
| | C | Mn | Si | P | S | Als | Nb | V | Ti | Nb+V+Ti | Cu | Cr | Ni | Mo | Ceq | | | 屈服强度 Yield Stress N/mm ² ≥ | 抗拉强度 Tensile Strength N/mm ² | 断后伸长率 Elongation %, ≥ | | 试验温度 Test temperature °C | 冲击功 Impact Energy J, ≥ | |
| | ≤ | ≥ | ≤ | ≤ | ≤ | — | — | — | — | — | — | — | — | — | ≤ | | | | | L ₀ = 5.65√S ₀ | L ₀ =200mm b=25mm | | 纵向 Longitudinal | 横向 Transverse |
| A | 0.21 | ≥ 2.5×C | 0.50 | 0.035 | 0.035 | — | — | — | — | — | — | — | — | — | C+1/6Mn ≤ 0.40 | t ≤ 50: 除沸腾钢外任何方法 Any method except rimmed steel t > 50: 镇静处理 Killed | t ≤ 50: Any t > 50-100: N, CR, TM, AR* | 235 | 400~520 | 22 | t ≤ 5, 14 t > 5 - 10, 16 t > 10 - 15, 17 t > 15 - 20, 18 t > 20 - 25, 19 t > 25 - 30, 20 t > 30 - 40, 21 t > 40 - 50, 22 | +20 | t > 50-70, 34 t > 70-100, 41 | t > 50-70, 24 t > 70-100, 27 |
| B | 0.21 | ≥0.80 | 0.35 | 0.035 | 0.035 | — | — | — | — | — | — | — | — | C+1/6Mn ≤ 0.40 | t ≤ 50: 除沸腾钢外任何方法 Any method except rimmed steel t > 50: 镇静处理 Killed | t ≤ 50: Any t > 50-100: N, CR, TM, AR* | 0 | | | | | t ≤ 50, 27 t > 50-70, 34 t > 70-100, 41 | t ≤ 50, 20 t > 50-70, 24 t > 70-100, 27 | |
| D | 0.21 | ≥0.60 | 0.35 | 0.035 | 0.035 | t > 25, ≥0.015 | — | — | — | — | — | — | — | C+1/6Mn ≤ 0.40 | t ≤ 25: 镇静处理 Killed t > 25: 镇静和细晶处理 Killed and fine grain treated | t ≤ 35: Any t > 35-100: N, CR, TM | -20 | | | | | t ≤ 50, 27 t > 50-70, 34 t > 70-100, 41 | t ≤ 50, 20 t > 50-70, 24 t > 70-100, 27 | |
| E | 0.18 | ≥0.70 | 0.35 | 0.035 | 0.035 | t > 25, ≥0.015 | — | — | — | — | — | — | — | C+1/6Mn ≤ 0.40 | 镇静和细晶处理 Killed and fine grain treated | N, TM | -40 | | | | | t ≤ 50, 27 t > 50-70, 34 t > 70-100, 41 | t ≤ 50, 20 t > 50-70, 24 t > 70-100, 27 | |
| A32 | 0.18 | 0.90 ~1.60 | 0.50 | 0.035 | 0.035 | ≥0.015 | 0.02 ~ 0.05 | 0.05 ~ 0.10 | ≤ 0.02 | ≤0.12 | ≤ 0.35 | ≤ 0.20 | ≤ 0.40 | ≤ 0.08 | 协议(除TMCP时: t ≤ 50, 0.36 t > 50-100, 0.38) | 镇静和细晶处理 Killed and fine grain treated | Nb和/或V时, Al和/或 Ti细晶时 t ≤ 12.5 or 20: AR t > 12.5 or 20-100: N, CR, TM | 315 | 440~570 | 22 | t ≤ 5, 14 t > 5-10, 16 t > 10-15, 17 t > 15-20, 18 t > 20-25, 19 t > 25-30, 20 t > 30-40, 21 t > 40-50, 22 | 0 | t ≤ 50, 31 t > 50-70, 38 t > 70-100, 46 | t ≤ 50, 22 t > 50-70, 26 t > 70-100, 31 |
| D32 | | | | | | | | | | | | | | | | | | | | | | -20 | t > 50-70, 38 t > 70-100, 46 | t > 50-70, 26 t > 70-100, 31 |
| E32 | | | | | | | | | | | | | | | | | | | | | | -40 | t > 50-70, 38 t > 70-100, 46 | t > 50-70, 26 t > 70-100, 31 |
| A36 | 0.18 | 0.90 ~1.60 | 0.50 | 0.035 | 0.035 | ≥0.015 | 0.02 ~ 0.05 | 0.05 ~ 0.10 | ≤ 0.02 | ≤0.12 | ≤ 0.35 | ≤ 0.20 | ≤ 0.40 | ≤ 0.08 | 协议(除TMCP时: t ≤ 50, 0.38 t > 50-100, 0.40) | 镇静和细晶处理 Killed and fine grain treated | Nb和/或V时, Al和/或 Ti细晶时 t ≤ 12.5 or 20: AR t > 12.5 or 20-100: N, CR, TM | 355 | 490~630 | 21 | t ≤ 5, 13 t > 5-10, 15 t > 10-15, 16 t > 15-20, 17 t > 20-25, 18 t > 25-30, 19 t > 30-40, 20 t > 40-50, 21 | 0 | t ≤ 50, 34 t > 50-70, 41 t > 70-100, 50 | t ≤ 50, 24 t > 50-70, 27 t > 70-100, 34 |
| D36 | | | | | | | | | | | | | | | | | | | | | | -20 | t > 50-70, 41 t > 70-100, 50 | t > 50-70, 27 t > 70-100, 34 |
| E36 | | | | | | | | | | | | | | | | | | | | | | -40 | t > 50-70, 41 t > 70-100, 50 | t > 50-70, 27 t > 70-100, 34 |

注Remarks:
1.厚度Thickness t(mm)
2.AR: 热轧状态As-rolled N: 正火Normalizing TM: 温度一形变控制轧制 Themomechanically controlled rolling
CR: 控制轧制controlled rolling AR*: 经船级社特别认可后,可采用。Subject to the special approval of CCS。
TM*: 经船级社同意后,可采用。Subject to the approval of CCS。