

HAYNES[®] 230[®] alloy

Resistance to Grain Growth

HAYNES[®] 230[®] alloy exhibits excellent resistance to grain growth at high temperatures. As a consequence of its very stable primary carbides, 230[®] alloy can be exposed at temperatures as high as 2200°F (1204°C) for up to 24 hours without exhibiting significant grain growth. Materials such as HAYNES[®] 188 alloy or HASTELLOY[®] X alloy exhibit greater grain growth under such conditions, as would most iron-, nickel-, or cobalt-base alloys and stainless steels.

Exposure Time	Grain Size for Alloys Exposed at Temperature for Various Times*					
	HAYNES [®] 230 [®] alloy		HAYNES [®] 188 alloy		HASTELLOY [®] X alloy	
h	2150°F (1177°C)	2200°F (1204°C)	2150°F (1177°C)	2200°F (1204°C)	2150°F (1177°C)	2200°F (1204°C)
0	4-4 1/2	4-4 1/2	4-5	4-5	3 1/2	3 1/2
1	4-5	4-4 1/2	2-5	2-4	3 1/2	0-1
4	4-4 1/2	4-4 1/2	3 1/2	3	3 1/2	0-1
24	4	4-4 1/2	0-2	1-3	00-4	0-1 1/2

*Plate Product in the fully annealed condition