Supplier Handbook

InSinkErator
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SECTION 1: Introduction

1.1 InSinkErator

InSinkErator is the world's largest manufacturer of food waste disposers and hot water dispensers for home and commercial use. InSinkErator, a division of Emerson (EMR), is headquartered in Racine, Wisconsin with sales and customer service support throughout the world. Additional manufacturing resources are located in Reynosa, Mexico.

Emerson is a Fortune 200 corporation serving commercial, industrial and consumer markets around the globe. St. Louis based Emerson is a global leader in providing customers with innovative technologies and solutions in five business segments: industrial automation; process control; heating, ventilation and air conditioning; electronics and telecommunications; and appliances and tools.

1.2 InSinkErator Expectations for a Suppliers Quality System

InSinkErator expects that a Supplier has a fully functioning quality system in place that, among other things, ensures the following:

- Processes and output are within defined control limits.
- Corrective action is taken when control limits are exceeded or statistically significant trends are observed.
- Production is stopped and nonconformances are contained when the specification limits are exceeded.
- Adequate systems are in place to prevent shipment of any nonconforming material to InSinkErator without documented approval from the appropriate authorized contact.
- Appropriate corrective and preventive action is taken to correct nonconformances and prevent their reoccurrence.

SECTION 2: Supplier Handbook

2.1 Purpose & Scope

The Supplier Handbook serves as a guideline between InSinkErator and a supplier. Its primary purpose is to describe the responsibilities, expectations, and understandings that must be present to establish a sound working relationship with new suppliers.

2.2 Document Distribution

It is the Buyers responsibility to ensure that all new suppliers receive a copy of the Supplier Handbook and associated appendices, with updates sent when available.

2.3 Objectives

InSinkErator and their suppliers expect to achieve the following objectives by observing the guidelines in the Supplier Handbook.

- 100% defect-free products or services, delivered on time and at a competitive total cost.
- Continual quality improvements in all aspects of our business relationship.
- Early communication and problem prevention.

- A business relationship that provides greater opportunities for a committed supplier base.
- A consistent business framework in which to operate, thus allowing InSinkErator to provide the highest quality products, improved inventory flow, and shortened cycle times.
- Build a foundation to continually improve quality, productivity, customer service, and total cost.

2.4 Supplier Responsibilities

InSinkErator expects the following from their suppliers:

- Commitment to world class quality and continuous improvement.
- Ongoing responsibility to meet global competition.
- Ability to meet InSinkErator's commercial terms.
- Participation in Quality Planning initiatives and timely submission of approval documentation.
- Containment of nonconforming product to prevent delivery to InSinkErator.
- Must provide packaging of sufficient design to adequately protect the product from damage or degradation during transit.
- Timely & effective corrective action in the event of a non-conformance.
- Support of Kanban programs through on-time delivery.
- Use of the appropriate tools and problem solving methodologies (i.e., Lean, SPC, Six Sigma, DFSS, etc.).
- Conformance to applicable procedures outlined in this handbook.
- Compliance with any and all applicable RoHS and product related environmental legislation (including REACH and WEEE).
- Where applicable, supplier will be required to provide NAFTA certificates upon request.

2.5 InSinkErator Responsibilities

A supplier to InSinkErator expects the following:

- Honorable and ethical business dealings.
- Communication of quality requirements and exchange of information.
- Mutually agreed specifications and tolerances.
- Periodic supplier performance reports.

Potential opportunities with other Emerson divisions through e-Sourcing

SECTION 3: SPC

3.1 Strategic Benefits of SPC

Manufacturing companies are continually challenged with the rapid pace of new technology and global competition. To compete, successful companies employ strategies that differentiate themselves and their products by rapidly introducing new offerings and technologies, driving unnecessary costs out, and manufacturing products with perfect quality and delivery.

