

# HAYNES<sup>®</sup> 25 alloy

## Wear Resistance

HAYNES<sup>®</sup> 25 alloy exhibits excellent resistance to metal galling and cavitation. Metal-to-Metal Galling results shown below were generated for standard matching material room-temperature pin on disc tests. Wear depths are given as a function of applied load. Cavitation tests were performed in accordance with ASTM G 32 water at 16°C, with a frequency of 20 kHz and an amplitude of 0.05 mm. The results of the wear tests indicate that 25 alloy is superior in galling and cavitation resistance to many materials, and is surpassed only by ULTIMET<sup>®</sup> alloy and HAYNES<sup>®</sup> 6B alloy. Both of these materials were specifically designed to have excellent wear resistance.

Alloy	Galling - Degree of Damage for Various Applied Loads					
	3,000 lbs. (1,365 kg)		6,000 lbs. (2,725 kg)		9,000 lbs. (4,090 kg)	
-	mils	µm	mils	µm	mils	µm
<b>6B</b>	0.02	0.6	0.03	0.7	0.02	0.5
<b>ULTIMET<sup>®</sup></b>	0.11	2.9	0.11	2.7	0.08	2.0
<b>25</b>	<b>0.23</b>	<b>5.9</b>	<b>0.17</b>	<b>4.2</b>	<b>0.17</b>	<b>4.2</b>
<b>188</b>	1.54	39.2	3.83	97.3	3.65	92.6
<b>HR-160<sup>®</sup></b>	1.73	43.9	4.33	109.9	3.81	96.8
<b>214<sup>®</sup></b>	2.32	59.0	3.96	100.5	5.55	141.0
<b>556<sup>®</sup></b>	3.72	94.4	5.02	127.6	5.48	139.3
<b>230<sup>®</sup></b>	4.44	112.7	7.71	195.8	8.48	215.5
<b>HR-120<sup>®</sup></b>	6.15	156.2	7.05	179.0	10.01	254.2

Alloy	Cavitation - Mean Depth of Erosion							
	24 h		48 h		72 h		96 h	
	mils	µm	mils	µm	mils	µm	mils	µm
<b>ULTIMET<sup>®</sup></b>	0.3	6.8	0.9	22.9	1.6	40.2	2.3	57.4
<b>6B</b>	0.3	7.7	0.9	22.3	1.4	34.8	1.9	48.0
<b>25</b>	<b>1.0</b>	<b>24.4</b>	<b>2.1</b>	<b>53.6</b>	<b>3.4</b>	<b>85.6</b>	<b>4.5</b>	<b>115.1</b>
<b>625</b>	3.1	80.0	7.0	176.6	10.2	259.2	Not tested	Not Tested
<b>556<sup>®</sup></b>	3.3	83.8	6.9	175.8	9.6	244.3	11.4	289.8
<b>230<sup>®</sup></b>	3.8	97.6>	7.5	190.1	9.9	251.8	11.9	301.7

Tested in accordance with ASTM G 32 water at 16°C, with a frequency of 20 kHz and an amplitude of 0.05 mm