



PROCESS CHECK REPORT

Company:			
Process Title	MANUFACTURE OF FORGINGS AND CASTINGS		
Category(s) of Approval	11a; 11b; 11u; 11w		
Process Check Report Ref. No:			
Date Of Process Audit:			
Auditor (please print name):			
Nadcap Reference (if applicable):			
Invoked Documents:- HBIFSAS/QA/SC1, QAIS Doc Ref Q5B-008H			
		Yes	No
		✓	X
QA Element			
Calibration Status: All Inspection, Measuring and Test Equipment used in this Process is calibrated, and certified against equipment traceable to National Standards			
Materiel Usage: All Materiel used in this Process is in accordance with requirements of the relevant Process Specification/Standard			
BAEP/BS: All work has been processed in accordance with the latest issue of the relevant BAEP(s) and/or National Standards			
Technique Sheets: All applicable Technique Sheets used, including Inspection Plans, are to the latest issue and have been approved by HBQSC			
Training/Qualification: All relevant personnel involved with this Process are appropriately trained, qualified and assessed periodically			
Internal Audit: The Internal Audit for this Process is current, with no outstanding CAs			
If No to any of the above QA Elements - give details below:			
Audit Comments:			
Auditor:	QA Manager:	Approved by (HBQSC):	



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Invoked Documents Listing

1. Process Specifications

Reference No.	Title	Issue
BAEP 2503	Ultrasonic Flaw Detection.	5
BAEP 4518	Inspection Of Grade A And Class 1 & 2 Aluminium Alloy Forgings.	2
BAEP 0002	Chromic Acid Anodising.	5
BAEP 2501	Penetrant Flow Detection.	5
BAEP 4515	Supply Procedure For Forgings.	5

2. Quality Assurance Instructions To Suppliers

Reference No.	Title	Issue

3. Other Technical Documents Invoked

Reference No.	Title	Issue

4. General

For any deviations to the applicable BAEP please see the Processor Surveillance Questionnaire Pack



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AUDIT FINDINGS

Details Of Check	Result / Remarks	Action Required
Is BAEP available and at the correct issue.		
Does the internal procedure exist and what is its reference / issue status.		
Is the operation for this procedure satisfactorily incorporated into the planning.		
Are history sheets produced and approved by Design / Quality for the parts being produced.		
For goods receiving and material storage are materials segregated satisfactorily and is stock traceable back to Supplier and cast.		
Scrap metal additions in castings manufacture may be approved. Is this stock adequately segregated and identified with a specification and batch reference number.		
Record the method of casting and is the method in accordance with the agreed RCJI Design Process?		



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AUDIT FINDINGS

Details Of Check	Result / Remarks	Action Required
<p>Is the use of production equipment as follows defined in process documents and are these process documents duly followed?</p> <p>a) Mould and/or die manufacturing facility b) Melting facility c) Vacuum facility d) Heat Treatment facility</p>		
<p>Are the Moulds Heating Ovens and Melting facilities controlled with adequate calibrated thermocouples and associated instruments to ensure that specified temperature tolerances are maintained?</p>		
<p>Are the Heat Treatment Furnaces controlled with adequate thermocouples and appropriate records maintained in accordance with B.S.254</p>		
<p>Are temperature surveys on these furnaces carried out in accordance with the above spec.</p>		
<p>Are parts re-inspected after fettling to ensure dimensional control and freedom from excessive burning / discolouration?</p>		



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AUDIT FINDINGS

Details Of Check	Result / Remarks	Action Required
For the forging process record the method of forging and is the method of forging in accordance with the agreed RCJI Design Process?		
Is the use of Production equipment as follows defined in process documents and duly followed? a) Pre Heating Furnaces b) Forging Presses and Hammers		
Is equipment available for cold compression and is this process adequately controlled?		
Are the Pre-heating Furnaces controlled with adequate calibrated thermocouples and associated instruments and are appropriate records maintained?		
Are Hardening, Tempering and Stress Relieving Furnaces controlled with adequate calibrated thermocouples and associated instruments and are records maintained. Are temperature surveys on these furnaces carried out on accordance with B.S.2M54.		



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Details Of Check	Result / Remarks	Action Required
Are parts re-inspected after fettling to ensure dimensional control and freedom from excessive burning / discolouration?		
Are master thermocouples and potentiometers available in addition to workshop measuring equipment?		
Is the master temperature measuring equipment calibration certificate traceable to National Standards?		
Is due account taken on the 'Degree of Uncertainty' in the calculations and/or recording?		
Are the shop furnace temperature measuring instruments calibrated using standards traceable to National Standards?		
Is the metallurgical control of the foundry and/or forge the responsibility of an Approved Metallurgist?		
What are the qualifications and experience of the Approved Metallurgist? (unless defined in Manufacturers Company Exposition/Quality Manual or separately supplied)		



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<p>Does the approved Metallurgist:</p> <p>a) Collaborate with Customer's design/quality control authorities in the preparation and definition of casting and forging designs, foundry techniques/forging manufacturing schedules, etc., and any subsequent changes thereto.</p> <p>b) Oversee, ensure adequate and validity and approve all 'in process' and final metallurgical and non-destructive test reports.</p> <p>c) Control Heat Treatment procedure</p> <p>d) Collaborate with Customer's quality control authorities regarding the acceptability, or corrective action to be taken etc., with respect to castings and/or forgings which do not meet specified requirements.</p>		
<p>Is chemical analysis carried out 'in house' or by an approved laboratory (UKAS or equivalent)? If 'in house' does the calibration system for equipments and analytical standards assure traceability to National Standards.</p>		
<p>Is the mechanical test equipment regularly re-calibrated to the required accuracy using standards traceable to National Standards?</p>		



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Do Test piece sizes and test methods comply with B.S.4A4		
Is the radiographic equipment adequate for the examination of Class I and Class II castings?		
Is the Senior radiographer approved under a recognised National Certification for casting radiography and in accordance with C.A.A. Airworthiness Notice No. 94.		
Is the reading and assessment of radiographs carried out by competent personnel and are reference defect standards readily available?		
Are radiographs for Class I and II castings double scrutinised, and are records available to show this is carried out?		
Are the radiographs techniques used, submitted to the customer for approval and retained in storage in a satisfactory manner?		
Is the ultrasonic equipment adequate for the examination of billets and Class I forgings?		
Is the Senior N.D.T. Person approved under a recognised National Ultrasonic Certification Scheme? ie. PSN.		



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Is the copy of the Ultrasonic techniques compiled, submitted to the customer, approved and retained in storage in a satisfactory manner?		
Are approved Dye Penetrant and Magnetic Flaw Detection facilities available with appropriate process instruction?		
Are the personnel approved under a recognised National Certification for Dye Penetrant and Magnetic Flaw Detection disciplines?		
Is there an acceptable procedure controlling the repair of castings?. If so what is its reference/issue status.		
Is the welder approved under a recognised national standard?		
Do manufacturer's procedures ensure adequate and formal liaison with customer and compliance with relevant specifications, standards and quality control procedures, in respect of development and definition of casting and/or forging designs, foundry techniques / forging manufacturing schedules, test techniques / schedules, acceptance standards, etc?		