One of the tools InSinkErator is uses to support these strategies is Statistical Process Control (SPC). SPC improves a company's performance by:

- Reducing/eliminate scrap and rework

- Improving new product introduction speed by mastering the process
- Improving quality by reducing the variables that cause non-conformances
- Improving delivery by identifying potential problems before producing nonconforming parts.

3.2 SPC Expectations

InSinkErator is intent on sourcing key components with fully functioning SPC Suppliers. Expectations for a fully functioning SPC supplier include:

- Management commitment to SPC/Six Sigma/ or other problem solving methodology.
- Provision of adequate resources/staffing to implement and maintain the initiative.
    1. Support for each production shift.
    2. Appropriate statistical software.
    3. Trained staff to interpret results.
- Routine periodic (at least monthly) review of performance plans, goals, and results
- Corrective and Preventive action system in place to identify and resolve performance issues.

SECTION 4: Evaluation of Suppliers

Potential suppliers are identified through the use of Request for Quotation, e-Sourcing, Buyer/Engineer recommendation and other means.

4.1 Evaluating Suppliers

Suppliers are evaluated for initial approval by one or more of the following methods:

- Supplier Profile, Self Audit
- Product Evaluation
- Quality System Evaluation
- Industry Experience

4.2 Supplier Audit Protocol

InSinkErator has adopted the Emerson Supplier Audit Checklist (ESAC) as our Auditing protocol. The Buyer or the Supplier Quality Manager provides a copy of the ESAC to the supplier prior to an on-site audit.

The ESAC is in Microsoft Excel format and contains several sheet tabs. The supplier is encouraged to read through the entire document. Initially the supplier focuses on the following tabs:

- Overview
- Supplier Profile
- Standard Checklist (Self-Audit)
- Supplier CA-PA (Corrective Action – Preventive Action)

If an on-site audit is deemed necessary, the documentation is provided.

4.3 Supplier Profile and Self-Audit

The Supplier Profile and Self-Audit collect supplier information to aid in evaluating the following:

- Facility location and capacity
- Manufacturing processes
- Technical capabilities
- Business practices
- Quality System management

At a minimum, new suppliers (of non-catalog, custom designed parts) must complete and submit the Supplier Profile and Self-Audit prior to being placed on InSinkErator's' approved supplier list.

The Supplier Profile and the Self-Audit are contained within the "Emerson Supplier Audit Checklist (ESAC)". The Buyer or their designate ensures that the supplier receives an electronic copy of the Emerson Supplier Audit Checklist (ESAC) file. The completed file must be returned to the Buyer or requester.

4.4 Product Evaluation

A supplier may be approved based on the evaluation of parts, materials, and services to ensure they conform to quality and design requirements.

4.5 Quality System Evaluation

The quality system of a supplier is evaluated based on one or more of the *following criteria**:***

- On-site audit of supplier per Section 4.2 of this handbook.
- Audit by a qualified third party (such as ISO or QS Certification)
- Acceptable audit conducted by another Emerson Division per the Emerson Supplier Audit Checklist

4.6 Industry Experience

Review of the Supplier's ISO certification, nationally recognized certificates, and awards from industry leaders, or approval from another Emerson Division.

SECTION 5: Part/Process Approval (PPA)

InSinkErator uses a management tool called Part Process Approval to record all aspects of the Part Approval Process, from initial Quality Planning to Final Approval.

5.1 Quality Planning

InSinkErator is committed to ensuring customer satisfaction through the use of quality planning tools. We expect the same commitment of our suppliers and require supplier participation in Quality Planning activities.

5.1.1 Quality Planning Activity Trigger Points

A change in the manufacturing location, the part design status and/or the status of the tool used to make the part lead to quality planning activities. These conditions may overlap.

