3rd Edition



Johnson Controls, Inc. Supplier Quality Requirements Manual

Any procedure changes within this manual will result in an update of the complete manual revision date and number.

This manual is a controlled document. No changes or revisions to be made unless submitted by Johnson Controls Inc. Supplier Quality.

Copies of this manual may be obtained by notifying Johnson Controls Inc. Supplier Quality.

Supplier Quality Manual may be viewed on www.JohnsonControls.com

Suppliers’ link

PS-PTP-ST-118-E, Rev 3, 2017

# Purpose

The purpose of this document is to communicate the supplier quality expectations of Johnson Controls- Power Solutions (JCI-PS). The quality of supplied direct parts, material, services, tooling and equipment, etc. is a direct reflection on the supplier’s management of quality systems, product development cycle, manufacturing processes, capital expenditures and maintenance, customer focus, organizational leadership and continual improvement efforts.

**Scope**

This standard applies to all approved direct material and select critical indirect material and service suppliers to JCI-PS worldwide locations.

Suppliers are expected to comply with all sections of this supplier quality manual as well as to the general terms and conditions of the purchase order. Any requirement section **not referenced** in this document indicate there are no additional requirements from Johnson Controls, Inc. JCI-PS Procurement and Supplier Quality will provide additional clarification or direction, as needed.

**Requirements**

In this manual, the terms "shall" and "must" mean that the described action is mandatory; "should" means that the described action is necessary and expected with some flexibility allowed in the method of

compliance; and “may” means that the described action is permissible or discretionary.

Table of Contents

Definitions and abbrevations……………………………………………………………………………………………...…..5

Quality Management System Requirements ……………………………………………………………………….…6-7

2.1 General Requirements

2.2 Environmental

2.3 Control of Records

2.4 Customer Specific Requirements

2.5 Electronic Data Interchange Requirement (EDI)

2.6 Customer Communication

Supplier DevelopmenT………………………………………………………………………………………………………………..7-8

 3.1 Purchase process

 3.2 Supplier quality management system development

 3.3 Customer Approved Sources

LEADERSHIP…………………………………………………………………………………………………………………………………….8

 4.1 Management Responsibility

PLANNING……………………………………………………………………………………………………………………………………….8-10

 5.1 Provision of Resources

 5.2 Supplier Training Requirement

 5.3 Training on the Job

 5.4 Infrastructure

 5.5 Plant, Facility and Equipment

 5.6 Risk Analysis

 5.7 Work Environment

SUPPLIER OPERATIONS…………………………………………………………………………………………………………..……11-14

 6.1 Advance Product Quality Planning (APQP)

6.2 Prototype Requirements

6.3 Pre-Launch Production Trail Run

6.4 Production Part Approval Process (PPAP)

6.5 International Material Data System (IMDS)

6.6 Special Characteristics

6.7 Statistical Process Control (SPC)

6.8 Measurement System Analysis (MSA Studies) (Gage R&R)

6.9 Calibration/Verification Records

7.0 Laboratory Requirements

7.1 Certificate of Analysis (COA)

7.2 Manufacturing Process Design Input

HANDLING, STORAGE, PACKAGING, PRESERVATION…………………………………………………………………14-16

8.1 First In First Out (FIFO)

8.2 Identification and traceability

8.3 Preservation of Product

8.4 Incoming Product Conformity to Requirements

8.5 Supplier Routing Instruction

8.6 Product Safety & Regulations

SUPPLIER PERFORMANCE EVALUATION……………………………………………………………………………………16-19

 9.1 Supplier Scorecard

 9.2 Supplier Escalation

 9.3 Supplier Notification Report and Supplier Chargeback

 9.4 Supplier Requalification –Layout Inspection and Functional Testing

 9.5 Quality Management Systems Audit

 9.6 Management Process Audit

SUPPLIER CHANGE CONTROL…………………………………………………………………………………………………….19-20

 10.1 Change Management

 10.2 Supplier Change Approval

 10.3 Supplier Deviation Approval

CONTROL OF NONCONFORMING PRODUCT ………………………………………………………………………………………………20-21

 11.1 Controlled Shipping Level 1 and 2 (CS1 and CS2)

 11.2 Notification of Certification Body

 11.3 Cost of Nonconforming

IMPROVEMENT....................................................................................................................................21

 12.1 Quick Response Problem Solving

CONTINGENCY PLAN/CRISIS MANAGEMENT……………………………………………………………………………………22

 13. Contingency Plans

ADDITIONAL Johnson Controls, Inc. SPECIFIC REQUIREMENTS…………………………………………………………23

 Ethics Policy

 Hierarchy of Document Requirements

 Material Management Operations Guideline (MMOG)

 Conflict Minerals Policy

 Supplier Diversity Policy

 Terms and Conditions

REFERENCES……………………………………………………………………………………………………………………………….…..24

APPENDIX – Region Specific Requirements ……………………………………………………………………………….......25

# 1. Definitions and Abbreviations

Critical Indirect – Any material not listed on the Bill of Material (BOM), but is critical for the manufacture process of components or a final product.

Direct Materials – Materials used by JCI-PS plants to manufacture components or a final product and are included in the BOM.

