

This page is mainly introduced the DC53 Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of DC53, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

Datasheet for Steel Grades Mould Steel DC53

DC53 Standard Number:

ITEM	Standard Number	Descriptions
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DC53 Chemical composition (mass fraction) (wt.%)

Chemical			Min.(%)				Max.(%)		
C	Si	Mn	P	S	Cr	Ni	Mo	V	Ta
W	N	Cu	Co	Pb	B	Nb	Al	Ti	Other

Physical Properties	Metric	English	Comments
Specific Gravity	7.87g/cc	7.87g/cc	
Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	62.0 - 63.0	62.0 - 63.0	
Tensile Strength, Ultimate	2750 MPa	398000 psi	when tempered at 175-300°C
Modulus of Elasticity	150 GPa	21700ksi	
Poissons Ratio	0.280	0.280	

Fatigue Strength	8 MPa @# of Cycles 1.00e+6	121000 psi @# of Cycles 1.00e+6	Heat treatment: 1030°C, 520°C (x2), HRc63
Shear Modulus	58.5 GPa	8480 ksi	Modulus of Rigidity
Thermal Properties	Metric	English	Comments
CTE, linear	12.2 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature -100 $^\circ\text{C}$	6.78 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature -148 $^\circ\text{F}$	
	12.3 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature 300 $^\circ\text{C}$	6.83 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature 572 $^\circ\text{F}$	
	13.2 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature 500 $^\circ\text{C}$	7.33 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature 932 $^\circ\text{F}$	
Thermal Conductivity	23.8 W/m-K	165 BTU-in/hr- ft ² - $^\circ\text{F}$	RT
25.1 W/m-K @Temperature 100 $^\circ\text{C}$	174 BTU-in/hr- ft ² - $^\circ\text{F}$ @Temperature 212 $^\circ\text{F}$		
	27.2 W/m-K @Temperature 400 $^\circ\text{C}$	188 BTU-in/hr- ft ² - $^\circ\text{F}$ @Temperature 752 $^\circ\text{F}$	

DC53 Physical Properties

Tensile strength	115-234	σ_b/MPa
Yield Strength	23	$\sigma_{0.2} \geq \text{MPa}$
Elongation	65	$\delta_5 \geq (\%)$
ψ	-	$\psi \geq (\%)$
Akv	-	$Akv \geq \text{J}$
HBS	123-321	-
HRC	30	-

DC53 Mechanical Properties

Tensile strength	231-231	σ_b /MPa
Yield Strength	154	$\sigma_{0.2} \geq$ /MPa
Elongation	56	$\delta 5 \geq$ (%)
ψ	-	$\psi \geq$ (%)
Akv	-	Akv $\geq$ /J
HBS	235-268	-
HRC	30	-

DC53 Heat Treatment Regime

Annealing	Quenching	Tempering	Normalizing	Q & T
√	√	√	√	√

DC53 Range of products

Product type	Products	Dimension	Processes	Deliver Status
Plates / Sheets	Plates / Sheets	0.08-200mm(T)*W*L	Forging, hot rolling and cold rolling	Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting
Steel Bar	Round Bar, Flat Bar, Square Bar	Φ8-1200mm*L	Forging, hot rolling and cold rolling, Cast	Black, Rough Turning, Shot Blasting,
Coil / Strip	Steel Coil / Steel Strip	0.03-16.0x1200mm	Cold-Rolled & Hot-Rolled	Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting
Pipes / Tubes	Seamless Pipes/Tubes, Welded Pipes/Tubes	OD:6-219mm x WT:0.5-20.0mm	Hot extrusion, Cold Drawn, Welded	Annealed, Solution and Aging, Q+T, ACID-WASHED

We can produce Mould Steel the specifications follows: