

GB High Speed Steel Grades: Hardening and Hardness Requirements

A Chinese high speed steel is ordered by its GB grade name, and the name is the composition. The tables below give the hardening and tempering cycle published for the common GB high speed steel grades and the minimum hardness GB/T 9943-2008 requires of each one.

Reference only. This is a reference summary of published practice and not a specification of ours. Every grade in the first table is oil quenched, and the hardness shown is the value the grade is required to reach after the quench and temper cycle on the same row. Confirm the cycle for the grade and the section before it is written into a process sheet.

Hardening and tempering temperatures

Preheat, austenitizing, quench medium and tempering temperature

Grade	Preheat °C	Austenitizing, salt bath °C	Austenitizing, box furnace °C	Tempering °C	Hardness HRC ≥
W18Cr4V	820-870	1270-1285	1270-1285	540-560	63
W18Cr4VCo5	820-870	1270-1290	1280-1300	540-560	63
W18Cr4V2Co8	820-870	1270-1290	1280-1300	540-560	63
W12Cr4V5Co5	820-870	1220-1240	1230-1250	530-550	65
W6Mo5Cr4V2	730-840	1210-1230	1210-1230	540-560	63 box furnace, 64 salt bath
CW6Mo5Cr4V2	730-840	1190-1210	1200-1220	540-560	65
W6Mo5Cr4V3	730-840	1190-1210	1200-1220	540-560	64
CW6Mo5Cr4V3	730-840	1190-1210	1200-1220	540-560	64
W2Mo9Cr4V2	730-840	1190-1210	1200-1220	540-560	65
W6Mo5Cr4V2Co5	730-840	1190-1210	1200-1220	540-560	64
W7Mo4Cr4V2Co5	730-840	1180-1200	1190-1210	530-550	66
W2Mo9Cr4VCo8	730-840	1170-1190	1180-1200	530-550	66
W9Mo3Cr4V	820-870	1210-1230	1220-1240	540-560	63 box furnace, 64 salt bath
W6Mo5Cr4V2Al	820-870	1230-1240	1230-1240	540-560	65

Compiled from 刀具材料速查手册, Table 2-15 on printed pages 38-39 and Table 2-17 on printed page 40. Every figure was read from the page image and checked against the searchable text of the file, grade by grade. The tables are reproduced as published, with the repeated W6Mo5Cr4V2 row in the second table shown once. It is a reference summary rather than an Aobo Steel specification.

The hardness the standard requires

Minimum hardness by grade, GB/T 9943-2008

Grade	Hardness HRC ≥
W3Mo3Cr4V2	63
W4Mo3Cr4VSi	63
W18Cr4V	63
W2Mo8Cr4V	63
W2Mo9Cr4V2	64
W6Mo5Cr4V2	64
CW3Mo3Cr4V2	64
W6Mo6Cr4V2	64
W9Mo3Cr4V	64
W6Mo5Cr4V3	64
CW6Mo5Cr4V3	64
W6Mo5Cr4V2Al	65
W12Cr4V5Co5	65
W6Mo5Cr4V2Co5	64
W6Mo5Cr4V3Co8	65
W7Mo5Cr4V2Co5	66
W2Mo9Cr4VCo8	66
W10Mo4Cr4V3Co8	66

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Read the two tables against the same grade name. The two austenitizing columns are alternatives, one for a salt bath and one for a box furnace, and both tables carry the same floor of 63 to 66 HRC, since the requirement and the published cycle were drawn up together.

Aobo Steel, tool steel supplier

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