Quality Planning Requirements and PPA activities are triggered by:

- Manufacturing Location Change

  - Sourced part with supplier that is new to InSinkErator
  - Re-sourced part to an established InSinkErator supplier
  - Supplier changed manufacturing location within it's organization
- New Part / Revised Key Characteristic
  - New part, raw material or sub-assembly
  - New finished product (Buy-out, private label, etc.)
  - Engineering revision of a key characteristic
- New Tool
  - Designed and built for new part
  - Built to replace worn tool (Unless tool is normally "consumed" and frequently replaced standard tooling used during production, i.e., cold-heading process requires frequent tool replacement)

5.1.2 Quality Planning Requirements

Suppliers must complete the Quality Planning activities described below. This includes submitting documented plans, as well as, sample inspection data and process capability analysis. The intent is to:

- Verify that the supplier understands InSinkErator's requirements,
- Verify that the supplier is able to produce and measure parts that meet our requirements.
- Verify that the supplier has adequate process controls in place to meet the process capability parameters.

The supplier must submit the required documentation to the InSinkErator Buyer or Quality Engineer. Approval of submitted samples, inspection data and other documentation must occur prior to shipping production lots.

Although the activities and related documentation is generally required only at startup, InSinkErator Quality Assurance may find it necessary for the supplier to repeat some Quality Planning steps. Specific required supplier activities are communicated in the Part & Process Approval (PPA) document.

5.2 Pre-Production Stage Activities and Documents

5.2.1 Process Flow Diagrams

Prior to production, the supplier provides a Process Flow Diagram(s) to obtain approval by the assigned InSinkErator Quality Engineer. Process flow diagrams (flowcharts) identify the sequence of all operations including handling, storage, inspections, packaging, sub-contracted processes, etc. At a minimum, the flowchart illustrates material flow and all quality checks performed. Any format is acceptable. *See example of acceptable format in Appendix.*

5.2.2 Process Failure Mode and Effects Analysis (PFMEA)

Prior to production, the supplier provides a Process Failure Modes & Effects Analysis (PFMEA) to obtain approval by the assigned InSinkErator Quality Engineer. Failure Modes and Effects Analysis help prevent potential quality problems.

Acceptable formats include:

- InSinkErator's FMEA form (See example in Appendix)
- Automotive Industry Action Group (AIAG) FMEA format

- An alternative format approved by InSinkErator QA staff

5.2.3 Process Control Plan

Prior to production, the supplier provides a process Control Plan(s) to obtain approval by the assigned InSinkErator Quality Engineer. Any format can be used to document the Control Plan as long as it includes the items listed below. Process flow diagrams may be incorporated into the Control Plan. *See sample "Control Plan" and instructions in Appendix.*

At a minimum, the Control Plan identifies:

- InSinkErator Part Number and drawing revision level
- Product / process characteristic
- Control limits
- Control method (i.e., SPC, sample inspection, 100% inspection/test, etc.)
    - Critical Characteristics require SPC
- Type of gage used
- Inspection frequency and sample size
- Reaction plan for out-of-control conditions
- Packaging Plan – Packaging shall be agreed upon prior to the first direct material shipment to InSinkErator.

5.3 Verification Stage Activities & Documentation

During the verification stage, the supplier provides sample parts, initial sample inspection report, and capability study results as requested in the PPA. ISIR and Capability Study information is recorded on a mutually agreed to format.

Three conditions are required prior to submitting capability results:

1. A Measurement System Analysis (MSA) is conducted and acceptable results achieved.
2. Verification that the process is stable (only common causes of variation exist).
3. Verification that the data follows a normal distribution or, if non-normal, is modeled according to an appropriate distribution.

5.3.1 Measurement System Analysis (MSA)

An MSA on the gaging and test equipment used during production is completed prior to the capability study.

Acceptability Criteria:

Under 10% error – Considered an acceptable measurement system.

10% to 30% error – Conditional acceptance based upon the importance of application, cost of measurement device, cost of repair, etc. The acceptability of measurement systems falling in this category is determined by the Metrology Engineering Services Leader in conjunction with the Quality Engineer and the Supplier Representative.

Over 30% error – Considered not acceptable. The acceptability and use of measurement systems falling in this category require the initiation of a "Gages and Test Equipment Discrepancy Report". Corrective action is required to resolve the discrepancy.

