

HASTELLOY[®] HYBRID-BC1[®] alloy

Localized Corrosion Data

Critical Pitting Temperature (CPT) and Critical Crevice Temperature (CCT)

HYBRID-BC1[®] alloy exhibits exceptional resistance to pitting and crevice corrosion, as evident from the table below. To assess the resistance of nickel alloys and stainless steels to chloride-induced pitting and crevice attack, it is customary to measure their CPT and CCT in acidified 6 wt.% ferric chloride, in accordance with the procedures defined in ASTM Standard G 48.

These values represent the lowest temperatures at which pitting attack and crevice attack are encountered in this solution, within 72 hours. It should be noted that HYBRID-BC1 alloy exhibits a respectable uniform corrosion rate of approximately 0.5 mm/y (20 mpy) at 120°C in this solution, whereas B-3 corrodes at 47.69 mm/y (1,878 mpy) under the same conditions. While 120°C is the maximum temperature of HYBRID-BC1[®] alloy in acidified 6% FeCl₃, the fact that the material can withstand such a strongly oxidizing medium to the 120°C, yet provide such high resistance to the key reducing acids, is remarkable.

Alloy	Critical Crevice Temperature		Critical Pitting Temperature	
	°F	°C	°F	°C
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HYBRID-BC1[®]	257	125	>284	>140
C-4	122	50	212	100
C-22[®]	176	80	>284	>140
C-276	131	55	>284	>140
C-2000[®]	176	80	>284	>140
316L	32	0	59	15
254SMO[®]	86	30	140	60
625	104	40	212	100