

Rev	Date	ECN	Issue	Prepared by	Check/Approved
A	21.03.08	312	Revised/Re-issued	TS	JS
O	05.03.89	----	Original Issue	A.K.	D.R.L.

Product Form	Standard	Grade	Acceptable Class
Forged Bar Blank Ring Closed Die Forging	ASTM A182	F44	-

<b>Scope</b>	This specification outlines the modifications and additional requirements to the relevant ASTM Specifications for the supply of raw material to manufacture Vector International products.								
<b>Other Applicable Specifications</b>	ASTM A370 (Latest Issue)								
<b>Heat Treatment</b>	Solution Treat to 1150°C min and Liquid Quench.								
<b>Chemical Analysis % (Heat)</b>		<b>Min</b>	<b>Max</b>		<b>Min</b>	<b>Max</b>		<b>Min</b>	<b>Max</b>
	<b>C</b>	-	0.02	<b>S</b>	-	0.01	<b>Cu</b>	0.50	1.00
	<b>Si</b>	-	0.80	<b>Ni</b>	17.50	18.50	<b>N</b>	0.18	0.22
	<b>Mn</b>	-	1.00	<b>Cr</b>	19.50	20.50			
	<b>P</b>	-	0.03	<b>Mo</b>	6.00	6.50			
<b>Mechanical Properties</b>				<b>Min</b>			<b>Max</b>		
	<b>Tensile(R<sub>m</sub>):</b>			94000psi (648MPa)			-		
	<b>Yield (R<sub>p0.2</sub>):</b>			44000psi (303MPa)			-		
	<b>Elongation (A %):</b>			35			-		
	<b>R. of A (Z %):</b>			50			-		
	<b>Hardness:</b>			-			-		
	<i>Note: Mechanical tests to ASTM A370 after final heat treatment.</i>								
<b>Test Sampling</b>	Test coupons must represent production forgings (bars and open die) and should be heat treated with the forgings. Test coupon and forgings to be stacked in the furnace in accordance with good practice to ensure even heat treatment. Test coupons shall receive essentially the same forging reduction ratio as the production forgings. Test coupons shall be taken from the production forging when closed die forgings are used.								

# **.VECTOR**

## **MATERIAL SPECIFICATION**

### **H406 Rev A – A182-F44**

<b>Surface Finish and Quality</b>	Forgings to be of sufficient quality for LPI check. LPI on finished machined parts to be undertaken by Vector International Ltd.
<b>Repair of Defects</b>	Weld repair is not permitted.
<b>Marking</b>	Forgings to be marked with Heat Number, Material Grade and Vector Specification.
<b>Certification</b>	Certification in accordance with EN10204-3.1: Chemical Analysis, Mechanical Analysis, Heat Treatment Report / Graphs, Mill Certificate (Wet Stamped). Certification must be traceable to each heat treat lot. Certification to reference material grade (ASTM A182 F44) and Vector Specification H406.
<b>Notes</b>	<ol style="list-style-type: none"><li>1. Refer to PO for supplemental details.</li><li>2. Any deviation from this specification must be raised formally as a concession request prior to delivery. Certification must include concession documentation.</li></ol>