

This page is mainly introduced the HR40 Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of HR40, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

Datasheet for Steel Grades Specialsteel HR40

HR40 Standard Number:		
ITEM	Standard Number	Descriptions
1	BS HR 40 (1972)	Specification for cobalt-chromium-tungsten-nickel-manganese heat-resisting alloy billets, bars and forgings (cobalt base, Cr 20, W 15, Ni 10, Mn 1.5)
2	BS 2HR 40 (2010)	Specification for cobalt-chromium-tungsten-nickel-manganese heat-resisting alloy billets, bars and forgings (cobalt base Cr 20, W 15, Ni 10, Mn 1.5)

HR40 Chemical composition (mass fraction) (wt.%)										
Chemical		Min.(%)					Max.(%)			
C		0.05					0.15			
Si							0.40			
Mn		1.00					2.00			
P							0.040			
S							0.030			
Cr		19.00					21.00			
Ni		9.00					11.00			
Mo										
Co							remaining			
Ti										
Fe							3.00			
W		14.00					16.00			
C	Si	Mn	P	S	Cr	Ni	Mo	V	Ta	
W	N	Cu	Co	Pb	B	Nb	Al	Ti	Other	

Specification for cobalt-chromium-tungsten-nickel-manganese heat-resisting alloy billets, bars

and forgings (cobalt base Cr 20, W 15, Ni 10, Mn 1.5)

HR40 Physical Properties

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

HR40 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	-

HR40 Heat Treatment Regime

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

HR40 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 Specialsteel the specifications follows: