

# HAYNES<sup>®</sup> 625 alloy

## Physical Properties

Physical Property	Metric Units		British Units	
Density	RT	0.305lb/in <sup>3</sup>	RT	8.44 g/cm <sup>3</sup>
Melting Range	2350-2460°F	-	1288-1349°C	-
Electrical Resistivity	RT	50.8 μohm-in	RT	129 μohm-cm
	200°F	52.0 μohm-in	100°C	132 μohm-cm
	400°F	52.8 μohm-in	200°C	134 μohm-cm
	600°F	53.1 μohm-in	300°C	135 μohm-cm
	800°F	53.5 μohm-in	400°C	136 μohm-cm
	1000°F	54.3 μohm-in	500°C	137 μohm-cm
	1200°F	54.3 μohm-in	600°C	138 μohm-cm
	1400°F	53.9 μohm-in	700°C	138 μohm-cm
	1600°F	53.5 μohm-in	800°C	137 μohm-cm
	1800°F	53.1 μohm-in	900°C	136 μohm-cm
	-	-	1000°C	135 μohm-cm
Thermal Conductivity	RT	68 Btu-in/ft <sup>2</sup> -hr-°F	RT	9.8 W/m-°C
	200°F	75 Btu-in/ft <sup>2</sup> -hr-°F	100°C	10.9 W/m-°C
	400°F	87 Btu-in/ft <sup>2</sup> -hr-°F	200°C	12.5 W/m-°C
	600°F	98 Btu-in/ft <sup>2</sup> -hr-°F	300°C	13.9 W/m-°C
	800°F	109 Btu-in/ft <sup>2</sup> -hr-°F	400°C	15.3 W/m-°C
	1000°F	121 Btu-in/ft <sup>2</sup> -hr-°F	500°C	16.9 W/m-°C
	1200°F	132 Btu-in/ft <sup>2</sup> -hr-°F	600°C	18.3 W/m-°C
	1400°F	144 Btu-in/ft <sup>2</sup> -hr-°F	700°C	19.8 W/m-°C
	1600°F	158 Btu-in/ft <sup>2</sup> -hr-°F	800°C	21.5 W/m-°C
	1800°F	175 Btu-in/ft <sup>2</sup> -hr-°F	900°C	23.4 W/m-°C
	-	-	1000°C	25.6W/m-°C
Specific Heat	RT	0.098 Btu/lb.-°F	RT	410 J/Kg-°C
	200°F	0.102 Btu/lb.-°F	100°C	428 J/Kg-°C
	400°F	0.109 Btu/lb.-°F	200°C	455 J/Kg-°C
	600°F	0.115 Btu/lb.-°F	300°C	477 J/Kg-°C
	800°F	0.122 Btu/lb.-°F	400°C	503 J/Kg-°C
	1000°F	0.128 Btu/lb.-°F	500°C	527 J/Kg-°C
	1200°F	0.135 Btu/lb.-°F	600°C	552 J/Kg-°C
	1400°F	0.141 Btu/lb.-°F	700°C	576 J/Kg-°C
	1600°F	0.148 Btu/lb.-°F	800°C	600 J/Kg-°C
	1800°F	0.154 Btu/lb.-°F	900°C	625 J/Kg-°C
	-	-	1000°C	648 J/Kg-°C

<b>Mean Coefficient of Thermal Expansion</b>	70-200°F	7.1 $\mu\text{in/in-}^\circ\text{F}$	25-100°C	12.8 x 10 <sup>-6</sup> $\mu\text{m/m-}^\circ\text{C}$
	70-400°F	7.3 $\mu\text{in/in-}^\circ\text{F}$	25-200°C	13.1 x 10 <sup>-6</sup> $\mu\text{m/m-}^\circ\text{C}$
	70-600°F	7.5 $\mu\text{in/in-}^\circ\text{F}$	25-300°C	13.4 x 10 <sup>-6</sup> $\mu\text{m/m-}^\circ\text{C}$
	70-800°F	7.7 $\mu\text{in/in-}^\circ\text{F}$	25-400°C	13.8 x 10 <sup>-6</sup> $\mu\text{m/m-}^\circ\text{C}$
	70-1000°F	8.0 $\mu\text{in/in-}^\circ\text{F}$	25-500°C	14.2 x 10 <sup>-6</sup> $\mu\text{m/m-}^\circ\text{C}$
	70-1200°F	8.4 $\mu\text{in/in-}^\circ\text{F}$	25-600°C	14.8 x 10 <sup>-6</sup> $\mu\text{m/m-}^\circ\text{C}$
	70-1400°F	8.7 $\mu\text{in/in-}^\circ\text{F}$	25-700°C	15.4 x 10 <sup>-6</sup> $\mu\text{m/m-}^\circ\text{C}$
	70-1600°F	9.2 $\mu\text{in/in-}^\circ\text{F}$	25-800°C	16.0 x 10 <sup>-6</sup> $\mu\text{m/m-}^\circ\text{C}$
	70-1800°F	9.6 $\mu\text{in/in-}^\circ\text{F}$	25-900°C	16.7 x 10 <sup>-6</sup> $\mu\text{m/m-}^\circ\text{C}$
	-	-	25-1000°C	17.4 x 10 <sup>-6</sup> $\mu\text{m/m-}^\circ\text{C}$
<b>Dynamic Modulus of Elasticity</b>	RT	30.2 x 10 <sup>6</sup> psi	RT	208 GPa
	200°F	29.2 x 10 <sup>6</sup> psi	100°C	201 GPa
	400°F	28.8 x 10 <sup>6</sup> psi	200°C	199 GPa
	600°F	27.7 x 10 <sup>6</sup> psi	300°C	192 GPa
	800°F	26.7 x 10 <sup>6</sup> psi	400°C	186 GPa
	1000°F	25.6 x 10 <sup>6</sup> psi	500°C	179 GPa
	1200°F	24.3 x 10 <sup>6</sup> psi	600°C	171 GPa
	1400°F	22.8 x 10 <sup>6</sup> psi	700°C	163 GPa
	1600°F	21.2 x 10 <sup>6</sup> psi	800°C	153 GPa
	1800°F	18.7 x 10 <sup>6</sup> psi	900°C	142 GPa
	-	-	1000°C	126 GPa

RT = Room Temperature