CR – Engineering Change Request

CO – Engineering Change Order

Statement of Review and Acceptance (SRA) – Form used to review and confirm that a supplier can meet a material specification or drawing.

Supplier Non-Conformance Report (SNR) – Report used when a JCI-PS Plant location receives material out of specification from a supplier.

8D Report – 8D methodology uses a structured eight step approach to problem solving. The objective is to face the problem and discover the weaknesses in the manufacturing/management systems that permitted the problem to occur in the first place. The output of an 8D process is an 8D report.

PSW – Part Submission Warrant - This is the form that summarizes the whole PPAP package. This form shows the reason for submission (design change, annual revalidation, etc.) and the level of documents submitted to the customer.

Production Part Approval Process (PPAP) – Evidence that all customer engineering design record and specification requirements are properly understood by the supplier and that the manufacturing process has the potential to produce product consistently meeting these requirements during an actual production run at the quoted production rate.

SAS – Supplier Assessment Survey a process to determine if a new or existing direct material suppliers meet the minimum quality system requirements established by Johnson Controls.

SQE – Supplier Quality Engineer

BSS – Brazil Supplier Scorecard

PSO – Process Sign-Off is a method to verify that a Supplier’s quality planning processes have been successfully executed and that its production processes are capable of producing quality parts in sufficient quantity for production.

MQR – Management Quality Review – A formal forum in which elevated supplier quality issues are reviewed with a JCI-PS cross-functional leadership team and the supplier.

**2. Quality Management System Requirements**

##  2.1 General Requirements - Write sentence for supplier Non-ISO Certified

* Suppliers that have not achieved certification to IATF 16949 must have at a minimum achieved certification to ISO9001 and a formal plan to demonstrate compliance to IATF 16949. Suppliers are required to submit updated copies of all required regional certifications (i.e. ISO9001, IATF16949, and ISO14001) on an annual basis to JCI-PS. Specific regional customers require supplier Tier 2 must have achieve IATF 16949 certification. A development plan must be defined with the respective region SQE.
* In the event a supplier **is not** certified to the above requirements, the supplier shall be subjected to an annual quality systems assessment by SQE. Suppliers at minimum should be in compliance with the “Minimum Automotive Quality Management System Requirements for Sub-tier Suppliers” available through <http://iatfglobaloversight.org/default.aspx>.
* Certification requirements applies to all central, technical and manufacturing sites.
* All renewal certificates must be submitted to Supplier Quality before the expiration date of the certificate. Failure to submit certificates or valid transition timelines will have a negative impact on the supplier’s scorecard and may jeopardize future business.
* Johnson Controls may verify the suppliers manufacturing location for compliance to these standards by performing an audit by a supplier quality representative.
* The IATF 16949 core elements are expected to be incorporated in the quality system. The core elements of APQP, PPAP, FMEA, MSA, & SPC (blue books) are available at AIAG.org. Suppliers are expected to have core elements in their QMS.
* JCI-PS SQE may support regionally in supplier development/ improvement if required.
* JCI-PS and its customers may audit the quality system, JCI-PS product, and process of the supplier with agreed advance notice.

# 2.2 Environmental

It is expected that all local government regulations are met. Suppliers should adopt an environmental management system that is in accordance with ISO 14001, or equivalent.

**2.3 Control of Records**

JCI suppliers shall maintain quality records such that they remain retrievable and legible upon request by JCI and subsidiaries. JCI requires record retention duration for “life of program”. Records related to nonconforming product for trend analysis and problem identification shall also be maintained. This requirement also applies to any supplier’s sub-supplier. Additional record retention requirements can be referenced per AIAG or ISO 9001 and/or IATF16949 (latest editions).

**2.4 Customer Specific Requirements**

The supplier and their sub-tier suppliers should have an effective process to cascade customer specific requirements. This includes but limited to all applicable technical requirements, quality system, drawings, specifications, regulatory requirements, the document and control of ‘key characteristics’ and/or ‘key processes’, and customer specific requirements (CSR’s) from JCI-PS customers. Follow link below for OEM CSRs.

<http://www.iatfglobaloversight.org/oem-requirements/customer-specific-requirements/>

**2.5 Electronic Data Interchange Requirements (EDI)**

Two-Way electronic supplier communication shall be enabled, if applicable, to have all data coming from an ERP system without manual data downloads. Firm releases or purchase orders and shipment notifications are the minimum requirement. EDI is the traditional tool used to communicate forecasts to suppliers. Web-EDI and other more advanced tools, such as e2Open are alternatives.

Suppliers shall have a backup method in the event the organization on-line system fails.

**2.6 Customer Communication**

 Written or verbal communication shall be in the language agreed with the customer. The supplier shall have the ability to communicate necessary information, including data in a customer-specified compute language and format (e.g., computer-aided design data, electronic data interchange).

**3. Supplier Development**

**3.1 Purchasing Process – (Kick-Off Process)**

Suppler Approval

In order to receive a production purchase order, a supplier must be approved per JCI Global Sourcing procedures. Criteria for approval could include, but is not limited to, the following:

* Mutual Non- Disclosure Agreement
* Certified Quality Management System
* Financial viability
* Supplier Review and Acceptance (SRA) of drawings/material specifications
* Supplier Statement of Work

Supplier Qualification

Once approved the supplier must be qualified for a specific raw material, part or commodity. In order to determine a supplier capabilities in several core competencies will include, but is not limited to, the following:

* Supplier Onsite Assessment
* APQP/PPAP
* Supplier Quality Requirements Manual Acknowledgement
* Risk Management
* Production Process Sign-Off

**3.2 Supplier Quality Management System Development**

JCI-PS may conduct a Supplier Assessment Survey (SAS) and/or request a self-assessment. The SAS will assess the supplier’s documentation and processes to ensure JCI-PS expectations are being met. It is the expectation to achieve greater than 60% of the core QMS competence criteria. In the event it has been determine a supplier does not meet the minimum criteria a targeted action plan must be implemented.

JCI-PS may schedule additional audits depending on performance.

**3.3 Customer Approved Sources**

Where specified by the JCI-PS Contract (e.g. customer engineering drawing, specification), the supplier shall purchase products, raw materials or services from approved sources.

The use of customer-designated sources, including tool/gauge suppliers, does not relieve the supplier of the responsibility for ensuring the quality of purchased products.

# 4. Leadership

# 4.1 Management Responsibility

Management Responsibility- Supplier management at highest levels shall demonstrate involvement and support for process efficiency, customer focus, quality policy, planning, defining responsibility, authority and communication and management review.

**5. Planning**

## 5.1 Provision of Resources

The supplier shall determine and provide the necessary resources to maintain and continually improve the system of quality management and also customer satisfaction by meeting customer requirements.

**5.2 Supplier Training Requirement**

Effective training and development system is established. Training records are available and tracked for all key processes affecting quality*.* All employees affecting quality are included, including design engineering.

**5.3 Training on the Job**

The supplier must ensure that every person in all levels of the company, which may affect product quality, has professional training and receive adequate training to function performance.

Including direct and indirect staff.

The supplier shall:

* Provide training to perform the function
* Evaluate the effectiveness of these trainings.
* Implement a system that ensures staff retraining at a frequency determined.
* Provide “on-the-job” training for any new job or modified process that affects product quality.
* Keep records of internal / external trainings, education and job retraining or recertification.
* Have a process to encourage employees to achieve quality objectives and to make continual improvements.
* Effective training and development system is established. Training records are available for all key processes.

## 5.4 Infrastructure

The supplier shall have an infrastructure that ensures compliance with the requirements of the product. The plant layout should be optimized in order to avoid excessive handling and transport, facilitating the material flow.

**5.5 Plant, Facility and Equipment Planning**

Lean Manufacturing principles should be understood with evidence of implementation. If not fully implemented, a plan for managing, training and implementation is in place and implementation tracked with progress evident. Examples of Lean: ( 5S, Value Stream Mapping, Error Proofing, Quick Change-Over, Kan Ban, Kaizen, Total Productive Maintenance, Visual Management).

**5.6 Risk Analysis**

Suppliers are expected to perform risk analysis, and consider lessons learned for example from JCI-PS product complaints, product audits, field returns, repairs, scrap, and rework.

## 5.7 Work Environment

**5.7.1 Personnel safety to achieve conformity to product requirements**

The use of Personal Protective Equipment is defined and in place.

### **5.7.2 Cleanliness of Premises**

Supplier is expected to follow 5S principles. The supplier’s manufacturing areas are well lit, free of clutter, clean and safety practices are evident that prevent injury.

## 6. Supplier Operations

## 6.1 Advance Product Quality Planning (APQP) - Design and development planning

Suppliers shall develop products according to the AIAG Advanced Product Quality Planning (APQP) Process.

Suppliers shall ensure the design and development planning activities (for e.g., APQP or VDA-6.3) are AIAG (latest version) Production Part Approval Process (PPAP) and Advance Product Quality Planning (APQP) must be followed and is required for all critical/significant parts and materials prior to serial production and during Program Management Phases.

The supplier will designate a contact person responsible for determining a cross functional team, establishing the Advance Product Quality Planning (APQP) documents and submitting documentation as required to JCI-PS Launch or change requirements.

**6.2 Prototype Requirements**

When required by JCI-PS, "Prototype", "Pre-Production" trial and initial production run after PPAP parts or material are expected to receive extra attention, testing, inspection and containment. These parts are to be clearly identified on the parts and/or containers as “Prototype” or “Pre-Production”, as well as the quantity, date, JCI-PS Part Number and Description of the part.

**6.3 Pre-Launch Production Trial Run**

Suppliers are expected to perform a Run@Rate or any other appropriate methods prior to PPAP, to verify that the actual production process can meet program volumes at the expected quality level. For select commodities a minimum piece run will be required. Suppliers will be advised on specific quantity requirements by JCI SQE.

Supplier should retain the first piece throughout the production run and maintain at the operation.

The last piece, once compared to the first piece and accepted, be kept until the next run of that product.

Suppliers must perform ‘all piece’ inspection, and chemical suppliers must test product(s) to meet specified material specification requirements during appropriate process intervals.

