

HAYNES[®] 242[®] alloy

Physical Properties

Physical Property	British Units		Metric Units	
Density	RT	0.327 lb/in ³	RT	9.05 g/cm ³
Melting Range	2350-2510°F	-	1290-1375°C	-
Electrical Resistivity	RT	48.0 μohm-in	RT	122.0 μohm-cm
	200°F	48.5 μohm-in	100°C	123.4 μohm-cm
	400°F	49.3 μohm-in	200°C	125.1 μohm-cm
	600°F	50.0 μohm-in	300°C	126.7 μohm-cm
	800°F	50.6 μohm-in	400°C	128.0 μohm-cm
	1000°F	51.1 μohm-in	500°C	129.5 μohm-cm
	1200°F	51.7 μohm-in	600°C	130.6 μohm-cm
	1400°F	52.4 μohm-in	700°C	132.0 μohm-cm
	1600°F	51.3 μohm-in	800°C	132.4 μohm-cm
	1800°F	50.4 μohm-in	900°C	129.8 μohm-cm
	-	-	1000°C	127.6 μohm-cm
Thermal Diffusivity	RT	4.7 x 10 ⁻³ in ² /s	RT	30.5 x 10 ⁻³ cm ² /s
	200°F	5.1 x 10 ⁻³ in ² /s	100°C	32.9 x 10 ⁻³ cm ² /s
	400°F	5.6 x 10 ⁻³ in ² /s	200°C	35.9 x 10 ⁻³ cm ² /s
	600°F	6.1 x 10 ⁻³ in ² /s	300°C	39.0 x 10 ⁻³ cm ² /s
	800°F	6.6 x 10 ⁻³ in ² /s	400°C	41.9 x 10 ⁻³ cm ² /s
	1000°F	7.2 x 10 ⁻³ in ² /s	500°C	45.0 x 10 ⁻³ cm ² /s
	1200°F	7.9 x 10 ⁻³ in ² /s	600°C	48.1 x 10 ⁻³ cm ² /s
	1400°F	7.2 x 10 ⁻³ in ² /s	700°C	51.2 x 10 ⁻³ cm ² /s
	1600°F	7.0 x 10 ⁻³ in ² /s	800°C	44.2 x 10 ⁻³ cm ² /s
	1800°F	7.6 x 10 ⁻³ in ² /s	900°C	46.6 x 10 ⁻³ cm ² /s
	-	-	1000°C	49.6 x 10 ⁻³ cm ² /s
Thermal Conductivity	RT	75.7 Btu-in/ft ² -hr-°F	RT	11.3 W/m-°C
	200°F	83.6 Btu-in/ft ² -hr-°F	100°C	12.6 W/m-°C
	400°F	96.1 Btu-in/ft ² -hr-°F	200°C	14.2 W/m-°C
	600°F	108.5 Btu-in/ft ² -hr-°F	300°C	15.9 W/m-°C
	800°F	120.9 Btu-in/ft ² -hr-°F	400°C	17.5 W/m-°C
	1000°F	133.3 Btu-in/ft ² -hr-°F	500°C	19.2 W/m-°C
	1200°F	145.7 Btu-in/ft ² -hr-°F	600°C	20.9 W/m-°C
	1400°F	158.2 Btu-in/ft ² -hr-°F	700°C	22.5 W/m-°C
	1600°F	170.6 Btu-in/ft ² -hr-°F	800°C	24.2 W/m-°C
	1800°F	183.0 Btu-in/ft ² -hr-°F	900°C	25.8 W/m-°C
	-	-	1000°C	27.5 W/m-°C

Specific Heat	RT	0.092 Btu/lb-°F	RT	386 J/Kg-°C
	200°F	0.097 Btu/lb-°F	100°C	405 J/Kg-°C
	400°F	0.100 Btu/lb-°F	200°C	419 J/Kg-°C
	600°F	0.103 Btu/lb-°F	300°C	431 J/Kg-°C
	800°F	0.106 Btu/lb-°F	400°C	439 J/Kg-°C
	1000°F	0.110 Btu/lb-°F	500°C	451 J/Kg-°C
	1200°F	0.118 Btu/lb-°F	600°C	470 J/Kg-°C
	1400°F	0.144 Btu/lb-°F	700°C	595 J/Kg-°C
	1600°F	0.146 Btu/lb-°F	800°C	605 J/Kg-°C
	1800°F	0.150 Btu/lb-°F	900°C	610 J/Kg-°C
	-	-	1000°C	627 J/Kg-°C
Mean Coefficient of Thermal Expansion	70-200°F	6.0 $\mu\text{in/in-}^\circ\text{F}$	25-100°C	10.8 $\mu\text{m/m-}^\circ\text{C}$
	70-400°F	6.3 $\mu\text{in/in-}^\circ\text{F}$	25-200°C	11.3 $\mu\text{m/m-}^\circ\text{C}$
	70-600°F	6.5 $\mu\text{in/in-}^\circ\text{F}$	25-300°C	11.6 $\mu\text{m/m-}^\circ\text{C}$
	70-800°F	6.7 $\mu\text{in/in-}^\circ\text{F}$	25-400°C	11.9 $\mu\text{m/m-}^\circ\text{C}$
	70-1000°F	6.8 $\mu\text{in/in-}^\circ\text{F}$	25-500°C	12.2 $\mu\text{m/m-}^\circ\text{C}$
	70-1100°F	6.8 $\mu\text{in/in-}^\circ\text{F}$	25-600°C	12.3 $\mu\text{m/m-}^\circ\text{C}$
	70-1200°F	6.9 $\mu\text{in/in-}^\circ\text{F}$	25-650°C	12.4 $\mu\text{m/m-}^\circ\text{C}$
	70-1300°F	7.2 $\mu\text{in/in-}^\circ\text{F}$	25-700°C	13.0 $\mu\text{m/m-}^\circ\text{C}$
	70-1400°F	7.7 $\mu\text{in/in-}^\circ\text{F}$	25-750°C	13.7 $\mu\text{m/m-}^\circ\text{C}$
	70-1600°F	8.0 $\mu\text{in/in-}^\circ\text{F}$	25-800°C	14.0 $\mu\text{m/m-}^\circ\text{C}$
	70-1800°F	8.3 $\mu\text{in/in-}^\circ\text{F}$	25-900°C	14.5 $\mu\text{m/m-}^\circ\text{C}$
	-	-	25-1000°C	15.0 $\mu\text{m/m-}^\circ\text{C}$
Dynamic Modulus of Elasticity	RT	33.2 x 10 ⁶ psi	RT	229 GPa
	200°F	32.7 x 10 ⁶ psi	100°C	225 GPa
	400°F	31.8 x 10 ⁶ psi	200°C	219 GPa
	600°F	30.8 x 10 ⁶ psi	300°C	213 GPa
	800°F	29.7 x 10 ⁶ psi	400°C	206 GPa
	1000°F	28.6 x 10 ⁶ psi	500°C	199 GPa
	1200°F	27.6 x 10 ⁶ psi	600°C	193 GPa
	1400°F	25.7 x 10 ⁶ psi	700°C	185 GPa
	1600°F	24.0 x 10 ⁶ psi	800°C	172 GPa
	1800°F	22.4 x 10 ⁶ psi	900°C	163 GPa
	-	-	1000°C	152 GPa

RT= Room Temperature