

SPECIAL QA REQUIREMENTS, KONGSBERG CROWS II PROGRAM

The following are requirements for all parts & all suppliers.

Verification of product: It shall be verified that the product conforms with the applicable drawings and to those requirements of the contract or PO for which there are no specific tests. This verification will include identification and markings, accuracy of dimensions, quality of workmanship, use of proper materials, parts, and processes, and absence of visible defects or any other imperfections that would result in rejection of the unit. All moving parts will be examined to ensure that they operate freely without sticking or binding, yet fit with the accuracy required by the specification or the applicable drawing. Personnel with the appropriate knowledge and skills shall carry out the verification. Records from all examinations shall be made available to Kollmorgen Corp. upon request.

Packing: ESD sensitive products shall be packed in anti-static shielded bags and so designed and constructed that it will contain the contents with no damage to the item and with minimal damage to the unit pack during shipment and storage in the shipping container.

Packing documentation: Packing document shall as a minimum contain the following information:

- a) Contract or purchase order number
- b) Position number from purchase order
- c) Part number and revision as defined by the PO/Contract
- d) Subcontractor part number and revision if part number under c) is a KONGSBERG part number.
- e) Manufacturer CAGE code
- f) Serial numbers delivered
- g) Quantity delivered

The above information shall be bar coded using Code 39 extended (ISO/IEC 16388:1999).

Bar Code Marking On Product: Unless otherwise specified in the technical data package, the above-specified identification items (Part number and Revision separately identified, Cage Code and Serial number) shall be individually bar coded using Code 39 Extended (ISO/IEC 16388:1999).

If components are individually sealed when shipped, the container/bag shall to be marked with the same information (Bag and Tag).

Bar Code marking on shipping container: Unless otherwise specified, seller shall mark all unit containers, intermediate containers and shipping containers in accordance with MIL-STD-129. The packing slip shall have the following information bar coded using Code 39 extended (ISO/IEC 16388:1999):

- Purchase Order number
- Part number and revision (separately coded)
- All individual serial numbers

Delivery Certification: A Certificate of Conformance shall be issued for each individual delivery, identifying items to be delivered. The Coca shall accompany each shipment and contain the following:

- a) Reference to contract or purchase order
- b) Reference to contract item
- c) Part number and revision as defined by the PO/Contract
- d) Serial numbers of certified parts

e) Reference numbers of approved deviations or waivers (non-conformances)

f) The following text signed by the subcontractor Quality Manager or program QA responsible:

Such as: *"It is certified that apart from the deviations/waivers noted, the whole of the supplies detailed below conform in all respects to the contract/purchase order, specification(s), and drawing(s), and that the supplies have been inspected and tested in accordance with the applicable requirements"*

Customer Furnished Material and Equipment (CFM/CFE): The supplier is responsible for suitable handling, storage and relocation, and for assuring that applicable security regulations are met. In principle, KOLLMORGEN CORP. supplied material shall be treated with the same respect and care as the supplier's own material. An inventory list shall be kept updated and presented upon request. Disposal of any CFM/CFE cannot take place unless prior written approval from KOLLMORGEN CORP.

THE FOLLOWING REQUIREMENTS ARE FOR CASTINGS, MACHINED PARTS, GYROS, SLIP RINGS, CCA, ENCODERS, HARMONIC DRIVES, & WIRING HARNESESSES.

Records: The supplier shall maintain quality records in accordance with the applicable quality system standard (e.g. – ISO 9001:2000). Records of all activities related to the subject contract or purchase order shall be stored systematically by the supplier in a record file for a period of at least 10 years dating from the final payment of the contract or purchase order. The supplier must impose this requirement on its sub tiers. Records shall be available for review upon request any time during this period. Before the Record File closure date, the supplier may request KOLLMORGEN CORP. for instructions for further retention of the records. Records shall include, but not be limited to:

- Evidence of inspection to assure adherence to applicable drawings or specifications and revisions
- First Article Inspection/ test reports
- Periodic inspection and control of inspection media
- Records to indicate control of special tooling and special test equipment
- Test data records of all qualification and acceptance tests performed
- Certification of personnel as required by specification and/or contract
- Raw material and process certifications
- Material review reports

The Record File shall not be destroyed without written permission from KOLLMORGEN Corp.'s responsible Program Manager.