**6.4 Production Part Approval Process (PPAP) – Add Safe Launch**

Prior to serial production, JCI-PS expects to have an approved Part Submission Warrant (PSW);

Level 3 PPAP requirements are the JCI-PS default, but may be amended by JCI-PS Supplier Quality/Development to a different level (i.e. level 4) defined per local requirements after supplier assessment and review.

Bulk Material suppliers should follow the Bulk Material Requirements provided by JCI-PS Supplier Quality/Development. A separate PPAP is required for each part or material supplied.

Suppliers are expected to execute the process of qualification and PPAP by their own means, supported by JCI-PS.

During "Prototype" and "Pre-Production" Program Management Phases, prior to serial production shipments, APQP documents like, for e.g., Process Flow Diagram, Design and/or Process Failure Mode and Effects Analysis (D/PFMEA), Controls Plans, Measurement System Analysis (MSA), Inspection Reports, and Capability Studies, Feasibility Analysis, etc. are recommended to be developed.

Special characteristics must be identified on the JCI-PS drawing or specification and must be on the supplier’s Process Flow Diagram, FMEAs and Control Plans*.*

DFMEA is required where supplier is responsible for design.

When JCI-PS Plant locations are required to submit PPAP to their customer, all external production supplier PPAP documentation must no more than a year old.

Sub-Suppliers

JCI-PS expects suppliers to utilize the AIAG PPAP Process to document conformance of their purchased component and raw material suppliers (Sub-Suppliers). Sub-suppliers are assessed, approved and ongoing quality monitored. Suppliers may be required to provide a list of sub-suppliers that are being used.

# 6.5 International Material Data System (IMDS)

JCI-PS may require all suppliers to submit materials information as part of the PPAP Qualification Process. JCI-PS utilizes the IMDS to manage material and substance information for all products.

The substances report shall be submitted on the IMDS web site ([www.mdsystem.com](http://www.mdsystem.com)) or otherwise specified by our customer. To approve the PPAP it is necessary to place the MDS ID on PSW. (See AIAG PPAP Section 2.2.1.1 and 2.2.18). The JCI SQE of each region inform the ID unity for the supplier submit the IMDS.

**6.6 Special Characteristics**

Special Characteristics ( SC’s, … CC’s) may be identified on drawings or specifications that depict the minimum characteristics that are assigned for statistical control and capability, poke yoke or 100% inspection, as approved on Control Plan. Symbols and letters may be used, examples: K, \*, SC, CC or below, but not limited to your sourced local region:

|  |  |
| --- | --- |
|  |  Designates critical characteristic requiring process performance studies and ongoing monitoring per the Control Plan. Capability Indices > 1.67 or 100% inspection  |
|  | Designates significant characteristic requiring process performance studies and ongoing monitoring per the Control Plan. Capability Indices > 1.33 |
|  |  Designates significant/Critical characteristic requiring process performance studies at initial/subsequent customer/supplier part submission only. |

For bulk chemicals (i.e. acid) identified material specification attribute characteristics a quarterly analysis may be performed.

**6.7 Statistical Process Control (SPC)**

Statistical Process Control (SPC), Process Capability (Ppk/Cpk) Analysis (The long-term criteria for Capability Indices are > 1.67 for Critical Characteristics and 1.33 or greater for Significant Characteristics), Testing and Inspection are done per an approved Supplier Process Control Plan. Where no JCI-PS characteristics are identified on drawings and/or material specifications the supplier will manage SPC/process capability on critical processes or key product characteristics identified in their management system.

**6.8 Measurement system analysis (MSA Studies) (Gage R&R)**

This requirement should be applied to all measurement systems when applicable to be cited in the control plan. JCI-PS adopts as reference the [AIAG](http://www.aiag.org/store/quality/publications) - MSA Manual.

The supplier shall conduct statistical studies to analyze the variation present in each type of measurement system and means of control. MSA Study including Gage Repeatability and Reproducibility (GRR) must adhere to [AIAG](http://www.aiag.org/store/quality/publications) rules.

Suppliers must declare all study types (i.e. R&R, linearity, tendency, stability).

All inspection, measuring gages, test equipment, fixtures, etc., for product and key processes are to be calibrated to national standards.

**6.9 Calibration/verification records**

All inspection, measuring gages, test equipment, fixtures, etc., for product and key processes are to be calibrated to national standards.

**7.0 Laboratory Requirements**

Internal Lab- The supplier shall have conditions to perform tests, inspection or calibration services and the laboratory must have a written scope which includes the activities to perform. Must have procedures to perform the tests and meet customer specifications, as well as, trained staff to execute the activities.

External Lab- When the supplier cannot conduct tests, inspections and calibration services internally, external laboratories are to be accredited to ISO/IEC 17025 or national equivalent. Use of any non-certified outside lab must have written agreement with JCI-PS.

When there is no qualified laboratory for specific equipment, the calibration service can be done by the equipment manufacturer.

Bulk material testing frequency can be found in the material specification. If not, full specification to be tested at least annually.

Suppliers are to maintain master samples and production retains, as agreed.

