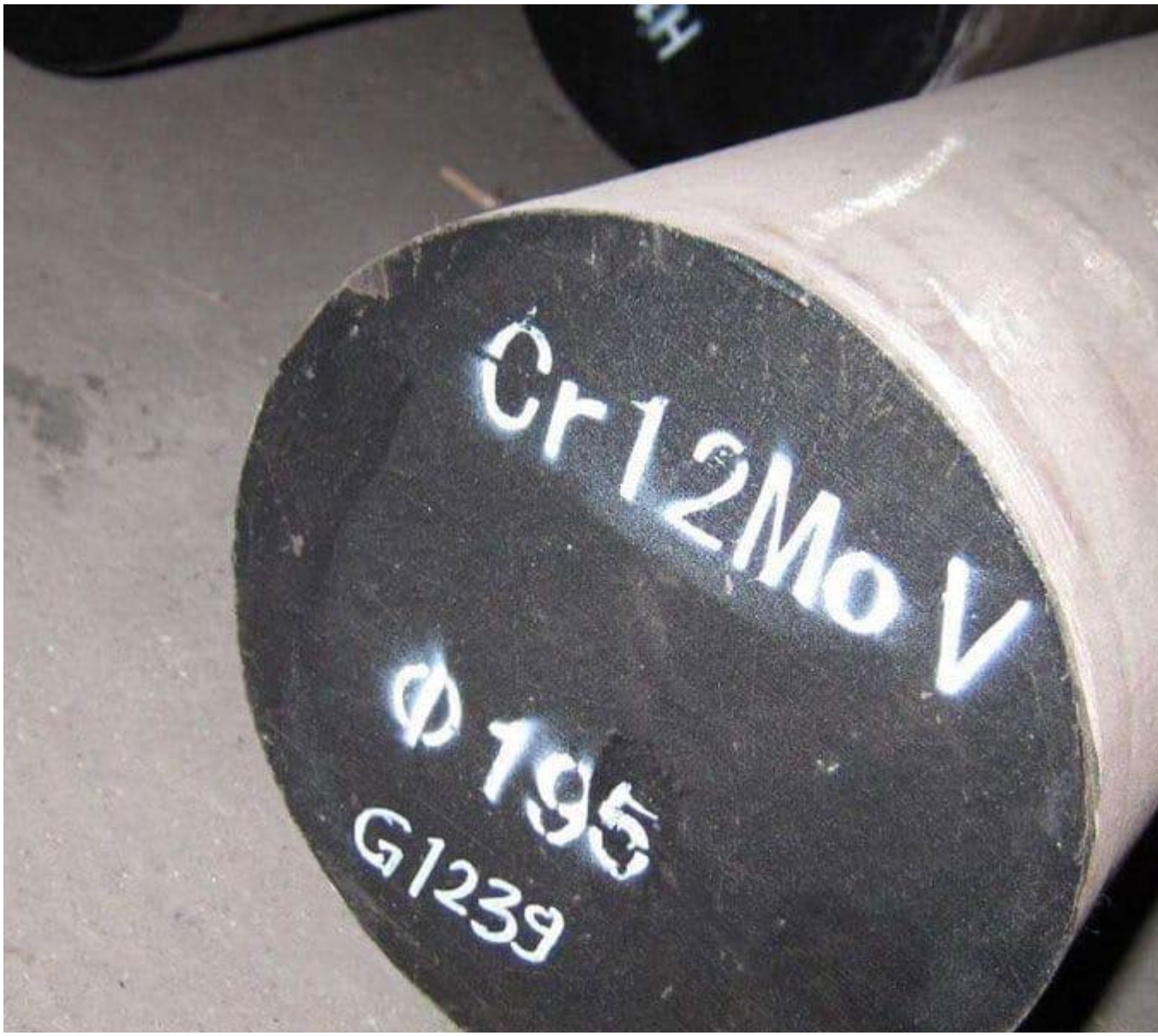
Cr12MoV

Description

Cr12MoV is China's standard cold work tool steel. The hardenability, quenching and tempering hardness, wear resistance and strength of steel are all higher than Cr12. Various cold stamping dies and tools with complex shapes and heavy working conditions.



Cr12MoV Worldwide Equivalents

/	China	Kr	Germany	Japan	Sweden
Standard	GB	KS	DIN,WNr	JIS	SS
Grade	Cr12MoV	STD11	1.2601 x165CrMOv12	SKD11	2310

/	Italy	Spain	USA	Russia
Standard	UNI	UNE	AISI/sAE	roct
Grade	x165CrMOW12KU	X160CrMOV12	D2	x12M

Chemical Composition

C	Si	Mn	S	P	Cr	Mo	V
1.45-1.7	≤0.40	≤0.40	≤0.03	≤0.03	11-12.5	0.4-0.6	0.15-0.3

Mechanical Properties

Proof strength *Rp*0.2(MPa)	Tensile strength *Rm*(MPa)	As-Heat-Treated Condition	Brinell hardness(HBW)
953(≥)	137(≥)	Solution and Aging,Annealing,Ausaging,Q+T,etc	122

Impact energy KV(J)	Elongation at fracture *A*(%)	Reduction in cross section on fracture *Z*(%)
33	34	14

Physical Properties

Property	Density kg/dm3	Temperature T ° C/F
764(≥)	375(≥)	22

Specific heat J/kgK	Thermal conductivity W/mK	Electric resistance μΩ・cm

Property	Density kg/dm3	Temperature T ° C/F
12	14	Solution and Aging,Annealing,Ausaging,Q+T,etc

Heat Treatment

Annealing:

Temperature/℃: 800~830; After the annealing, degree of hardness ≤HBS: 255

Quenching:

Hardening temperature/℃: 980~1010, Quenching in oil or air

Tempering:

Commonly used drawing temperature/℃: 180~250; After tempering hardness HRC | 100 ℃ : 63; After tempering hardness HRC | 200 ℃ : 61; After tempering hardness HRC | 300 ℃ : 60 ; After tempering hardness HRC | 400 ℃ : 58

Normalizing

at Normalizing temperature, then cool in furnace

Features And Application

Cr12MoV die steel has higher hardenability, hardness, strength and toughness after quenching and tempering than CR12. Workpieces with a diameter of 300~400mm or less can be completely quenched. The quenching deformation is small, but the high temperature plasticity is poor.

Cr12MoV is mostly used to manufacture composite molds and tools with large cross-section, complex shape and heavy workload. Such as punching die, trimming die, rolling die, steel plate.

Cr12MoV Products

Product type	Products	Dimension	Processes
Plates/Sheets	Plates/Sheets	0.08-200mm(T)*W*L	Forging, ho
Steel Bar	Round Bar, Flat Bar, Square Bar	Φ8-1200mm*L	Forging, ho Cast
Coil/Strip	Steel Coil/Steel Strip	0.03-16.0x1200mm	Cold-Rolled
Pipes/Tubes	Seamless Pipes/Tubes, Welded Pipes/Tubes	OD:6-219mm x WT:0.5-20.0mm	Hot extrusi

Cr12W