





# M2 Tool Steel | SKH51 | W6Mo5Cr4V2 | 1.3343 High Speed Steel 2722

AISI M2 Tool Steel is typical Mo High Speed Steel. HSS M2 is molybdenum series high speed steel, have the advantages of small carbide inhomogeneity and high toughness. Easy to overheating, should strictly control the quenching heating temperature, the more strict protection for heat treatment.

## Supply Form of HSS M2 Tool Steel -ASTM A681 High Speed Steel

|   |   |  |   |
|---|---|--|---|
|  |  |  |  |
| Round   | Plate   | Sheet  | Square  |

## Supply Range of SAE M2 Tool Steel HSS

M2 Steel Round Bar: diameter 1mm – 400mm

M2 Steel Plate: thickness 1 –500mm x width 200– 1400mm

M2 Steel Block: 210mm x 500-810mm

## Chemical Composition of M2 Tool Steel Material

| ASTM A681      | C                 | Si                | Mn                | P                | S                | Cr                | Mo                | V                 | w                 |
|----------------|-------------------|-------------------|-------------------|------------------|------------------|-------------------|-------------------|-------------------|-------------------|
| M2/ T11302     | 0.78<br>~<br>0.88 | 0.20<br>~<br>0.45 | 0.15<br>~<br>0.40 | 0.03<br>0<br>Max | 0.03<br>0<br>Max | 3.75<br>~<br>4.50 | 4.50<br>~<br>5.50 | 1.75<br>~<br>2.20 | 5.50<br>~<br>6.75 |
| DIN 17350      | C                 | Si                | Mn                | P                | S                | Cr                | Mo                | V                 | w                 |
| 1.3343/ S6-5-2 | 0.86<br>~<br>0.94 | ≤<br>0.45         | ≤<br>0.40         | 0.03<br>0<br>Max | 0.03<br>0<br>Max | 3.80<br>~<br>4.50 | 4.70<br>~<br>5.20 | 1.70<br>~<br>2.00 | 6.00<br>~<br>6.70 |
| GB/T 9943      | C                 | Si                | Mn                | P                | S                | Cr                | Mo                | V                 | w                 |
| W6Mo5Cr4V2     | 0.80<br>~<br>0.90 | 0.20<br>~<br>0.45 | 0.15<br>~<br>0.40 | 0.03<br>0<br>Max | 0.03<br>0<br>Max | 3.80<br>~<br>4.40 | 4.50<br>~<br>5.50 | 1.75<br>~<br>2.20 | 5.50<br>~<br>6.75 |

| JIS G4403  | C    | Si   | Mn   | P    | S    | Cr   | Mo   | V    | w    |
|------------|------|------|------|------|------|------|------|------|------|
| SKH51/SKH9 | 0.80 | ≤    | ≤    | 0.03 | 0.03 | 3.80 | 4.70 | 5.90 | 1.70 |
|            | ~    | 0.45 | 0.40 | 0    | 0    | ~    | ~    | ~    | ~    |
|            | 0.88 |      |      | Max  | Max  | 4.50 | 5.20 | 6.70 | 2.10 |

## M2 Tool Steel Material Equivalent and Related Specifications

| USA       | German    | Japan     | China      | ISO      |
|-----------|-----------|-----------|------------|----------|
| ASTM A681 | DIN 17350 | JIS G4403 | GB/T 9943  | ISO 4957 |
| M32       | 1.3343    | SKH51     | W6Mo5Cr4V2 | HS 6-5-2 |

## SAE M2 Tool Steel Material Mechanical Properties

Hardness, Rockwell C (tempered at 621°C, quenched at 1204°C): 62 HRC.

Hardness, Rockwell C (quenched at 1204°C ): 65 HRC

## Forged of M2 HSS Steel metal material

Pre-Heating to 650-750°C, Then heat to forged temperature. Soak at 1204°C, ensure heat thorough. Then start forged, the forged temperature no low than 950°C. After forging, cool slowly.

## Heat Treatment of SAE M2 Steel

- **M2 HSS Steel Annealing**

Slowly heat to 871°C, then slowly Cool to 538°C(1000°F) in heat treatment furnace. Then cool in air. After annealing hardness HBS: 255 Max

- **M2 tool Steel Hardening**

M2 steel having very high hardenability and should be hardened by cooling in still air. The use of a salt bath or controlled atmosphere furnace is desirable to minimize decarburization, and if not available, pack hardening in spent pitch coke is suggested.

- **Quenching of HSS M2 Steel material**

Quenching temperature / °C | salt bath furnace: 1204

Quenching temperature / °C | controlled atmosphere furnace: 1216

The heat preservation time/min: 5 ~ 15

Quenching medium: Oil cooling

Hardness: 65 HRC Min

- **Tempering Of HSS M2 Tool Steel**

Tempering temperature / °C : 540-564

After tempering hardness HRC or higher: 65 Min

## Application of Sae M2 tool Steel HSS

M2 is molybdenum series high speed steel, have the advantages of small carbide inhomogeneity and high toughness. Easy to overheating, should strictly control the quenching heating temperature, the more strict protection for heat treatment. Because of its hardness and wearability, used in the manufacture of cutting more difficult to cutting tool materials. M2 high speed steel with carbide orientation is bigger, so the more strict protection for heat treatment, is suitable for the mould vibration and shock loads. Application as Cold forging die, precision die, pressure molding powder, etc., cutting tools, adding glass fiber plastic mould etc. Is suitable for the mould vibration and impact loads, deep drawing mould, punching die. Metal cutting saw blade, cold heading and extrusion.

## Quality Assured of Sae M2 Steel

Quality assured by ISO 9001:2008 quality management system. Our all M35 tool steel all had by SEP 1921-84 ultrasonic inspection (UT Test). Quality Grade: E/e, D/d, C/c.

If you have any M2 Tool steel inquiry and question for Price, Application, hot treatment, Please don't hesitate contact us.

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