 **7.1 Certificate of Analysis (CoA)**

Performance Reporting- unless otherwise waived in writing, an accounting with actual data will be provided with lot traceability. This data should be in the form of an electronic spreadsheet showing capability study results, end-of-line test results, inspection results, or for bulk materials the Certificates of Analysis (CoA) must show results versus JCI-PS specification. An e-mail with lot test data to the JCI-PS Plant Quality department and SQE is to be sent monthly as requested or other agreed upon timeframe, for trend analysis.

Certificates of Analysis in all cases CoA’s are expected to be sent to JCI-PS Plant with shipment and emailed to: [www.PS-Supplier-Quality@jci.com](http://www.PS-Supplier-Quality@jci.com) CoA’s are expected to display data to JCI-PS specification limits as specified on the material specification for most supplied parts unless directed otherwise by the SQE.

Certificate of Analysis (CoA**)** for all raw material used in the manufacturing of a purchased component are required to be kept on file at the supplier for a minimum of (3) years and made available to Johnson Controls Inc. upon request. Material certifications are required with each shipment of direct raw materials, such as chemicals and plastic resins. CoA must include Johnson Controls specification limits for required significant and critical characteristics identified.

**7.2 Manufacturing process design input**

Poke-Yoke, Mistake-Proofing or Error Prevention practices, as appropriate, should be evident and reviewed*.* Focus should be for repetitive functions, difficult task prone to mistakes, or where the cost for error is high*.*

**8. Handling, Storage, Packaging, Preservation**

Suppliers are responsible for ensuring that the appropriate measures are conducted and maintained to preserve product quality during process handling, storing, packaging, preservation, and delivery.

The supplier is responsible for packaging the parts/ material in such a fashion as to ensure product integrity and prevent damage upon receipt at JCI-PS and is evaluated at PPAP.

The supplier is responsible for monitoring the self-life of the product and should not ship product that has exceeded its product life.

**8.1** **First In First Out (FIFO)**

The suppliers have to ensure that no obsolete material is shipped to JCI-PS. The suppliers shall perform first in/first out (FIFO) inventory management practices. This requirement is subject to audit by JCI-PS.

**8.2 Identification and traceability**

Product identification is to be per the drawing or Component Specification. Package labels, at a minimum, must show JCI-PS Part Number, Description, Lot Number and/or Ship Date, Quantity, and barcode, if requested.

All product is to be traceable from incoming to delivery at JCI-PS.

**8.3 Incoming product conformity to requirements**

Adequate controls and inspections and storage are in place for incoming goods. Incoming inspection verification may cover, but is not limited to, product type, quantity, supplied documents including CoA or test reports, dimensional inspection, material specification compliance, and/or externally visible transportation damage.

Supplier is responsible for handling of all returns, reworks, resubmission of inspected Product.

# 8.4 Supplier Routing Instruction

Where JCI-PS is responsible for paying freight charges, a routing instruction will be provided to the supplier. It is the supplier’s responsibility to ensure compliance and availability. Contact your Purchasing Lead if you have not received a supplier specific routing instruction.

**8.5 Product Safety & Regulations**

Suppliers shall take due care regarding product safety**.** Supplier shall ensure that a member of their management team fills the function of a “Product Safety Responsible”. This function has to act as an interface between JCI-PS and the Supplier in regard to all aspects of product safety.

**8.6 Safety**

Suppliers will provide Safety Data Sheet (SDS) or national equivalent on products, upon request*.*

**9. Supplier Performance Evaluation**

The expectation for supplier performance is Zero (0) Parts per Million (PPM) (zero defects). Product received into JCI-PS facilities that does not conform to the drawing, specifications and/or agreed upon standards will be counted against a supplier's PPM record. This includes, but is not limited to, product, packaging, mixed or miscounts, damage, etc.

Supplier defective part PPM will be tracked and evaluated for continued or new business recommendations. If the supplier notifies JCI-PS of defective product sent, but prior to use in the JCI-PS process, and is contained, the PPM found will not be counted against the supplier.

The supplier is to monitor performance of their manufacturing processes.

**9.1 Supplier Scorecard**

Global Supplier Scorecard (GSS) /BSS- JCI-PS will track performance of suppliers in several categories. Evaluations are made for considerations for global expansion, volume considerations, etc., based on GSS scores. Categories are in:

- Quality

- Commercial

- Supply Chain Management

- Service and General Expectations

- Social and Environmental Sustainability

Delivery Performance- Parts/ materials are expected to be received at JCI-PS 100% on-time and at ordered quantities, per JCI authorization on the purchase order or contractual agreement. Use of premium freight should be minimized and tracked.

