



| Steel Grade: ASTM P3   UNS T51603 |                                   |                            |                                  |                                   |                  |                  |              |                                  |             |
|-----------------------------------|-----------------------------------|----------------------------|----------------------------------|-----------------------------------|------------------|------------------|--------------|----------------------------------|-------------|
| CHEMICAL COMPOSITION              |                                   |                            |                                  |                                   |                  |                  |              |                                  |             |
| C(%)                              | Si(%)                             | Mn(%)                      | P(%) ≤                           | S(%)②                             | Cr(%)            | Mo(%)            | V(%)         | W(%)                             | Other①      |
| ≤0.10                             | ≤0.40                             | 0.20~0.60                  | 0.03                             | 0.03                              | 0.40~0.75        | —                | —            | —                                | Ni1.00~1.50 |
| HARDNESS AND HEAT TREATMENT       |                                   |                            |                                  |                                   |                  |                  |              |                                  |             |
| Hardness HBS   After Annealing    | Hardness HBS   After Cold Drawing | Preheating Temperature /°C | Quenching/°C   Salt-bath Furnace | Quenching/°C   Atmosphere Furnace | Holding Time/min | Quenching Medium | Tempering/°C | Hardness ≥ HRC   After Tempering |             |
| —                                 | —                                 | —                          | —                                | —                                 | —                | —                | —            | 131                              |             |

Remark:

- ①, Residual elements content: Ni + Cu ≤ 0.75%.
- ②, A,D,H series to improve machinability, sulfur content can be increased to ω(S)0.06%~0.15%.
- ③, Increase the H13 sulfur, the upper limit of manganese content can reach ω(Mn)1.00%.
- ④, It also have Al which is ω(Al)1.05%~1.25%.
- ⑤, P20 and P21 usually to pre hardened state supplies.
- ⑥, After tempering hardness L2 refers to the hardness of ω(C)0.45%~0.55%.
- ⑦, It standard is ASTM A681-1999.

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