

**REVISION HISTORY**

<u>REV</u>	<u>DATE</u>	<u>ORIGIN</u>	<u>REASON FOR CHANGE(S)</u>
C	7/22/02	Scott M. Ubl	New format
D	06/25/09	Scott M. Ubl	Updated production shipments note
E	5/04/18	Daniel Crouse	Added PCN language

**Q-CODE Q1A QUALITY REQUIREMENTS**

The following are the quality requirements for product purchased under Q-code Q1A which will be submitted for tool approval. Unless a written waiver is received from Plexus, the supplier agrees to abide by the quality requirements listed below.

**Pre-1<sup>st</sup> Shipment** - Before a product will be released for production the supplier will be required to perform a pre-production run in order to demonstrate their ability to produce a 7-Sigma part. The following are steps which will be taken by the supplier:

- A. Manufacturing Process Flow - The supplier must submit a process routing or flowchart which describes the manufacturing process.
- B. Quality Control Plan - The supplier must submit a detailed Quality Control Plan describing how quality will be monitored throughout the process.
- C. Process F.M.E.A. - a Process Failure Modes and Effects Analysis will be submitted which addresses potential failure modes of each process step.
- D. 200 piece Pre-Production Run - The supplier will manufacture and submit a minimum of 200 pieces off of production tooling and processes representative of a repeatable process. During the manufacture of the parts the supplier will employ the use of X-bar and R Charts to monitor the process. During production of 200 pieces the supplier will sample 10 subgroups of 3. From these pieces the supplier will perform a capability study process control dimensions.
- E. Capability Study - During production of the 200 pieces the supplier will sample 30 pieces. From these pieces the supplier will perform a capability study on all customer designated CTF dimensions; calculating X-bar, Sigma, Cp and Cpk values and submitting all associated data to customer.
- F. First Article Inspection Report - From this lot of 200 pieces the supplier will perform a first article inspection report and will submit a report on 1 piece.
- G. Material Certification.
- H. Certificate of Compliance.
- I. All cartons, packing slips and C.O.C.'s must have part number, EC level or revision, quantity and P.O. number listed on them.

Upon receipt of these items, Plexus will verify the supplier's CTF capability study and first article inspection report. Tool approval will be based on the following criteria:

- I. Supplier's process control dimensions have Cp values greater than 2.333 and Cpk values greater than 1.833.
- II. Both supplier's and Plexus' CTF capability studies show that all CTF dimensions have values greater than 2.333 and Cpk values greater than 1.833.
- III. Both supplier's and Plexus' first article inspection report show all dimensions to be within 75% of the print tolerance.



If any of the above criteria are not met the supplier must make appropriate tool and process corrections and resubmit 200 pieces with the above listed documentation or print specifications must be revised. If the above criteria are met, the supplier will be granted a Certificate of Tool Approval from Plexus and the product will be released for production. For production shipments the supplier will be required to abide by the Q-code Q1B quality requirements unless otherwise assigned or approved by Plexus.

The above listed documentation must be submitted with each shipment. Any shipment received without this documentation will be considered defective.

### **Product change notification**

Upon acceptance of conforming product, documentation, and the requirements of this Q-code, the supplier's manufacturing process shall be considered "qualified". All changes require written approval from Plexus prior to implementation. Product or Process change notification requests (PCNs) shall be submitted to [pcns@plexus.com](mailto:pcns@plexus.com).