**9.2 Supplier Escalation**

Management Quality Review (MQR) **-** JCI-PS may require an on-site supplier management review of 8D’s or resolution explanation for major, recurring or multiple issues at JC-PS site. Escalation to the supplier’s highest management levels may be required. This formal process is managed by the JCI-PS Management Quality Review (MQR) process.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **MQR / New Business Hold Criteria** | **MQR1** | **MQR2** | **MQR3** | **Business Hold** |
| Chronic documented problems in the area of quality, delivery or logistics, including prototype, pre-production, or production issues. | X |   |   |   |
| Production suspended at Johnson Controls plant due to a supplier's product quality, parts shortage, or logistical issue. | X |   |   |   |
| Supplier has an unresolved SMRR, DMR, containment issue, or unacceptable response regarding an issue. | X |   |   |   |
| Chronic documented unresolved MQR problems or unacceptable response from the supplier indicating that no progress has been made to resolve similar MQR1 issues at other locations. |   | x |   |   |
| Discovery that a supplier has not notified Johnson Controls personnel and/or PPAP'd for a product / process change (i.e. tool move to different location / sub-supplier, material / part change, process controls changed from the last approved PPAP, etc.) |   | X |   |   |
| Supplier is issued a SNR that is verified to be the responsibility of the supplier. MQR2 is called only when the SNR has been confirmed to be their responsibility, and with agreement from the Supplier Quality Director. |   | X |   |   |
| Johnson Controls RPPM or OEM customer disruption due to a supplier's product quality, parts shortage, or logistical issue. Disruption in our customers shall be considered as MQR3. |   | X | X |   |
| Chronic documented unresolved MQR2 problems or unacceptable response from the supplier indicating that no progress has been made to resolve similar MQR2 issues at other locations. |   |   | X | X |
| Continued customer dissatisfaction on a supplier's product quality, delivery or logistical issue including a customer mandate to change suppliers to a known capable supplier |   |   | X | X |
| Supplier inability or unwillingness to work with JCI to make fundamental quality, delivery or logistical improvements. |   |   | X | X |
| Excessive / unresolved SNR's at the supplier |   |   | X | X |
| Unauthorized tool move, product / process change, etc. |   |   | X | X |

An MQR3 requires supplier and customer senior management review at JCI Power Solutions Headquarters (unless otherwise specified) for issues that meet the defined MQR3 / New Business Hold criteria. The MQR3 meeting is an executive discussion and the format and agenda is prepared as appropriate.

**9.3 Supplier Notification Report (SNR) and Supplier Charge Back (SCB)**

**Supplier Notification Report**

Suppliers are notified of nonconforming material through a documented rejection notice, called a Supplier Notification Report (SNR). Nonconforming material is defined as suspect or rejected product that is deemed defective according to the drawing or established quality standards (i.e. customer specifications, inspection requirements, test results, etc.).

The SNR may be automatically generated from JCI CAPS (Corrective Action Problem Solving) electronic system or provided as an E-mail attachment or hard copy form wherever electronic systems are unavailable.

**Supplier Chargeback (SCB) Communication and Expectations**

Similar to the SNR notification, SCB notices may be automatically generated from JCI Electronic System(s) or provided as an E-mail attachment or hard copy form where electronic systems are unavailable.

Suppliers are expected to respond to an SCB with an RMA number within the agreed upon timeframe.

In cases where a supplier disagrees with the Supplier Chargeback, a written response is still required by the specified timeframe. Disputed Chargebacks shall be escalated to the responsible Procurement representative for assistance with final disposition. All chargebacks should be targeted for closure within timeframe determined by JCI-PS.

#### **9.4 Layout Inspection and functional testing (Requalification)**

The supplier may be requested to participate in Layout Inspection and Functional testing. The use of Six Sigma or a similar approach is recommended. Specific requirements will be provided by Supplier Quality

Part Requalification- SQE will provide specific requirements to dimensions and tests to be validated on a defined frequency. This frequency is expected to be on the control plan. Submit results to JCI-PS Supplier Quality. 5 total parts and at least 1 part per cavity is recommended for layout.

#### **9.5 Quality Management system audit**

Some JCI-PS Plants operate under IATF and/or VDA 6.3 (region specific) in those cases, suppliers who supply specific parts will be informed and will be expected to participate in a specific system audit.

**9.6 Manufacturing process audit**

JCI-PS may conduct a Supplier Assessment Survey (SAS), request a self-assessment or some other communication median. The SAS will assess the supplier’s documentation and processes to ensure JCI-PS expectations are being met. JCI-PS may schedule regular annual audits or longer, depending on performance.

### Supplier Process Sign-Off (PSO) may be required prior to PPAP approval to review a Supplier's planned and actual manufacturing process at the quoted peak daily line rate, including manpower, facilities, equipment, material, methods, procedures, software level, and tooling.

Suppliers should perform internal quality systems/ process audits as required.

**10. Supplier Change Control**

**10.1 Change Management**

Supplier requested change(s) must be approved prior to implementing. A Supplier Change Request Form must be completed by the supplier and approved by JCI-PS Supplier Quality.

**10.2 Supplier Change Approval**

The supplier shall notify JCI-PS at minimum of 90 days for all requests to change a product or process, and obtain JCI-PS approval prior to implementing the change. The supplier is required to submit a change implementation plan, including a timeline, and must inform JCI-PS whenever a deviation to the approved initial change plan occurs.

Any change to design, material, sub-supplier, process, equipment location, tooling inactive for 12 months, etc. (As described in Section 3 of the PPAP manual) will require JCI-PS notification and another PPAP (Submission- Level dependent on change request). A new PPAP with PSW approval from Supplier Quality in writing must be given prior to serial production.

Any supplier or sub-supplier driven costs due to the changes are the responsibility of the Supplier or their sub-supplier, unless agreed to otherwise by JCI-PS.

