Aerospace Material Specification (AMS) Reference

Our material procurement specifications ensure that we receive only the highest quality materials in a condition best suited for seal manufacture. This ensures that you receive the highest quality seals with consistent performance. Our procurement specifications comply with (but are frequently more stringent than) the following AMS specifications.

Material (Common Designation)	Strip & Sheet	Tubing	Wire	
	C-Rings, E-Rings, U-Rings	O-Rings	Wire Rings	Springs
304 Stainless Steel	AMS 5511	AMS 5560, 5565	AMS 5697	AMS 5857
316 Stainless Steel		AMS 5584	AMS 5690	
17-4 PH Stainless Steel				
Monel 400		AMS 4574	AMS 4730	
Cobalt Chromium-Nickel Alloy	AMS 6876			AMS 5833
321 Stainless Steel		AMS 5570, 5576	AMS 5689	
347 Stainless Steel		AMS 5575	AMS 5674	
Alloy 600		AMS 5580		
Alloy 625	AMS 5599			
Aluminum Al 1100-0	AMS 4001			
Hastelloy C-276	AMS 5530			
Alloy X-750	AMS 5598	AMS 5582		AMS 5699
Alloy 718	AMS 5596	AMS 5590		
Stainless Steel Alloy A-286	AMS 5525			
Waspaloy	AMS 5544			
Rene 41	AMS 5545			
Haynes 188	AMS 5608			

Yield Strength, Relaxation & Springback

Yield strength and stress relaxation are particularly important in the design and application of resilient metal seals for elevated temperatures. For any given seal design, springback is a function of yield strength and stress relaxation (as well as modulus of elasticity).

A useful estimation of springback for short term exposure to elevated temperatures may be obtained by derating the published springback by the ratio of the yield strength at the elevated temperature to the yield strength at ambient temperature.

$$SB_A = \frac{YS_T}{YS_{RT}} SB_o$$

Where: SB_A = Springback adjusted
YS_T = Yield Strength at elevated temperature
YSR_T = Yield Strength at room temperature
SB_o = Original Springback

Stress relaxation occurs when material is exposed to long term elevated temperatures. This results in reduced load and springback.

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Temperature Capability – Yield Strength								
Temperature Deg. F	Alloy 718 HT'd per AMS 5596 ksi	Alloy X750 HT'd per AMS 5598 ksi	Waspaloy HT'd per AMS 5544 ksi	Rene 41 Yield ksi	Haynes 188 Yield ksi	Haynes 214 Yield ksi	Haynes 230 Yield ksi	Haynes 25 Yield ksi
70	178.4	141.1	131.8	119.0	67.3	87.6	56.9	69.0
1000	144.0	124.9	125.2	115.0	42	78.9	39.7	48.0
1100	144.4	123.1	118.6	113.0	40.9	80	39.4	48.0
1200	144.8	121.2	112.0	111.0	39.7	81.1	39.0	48.0
1400	108.6	92.0	111.8	109.0	38.9	78.8	41.2	41.0
1500	69.6	67.6	85.9	96.5	37.4	61.9	36.8	38.5
1600	30.6	43.1	60.0	84.0	35.9	45	32.4	36.0
1700	21.8	26.1	39.8	62.0	27.5	26.4	25.9	27.0
1800	13.0	9.1	19.6	40.0	19.0	7.8	17.3	18.0