.VECTOR

MATERIAL SPECIFICATION

C402 Rev A – ASTM A182 F304

Rev	Date	ECN	Issue	Prepared by	Check/Approved
A			Revised/Re-issued		
O	29.05.90	----	Original Issue	--	--

Product Form	Standard	Grade	Acceptable Class
Die Forged Clamp Ring Forgings	ASTM A182	F304	-

Scope	This specification outlines the modifications and additional requirements to the relevant ASTM Specifications for the supply of raw material to manufacture Vector International clamp components.								
Other Applicable Specifications	ASTM A370 (Latest Issue) ASTM A388 (Latest Issue)								
Heat Treatment	Solution Treat (1040ºC min) and Quench								
Chemical Analysis % (Heat)		**Min**	**Max**		**Min**	**Max**		**Min**	**Max**
	C	-	0.08	**P**	-	0.04	**Cr**	18.00	20.00
	Si	-	1.00	**S**	-	0.03			
	Mn	-	2.00	**Ni**	8.00	11.00			
Mechanical Properties		**Min**		**Max**					
	Tensile(R_m):	75000psi (517MPa)		-					
	Yield ($R_{p0.2}$):	30000psi (207MPa)		-					
	Elongation (A %):	30		-					
	R. of A (Z %):	50		-					
	Hardness:	-		-					
	Note: All mechanical tests to be carried out to ASTM A370 after final heat treatment.								
Test Sampling	Test coupons must represent production forgings (ring 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. The test coupons receive essentially the same forging reduction ratio as the production forgings. Test coupons must be taken from the production forging when closed die forgings are used.								
N.D.E.	100% Visual inspection on die forgings to ASTM A350 (Latest Issue). 100% UT on forging billet in accordance with ASTM A388 (Latest Issue). 100% LPI on finished die forgings in accordance with ASME V. Acceptance to ASME VIII.								

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	100% UT on ring forgings in accordance with ASTM A388 (Latest Issue).
Surface Finish and Quality	Ring forgings to be of sufficient quality for LPI check. LPI on finished machined parts to be undertaken by Vector International Ltd. Forgings shall be supplied free of defects (Slag inclusions, scale, laps, cracks).
Repair of Defects	Weld repair is not acceptable.
Marking	Forgings to be marked with Heat Number, Material Grade, and Vector Specification.
Certification	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.
Notes	1. Refer to PO for supplemental details. 2. Any deviation from this specification must be raised formally as a concession request prior to delivery. Certification must include concession documentation.