KINOVA

<XXX-XXXXXX-XXX>

Supplier Quality Agreement

REVISION <XX>

<YYYY-MM-DD>

F-258 R01

Together in robotics

Revision Log

REV.	DATE	INITIATOR	DESCRIPTION
01	YYYY-MM-DD		Initial Release

Fill the first row with the appropriate information. The initiator must be the person submitting the document for its release in the Quality Management System.

Supplier Approval

Revision Objective: This agreement may be revised in response to changes in market conditions, evolving regulatory requirements, and technological innovations that may impact the current terms. This flexibility ensures that the agreement adapts to new business and regulatory realities, thereby maintaining its effectiveness and ongoing relevance.

Revision Procedure: Any proposal to revise this agreement must be submitted in writing by either party.

By this signature, [*Supplier Name*] _____ certifies that it has reviewed the Kinova Supplier Quality Agreement and commits to adhering to the conditions and requirements stipulated in this document for:

A duration of: _____

Due date: _____

SUPPLIER NAME	SIGNATORY NAME	SIGNATURE	DATE

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1 Purpose

This manual aims to define the quality requirements and expectations that all suppliers must adhere in order to ensure effective collaboration in compliance with Kinova's standards, as well as regulatory standards.

The supplier quality manual is available on the supplier portal, along with all supplier documents related to Kinova quality (Web link).

2 Scope

Determine the limits, objectives, and responsibilities related to quality management in the interactions between Kinova and its suppliers. It specifies how quality requirements are defined, communicated, and controlled within the supplier-Kinova relationships.

This manual applies to all suppliers of materials, components, finished products, and services that impact the quality of the final products intended for Kinova's customers.

3 Acronyms, References and Responsabilities

3.1 List of Acronyms

The table below contains the definitions of the acronyms used in this document.

ACRONYMS	DEFINITION
ANSI	American National Standards Institute
CE	European Conformity marking
CofC	Certificate of Conformity
CSAM	Confocal Scanning Acoustic Microscopy
DER	Derogations
ECO	Engineering Change Order
ESD	Electrostatic Discharge
FAI	First Article Inspection
FOD	Foreign Object Debris
IPC	Institute of Printed Circuits
MSDS	Material Safety Data Sheet
NCR	Non-Conformity Report
PCB	Printed Circuit Board
PCBA	Printed Circuit Board Assembly
PO	Purchase order
PPCN	Potential Product Change Notification
PPM	Parts Per Million
R&D	Research and Development
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RoHS	Restriction of Hazardous Substances
RMA	Return Merchandise Authorization
RTV	Return to Vendor
SCAR	Supplier Corrective Action Request
UL	Underwriters Laboratories

3.2 List of References

The table below contains all the referenced documents.

REFERENCE	DESCRIPTION
P-05	Engineering Change Control
P-51	Derogation
P-100	FAI Supplier
SPG-QA001	*Processus de prévention des FOD*

3.3 List of Responsibilities

The table below contains all the responsibilities.

FUNCTION / ROLE	RESPONSIBILITIES
Kinova	Kinova is responsible for clearly defining its requirements, effectively communicating with the supplier, and monitoring their performance to ensure the compliance and quality of the delivered products or services.
Supplier	Suppliers are responsible for the quality of the products and services they provide. They must comply with the technical specifications, regulatory standards, and processes defined in this manual.

4 Product / Service Requirements and Evaluation

4.1 Quality Requirements for Products / Services

4.1.1 Technical Specifications

Suppliers must provide products that comply with the technical specifications defined in the order documents and contracts.

4.1.2 Materials and Components

All materials and components used in the manufacture of products must meet quality requirements and comply with specified standards.

4.1.3 Change Control

Any modification in the manufacturing process, materials, or technical specifications must be subject to a request for exemption or modification and approved before any production. Refer to section 18 and section 19.

4.1.4 Compliance with Standards

Products and services must meet internal quality standards, regulatory requirements, and contractual specifications.

5 Supplier Selection and Evaluation Process

5.1 Selection Criteria

Suppliers are selected based on their production capacity, their accreditation with respect to international quality standards, their compliance with environmental standards, their past performance, if applicable, and their adherence to approval requirements.

6 Supplier Approval Requirements

6.1 Required Certifications

The supplier quality management system must at least be certified for one of these accreditations, namely: ISO 9001, ISO 13485 (medical devices), AS9100 (aerospace), IATF 16949 (automotive), or be compatible in order to gain approved status with Kinova.

If they are partially met and conditions can mitigate the risk adequately, the supplier may be granted "*Approved - With Conditions*" status. These conditions may include but are not limited to:

- Increased inspection sampling at entry;
- Addition of additional tests, inspection by a third party;
- Periodic monitoring, etc.

6.2 Signature of Supplier Quality Manual

The supplier must sign and comply with the *F-258*.

If the supplier does not meet the requirements of the supplier quality agreement, a supplier audit will be triggered in order to potentially obtain conditional approval, and corrective actions must be successfully implemented; during this period, the supplier may be granted the status of "*Approved - With Conditions*."

6.3 Quality Record

Whether it is an approved or conditionally approved supplier, it is the supplier's responsibility to record and maintain quality-related documents for a period of ten years, thus ensuring ongoing traceability and compliance with regulatory and contractual requirements. This practice not only meets industry standards but also facilitates quality audits and resolves any disputes regarding product compliance.

7 Quality Management System (QMS) Audit and Technical Audit of Suppliers

7.1 QMS Audit

The QMS audit aims to ensure that suppliers comply with the specific quality requirements of our industry, such as ISO 9001 and ISO 13485 standards, as well as the internal procedures of the company. This audit also ensures that suppliers can maintain a level of quality in accordance with regulatory and organizational expectations.

- Audit Criteria:

  Supplier QMS audits are based on the possession of recognized quality certifications, compliance with the requirements of our quality management system, and the supplier's performance history.

- Frequency and Follow-up:

  Approved suppliers deemed critical are subject to an annual audit to ensure the continuity of their approval status.

Additional audits may be triggered in the event of non-compliance, observed low performance, or based on major changes at the supplier. Any identified non-compliance results in a request for corrective action (SCAR - Supplier Corrective Action Request); corrective measures are expected within a specified timeframe and are followed by verifications to ensure their effectiveness.

- Actions in Case of Non-Compliance:

  If a supplier does not meet the criteria of the QMS audit, a correction and risk mitigation plan will be developed in collaboration with the supplier. In cases where corrective measures do not ensure the quality of the products/services provided, the supplier's approval status may be suspended or revoked.

7.2 Audit Technique

The technical audit is implemented to ensure that suppliers have the necessary technical skills to provide components and services that meet the technical specifications and quality requirements of the industry, particularly for critical components. It can be triggered among other things by supplier non-conformities, the introduction of a new product at the supplier, or a major change in the manufacturing process.

7.2.1 Initial Assessment

An initial technical assessment allows for checking the supplier's ability to produce and control critical components.

The assessments cover technical skills, production equipment, and quality control methods in place to ensure the compliance of the supplied components.

7.2.2 Risk Mitigation Plan

If the results of the technical audit reveal weaknesses, additional mitigation measures may be implemented. These measures include but are not limited to: enhanced inspections at the source, design audits, installation of jigs or tooling at the supplier's site.

- Effectiveness Verification:

  The effectiveness of corrective measures and mitigation actions is assessed during subsequent audits. Periodic checks are put in place to ensure that the supplier's performance meets the requirements.

7.3 Ongoing Assessment

The performance of suppliers is regularly monitored using key performance indicators (quality, delivery times, responsiveness). Performance reports are shared quarterly by Kinova.

8 Supplier Control Over the Subcontractor or Level 2 Supplier

Level 2 suppliers must be selected and controlled by the supplier to ensure that they meet the requirements and provide quality products and services. The list of level 2 suppliers must be disclosed to Kinova, and any changes to level 2 suppliers must be communicated to Kinova.

Kinova reserves the right to visit and audit any level 2 supplier.

If the level 2 supplier fails to provide products and services that comply with quality requirements, Kinova reserves the right to require the replacement of the level 2 supplier.

The Kinova supplier is responsible for transmitting the applicable requirements of this document and the drawing to its level 2 supplier through its purchase order.

9 Communication and Collaboration

Dedicated communication channels are established to facilitate technical and logistical exchanges between the company and its suppliers. Any changes in specifications or processes must be communicated formally.

The supplier must notify Kinova of the replacement/modification of the quality management representative, at least 14 calendar days before the official change.

Table 1: Kinova Contact's

REASONS	CONTACTS
Quality information request	SMQA@kinova.ca
Sending supplier FAI documentation	SMQA@kinova.ca
Request for supplier exemption or PPCN	SMQA@kinova.ca
Sending certificates of conformity	reception@kinova.ca
Sending REACH/ROHS, MSDS, MDS documentation	qa-env@kinova.ca
Question or comment related to purchase orders	purchasing@kinova.ca

10 Sustainable Development

10.1 Environmental Requirements

Suppliers must comply with the latest revisions of current environmental regulations and adopt sustainable practices, including reducing emissions, managing waste, and using recyclable materials.

10.2 Compliance with RoHS and REACH

Products must comply with RoHS and REACH regulations to ensure the absence of hazardous substances.

- RoHS Compliance:

  The 2011/65/EU directive of the European Parliament and the EU delegated directive 2015/863 concerning the use of certain hazardous substances (RoHS) which limits the use of 10 chemical substances: cadmium, mercury, lead, hexavalent chromium, PBB (Polybrominated Biphenyls), PBDE (Polybrominated Diphenyl Ethers), and phthalates (DEHP (Di(2-ethylhexyl) phthalate), BBP (Benzyl Butyl Phtalate), DBP (Dibutyl Phthalate), DIBP(Diisobutyl Phthalate)).

- REACH Compliance:

  The European Regulation (EC) No 1907/2006, regarding the European system for the registration, evaluation, authorization, and restriction of chemicals (REACH) that governs the use of chemical substances in products across all sectors of industry.

As a manufacturer of electrical and electronic equipment (EEE), at Kinova, we continually update information on substances that present risks and require our suppliers to commit to:

- Complying with RoHS and REACH regulations;
- Providing up-to-date RoHS and REACH compliance certificates;
- Providing information on the use of chemical substances such as a safety data sheet;
- Ensuring that products are free of materials that would pose a risk to human health;
- Informing us with documents and/or material composition reports of any exceedances of tolerance levels.

A written and signed commitment from the supplier must be sent to qa-env@kinova.ca for all delivered products and stipulate that the products meet the requirements. Suppliers must comply with the latest revisions of these requirements.

11 Certificate of Compliance (CofC)

11.1 CoC Requirements

Each delivery must contain its own certificate of conformity and it must include the following elements:

- Supplier identification: Legal name, address;
- Product description: Product name, batch number, quantity delivered;
- Certificate of conformity: Confirmation that the products comply with the specifications and contractual standards;
- Test results: Reports of quality control and tests performed on the products;
- Traceability: PO # and PO line, identification of batches;
- Materials and components used, if applicable.

11.2 Additional CofC Requirement for PCBA

- PCBA conformity declaration;
- REACH & RoHS certificate of the PCBA (Declaration that the assembly process complies with REACH & RoHS requirements);
- Information on PCB traceability (Link between the PCBA CofC and the PCB CofC, as they are generally provided on separate documents);
- CofC of the PCB;
- REACH & RoHS certificate of the PCB;
- Any other required information specified on the drawing: UL certificate, impedance reports, etc.

11.3 Actions in Case of Document Rejection

In the case of documentary non-conformity, the following actions may be considered:

- Notification to the Supplier: Inform the supplier of the non-conformity and the specific reasons for rejection;
- Blocking of the Lot: If the non-conformity is documentary, block the lot until receipt of the corrected documents;
- Corrective Action Plan: Request the supplier to submit a corrective action plan to prevent recurrence. In case of recurrence, a SCAR may be issued to address the issue.

Please note that each receipt must contain a CofC. Kinova accepts having all received part numbers from the same receipt on the said CofC.

Certificates of conformity must be sent to Kinova before or upon delivery in paper or electronic form: reception@kinova.ca.

12 First Article Inspection (FAI) Process

The First Article Inspection (FAI) aims to verify that the first produced parts conform to Kinova specifications before mass production.

- Follow the requirements of the *P-100*, available on the supplier portal, see section 30.

13 Management of Supplier Non-Conformities

13.1 Detection of Non-Conforming Materials

Non-conforming materials can be detected at different stages, namely during:

- Receipt of raw materials or components;
- Production process (internal or outsourced);
- Customer return Kinova (RMA), following an investigation pointing to supplier liability.

13.1.1 Non-Conformity Alert and Reporting Process

When a non-conformity is detected, a Non-Conformity Report (NCR) must be issued and communicated to the supplier, detailing the nature of the defect, the product involved, and the quantities impacted. This report triggers the process of root cause evaluation and the implementation of corrective actions.

Non-conforming materials may be subject to different measures depending on the severity of the defect:

- Return to the supplier through the RTV process;
- Rework, if accepted by Kinova;
- Destruction or disposal, according to Kinova specifications.

13.1.2 Escape from Supplier

The supplier must implement systems for the segregation of non-conforming products. In the event of an escape, the supplier must immediately trace and segregate the non-conforming products and inform Kinova that non-conforming products have been shipped to Kinova or to a third party authorized by Kinova in order to enable Kinova to investigate and segregate these products. The supplier must fully cooperate in any investigation or segregation or recall action.

14 Supplier Return Management (RTV)

The return to vendor process (RTV) will be initiated when a delivered product or component does not meet quality specifications.

14.1 Notification to Supplier and RTV Request

After the issuance of the NCR, the supplier is informed that the affected products cannot be accepted and that a return to the supplier (RTV) is necessary. The return process includes:

- Description of the non-compliance: Specific nature of the defect, affected lot or serial number, quantities involved;
- Agreement on the return process: The terms of the return (transport, deadlines, conditions for reimbursement or replacement) must be validated with the supplier;
- Document accompanying the return: The return of the products is accompanied by relevant documentation (NCR, certificates of conformity, inspection reports, etc.);
- Request for supplier credit and/or replacement part.

14.1.1 Return of Non-Conforming Products

In some cases, the supplier may offer to repair (rework) non-conforming products instead of replacing them. However, depending on the type of product, rework may carry risks, especially for sensitive components like PCBA. Non-conforming products are returned to the supplier according to the agreed terms:

- **Transport and handling**: The supplier must organize and bear the cost of transporting the returned products;
- **Packaging**: The returned products must be properly packaged to avoid any further damage during transport;
- **Return tracking**: A tracking system must be established to ensure the receipt and prompt processing of the returned products.

The RTV process allows the efficient management of the return of non-conforming products to the supplier for correction or replacement.

15 Management of Reworks at Suppliers

15.1 Conditions for Application

Rework is a potential solution in certain cases, but it carries risks, especially for sensitive products like PCBA. Kinova reserves the right to refuse multiple reworks on the same piece to ensure the integrity and reliability of the products.

Rework can only be carried out if Kinova gives prior approval. The supplier must submit a rework plan for validation, including:

- Description of corrective actions: The supplier must explain in detail the steps of the rework, for example, the removal and replacement of components on a PCBA, or the correction of a soldering defect;
- Quality control methods: Define the tests and inspections that will be performed to ensure that the repaired products meet specifications;
- Implementation schedule: Indicate the timelines for the repair and new inspections;
- Risk analysis associated with the rework.

Under no circumstances can products that have undergone rework be combined with another lot of rework or production.

15.2 Rework Limit

Certain sensitive products may be negatively affected by multiple repairs due to the criticality of the part, based on safety, reliability, and health.

- First rework: A first rework may be permitted under the RTV process;
- Second rework: Kinova reserves the right to refuse a second rework on the same part, as it could severely affect the integrity of the part, leading to risks for the performance and reliability of the final product.

15.3 Inspection and Validation after Rework

Once the rework is completed, the products must undergo thorough inspections to ensure their compliance:

- Functional inspection: Each repaired product must be tested to ensure that the corrections made have restored the product's functionality (e.g., electrical or functional testing of PCBA to check for short circuits or solder defects);
- Dimensional inspection: Use of gauges, micrometers, calipers, CMM (Coordinate Measuring Machine), and other measuring instruments to verify that the dimensions of the parts meet specifications;

- Visual inspection: Products must be inspected to check for any additional visible damage or rework residue (e.g., solder remnants);

- Complete documentation: The results of tests and inspections must be provided to Kinova along with documentation justifying the compliance of the repaired products, and traceability must be maintained at all times;

- Radiography (when applicable): Uses X-rays or gamma rays to see through the parts and reveal internal defects such as inclusions, cracks, or porosities, etc.

15.4 Right to Refuse Rework

Kinova reserves the right to refuse multiple reworks on the same part. This is especially important in the case of critical products such as PCBA.

15.5 Update of Certificate of Compliance

- Establishment of a new certificate: A new certificate of conformity is issued after the rework, to indicate that the part has undergone a controlled modification and that it now meets the original requirements. This certificate includes:

    - The reference of the part or the lot of the rework;

    - An indication of the initial non-conformity and the rework performed;

    - The results of inspections and tests post-rework.

- Approval by the quality department: The updated CofC is validated by the quality managers.

16 Backbilling of Costs Related to RTV and Rework

If non-compliance results in additional costs for Kinova, such as delays in production or supply interruptions, these costs can be passed on to the supplier through a charge-back process. Attributable costs may include:

- Transportation costs: The expenses for returning non-compliant or repaired products;
- Impacted production costs: If defective products cause interruptions or delays in the production chain;
- Emergency purchasing costs: If replacement products need to be quickly purchased from another supplier to avoid further delays.

17 Management of Supplier Corrective Actions (SCAR)

When one or more corrective actions are officially requested via a SCAR (Supplier Corrective Action Report), the supplier must analyze the root causes and submit a corrective action plan within 15 business days, detailing the corrective and preventive measures implemented.

However, this timeframe may be shorter depending on supply needs. For example, in the case of a production halt at Kinova, this action plan will be required within 2 to 4 business days. If such a situation arises, the supplier will be contacted as soon as possible to discuss the criticality and speed of the required responses.

The supplier is obliged to provide Kinova with all necessary evidence demonstrating the implementation and follow-up of the planned actions, as well as results attesting to the effectiveness of the actions taken, in accordance with Kinova's requirements.

It is noteworthy that an effectiveness verification tailored to the corrective actions selected by the supplier is always carried out by Kinova to validate the expected results.

18 Supplier Waiver Request

18.1 Scope of Application

This process applies to all suppliers who encounter non-compliances with undelivered products and wish to request a deviation to supply them under specific conditions.

18.1.1 Initiation of Waiver Request

- Responsibility: Supplier
- Description: The supplier, upon detecting a non-conformity, submits a written request for exemption to Kinova, providing the following information:
    - Description of the non-conformity;
    - Identified causes and corrective measures implemented;
    - Associated risks with the non-conforming product**: functional, mechanical interface, electrical, etc.**;
    - Justification for the exemption request;
    - Desired duration for the waiver.

18.1.2 Evaluation of Waiver Request

- Responsibility: Kinova Quality Team
- Description:
    - The quality team analyzes the request and evaluates the risks to the safety, performance, and regulatory compliance of the product;
    - The relevant services (Production, R&D, Logistics) are consulted for their opinion on the acceptability of the waiver.

Kinova reserves the right to refuse any supplier waiver request.

18.1.3 Decision and Implementation

- Responsibility: Kinova Quality Team
- Description:
    - If the waiver is accepted, an official waiver document is sent to the supplier, specifying:
        - The specific limits of the waiver (technical requirements, tolerances, etc.);

- The validity period of the waiver;
- Any additional control measures that may need to be implemented;
- If the waiver is refused, the supplier is informed and must then comply with the initial specifications.

- Document to provide: Official waiver authorization

18.1.4 Product Identification and Tracking

- Responsibility: Supplier and Kinova
- Description:
  - The batches of products concerned by the exemption must be clearly identified and marked to avoid any confusion;
  - The supplier agrees to carry out enhanced quality controls to ensure that the products under exemption comply with the agreed limits;
  - Monitoring may be requested to oversee compliance and identify any potential impact on production.
- Documents to be provided by the supplier: Specific quality control reports for the exempted batches.

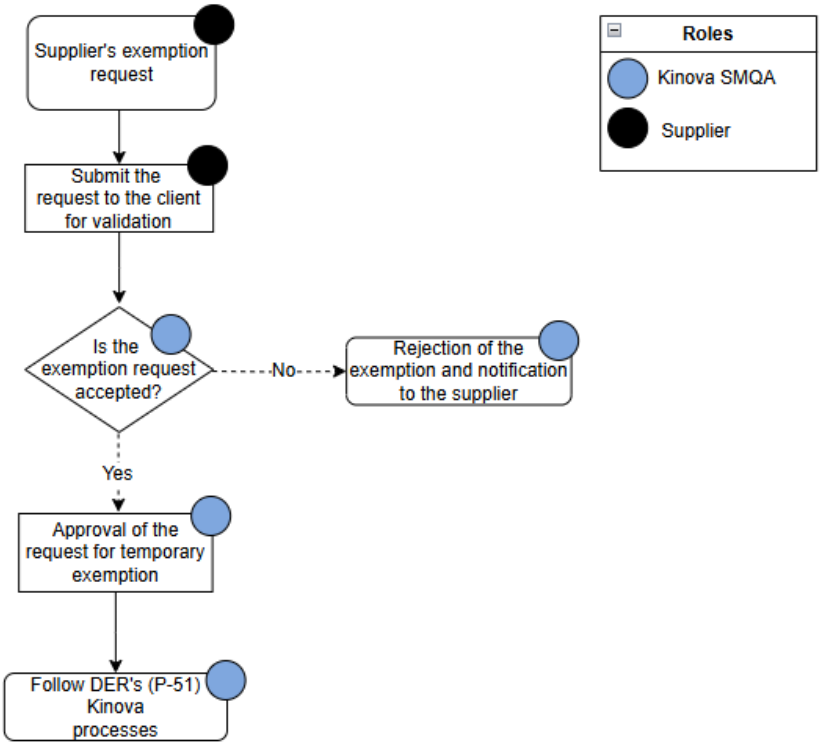

Figure 1: Flowchart for waiver process

19 Request for Supplier Change (PPCN)

19.1 PPCN

The new product and process compliance plan (PPCN) process allows for the management of changes proposed by the supplier following an approved change by the company.

19.1.1 Submission

Submission: A plan detailing the proposed modifications and their impact on the production processes is submitted.

19.1.2 Impact of the PPCN

- Drawings controlled by suppliers;
- Customized Kinova drawings;
- Parts from a distributor.

19.1.3 Validation

The modified product must pass a FAIM for validation before mass production, so the supplier cannot produce a part according to their PPCN request.

The supplier is required to submit a PPCN request when:

Table 2: Reason Types

REASON TYPES
Permanent modification of the product design (adjustment, shape, and function). When changes are made to the design or specifications of a product. Shape: any modification to the shape, size, dimensions, color, or other visual attributes that uniquely identify the item. Function: any modification likely to affect the external or internal actions or interactions intended for the item.
Change in manufacturing process. When a supplier modifies their manufacturing process, such as a new production method or the addition of new machines. Addition, substitution, or upgrading of machines, equipment, or tools used in the manufacturing process. Modification of parameters such as temperature, pressure, or speed that directly affect the manufacturing process. Addition or removal of steps in the manufacturing workflow.
Modifications to the product part number.
Movement or change of production site. If the production site of the product changes, even within the same country or region, a PPCN is requested to notify Kinova.
Factory relocations, production transfers to other sites, or relocations abroad. Change of the supplier's name.
Change of raw material or component suppliers. When a supplier changes subcontractor, component supplier, or sourcing locations. When a supplier has a new alternative sub-supplier.

REASON TYPES
Improvement or optimization of processes. If optimizations or improvements are made to manufacturing processes (such as automation, reduction of production steps, or the use of new technologies).
Update of standards or regulatory compliance. In the event of changes to regulations or industrial standards (e.g., RoHS, REACH, ISO).
Changes in test and quality specifications. When test specifications, quality control, or validation criteria change. Reduction in the frequency or scope of inspections during the manufacturing process. Modification of the testing procedures used to evaluate the quality and performance of components.
End of life or obsolescence of a product or component. If a product, part, or component becomes obsolete and the supplier needs to replace it with an alternative.
Modification of packaging materials, packaging operations, or transportation conditions. A PPCN is required if the packaging or transportation conditions are modified.
Adjustment of tolerances. Modification of tolerance limits for dimensions or specifications, potentially affecting the compatibility of the part or interference with other components.
Modifications affecting fit or interference: Any change made to the item that could potentially influence its fit or interaction with other components.
Modification of material specifications: Revision of the properties or characteristics of the materials used in the production of components.
Modifications to the product labeling or packaging.

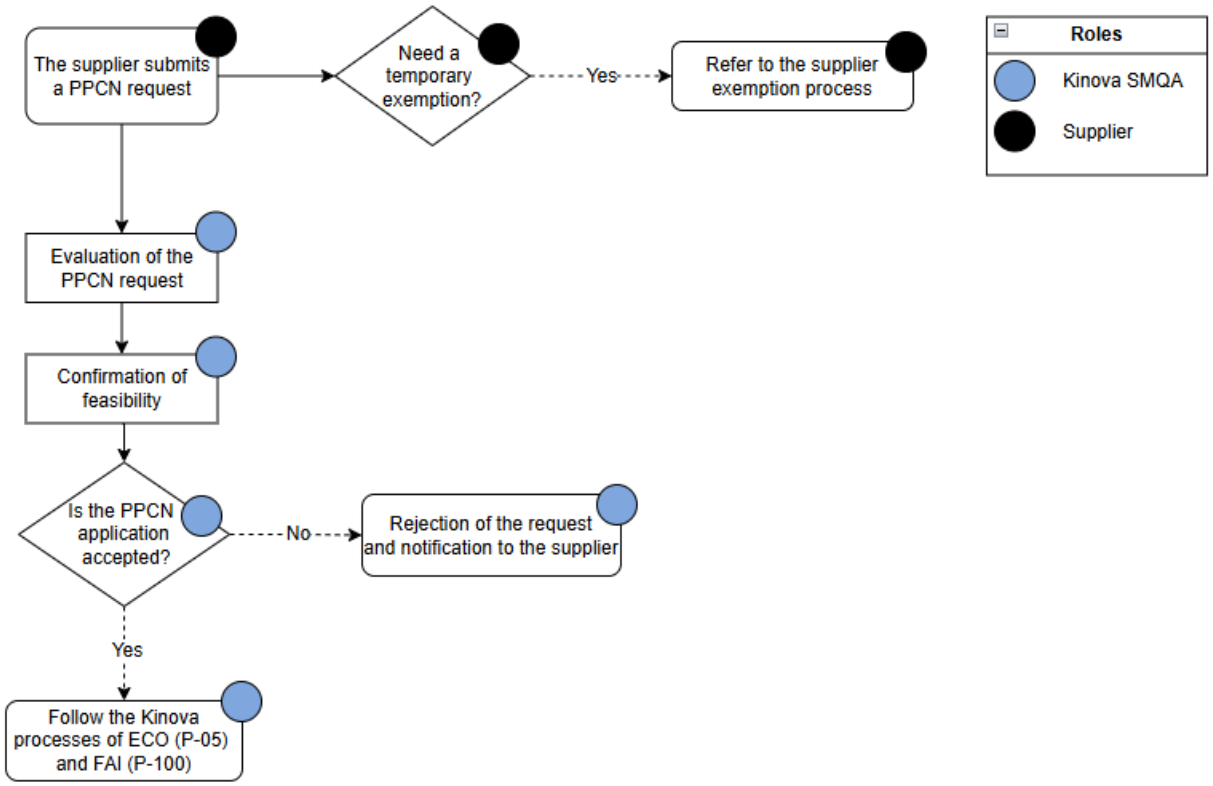

Figure 2: Flowchart for PPCN process

20 Packaging Requirements According to IPC Standards

20.1 Kinova Requirements

It is essential that all our electronic suppliers strictly comply with the ANSI/ESD S20.20 standard to ensure the safety and integrity of electrostatic discharge-sensitive electronic components.

20.1.1 PCB and PCBA Packaging Requirements

PCBs and PCBAs must be protected against contaminants such as dust, moisture, debris, and chemicals. The measures include:

- ESD bags (protection against electrostatic discharges): Use anti-static ESD bags to protect circuits sensitive to static electricity;
- Protective films: Add plastic films or other specific protections to prevent scratches or other physical damage to the surfaces of the boards;
- Desiccant silica: Insert desiccant silica packets into the packaging to absorb moisture.

20.1.2 Packaging and Preservation of Components

Products must be packaged in a way that minimizes movement of components and boards during transport. This includes:

- Rigid support: For bare PCBs, a rigid support (such as foam or cardboard sheets) must be used to prevent bending or deformation;
- Gap between products: When it comes to PCBA, assembled boards should be adequately spaced or separated by pads or spacers to prevent components from damaging each other;
- Securing components: Fragile or high-risk components must be secured or stabilized during transport.

20.1.3 Labeling of Packages and Marking

Packaging must be correctly labeled in accordance with IPC standards and Kinova requirements. This includes:

- ESD labels: Antistatic bags must have visible ESD labels;
- Marking of recyclable materials: If the packaging uses recyclable materials, this must be clearly indicated;
- Logistics information: Each package must indicate the destination, the supplier's name, detailed contents (purchase order number, product reference), and the type of handling required (labels "Fragile" or "Specific Handling" if applicable).

The packaging materials used must comply with IPC-1601 standards regarding the handling and storage of printed circuit boards. This includes:

- Mechanical resistance: The packaging must protect the boards from shocks and vibrations during transport;
- ESD compliance: The packaging materials used for sensitive components must meet ESD requirements (protection against electrostatic discharges);
- Compliance with environmental requirements: Packaging materials must adhere to RoHS and REACH regulations regarding the absence of hazardous substances.

