



CCTTC - HR3 Datasheet, Chemical Composition

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
Mechanical properties, Physical properties, Mechanical properties, Heat treatment, HR3 Supplier

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](#) steel chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, We can produce round bars, forged rings, forged cakes, flat bars, tubes, sheets, plates, steel wires, steel strips, steel coils, etc. The size can be customized, the maximum order quantity is 100Kg. 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.

Data Table for Materials Stainless Steels & Special Steels 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](#)

[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



CCTTC - HR3 Datasheet, Chemical Composition

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
Mechanical properties, Physical properties, Mechanical properties, Heat treatment, HR3 Supplier

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

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	-



CCTTC - HR3 Datasheet, Chemical Composition

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
Mechanical properties, Physical properties, Mechanical properties, Heat treatment, HR3 Supplier

HRC	30	-
-----	----	---

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 Stainless Steels & Special Steels the specifications follows:

Note:

- (1) listed in the table apex diameter (d), to steel thickness (a) multiples said.
- (2) in the ASTM A6 standard specified scope can meet any additional conditions.
- (3) from the standard for 50 mm (2 in).

Mechanical properties

Mechanische Eigenschaften

Caracteristiques mecaniques

ReH Minimum yield strength / Mindestwert der oberen Streckgrenze / Limite d'élasticité minimale

Rm Tensile strength / Zugfestigkeit / Resistance a la traction

A Minimum elongation / Mindestwert der Bruchdehnung / Allongement minimal

J Notch impact test / Kerbschlagbiegeversuch / Essai de flexion par choc



CCTTC - HR3 Datasheet, Chemical Composition

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
Mechanical properties, Physical properties, Mechanical properties, Heat treatment, HR3 Supplier

Round bar:

Diameter : 1mm-2000mm

Square bar:

Size: 50mm * 50mm-600mm *600mm

Plate steel/flat bar:

Size: Thickness: 0.1mm-800mm Width: 10mm to 1500mm

Tube/pipe:

Size: OD: 6-219mm WT: 1-35 mm.

Cold-rolled sheet: Thickness: 2-5mm Width:1000mm Length: 2000mm

Hot-rolled sheet: Thickness:6-80mm Width: 210-610mm

Length: We can supply any length based on the customer's requirement.

Forging/hot rolling/ extrusion of steel.

Forging: Shafts with flanks/pipes/tubes/slugs/donuts/cubes/other shapes

Finished goods condition: hot forging/hot rolling + annealing/normalizing + tempering/quenching + tempering/any conditions based on the customer's requirement

Surface conditions: scaled (hot working finish)/ground/rough machining/fine machining/based on the customer's requirement

Furnaces for metallurgical processing: electrode arc + LF/VD/VOD/ESR/Vacuum consumable electrode.

Ultrasonic inspection: 100% ultrasonic inspection for any imperfections or based on the customer's requirement.

UTS according to SEP 1921 C/c,D/d,E/e;A388 or GB/T 6402

Excellent service for all kinds of industries, with advantages of technologies, equipment and price.

We serve you with our honesty, integrity, and professionalism.