Traceability: The supplier shall ensure traceability of parts (assemblies, components and PWB) for each delivered item. Traceability information shall not be delivered to Kollmorgen Corp., but be available for Kollmorgen Corp. on request. Minimum information required:

1. Manufacturer of each part, i.e. CAGE code 2. Serial number / Date code / Manufacturer's batch code/ (order of precedence) If none of the information in "2" is available, the traceability shall be based on a unique supplier reference. Traceability shall be implemented from and including deliveries of qualification items. Parts without traceability information shall be handled as a major non-conformance.

Special processes: defined as those that affect the product in such a way that the result of the process can not be verified without a destructive verification test, shall be qualified if applicable, or when specified in the purchasing contract. The process qualification shall be the responsibility of the supplier. When the process is qualified it shall be regarded as frozen, and any change will require a re-qualification. Further requirements for such process qualifications will be defined by the process requirement specification. The process values and results from special processes shall be documented for each part or lot.

Welding is applicable if specified in the purchasing contract. Qualification of weld procedures and weld personnel shall be performed if welding operations are included in the subcontracted work. This qualification shall be based on the Euro Normatives EN729, referring to EN287 and EN288, which are equivalent to qualification requirements of AWS D1.1/D1.2. The WPS's shall be qualified according to their respective Welding Process Qualification (WPQ) documents, and shall be presented at the contractual reviews and First Article Inspection/Test, and shall be subjected to production baseline. Any change will have to be approved by KOLLMORGEN Corp.'s responsible Program Manager. Any welder, assigned for performing any kind of welding operation shall be certified for the relevant welding operation. Qualified inspectors shall carry out verification of weld quality and workmanship, based on the relevant standard acceptance criteria as laid out in the WPQ and Welding Procedure Specification (WPS). The WPS shall be included on the contractual baseline upon approval. Any change to this approved procedure shall be accompanied with an updated WPQ and forwarded to KOLLMORGEN CORP. for approval.

Workmanship: If not otherwise specified in the Purchasing Contract, the following shall apply:

Electronic production

IPC-A-610, Acceptability standard of electronic assemblies, Class 3

IPC/WHMA-A-620 Requirements and Acceptance of Cable and Wire Harness Assy's, Class 3

IPC/EIA J-STD-001 Requirements for Soldering Electrical and Electronic Assemblies.

MIL-HDBK-454, General guidelines for electronic equipment, Guideline 9, Workmanship.

ESD Control

The subcontractor shall implement and maintain an ESD Control Program according to:

- MIL-STD-1686, ESD Packing Protection
- IEC 61340-5-1, ESD Protection of electronic devices from electrostatic phenomena - General requirements
- EN100 015-1, Basic specification. Protection of electrostatic sensitive devices. Part 1 General requirements.

Marking: The marking process shall be according to NS-EN 2851 and the drawing, and shall be permanent with good visibility. With reference to NS-EN-2851 Table 1 code 1, 2 and 3 is to be understood as follows:

- 1) Part number and revision
- 2) Cage code
- 3) Serial number

Preferred serial number format if required per part drawing:

Character 1-5: Cage code (shall always be the first manufacture)

Character 6-11: Sequential number for each manufacture

The manufacturer shall assign identifiers including serial and lot numbers, as necessary to establish identification for each item of hardware and software. Items shall be marked or labeled with their applicable identifiers to enable correlation between the item, its configuration documentation, and other associated data, and to track maintenance and modification actions performed. Thus, serial and lot numbers are also known as tracking identifiers. The individual item or unit of a product shall be assigned a unique product unit identifier (Serial Number) when there is a need to distinguish one item or unit of the product from another. When a product is modified, it retains its original product unit identifier (Serial Number) even though its part identifying number is altered to reflect a new configuration.

A series of like items or units of a product is assigned a unique product group identifier (Lot Number or Date Code) when it is unnecessary or impracticable to identify individual items or units but nonetheless necessary to correlate items or units to a process, date, event, or test. Contractor's serial number format is acceptable in lieu of format described above.