20.1.4 Transportation and Storage

The transportation and storage conditions of PCBs and PCBA must ensure that the products are not damaged:

- Protected transportation: Transportation must be carried out in vehicles suitable for the sensitive nature of the products (protection against moisture and shocks);
- Controlled temperature and humidity: Storage conditions must be monitored to avoid exposure to excessive humidity levels or extreme temperatures that could alter the properties of the boards.

Any defect in packaging that does not comply with IPC standards can lead to damage to the products and affect their performance. The consequences for the supplier include:

- Return of the products through the return-to-supplier (RTV) process if damage or contamination is detected;
- Chargeback of costs associated with reconditioning or replacement of damaged products;
- Reevaluation of the supplier partnership in the case of repeated non-compliance related to packaging requirements.

21 Identification and Traceability

21.1 Identification of Products and Components

The objective of identification and traceability is to ensure that each product, component, or batch can be tracked throughout the production and delivery cycle, from raw material to finished product delivered to Kinova. This process is essential for ensuring effective management of non-conformities, recalls, and quality audits.

21.1.1 Identification of Products and Components

Each delivered product or batch must have a visible label or marking including the following information:

- Lot or serial number: Allows for the precise identification of each specific batch or product;
    - On the piece itself and on the individual packaging of the piece.
- Product reference: Corresponds to the technical or commercial reference of the product;
- Order number: Each batch must include an order number for reference;
    - On the packaging of each batch and in the documentation accompanying the batch.
- Regulatory compliance: Any mandatory mention related to applicable specific standards (RoHS, REACH, ESD, etc.).
    - In the documentation accompanying the batch.

21.1.2 Coding and Standards

Suppliers must use standardized coding for all products, in accordance with Kinova specifications. This includes the use of barcodes or QR codes to facilitate digital management of products throughout their lifecycle.

21.1.3 Accompanying Document

Each delivery must be accompanied by documents specifying identification details, including the Certificate of Conformity (CofC), inspection certificates, test reports, and any other documents related to the traceability of materials or components used.

21.2 Supplier Responsibility

Each supplier is responsible for implementing a robust identification and traceability system that complies with the requirements of this manual and applicable regulatory standards. This includes maintaining accurate and accessible records for any inspection or audit requested by Kinova.

Failure to comply with traceability requirements may result in corrective actions and penalties, including additional audits or reassessment of the business relationship with the supplier.

22 Supplier Performance Card

22.1 Objective and Evaluation Criteria

The supplier performance scorecard is an evaluation tool used to measure the performance of suppliers in several key areas, including quality, delivery times, responsiveness, and non-conformance management. It allows the company to identify the top-performing suppliers and to implement corrective or improvement actions with struggling suppliers.

22.1.1 Quality of Products

The quality of products is measured by several indicators, including:

- Non-conformity rate % (NCR): Number of non-conformities detected out of the total deliveries made;
- Non-conformance rate: Number of defective parts per delivered parts (detailed below);
- Return rate: Percentage of products returned to the supplier for non-conformity;
- Supplier corrective action rate (SCAR): Number of supplier corrective actions (SCAR) over a period.

22.1.2 Compliance with Delivery Details

Suppliers are evaluated on their ability to deliver products on time. Key indicators include:

- On-Time Delivery (OTD): Percentage of deliveries made within the scheduled time;
- Delay Rate: Number of late deliveries compared to orders placed.

22.1.3 Reactivity and Management of Non-Conformities

The supplier's ability to respond quickly and effectively to Non-Conformity Reports (NCRs) and corrective actions is an important factor. The assessment criteria include:

- Response time to submit a corrective action plan;
- Effectiveness of the implemented corrective actions.

22.1.4 Update and Communication of the Supplier Performance Card

The supplier performance card is updated quarterly and shared with suppliers during performance review meetings. Suppliers whose scores are declining may be subject to additional quality audits or continuous improvement plans.

Each supplier has a performance target set based on the products supplied and the Kinova requirements.

23 Non-Conforming Parts Rate

23.1 PPM Calculation

PPM (Parts Per Million) is the key indicator for measuring supplier quality performance, quantifying the number of defective products per million parts delivered. This indicator, combined with other quality performance measures, allows for monitoring the quality of deliveries and identifying areas that require corrective actions.

The non-compliance rate in PPM is calculated from the following equation:

$$PPM = \left(\frac{\text{Total number of non-conforming pieces}}{\text{Total number of delivered pieces (PO + RTV)}} \right) \times 1,000,000$$

Figure 3: Calculation of PPM

23.2 Performance Objective

Each supplier has a goal for the rate of non-conforming parts and a performance card (NCR%) defined based on the products supplied and the requirements.

The supplier must comply with the objective to demonstrate the compliance of their products throughout the year.

24 Continuous Improvements

24.1 Regular Assessment

Regular evaluations of supplier performance are conducted to identify opportunities for improvement.