Examples of common supplier changes that require notification and approval include, but are not limited to, the following:

* Manufacturing location changes and/or manufacturing process changes
* Adding an additional, duplicate or optional production line
* Material changes and/or material source changes
* Design changes (part, process, packaging, etc.)
* Engineering / testing / material specification changes

Requests for change should be submitted for approval using the Supplier Engineering Approval Request form. All changes will require PPAP resubmission and approval prior to acceptance of shipments to JCI-PS.

**10.3 Supplier Deviation Approval**

Supplier must notify Regional SQE or Purchasing Lead in case of product or process deviation to the approved process / product specification, fit or function, sub-supplier deviation, etc.

Examples of deviation reasoning include, but are not limited to, the following:

* Parts are less PPAP approval (non-PSW parts)
* Parts are dimensionally out of tolerance
* Parts are reworked via special means (outside parameters of approved process)
* Parts do not meet engineering or quality standards for JCI-PS

Written approval from JCI-PS must be received prior to product shipment.

#### **11. Control of nonconforming product**

If parts/material are found defective at JCI-PS, or field, CAPS will be sent to the supplier.

This may be in the form of electronic notification or interactive system. Initial response in 24 hours, initial containment in 24 hours, root cause analysis and corrective action plan in 7 days.

Containment at JCI-PS or its customer for defective supplier parts/material is the responsibility of the supplier. The supplier may choose to contain the issue with supplier provided labor. Containment and/or replacement costs incurred by JCI-PS will be charged back to the supplier. These costs may include extra freight, travel costs, line stoppages, rework, sort, scrap, recalls, etc*.*

JCI-PS may require additional inspection or test certification until there is confidence that the problem is resolved. These parts and/or containers will be identified as “certified” with an agreed marking or label*.*

If product is to be shipped back to the supplier, the supplier will provide a Returned Material Authorization (RMA) Number, or equivalent and any special return instructions*.*

## 11.1 Controlled Shipping Level 1 and 2 (CS1 and CS2)

Controlled Shipping- The supplier will be placed in Controlled shipping to protect JCI-PS and customers when non-conformance is found at final customer, stoppage of production lines, and recurrence of same problem with product.

CS1- The supplier’s quality manager will be notified that they are at Controlled Shipping Level 1 and supplier shall:

* In 24 hours, implement a control area away from the process
* Develop an inspection plan for characteristic
* 100% inspect the affected characteristic.
* Develop and train personnel to the inspection plan
* Create visual standard with acceptance limits
* Submit action plan to JC-PS within 48 hours- include timeline and responsibilities
* All material inspected to be identified with agreed to marking
* Packages sent to JCI-PS must be identified with label for “controlled shipping” advising what characteristic under inspection
* Control area kept in place minimum of 30 days with no defects found
* Supplier to send evidence of training, control area and results to JCI-PS
* All costs associated with this controlled shipping will be paid by the supplier.

CS2- If level 1 is not effective in containment or there is recurrence of non-conformance, the supplier will be placed in Controlled Shipping Level 2 and both supplier’s quality manager and plant manager or above will be notified.

* In addition to CS1, the supplier will hire a 3rd Party Inspection service approved or designated by JCI-PS for 100% re-inspection, in the supplier’s control area.
* All costs associated with 3rd party to be paid by supplier.
* The control area must be in place for 60 days minimum with no rejects found.

**11.2 Notification of Certification Body – JCI Specific Requirement**

The certification body could be notified in the following situations:

* When the reports of non-compliance sent to the supplier are not answered within an agreed timeline.
* When the deadlines set in the action plan for Controlled Shipping Level 1 are not obeyed.
* When the supplier enters in Controlled Shipping Level 2.

**11.3 Cost of Nonconforming – JCI Specific Requirement**

All costs due to quality problems detected in our process or in our customers caused by the supplier, when proven, will be transferred to the supplier. The method of payment will be negotiated with the Procurement area of JCI-PS. The cost of non-conformance includes: extra freight, internal or client line stoppages, rework, sort of material, scrap in the process, travel costs, yard operations, recalls, etc.

**12. Improvement**

# 12.1 Quick Response Problem Solving

When purchased material does not meet JCI-PS requirements (e.g. quality, engineering change level, adherence to test specifications, etc.), last qualified PPAP, or a quality claim is issued by JCI-PS Plants through our quality system. An immediate response is expected from the supplier with the submission of a standard 8D form. Root cause response timing requirements may vary by region based on time of occurrence. Below are recommended timing.

JCI-PS expect within 24 hours (from initial complaint)

• Problem description

• Problem understanding and problem solving launch

• Containment actions to secure JCI-PS (customer) (D3)

JCI-PS expect 3D within 5 working days (from …)

• Root cause analysis for “Non-Detection”

• Root cause analysis for “Occurrence”

• Definition of actions to remove the root-cause

JCI-PS expect 5D/7D within 7 working days (from …)

• Confirmation of implemented actions

• Confirmation of effectiveness of actions to remove Containment actions

JCI-PS expect 8D within 30 working days (from …)

• Actions to prevent reoccurrence

• Official closure of 8D

An action plan shall be provided including due dates for each improvement / action. An updated copy of this plan showing progress made shall be sent to the relevant JCI-PS SQE on a weekly basis (or as otherwise agreed), until all items are complete with proven capability of the long-term solution. In the event verification of actions cannot be made within the expected 30 days SQE will review on a case by case basis.

