Document Routing/Approval Record

Reason for Revisions and Sections Affected:

Revision A Initial Release

Revision B 6.1 Paragraph 3: Added: new or, deleted: of the new facility. 6.1 Paragraph 4: Added: Potential, deleted: new. 9.1 Changed will to may. 12.1 Changed will to may. 12.3.1 Added: paragraph 3 from 13.1 section.12.5.1 Added: lack of. 13.1 Deleted: 5 days early and. Deleted * Product will be accepted by CDI Receiving Inspection 5 days early. 13.1 Paragraph 2: Changed will to may. Added: The timeframe shall be on a monthly basis. 14.1 Changed will to may. Added: The timeframe shall be only a monthly basis. 15.3.1 Added: CDI to bullet 2. 15.3.2 Added: The C of C shall document CDI Part Number(s) and CDI Purchase Order Number.

Revision C Added 15.3: All external threads on parts supplied to CDI should have thread protection.

Revision D Added section 15.4.5 Quality Policy and modified section 12.0

Revision E Revised section 12.4.1: When a supplier drops below an acceptable range on Delivery or Performance a SCAR will be issued, however if the supplier continues to stay below an acceptable range an ISQ Meeting will be required at CDI. Also, removed the section on Supplier Acknowledge letter.

Approvals

Title	Signature	Date
Owner: Approval (Manager in affected area)	Jim Dashner	04.05.2017
Approval (Production) Production Manager	Jon Adams	04.05.2017
Approval (Engineering) Engineering Manager	Dustin Manry	04.05.2017
Approval (Quality) Quality Manager	Jim Dashner	04.05.2017
Approval (Management) Vice President	Jason Farque	10.25.2016

Table of Contents

1.0 Purpose

1.1 The purpose of this manual is to communicate CDI's quality requirements and expectations to suppliers. It is the intent of CDI to do business with suppliers who are able to provide parts/materials/processes and services consistently to manufacturer specifications, CDI drawings and specifications, at a competitive price, and in accordance with the defined delivery schedule. This manual is intended to assist suppliers in their understanding of requirements regarding specific management, communication, and reporting processes.

2.0 Scope

2.1 The contents of this manual apply to all CDI suppliers of manufacturing material/parts/products and services.

3.0 Quality System Requirements

3.1 CDI encourages suppliers to develop fundamental quality systems that provide for continuous improvement and emphasize defect prevention while reducing variation and waste.

At this time CDI does not require suppliers to obtain certification to ISO 9001; however, suppliers are strongly encouraged to use ISO 9001 as the basis for their quality system development.

CDI does require suppliers of ATEX products to send an ATEX Certificate of Compliance with products shipped to CDI.

4.0 Purchase Order Requirements

4.1 The supplier shall adhere to all Purchase Order Terms & Conditions and any stated special instructions. The PO is the controlling document and overrides any requirements specified in this document

5.0 Approved Supplier List

5.1 Production parts/materials/processes and services will only be purchased from suppliers on the CDI "Approved Supplier" list. CDI evaluates and selects suppliers based on their ability to supply product/services in accordance with specified requirements.

6.0 Supplier Assessments

6.1 With prior notification CDI will conduct Supplier Quality System audits at supplier facilities. The goal of the audits is to understand suppliers' capabilities and quality systems and identify continuous improvement opportunities.

Potential suppliers can be audited as part of CDI sourcing process. Current suppliers may be audited if there are ongoing quality problems.

Machines, tooling, patterns, dies, and gauging tools moved to a new or different supplier manufacturing facility may require a Quality System audit. Approved suppliers are prohibited from moving tools without prior notification and approval from CDI.

Potential Suppliers will be sent a Supplier Evaluation Form (FM-03-0011) before the audit date. This evaluation should be returned prior to CDI conducting the audit. Following the audit CDI will forward our findings and any needed corrective actions on the part of the supplier. Results of the audit will be used in the sourcing decision of potential suppliers.

7.0 First Article Submission Process

7.1 Suppliers, when required, are to obtain approval for initial production part prior to shipment through CDI's First Article Approval Process. First Articles will be submitted to the Engineer for approval. Once the engineer completes a visual and dimensional inspection, parts will be released to our R&D Lab for the initial build process.

