

This page is mainly introduced the HR3 Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of HR3, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

Datasheet for Steel Grades Specialsteel HR3

HR3 Standard Number:		
ITEM	Standard Number	Descriptions
1	BS HR 3	Specification for nickel-cobalt-chromium-molybdenum-aluminium-titanium heat-resisting alloy billets, bars, forgings and parts (nickel base, Co 20, Cr 14.8, Mo 5, Al 4.7, Ti 1.2)
2	BS 2HR 3 (2010)	Specification for nickel-cobalt-chromium-molybdenum-aluminium-titanium heat-resisting alloy billets, bars, forgings and parts (nickel base, Co 20, Cr 14.8, Mo 5, Al 4.8, Ti 1.2)

HR3 Chemical composition (mass fraction) (wt.%)		
Chemical	Min.(%)	Max.(%)
C	0.12	0.17
Si		1.00
Mn		1.00
P		
S		0.015
Cr	14.00	15.70
Ni		remaining
Mo	4.50	5.50
Co	18.00	22.00
Ti	0.90	1.50
Fe		1.00
Al	4.50	4.90
Cu		0.20
B	0.0030	0.0100
Bi		0.0001
Pb		0.0015
Ag		0.0005
Zr		0.15

C	Si	Mn	P	S	Cr	Ni	Mo	V	Ta
W	N	Cu	Co	Pb	B	Nb	Al	Ti	Other

Specification for nickel-cobalt-chromium-molybdenum-aluminium-titanium heat-resisting alloy

billets, bars, forgings and parts (nickel base, Co 20, Cr 14.8, Mo 5, Al 4.8, Ti 1.2)

HR3 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	-

HR3 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	-
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HR3 Heat Treatment Regime

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

HR3 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: