

## Crucible Compaction Metals Rene Supersolvus Rene 95 Nickel Based Superalloy

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

### Material Notes:

Supersolvus P/M Rene 95 is designed to provide even higher temperature creep resistance and stress rupture strength than subsolvus Rene 95. Chemistry is not modified. These properties are obtained by processing above the gamma prime solvus to provide a larger grain size than subsolvus processed Rene 95. Although this results in a small reduction in room temperature and elevated temperature strength, substantial ductility is maintained and considerably higher temperature service is possible. The primary use of supersolvus Rene 95 is for high pressure turbine blades retainers for high thrust aircraft turbines. This material can also be used for hot work tooling where ferrous based tool steels cannot maintain adequate strength. Supersolvus Rene 95 is available as-HIP preforms in the same size ranges as standard Rene 95. As-HIP parts can range up to 46 inches (1.2 m) in diameter and weighs up to 16,000 lb (7,200 kg). Extruded billet up to 12 inches (.3 m) in diameter is produced from compacts containing up to 8,000 lb (3,600 kg) of powder. Advantages: Higher temperature creep resistance and stress rupture strength than standard Rene 95 Larger grain size than standard Rene 95 Information provided by Crucible Compaction Metals.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Crucible-Compaction-Metals-Rene-Supersolvus-Rene-95-Nickel-Based-Superalloy.php](http://www.lookpolymers.com/polymer_Crucible-Compaction-Metals-Rene-Supersolvus-Rene-95-Nickel-Based-Superalloy.php)

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	215 MPa	31200 psi	
	@Temperature 650 °C	@Temperature 1200 °F	
	230 MPa	33400 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength, Yield	150 MPa	21800 psi	
	@Temperature 650 °C	@Temperature 1200 °F	
	170 MPa	24700 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Elongation at Break	15 %	15 %	
	@Temperature 650 °C	@Temperature 1200 °F	
	17 %	17 %	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Reduction of Area	17 %	17 %	
	@Temperature 650 °C	@Temperature 1200 °F	
	19 %	19 %	
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Mechanical Properties	620 MPa Metric	89900 psi English	Comments
Creep Strength	@Temperature 705 °C, Time 990000 sec	@Temperature 1300 °F, Time 275 hour	0.2% Creep
	850 MPa	123000 psi	0.2% Creep
	@Temperature 650 °C, Time 1.26e+6 sec	@Temperature 1200 °F, Time 350 hour	
Rupture Strength	620 MPa	89900 psi	
	@Temperature 760 °C, Time 198000 sec	@Temperature 1400 °F, Time 55.0 hour	
	1035 MPa	150100 psi	
	@Temperature 650 °C, Time 324000 sec	@Temperature 1200 °F, Time 90.0 hour	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	3.3 - 3.7 %	3.3 - 3.7 %	
Boron, B	0.0060 - 0.015 %	0.0060 - 0.015 %	
Carbon, C	0.040 - 0.090 %	0.040 - 0.090 %	
Chromium, Cr	12 - 14 %	12 - 14 %	
Cobalt, Co	7.0 - 9.0 %	7.0 - 9.0 %	
Molybdenum, Mo	3.3 - 3.7 %	3.3 - 3.7 %	
Nickel, Ni	59.325 - 65.424 %	59.325 - 65.424 %	As Balance
Niobium, Nb (Columbium, Cb)	3.3 - 3.7 %	3.3 - 3.7 %	
Titanium, Ti	2.3 - 2.7 %	2.3 - 2.7 %	
Tungsten, W	3.3 - 3.7 %	3.3 - 3.7 %	
Zirconium, Zr	0.030 - 0.070 %	0.030 - 0.070 %	

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