24.2 Improvement Proposal

Suppliers are invited to propose improvements to optimize products, processes, or performances.

25 Right of Entry / Access

The Kinova personnel, the customer of Kinova and regulatory authorities must have full access to the supplier's facilities and documentation to conduct an audit of the quality of production and inspection processes and/or a source inspection. The supplier must ensure that its subcontractors or level 2 suppliers grant the same access rights to Kinova personnel, the customer of Kinova, and regulatory authorities if a request is made.

We reserve the right to carry out source inspections at the supplier's facilities at any stage of production, with reasonable notice. These inspections will be conducted to verify compliance with the quality standards and technical specifications stipulated in this agreement. The supplier commits to providing the necessary access to its facilities and fully cooperating during these inspections to facilitate a comprehensive assessment of the products' compliance with the agreed requirements.

26 Prevention of Debris / Foreign Objects (FOD)

26.1 Scope of Application

- Main objective: Reduce or eliminate the risks associated with foreign debris that may affect the quality and safety of products.
- Scope: This process applies to all stages of production, from raw material sourcing to assembly and delivery of finished products.

26.2 Responsibility

Supplier Responsibility: Each supplier is responsible for implementing adequate measures to prevent FOD risks in its production, assembly, storage, and delivery processes.

Kinova's Responsibility: During supplier audits, assess the FOD prevention measures and ensure ongoing training for suppliers on best practices for FOD prevention.

Refer to process *SPG-QA001*.

27 Inspection Certification Program

The supplier inspection certification program ensures that the supplier's final inspection results are compatible with or superior to Kinova's receiving inspection and allows for exemption from Kinova's incoming inspection. When a supplier meets all requirements and excels in their performance, they may participate in the inspection certification program.

Kinova reserves the exclusive right to select the suppliers who can participate in this program. Interested suppliers are invited to submit their applications for evaluation and approval by Kinova.

27.1 Conditions and Explanations to Be Met to Maintain Certified Status

27.1.1 Specific Audit

Submit at least one specific audit per assessment year.

27.1.2 No Non-Conformity

Any non-conformity observed in production or during supplier inspection monitoring triggers an NCR and the withdrawal of the component's certification. Multiple non-conformities from a certified supplier may lead to the removal of the supplier from the program.

A supplier certification does not guarantee the certification of all components supplied by that supplier. Each component must be added to the program individually based on specific requirements and the approval of inspection methods and criteria. Once a part is added to the program, no changes are allowed in inspection methods, sample size, or acceptance criteria without Kinova's approval prior to the implementation of the change. A PPCN must be submitted to initiate a modification.

Kinova reserves the right to remove a supplier from the supplier inspection certification program at any time if the supplier's performance does not meet established objectives.

28 Counterfeit Control

The supplier of electrical, electronic, and electromechanical parts must establish, document, and implement anti-counterfeiting policies and procedures. Electronic components must be purchased from manufacturers' authorized distributors.

28.1 Exception Applicable to the Supply of Electronic Components

When the supplier cannot obtain supplies from a distributor approved by the manufacturer of electronic parts, the following conditions must be met.

Distributors must be selected and approved by Kinova.

Parts must be sent to a third-party laboratory (independent from the distributor and approved by Kinova) to perform the following tests:

a. Incoming visual inspection Optical inspection, with particular attention to the finish of the lead to detect potentially refurbished parts;

b. Permanence of marking/blackening;

c. 2D radiography to compare the arrangement of the casing/chip interface/wire;

d. Laser/chemical decapsulation and optical imaging to inspect the chip circuits, bonding, and visible marks on the chip;

e. Report and summary.

Any potential issue detected during laboratory analysis may require additional tests, such as specific evaluation of the lead finish (XRF (X-Ray Fluorescence) / SEM (Scanning Electron Microscope)), Confocal Acoustic Microscopy (CSAM), or any other relevant test or analysis.

Lot size	Medical & Safety-critical products			Non-medical products		
	Sampling size (total)	Non-destructive tests : a, b, c	Destructive tests : d	Sampling size (total)	Non-destructive tests : a, b, c	Destructive tests : d
3-25	3	3	1	3	3	1
26-50	7	7	1	6	6	1
51-90	8	8	1	6	6	1
91-150	9	9	1	6	6	1
151-280	10	10	1	6	6	1
281+	11	11	1	6	6	1

Figure 4: Lot size

29 Supplier Portal

Kinova provides the supplier portal. The goal is to provide a direct and transparent communication channel to share important information.

Portal link: https://www.kinovarobotics.com/fr/legal/ressources-fournisseurs

29.1 Documentation and Responsibility

29.1.1 Documentation

This portal contains all the quality and engineering documents related to Kinova and its suppliers. Suppliers can find manuals, processes, procedures, forms, and manufacturing processes.

29.1.2 Responsibility

The supplier undertakes to consult and comply with the supplier quality agreement, manuals, processes, procedures, forms, and Kinova manufacturing processes. These documents are provided to ensure compliance with the required quality standards and to maintain the efficiency of production operations.

The supplier is required to stay regularly informed of updates and changes to these documents, which are essential for maintaining quality standards and process efficiency.