



## NIMONIC<sup>®</sup> 90

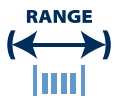
### Key Features

- High stress rupture strength and high creep resistance at high temperatures
- Good resistance to high-temperature corrosion and oxidation
- Age hardenable
- ^^High temperature dynamic applications

### IMPORTANT

We will manufacture to your required mechanical properties.

## key advantages to you, *our customer*



0.025mm to 21mm  
(.001" to .827")



Order 3m to 3t  
(10 ft to 6000 Lbs)



Delivery:  
within 3 weeks



Wire to your spec



E.M.S available



Technical support

### NIMONIC<sup>®</sup> 90 available in:-

- Round wire
- Bars or lengths
- Flat wire
- Shaped wire
- Rope/Strand

### Packaging

- Coils
- Spools
- Bars or lengths



\*Trade name of Special Metals Group of Companies.

# NIMONIC® 90



alloy wire®  
international

Chemical Composition			Specifications	Key Features	Typical Applications
Element	Min %	Max %	AMS 5829 BS HR 501 BS HR 502 BS HR 503 BS 3075 NA 19 ISO 15156-3 (NACE MR 0175) NCK 20TA  <b>Designations</b> W.Nr. 2.4632 W.Nr. 2.4969 UNS N07090 AWS 030	High stress rupture strength and high creep resistance at high temperatures  Good resistance to high-temperature corrosion and oxidation  Age hardenable  ^^High temperature dynamic applications	Aerospace fasteners
Ni	BAL				
Cr	18.00	21.00			
Fe	-	1.50			
Ti	2.00	3.00			
Mn	-	1.00			
Si	-	1.00			
C	-	0.13			
Al	1.00	2.00			
Co	15.00	21.00			
S	-	0.015			
Cu	-	0.20			
B	-	0.02			
Pb	-	0.002			
Zr	-	0.15			
Ag	-	0.0005			
Bi	-	0.0001			

<b>Density</b>	8.18 g/cm <sup>3</sup>	0.296 lb/in <sup>3</sup>
<b>Melting Point</b>	1370 °C	2500 °F
<b>Coefficient of Expansion</b>	12.7 µm/m °C (20 – 100 °C)	7.1 x 10 <sup>-6</sup> in/in °F (70 – 212 °F)
<b>Modulus of Rigidity</b>	82.5 kN/mm <sup>2</sup>	11966 ksi
<b>Modulus of Elasticity</b> (Annealed + Aged) (Spring Temper + Aged)	213 kN/mm <sup>2</sup> 227 / 240 kN/mm <sup>2</sup>	30894 ksi 32924 / 34810 ksi

Heat Treatment of Finished Parts					
Condition as supplied by Alloy Wire	Type	Temperature		Time (Hr)	Cooling
		°C	°F		
Annealed	Age Harden	750	1380	4	Air
Spring Temper	Age Harden	650	1200	4	Air
Spring Temper	Age Harden	600	1100	16	Air

Properties				
Condition	Approx. tensile strength		Approx. operating temperature depending on load^^ and environment	
	N/mm <sup>2</sup>	ksi	°C	°F
Annealed	<1000	<145	-	-
Annealed + Aged	1200 – 1400	174 – 203	up to 550	up to 1020
Spring Temper	1200 – 1500	175 – 218	-	-
Spring Temper + Aged	1500 – 1800	218 – 261	up to 350	up to 660

The above tensile strength ranges are typical. If you require different please ask.

^^Dynamic applications = active/lively/changing