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| Macintosh HD:Users:helenebjorkman:Desktop:ESS_Logo_Frugal_Blue_RGB.jpeg**MANUFACTURING VERIFICATION PLAN****Verification Plan for Mechanical Components Manufacturing**  |
| **Inspection Plan no.:**ESS-0052140 | **Revision:**1 (13) | **Interventions** |  | **Name** | **Sign** | **Date** |
| H | Hold point | Notification points | **Issued by:** | J. Harborn |  | Nov 23, 2015 |
| **Main drawing no.:***Enter the applicable drawing no.* | **Revision:***Enter the rev. no. of the drawing* | M  | Project Manager sign-off | **Checked by:** | *Enter name of reviewer* |  | *Enter the date* |
| P | Performer  | **Approval:** | *Enter name of approver* |  | *Enter the date* |
| **Quality Class:** | *Enter quality class* | Q | Quality Control Department sign-off | Designation points | **Remarks** | Enter following depending on the quality class:\*1 MQC3C: R, MQC4C: N/A |
| **Serial no.:** | *Enter serial no.* | R | Review Document |
| **Quantity:** | *Enter quantity* | W | Witness point |
|  |  | L | Accredited laboratory |
| **Task** | **Description of task** | **Applicable Document, Applicable Drawing, Comment etc.** | **Intervention** | **INSPECTION** | **COMMENTS** |
| Manufacturer | ESS | Third party | Manufacturer | ESS | Third Party |
| Date | Sign / Stamp | Date | Sign / Stamp | Ref. no. | Date | Sign / Stamp |
| **IP100 – INSPECTION PRIOR TO MANUFACTURING** |
| **1.0** | Contractors quality assurance  | Check the Quality Management System: * EN ISO 9001:2008
* For quality class *MQC3C*, check additional requirements acc. to §2.1 in ESS-0023107
 | - | R+Q | N/A |  |  |  |  |  |  |  |  |
| **1.1** | Verification of qualification ofsub-suppliers/list of sub-suppliers | Check the manufacturer’s list of sub-suppliers and verify compliance with quality management system | P | R+Q | N/A |  |  |  |  |  |  |  |  |
| **1.2** | Quality assurance requirements for welding of metallic material | Check that the manufacturer is qualified acc. to ESS-0023107 §7.2. | P+R | R+Q | \*1 |  |  |  |  |  |  |  |  |
| **1.3** | Qualification of welding procedures  | Check that the manufacturer follows the following requirements:WPS + WPQR acc. to EN ISO 15614 | P+R | R+Q | \*1 |  |  |  |  |  |  |  |  |
| **1.4** | Qualification of welders and weld operators | Check that the manufacturer’s welders and operators are qualified acc. to EN ISO 9606-1 respective SS-EN ISO 14732. | P+R | R+Q | \*1 |  |  |  |  |  |  |  |  |
| **1.5** | Qualification of NDT performer | 1. Check compliance with EN ISO/IEC 17025
2. Check NDT procedures acc. to requirements in ESS-0023107, §8.1
 | R | R+Q | N/A |  |  |  |  |  |  |  |  |

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| **1.6** | Qualification of NDT personnel | NDT personnel are qualified and certified acc. to EN ISO 9712. | R | R+Q | N/A |  |  |  |  |  |  |  |  |
| **1.7** | General Arrangement Drawings / Detailed Drawings | *Specify the drawing no. to be checked* | P | R+Q | \*1 |  |  |  |  |  |  |  |  |
| **1.8** | Calculation reports | *Specify the calculation report doc. no. to be checked* | P | R | \*1 |  |  |  |  |  |  |  |  |
| **1.9** | FAT procedure | Check and verify the FAT procedure | P | R+Q | N/A |  |  |  |  |  |  |  |  |
| **1.10** | Leak/Tightness program | Check and verify the Leak/Tightness program | P | R+Q | N/A |  |  |  |  |  |  |  |  |
| **1.11** | Inspection plan |  | P | R+Q | \*1 |  |  |  |  |  |  |  |  |
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| **IP200 – INSPECTION OF BASE MATERIAL** |
| **2.0** | Release for start of material procurement | ESS approval (Sign-off) | H | M+Q | N/A |  |  |  |  |  |  |  |  |
| **2.1** | Review of material certificate | Check and identify material certificates and welding consumables | R | R+Q | N/A |  |  |  |  |  |  |  |  |
| **2.2** | Special material requirements(if applicable) | *Specify the special material requirements (chemical, NDT etc.) acc. to applicable Equipment Specification* | R | R+Q | N/A |  |  |  |  |  |  |  |  |
| **2.3** | Release for manufacturing and assembly | ESS approval (Sign-off) | H | M | N/A |  |  |  |  |  |  |  |  |
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| **IP300 – INSPECTION DURING MANUFACTURING** |
| **3.0** | Weld inspection and traceability | Weld Record and Inspection List: *Enter doc. no.* | P | R | \*1 |  |  |  |  |  |  |  |  |
| **3.1** | Visual tests and dimensional inspections of welds | 1. According to drawing
2. *Specify the requirements for VT in accordance to Table 7 of ESS-0023107.*
 | P | - | \*1 |  |  |  |  |  |  |  |  |
| **3.2** | Penetrant tests of welds | *Specify the requirements for PT in accordance to Table 7 of ESS-0023107.* | - | - | L |  |  |  |  |  |  |  |  |
| **3.3** | Extent of additional NDT inspections (if applicable)  | *Specify the extent of additional NDT inspections in accordance to Equipment Specification.* | - | - | L |  |  |  |  |  |  |  |  |
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| **IP400 – INSPECTION OF COMPLETED EQUIPMENT AND SUB-ASSEMBLIES** |
| **4.0** | Dimensional inspection | According to drawing | P | R+Q | \*1 |  |  |  |  |  |  |  |  |
| **4.1** | Marking of components and material identification (if applicable) | According to drawing | P | R+Q | \*1 |  |  |  |  |  |  |  |  |
| **4.2** | Cleanliness inspection | *Specify the cleanliness requirements in accordance to §8.5 of ESS-0023107 and Equipment Specification.* | P | R+Q | N/A |  |  |  |  |  |  |  |  |
| **4.3** | Surface treatment (if applicable) | 1. According to drawing
2. *Specify the requirements for surface treatment in acc. to requirements in Equipment Specification.*
 | P | R | N/A |  |  |  |  |  |  |  |  |
| **4.4** | Leak testing (if applicable) | Check if leak testing is performed in accordance to the applicable Leak/Tightness program. Specify the doc. no. for program.  | P | R+Q | \*1 |  |  |  |  |  |  |  |  |
| **4.5** | Functional test (if applicable) | Check the function of mechanical component at factory. **Manufacturer’s FAT procedure is applicable.** | P+H | W | N/A |  |  |  |  |  |  |  |  |
| **4.6** | Certificate of Compliance | Check the CoC (manufacturing phase) acc. to requirements in §3.4.11 of ESS-0023107.  | P | R+Q | N/A |  |  |  |  |  |  |  |  |
| **4.7** | End of manufacturing report | Review of final documentation | P | R+Q | \*1 |  |  |  |  |  |  |  |  |
| **4.8** | Packing, transportation and storage | Define the applicable rules in acc. to the Packing, Transportation and Storage Specification, ESS-0025721. | P | R | N/A |  |  |  |  |  |  |  |  |
| **4.9** | Release for transport | ESS approval (Sign-off). | H | M | N/A |  |  |  |  |  |  |  |  |