

This page is mainly introduced the HR402 Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of HR402, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

Datasheet for Steel Grades Specialsteel HR402

HR402 Standard Number:		
ITEM	Standard Number	Descriptions
1	BS HR 402 (1973)	Specification for nickel-chromium-cobalt-titanium-aluminium heat-resisting alloy cold worked and softened seamless tubes (nickel base, Cr 19.5, Co 18.0, Ti 2.5, Al 1.5)
2	BS 2HR 402 (2011)	Specification for nickel-chromium-cobalt-titanium-aluminium heat-resisting alloy seamless tubes (Nickel base, Cr 19.5, Co 18.0, Ti 2.5, Al 1.5)

HR402 Chemical composition(mass fraction)(wt.%)									
Chemical			Min.(%)				Max.(%)		
C							0.13		
Si							1.00		
Mn							1.00		
P									
S							0.015		
Cr			18.00				21.00		
Ni							remaining		
Mo									
Co			15.00				21.00		
Ti			2.00				3.00		
Fe							1.50		
Al			1.00				2.00		
Cu							0.20		
Zr							0.15		
B							0.02		
Bi							0.0001		
Pb							0.002		
Ag							0.0005		

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

Specification for nickel-chromium-cobalt-titanium-aluminium heat-resisting alloy seamless tubes

(Nickel base, Cr 19.5, Co 18.0, Ti 2.5, Al 1.5)

HR402 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	-

HR402 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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HR402 Heat Treatment Regime				
Annealing	Quenching	Tempering	Normalizing	Q & T
✓	✓	✓	✓	✓

HR402 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: