



## Q-CODE Q17A QUALITY REQUIREMENTS

The following are the quality requirements for product purchased under Q-code Q17A. Please reference the Plexus Supplier Quality Manual [DCS 10503](#) for additional details and purchasing requirements.

### QUALIFICATION

Unless a written waiver is received from Plexus, the supplier agrees to abide by the quality requirements listed below and resubmit appropriately for any product or process change. The following steps and deliverables are required of the supplier. The supplier is required to submit the qualification documentation and receive approval from Plexus prior to shipping product.

- A. **Manufacturing Process Flow** - The supplier must submit a process routing or flow chart which describes the manufacturing process.
- B. **First Article Inspection Report** - All dimensions must be within print tolerance. Any dimension which is not within print specification must be approved by Plexus in writing before product can be shipped. The FAIR must be complete and include the requirements as listed in the Plexus Supplier Quality Manual [DCS 10503](#).
- C. **Material Certification**
- D. **Process Capability Studies** - During the qualification run, the supplier will sample 30 pcs that represent the distribution of the process. Using these samples, the supplier will perform a capability study on all special characteristics (e.g., CTQ, CTF, etc.) and supplier selected process control characteristics. The process capability report will include the following: control charts; calculated values for X-bar and Sigma; histogram; Cp and Cpk values; and all associated data. Unless otherwise communicated by Plexus, the results must meet a minimum Cpk of 1.33.  
Exception: If the Cpk requirement cannot be met, the supplier must instead perform 100% ongoing inspection and this will be indicated in the Quality Control Plan.
- E. **Measurement System Analysis (MSA)** - All measuring strategies for special characteristics and process control characteristics must be studied with a MSA.
  - Studies for variable measurements must use a minimum 3 operators, 3 trials and 10 pieces in a MSA/Gage R&R report. The report will include values for %R&R and %P/T. Measurement systems with R&R and P/T values <25% will be considered acceptable. Measurement systems with R&R and/or P/T values >25% may be acceptable with sufficient mitigation and/or rationale.
  - For attribute measurements and destructive measurements, the MSA plan and acceptance criteria shall be reviewed and approved by Plexus prior to completion of the study.
- F. **Process Failure Mode and Effects Analysis (PFMEA)**
- G. **Quality Control Plan** - The supplier must submit a detailed QCP describing how all process, quality and inspection steps will be executed and monitored throughout the process. The QCP is a map of the systems, tools, gages and equipment used to control the quality of the part, minimizing process and product variation. All special characteristics (e.g., CTQ, CTF, etc.) and supplier selected process control characteristics must be identified on the QCP. The QCP must be utilized and updated to reflect changes over the life of the product.



If the above qualification criteria are met, utilizing the defined processes, the supplier will be granted approval from Plexus. If any of the above criteria are not met, the supplier must notify Plexus and use the data to make the appropriate tool, sampling, measurement system and/or process corrections in order to re-execute the qualification successfully before concessions to this plan can be made. Any concessions made will require an alternative strategy with approval by the supplier and Plexus with an updated QCP. This most commonly will include a 100% sampling or use of a Poke Yoke device.

## ALL SHIPMENTS

The following are the quality requirements for all shipments of purchased parts qualified per this Q-code. Unless a written waiver is received from Plexus, the supplier agrees to abide by the quality requirements listed below.

- A. **Approved for Production** - the supplier must use the approved process (as defined in the qualification above) to manufacture and supply the part.
- B. **Ongoing Monitoring of Special Characteristics** - the supplier must continue to monitor all special characteristics per the sampling plan documented in the approved QCP, and maintain the minimum Cpk requirement as defined above (not required if characteristic is 100% ongoing inspected). Records will be maintained by the supplier and available to Plexus upon request. If at any time the Cpk falls below the minimum requirement, an alternative inspection plan must be developed and approved by Plexus.

Documentation to be included with each shipment:

- C. **Material Certification**
- D. **Certificate of Compliance** - Must be titled as such and include a statement of compliance to all applicable specifications (statement is not required to list, but shall cover all the applicable specifications such as drawing, PO, customer specifications, Plexus G9000-3, NFS, IPC specifications, UL, etc.). It also must include the following information for traceability:
  - Name of Supplier (if different than the actual Manufacturer/OEM/OCM)
  - Plexus part number ordered on the Plexus PO
  - EC level or Revision level as specified on the Plexus PO for the Plexus part number ordered
  - Quantity Shipped
  - Plexus PO number
  - Name of Manufacturer/OEM/OCM
  - Manufacturer's/OEM's/OCM's Part Number
  - The Manufacturer/OEM/OCM Lot numbers or Date Codes (both are preferred) for each shipment
  - Location or place of manufacture
  - If the product has a shelf life, the manufacturer or cure date, batch number, the shelf life and expiration date must be included (note: the remaining shelf life must be greater than 50% of the stated shelf life). Any special handling and/or storage requirements must also be included
  - Name and title of supplier representative certifying the product

All cartons, required documentation, labels, packaging and packing slips must have the Plexus part number, EC level or revision (if applicable), date code(s), quantity, and P.O. number listed on them.

Shipments received without the completion and proper execution of these Quality Requirements are considered non-conforming and Plexus reserves the right to return to the supplier at the supplier's expense.



## PRODUCT CHANGE NOTIFICATION

Product or Process change notification requests (PCNs) shall be submitted to pcns@plexus.com, please reference the details of our PCN policy and requirements in the Plexus Supplier Quality Manual DCS 10503.

### REVISION HISTORY

REV	RELEASE DATE	ORIGINATOR	DESCRIPTION OF CHANGE(S)	REASON FOR CHANGE(S)
A	06 JUN 2016	Robert Lange	New - Initial Release	New - Initial Release
B	29 SEP 2016	Eric Steif	Added clarification language to COC requirement	Added clarification language to COC requirement
C	04 MAY 2018	Daniel Crouse	Added PCN language	Added PCN language
D	01 DEC 2020	Joyce Conn	Re-write, new document format, added clarification re capability and MSA requirements	Clarification of requirements, improve consistency with other standard Q-codes