8.0 Electrical Components and Printed Circuit Boards

8.1 Counterfeit components are not allowed.

9.0 Temporary Deviation

9.1 If a supplier manufactures a product that does not conform to CDI specifications and lead-time does not allow permanent corrective action due to CDI's production requirements a temporary deviation request must be submitted to CDI and approved prior to shipping non-conforming material.

CDI approval may be based on how deviations might impact the form, fit and function of the parts.

Deviation requests must include details of the non-conformance and the number of parts affected.

10.0 Process Change Request (PCR)

10.1 A Process Change Request Email must be submitted and approved if any of the following occur.

- Manufacturing location changes
- Sub-supplier changes

*NONE OF THE ABOVE CHANGES CAN OCCUR PRIOR TO APPROVAL

11.0 Engineering Change Request (ECR)

11.1 Should a supplier wish to make a permanent change to a part or drawing an Engineering Change Request (ECR) Form (FM-03-0005) must be submitted to CDI and approved prior to any change by CDI Design Engineering.

12.0 Problem Resolution – SCAR Process

12.1 Upon receipt of nonconforming material CDI may issue a Supplier Corrective Action Request (SCAR) report. Nonconforming material can be found during incoming inspection, audit, assembly or warranty returns.

If problems are found during pre-production trials or are considered minor issues CDI may issue a NCR (FM-03-0091) to the supplier describing the problem.

Return Material Authorization (RMA) must be provided for material that is defective or considered suspect and needs to be returned to the supplier.

CDI reserves the right to sort suspect material to avoid shutdown of its production lines.

Within 20 business days of notification of defects suppliers must:

- Define and verify Root Causes of defect and Escape
- Determine and Implement permanent corrective actions for Root Cause and Nonconforming condition
- Verify and Validate permanent corrective actions

CDI will analyze the final SCAR response and provide the supplier with a decision on closure of the SCAR. SCAR responses will be Accepted, Conditionally Accepted or Rejected. Resubmission of the SCAR response with discrepancies corrected is required within 5 business days.

12.1 Problem Solving Expectations

12.1.1 When CDI issues Supplier Corrective Action Requests (SCAR's) (FM-03-0062) suppliers are required to submit a formal response. SCAR responses must be in the format supplied by CDI. Below is list of information that is required to be included in the SCAR response.

Problem Statement

- Define problems in detail
- Identify "what is wrong with what"
- List CDI requirements concerning defect
- Identify when the problem started
- List manufacturing dates of defective material

Interim Containment Action

- Define and verify Interim Containment Actions
- Provide daily sort results
- All stock locations should be purged of suspected nonconformance
- Describe method of sorting

- Validate effectiveness of ICA

Root Cause Analysis

- Define in detail the "true" root cause
- Verify the "true" root cause
- Address the Escape Point (Place in the process where the effect of the root cause should have been detected and contained)
- Use the 5 Why approach

Permanent Corrective Actions

- Must address the root cause and the Nonconforming Point
- Must be very detailed and describe who will do what and how it will be implemented and when.
- Verify and validate the corrective actions. Describe in detail method of verification.
- Corrective actions must not cause any other problems

Prevent Recurrence

- Modify necessary policies and procedures to prevent reoccurring problem
- Evaluate whether corrective actions can be implemented on similar products or processes.

Approval and closure of SCAR Responses will be at the discretion of CDI Quality Assurance. All SCARs will remain open until problem-solving requirements are met.

12.2 Containment

12.2.1 Suppliers are responsible for developing a process to protect CDI from receiving material that does not meet the quality requirements and specifications set by CDI. Notification to CDI must occur anytime suspect material has been shipped. Suppliers are to notify CDI Purchasing or Quality Department. Suppliers must include at minimum elements of the following process of containment.

12.2.2 Controlled Containment

Suppliers will be placed into Controlled Containment as a result of CDI or customer receipt of defective material. Suppliers will be required to take

immediate actions to cease shipping defective material. These actions include:

- Sending 100% certified parts for all shipments to CDI.
- Marking certified parts as agreed to by CDI.
- Sending certified replacement parts to replace suspect parts in-transit and in CDI inventory.
- Utilizing a Certified Part identification label to identify certified shipments.
- Collecting daily sort data and reporting findings to CDI.

