

Nimonic 90 Data Sheet

 W.NR 2.4632
 UNS N07090

 W.NR 2.4969
 AWS 030

Nickel-Chromium-Cobalt Alloy

Nimonic Data Sheet

Introduction

Nimonic 90 is Nickel-Chromium-Cobalt alloy being hardened by addition of titanium and aluminium. Nimonic 90 have high stress rupture and creep resistance at high temperatures up to avout 950°C (1740°F). This alloy is widely used for turbine blades, discs, forgings, ring sections and hot-working tools.

Chemical Composition (Typical)

Element	Limits	
	min	max
Carbon	0.000	0.130
Silicon	0.000	1.000
Copper	0.000	0.200
Iron	0.000	1.500
Manganese	0.000	1.000
Chromium	18.000	21.000
Titanium	2.000	3.000
Aluminium	1.000	2.000
Cobalt	15.000	21.000
Boron	0.000	0.020
Sulfur	0.000	0.015
Lead	0.000	0.002
Zirconium	0.000	0.150
Nickel	Balance	

Mechanical Properties (Typical)

Parameter	Value
Yield 0.2 % (Mpa/Ksi), Min	1150/149
Tensile (Mpa/Ksi), Min	725/105
Elongation at Break, Min, %	30

Physical Properties (Typical)

Parameter	Value
Density g/cm ³	8.18
Melting Range °C	1370
Specific Heat J/Kg °C	-

Properties of Supplied Materials and Heat Treated Materials

Condition - Solution Annealed

Heat Treatment after Forming - Age Harden at 750°C (1380°F) for 4 hours and air cool.

Condition - Spring Temper

Heat Treatment after Forming - Age Harden at 650°C (1200°F) for 4 hours and air cool.

Condition - Spring Temper

Heat Treatment after Forming - Age Harden at 600°C (1110°F) for 16 hours and air cool.

Working Instructions

Hot Working - Nimonic 90 should be hot worked in the range 1050- 1200°C (1922- 2192°F).

Machining - Nimonic 90 should be in the fully heat-treated condition for all machining operations. The high material hardness requires the use of stringent machining techniques.

Annealing - Interstage annealing should be at 1040°C (1904°F) followed by a water quench or air cooling.

Welding - Nimonic 90 is readily joined by any of the resistance welding processes. Welding by processes such as TIG or MIG is satisfactory upto 5mm thickness. Electron beam, friction, inertia and flash butt welding shall be applied for thickness over 5mm.

Manufactured Product Forms

Sheet	Flanges
Plate	Fasteners
Round Bar	Filler Metal
Welding Wire	Pipe
Forgings	Tube

Relavant Standards

BS HR 501 (Spring temper)	BS 3075 NA19
BS HR 502 (Solution Annealed)	AMS 5829
BS HR 503	NCK20TA

Certifications & other Compliance

Product manufactured under Nimonic 90 are certified in conformance to En 10204 Type 3.1 Certificate as well as 3.2 with third party inspection. Products with Nace Mr0175 compliance are also offered.

Applications & Industries

Aerospace Industry
High Temperature Springs
Thermal Processing Equipments
Industrial furnace structural parts
Heat treatment equipments

Related Keywords

Nimonic 90 Plates, Nimonic 90 Bars, Nimonic 90 Wire, Nimonic 90 Filler Wire, Nimonic 90 Sheet, Nimonic 90 Strip, Nimonic 90 Component Parts, Nimonic 90 Fittings, Nimonic 90 Forgings, Nimonic 90 Pipes, Nimonic 90 Tubes, Nimonic 90 Fasteners, Nimonic 90 Flanges, Nimonic 90, W.NR 2.4632, UNS N07090, W.NR 2.4969, AWS 030.

Excellence Inherent

With 3 decade long experience inherited, we aim at providing better solutions for Industrial Piping Sector. Skilled Team, passion drives our will to be better with resolute for continuous customer & vendor concurrence. We also perceive our duty towards planet for its unconditional support & try to minimise any harm caused due to our activity. For Instance, We Stay Paperless

The Information contained in this data sheet is for reference purpose only and actual data may vary from product to product. Complete rely on these values for product design recommended. User will be solely responsible for any failure in intended construction. **FERROBEND™** is trademark Property of **FERROBEND**.

