



ATI Wah Chang

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CAST PRODUCT CERTIFICATION

Date: MAY 7, 2012
 Customer: MONTERAY BAY AQUARIUM RESEARCH INSTITUTE
 Purchase Order No.: 1111805 ITEM 2
 Sales Order No.: 151862
 Description: 6Al-4V Titanium Grade C5 - BOTTOM HEMISPHERE - Casting
 Pattern No.: 1001103DWG
 Part Number: N/A
 Quantity: TWO
 Specifications: ASTM B367-09 Gr C5, OMC 105 Rev. L Gr C5; Visual and Penetrant inspections have been performed, report attached. First article inspection has been performed by Dependable Pattern Works, report attached.
 Heat No. (FPN): C002671
 Casting ID No.: CA120068-1P1,1P2

Element	Spec. Min.	Spec. Max.	RESULTS
Al	5.50	6.75	6.08
C	0	0.10	0.02
Fe	0	0.40	0.15
H	0	0.015	0.002
N	0	0.05	0.009
O	0	0.25	0.19
V	3.5	4.5	3.9
Others each	0	0.1	<0.1
Others total	0	0.4	<0.4
TITANIUM			BALANCE

Tensile Test: As Cast Test Plug

Test	Method	Gage	Units	Spec. Min.	Results
Ultimate Tensile Strength:	ASTM E8		Ksi	130	143
Yield Strength, 2% Offset:	ASTM E8		Ksi	120	126
Elongation:	ASTM E8	1"	Pct	6	8

Hardness Report:

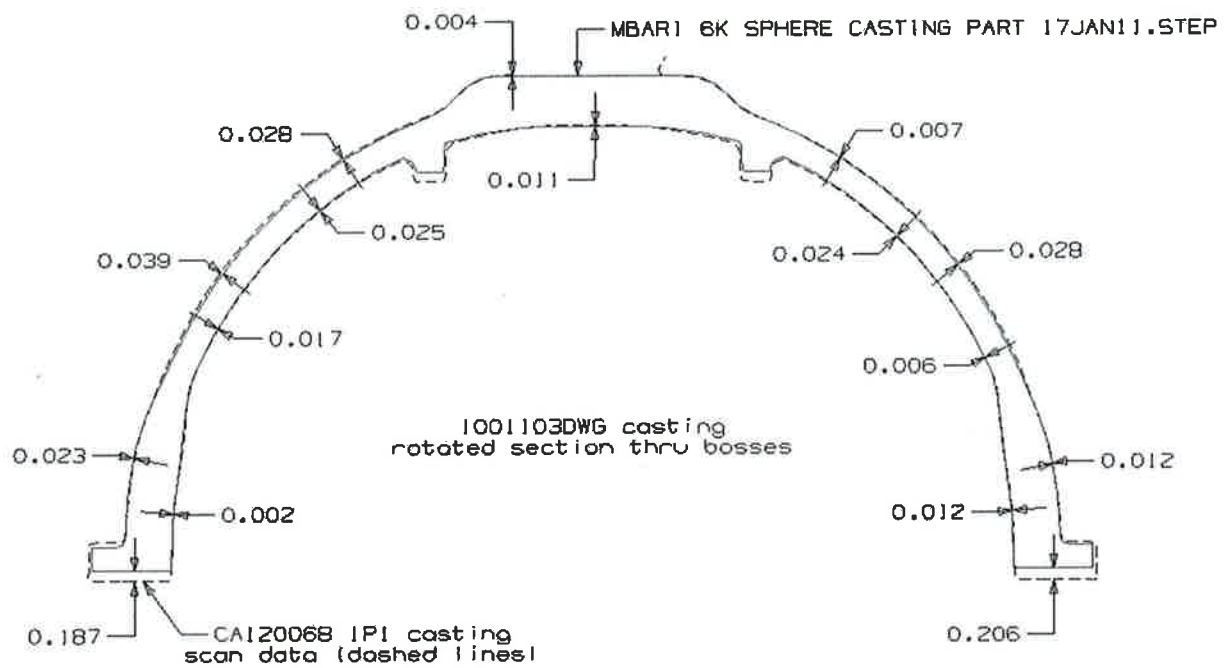
Sample	Units	Spec. Max.	Results (Avg. of 3)
Hardness:	HBW	365	318

Approved By: Delora Tatum, Quality Assurance Specialist ves 05/07/12

This product has been manufactured, sampled, tested and inspected in accordance with the purchase order/contract and specifications designated hereon and meets all specifications and contract requirements unless otherwise stated above. This material is certified to be free of any mercury contamination or radioactive material.



Mbari 6K Sphere
Casting S/N
CA 120068-1P1
3/22/2012





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