Suppliers will be released from Controlled Containment once the SCAR response has been approved.

12.3 Supplier Development

12.3.1 CDI will provide assistance to suppliers having trouble meeting performance levels and specifications set by CDI if required by the Quality Manager.

CDI will assist in:

- Resolution of critical issues
- Assist suppliers with improvement activities
- Work with potential suppliers to improve capabilities to be added to the Approved Supplier List
- Conduct specific training when a need has been identified.

12.4 Supplier Quality Meetings

12.4.1 Poor performing suppliers will be required to answer a Supplier Corrective Action Request when their performance drops below acceptable levels. If the supplier continues to be delinquent on deliveries or subjectable to bad product an Improvement Supplier Quality Meeting will be required and Supplier will be asked to present containment and corrective actions to improve their performance in the deficient areas identified by CDI. Suppliers can be called to attend ISQ meetings for:

- Poor Quality
- Repetitive Issues
- Lack of Responsiveness to concerns raised by CDI
- Severe quality rejections
- Delivery problems

12.5 Business Hold

12.5.1 Suppliers may be placed on CDI business hold list if the supplier is financially unstable, has severe quality or delivery problems that are unresolved. The supplier will be notified upon being placed on the Business Hold List.

The following may occur if a supplier is placed on Business Hold

- Formal meeting with CDI
- Removal from Approved Supplier List
- No longer allowed to quote on any future business
- Supplier Development efforts by CDI

To be removed from the Business Hold list the supplier must implement corrective actions for the cause of their deficiencies and address preventative actions to prevent recurrence. A plan for implementation must be provided to CDI for approval. Once a supplier has satisfied the requirements of CDI they will return to the Approved Supplier List.

12.6 Cost Recovery

12.6.1 Suppliers can be held responsible for all costs associated with CDI or CDI's customers receiving defective material. Costs may include, but are not limited to:

- Administrative
- Sorting of suspect material
- Rework
- Customer Charges
- Premium Freight
- Production Downtime
- Cost to create NCR
- Third party containment
- Scrap
- First Article rejection
- Overtime
- Laboratory Testing
- Travel
- Cost to create SCAR

All costs will be debited from the suppliers account. Upon notification of the intent to debit, suppliers will have 10 days to appeal the charges. If there is no

response from the supplier CDI will consider this lack of response as acceptance of the charges.

13.0 Delivery Requirements and Delivery Rating

13.1 Suppliers are required to achieve 95% on time delivery. If a supplier is unable to deliver product by the required due date, it is the supplier responsibility to notify CDI Purchasing Agent as soon as possible. On Time Delivery will be calculated using the timeframe for shipping product of 0 days late.

A SCAR may be issued for a supplier not meeting 95% On Time Delivery Rating. The timeframe shall be on a monthly basis.

14.0 Quality Rating

14.1 Suppliers are required to achieve 95% and above Quality Rating. Quality Rating will be calculated by number of defects divided by total quantity received *100.

A SCAR may be issued for a supplier not meeting 95% Quality Rating. The timeframe shall be on a monthly basis.

15.0 Packaging

15.1 Product Identification

Supplier shall identify parts with traceability markings as dictated per CDI drawings, specifications, Purchasing and Design Engineering using the following methods:

- Permanent Marker – Halogen free
- Laser Etching
- Weatherproof labeling
- Engraving
- Stamping
- Cast or Forged In

*No mixed heat codes are allowed, separate packaging or dividers are required.

15.2 Components and Printed Circuit Boards must list the manufacture part number, quantity, date code verification and RoHS status.

15.3 All external threads on parts supplied to CDI should have thread protection.

15.4 Shipment Identification

15.4.1 Packing Slip - Supplier shall provide a packing slip or attachments for each separate shipment with the following minimum requirements:

- Supplier's company name and address. Note: The manufacturing/shipping address that has been reviewed and approved by CDI for the supplier listed on the purchase order must be noted on the packing slip or certification.
- CDI Purchase order number, line item (s) and CDI part numbers.
- CDI disposition of nonconformance document number(s); if applicable.