### **13 Contingency plans**

Contingency plans shall be in place to ensure JCI-PS deliveries and other requirements are met despite emergencies that arise such as utility interruptions, labor shortages, key equipment failure, back up records (i.e. quality documents, traceability documents, measurement data) and field returns*.*

#

# Additional Johnson Controls, Inc. Specific Requirements

# Ethics Policy

The Johnson Controls, Inc. Ethics Policy is expected to be understood and followed by the supply base. This JCI standard policy may vary from contract to contract.  This policy can be found at: http://www.johnsoncontrols.com/publish/us/en/about/ourgovernance/ethics\_policy.html

The supplier should have their own equivalent Ethics Policy that is documented, reviewed and accepted by all employees.

#  Hierarchy of Documented Requirements- precedence of JCI-PS documented requirements

1. Purchase Orders/ Supplier Statements of Work/ Contracts
2. Engineering Drawings/ Component Technical Specifications
3. Supplier Quality Manual Standard

**Material Management Operations Guideline (MMOG)**

The Global MMOG/Le is the recommended business practice for continued evaluation of the supply chain. The tool is aligned with the common goals of ISO 9001 and IATF 16949 and contains number and terminology consistent with this widely implemented global standard. The tool can be used throughout the entire product life cycle, including early product development and pre-production phases, and the post-production aftermarket/service phases. Suppliers can obtain current information and training from AIAG. www.aiag.org.

**Conflict Minerals Policy**

**The Johnson Controls, Inc. Conflict Mineral Policy can be found at:**

[**http://www.johnsoncontrols.com/-/media/jci/suppliers/media-folder/corporate-responsibility/be/sustainability/conflict-minerals/2015-jcicm-policy-statement--final-20160310.pdf?la=en**](http://www.johnsoncontrols.com/-/media/jci/suppliers/media-folder/corporate-responsibility/be/sustainability/conflict-minerals/2015-jcicm-policy-statement--final-20160310.pdf?la=en)

**Supplier Diversity Policy**

**The Johnson Controls, Inc. Supplier Diversity Policy can be found at:**

[**http://www.johnsoncontrols.com/-/media/jci/suppliers/media-folder/supplier-diversity/supplierdiversitypolicy\_2014.pdf**](http://www.johnsoncontrols.com/-/media/jci/suppliers/media-folder/supplier-diversity/supplierdiversitypolicy_2014.pdf)

**Terms and Conditions**

**Johnson Controls, Inc. Power Solutions terms and conditions**[**http://www.johnsoncontrols.com/suppliers/batteries/legal**](http://www.johnsoncontrols.com/suppliers/batteries/legal)

#  References

References cited by this document are the latest versions available at the date of publication. When the cited document is revised after the date of publication, the newer version shall apply. It is the supplier’s responsibility to check periodically [www.johnsoncontrols.com](http://www.johnsoncontrols.com) for current versions of this manual.

ISO 9001:2015: *“Quality management systems- Requirements”*

ISO/IEC 17025: 2015: *“General requirements for competence of testing and calibration laboratories”*

IATF 16949:2016 “Quality management systems – Particular requirements for automotive production and relevant service part organizations”

AIAG PPAP Manual 4th Edition

German Association of the Automotive Industry (VDA)

**Reference Forms**

It is the responsibility of the supplier to utilize the latest revision of any form referenced of this manual. Suppliers should contact the appropriate Johnson Controls Inc. Purchasing Lead or Supplier Quality to obtain these documents.

Automotive Industry Action Group Manuals (see [http://www.aiag.org](http://www.aiag.org/)/)

IMDS Form (International Standard [http://www.mdsystem.com](http://www.mdsystem.com/imdsnt/startpage/index.jsp)/)

Management Quality Review procedure- PS-PTP-PR-74-E

Supplier Assessment Survey (SAS) – A form used to assess a supplier Quality Management System and Capabilities –Provided by the SQE

8D Report – Corrective Action form (HV-LOS-FR-14-01) or workbook – Available upon request

OE Customer Specific Requirements Guideline – (Available upon request)

Supplier Change Request Form PS-PTP-FR-75-E

**Websites References**

<http://www.johnsoncontrols.com>– Johnson Controls Inc. (Supplier Portal)

<http://www.iatfglobaloversight.org>– International Automotive Task Force

<https://www.vda.de/en/> - German Association of the Automotive Industry (VDA)

**Revision History**

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Description of Changes** |
| 1 | Nov-10 | Initial Release. |
| 2 | Nov-15 | Added new JCI specific requirements section. |
| 3 | June-17 | Added CSR requirements, renumbering of sections for improved readability, include 90 days on change notification and typo correction  |

**APPENDIX**

**Region Specific Supplier Requirements**

**Brazil**

* Suppliers shall be certified to ISO9001.
* Suppliers must submit a recommendation letter as evidence and submit the definitive certificate within 30-60 days.
* Suppliers are expected to send the CoAs to ps-sa-certificates@jci.com.