

Chinese Alloy Tool Steel Grades: Quenching Temperature and Hardness

Quenching temperature, cooling medium and minimum Rockwell hardness for the GB alloy tool steel grades that appear most often on tool and die drawings.

Reference only. This is a reference summary of published practice and not a specification of ours. Four cells are printed defectively in the source and are reproduced as printed: 5CrMiMo is 5CrNiMo, the 1600 C upper bound for 6Cr4W3Mo2VNB and the 150 C upper bound for 5Cr4W5Mo2V read as truncated or transposed figures, and the two temperatures for 6W6Mo5Cr4V are printed in descending order. Confirm the quench schedule for those grades against the steelmaker's own data sheet before use.

Grades and quench schedules

Quenching temperature, cooling medium and minimum hardness

Grade	Quenching temperature °C	Cooling medium	Rockwell hardness HRC, minimum
9SiCr	820-860	Oil	62
8MnSi	800-820	Oil	60
Cr06	780-810	Water	64
Cr2	830-860	Oil	62
9Cr2	820-850	Oil	62
4CrW2Si	860-900	Oil	53
5CrW2Si	860-900	Oil	55
6CrW2Si	860-900	Oil	57
Cr12	950-1000	Oil	60
Cr12Mo1V1	—	—	59
Cr12MoV	950-1000	Oil	58
Cr5Mo1V	—	—	60
9Mn2V	780-810	Oil	62
CrWMn	800-830	Oil	62
9CrWMn	800-830	Oil	60
CrW2MoV	960-980, 1020-1040	Oil	60
6Cr4W3Mo2VNB	1100-1600	Oil	60
6W6Mo5Cr4V	1180-1160	Oil	60
5CrMnMo	820-850	Oil	60
5CrMiMo	830-860	Oil	60
3Cr2W8V	1075-1125	Oil	60
5Cr4Mo3SiMnVAI	1090-1120, 1060-1130	Oil	60
3Cr3Mo3W2V	—	Oil	60
5Cr4W5Mo2V	1100-150	Oil	60
8Cr3	850-880	Oil	60
4CrMnSiMoV	870-930	Oil	60
4Cr3Mo3SiV	—	—	60
4Cr5MoSiV	—	—	60
4Cr5MoSiV1	—	—	60
4Cr5W2VSi	1030-1050	Oil	60
7Mn15Cr2Al3V2WMo	1170-1190, 650-700	Water quench after solution treatment, air cool after ageing	45

Compiled from 刀具材料速查手册, Table 2-4, Alloy tool steel grades and hardness, printed pages 14 and 15. Every figure was read from a rendered image of the printed page and checked grade by grade. It is a reference summary rather than an Aobo Steel specification.

The table runs from the low alloy cold work grades at the top to the hot work and special grades at the bottom. The last row, 7Mn15Cr2Al3V2WMo, is an austenitic manganese grade hardened by solution treatment and ageing rather than by a martensitic quench, which is why its minimum hardness is lower than the rest of the list.

Aobo Steel, tool steel supplier

Aobo Steel supplies tool steel to distributors and tool, die and mold shops, including D2, D3, O1, O2, A2, S7, H13, H11, H10, H21, M2, M35, M42, L6, P20, P20+Ni and 420 and 440C stainless.

Forged or hot rolled, annealed or pre-hardened, cut to your sizes, with test certificates.

Compiled from 刀具材料速查手册, Table 2-4, Alloy tool steel grades and hardness, printed pages 14 and 15. Every figure was read from a rendered image of the printed page and checked grade by grade. It is a reference summary rather than an Aobo Steel specification.

CONTACT

EMAIL

sales@aobosteel.com

WHATSAPP

+86 180 6294 5370

WEB

aobosteel.com



Scan for the full reference page