15.4.2 Certificate of Conformance

Supplier shall provide a Certificate of Conformance (C of C) assuring that all work performed in connection with the purchase order conforms to requirements their in. The C of C may be a separate document or included on the packing list. The C of C shall document CDI Part Number(s) and Purchase Order Number. The supplier's Quality management or designee must sign and/or stamp this document.

Distributors shall attach original manufacturer's Certificate of Conformance with their own Certificate of Conformance.

In the event of shipping multiple lot codes of the same part number, each lot code and the corresponding quantity must be stated on the C of C.

Exception can be given only by CDI Quality Assurance Manager.

15.4.3 Suppliers of Age Sensitive Materials

Supplier shall provide original manufacturing/cure date, and lot number(s), and the shelf life expiration date (if indefinite or unlimited, so state). The supplier shall physically identify the shelf life expiration date on the deliverable product or the unit packaging according to the applicable standard. In addition, Supplier shall forward any special storage/handling instructions to CDI. Supplier is responsible to determine if acceptance test report submittal is required in accordance with

applicable material specification. Date sensitive materials must have at least 85% of their active shelf life remaining at the time of shipping to CDI.

15.4.4 Electronic parts or components must meet the following packaging requirements:

Original factory sealed with moisture barrier protection verified (MSL)-vacuum sealed and humidity indicator with specification (HIC) when required.

15.4.5 **Quality Policy Statement**

It is the mission of CDI to manufacture the best and most modern pipeline pig tracking, locating, and communications equipment for our global customer base. Quality, durability, and safety are the focus of every member of our friendly and responsive staff.

CDI's emphasis on quality is met in the following ways:

1. By providing customers with high quality pipeline pig tracking and communications solutions and services which meet customer requirements and are fit for purpose.
2. By operating the business and its systems as required by ISO 9001:2015.
3. By enhancing the skills of management and staff through regular review and by pursuing an on-going training program, the objective of which is to prepare staff to perform their work more effectively and safely.
4. By promoting a culture of continual quality improvements and through the philosophy of getting things done on time and "right the first time".
5. By promoting the quality management systems and ensuring implementation is achieved by regular internal auditing, management review, corrective and preventive actions.

CDI's Quality Objectives are:

1. 98% On Time Delivery
2. 95% Customer Satisfaction
3. 93% Employee Retention

Quality objectives are derived from the Quality Policy. Quality objectives have been established to continually improve the Quality Management System (QMS) as a whole as well as each management process, extending to processes involved with meeting product requirements. Quality objectives are measurable, so that they can be analyzed during Management Review to determine the degree to which they are met.

16.0 REVISION HISTORY

Revision/Date	Description of Change	16.0

Revision A / 6.03.2014 Initial Release

Revision B / 12.10.2014 6.1 Paragraph 3: Added: new or, deleted: of the new facility. 6.1 Paragraph 4: Added: Potential, deleted: new. 9.1 Changed will to may. 12.1 Changed will to may. 12.3.1 Added: paragraph 3 from 13.1 section.12.5.1 Added: lack of. 13.1 Deleted: 5 days early and. Deleted * Product will be accepted by CDI Receiving Inspection 5 days early. 13.1 Paragraph 2: Changed will to may. Added: The timeframe shall be on a monthly basis. 14.1 Changed will to may. Added: The timeframe shall be on a monthly basis. 15.3.1 Added: CDI to bullet 2. 15.3.2 Added: The C of C shall document CDI Part Number(s) and CDI Purchase Order Number.

Revision C / 9.25.2015 Added 15.3: All external threads on parts supplied to CDI should have thread protection.

Revision D 10.25.2016 Added section 15.4.5 Quality Policy

Revision E 04.05.2017 Revised section 12.4.1: When a supplier drops below an acceptable range on Delivery or Performance a SCAR will be issued, however if the supplier continues to stay below an acceptable range an ISQ Meeting will be required at CDI. Also, removed the section on Supplier Acknowledge Letter.