

HAYNES[®] 25 alloy

Thermal Stability

When exposed for prolonged periods at intermediate temperatures, HAYNES 25 alloy exhibits a loss of room temperature ductility in much the same fashion as some other solid-solution-strengthened superalloys, such as HASTELLOY[®] X alloy or alloy 625. This behavior occurs as a consequence of the precipitation of deleterious phases. In the case of a 25 alloy, the phase in question is CO₂W laves phase. HAYNES 188 alloy is significantly better in this regard than 25 alloy; however, for applications where thermal stability is important, 230[®] alloy is an even better selection.

Room-Temperature Properties of Sheet After Thermal Exposure*

Exposure Temperature		-	0.2% Offset Yield Strength		Ultimate Tensile Strength		Elongation
°F	°C		h	ksi	MPa	ksi	
None		0	66.8	460	135.0	930	48.7
1200	650	500	70.3	485	123.6	850	39.2
		1000	92.3	635	140.0	965	24.8
		2500	95.1	655	130.7	900	12.0
1400	760	100	68.9	475	115.3	795	18.1
1600	870	100	72.1	495	113.6	785	9.1
		500	77.3	535	126.1	870	3.5
		1000	81.7	565	142.0	980	5.0

*Composite of multiple sheet lot tests