5.3.2 Inspection Samples

The specific parts used in generating the data for the Part/Process Approval submission, along with a hard copy of the data, are sent to InSinkErator Metrology. The electronic file is sent to the Product Engineer, Buyer, Quality Engineer, and Metrology. **The inspection samples are tagged or marked to clearly identify them as samples for traceability to the inspection records provided.** *See "Appendix, ISIR Inst Tab" for further instruction.*

5.3.3 Initial Sample Inspection Report

InSinkErator provides a drawing to the supplier for identifying the characteristic number that is measured and recorded on the ISIR. The ISIR will be in a mutually agreed to format and typically includes the date, part identification (lot number, heat number, revision number, etc.), tool number, cavity number, inspected by, characteristic number, nominal, upper spec limit, lower spec limit, type of gage or method used, values, results (compliant or not compliant), and any appropriate remarks.

5.3.4 Capability Studies

All Critical Key Characteristics and Major Key Characteristics require capability studies.

Critical Key Characteristics are denoted on the drawing with a "Circle Star". These characteristics require a full capability study. A full capability study uses a lot size of greater than 300 pcs., 100 minimum per characteristic studied, subgroups of 3, 4, or 5 taken every 30 minutes, or as directed.

Major Key Characteristics are denoted on the drawing with a "Star". These characteristics require at least a basic capability study. A basic capability study uses 30 consecutive samples, one subgroup.

Basic or full capability studies are performed at the manufacturing location intended for production. The capability studies are recorded in a mutually agreed to format, match the characteristic studies to the drawing, and identify the gage/measurement method used. The supplier contacts the Quality Engineer or Metrology Lab Leader if questions arise regarding the capability study or to discuss use of alternative gaging. Note that the inspection gage or method used during a capability study may differ from the production inspection gage or method stated on the Control Plan.

The supplier provides a Supplier Capability Study Report (SCSR) on defined Key Characteristics. The submitted SCSR requires approval by the assigned InSinkErator Quality Engineer prior to production.

Minimum Capability Targets

The following table provides the minimum capability targets for PPA approval.

Minimum Capability Target	Key Product Characteristic Classification	
	Level 2 – Major	Level 3 - Critical
Basic Capability Study	1.33 Cpk	1.33 Cpk
	1.33 Ppk	1.33 Ppk
Full Capability Study	1.33 Cpk	1.33 Cpk initially, then continue to reduce variation; the goal is to achieve a Cpk of 1.5.

Minimum Capability Target	Key Product Characteristic Classification	
	Level 2 – Major	Level 3 - Critical
	1.33 Ppk	1.33 Ppk
Attribute Capability Study	Pass 100% - reject with 1 nonconformance	Pass 100% - reject with 1 nonconformance

5.4 PPA Validation – Testing / Pilot Run

Testing: In some instances special testing is required. Testing requirements are communicated via the PPA. Testing is done on production samples. InSinkErator testing is done internally.

Pilot Run: In some instances Pilot Runs are required. Pilot run requirements are communicated via the PPA. Typically a pilot run has two steps that include a full days' production and a production run of one week. Specific lengths and iterations may differ.

5.5 PPA Disposition

The PPA is dispositioned in one of three ways:

Approved: Indicates that the results of the required activities meet the minimum threshold requirements of the PPA. The process is stable with the capability targets met.

Interim Approval: Used if the process is unstable and limited production is made while the process is being corrected to meet the capability target. The manufacturer of the production parts is responsible for any additional inspection needed to contain nonconforming parts made during the Interim Approval.

Note: Interim approval requires a deviation defining the required conditions.

Not Approved: If a nonconformance is found in the submitted sample parts, the capability targets are not met, or other submitted requirements are insufficient, the PPA is not approved.

Communicating the Disposition: A Part Process Approval Detail will be used to communicate the disposition of the PPA. It will be sent either electronically, faxed, or via the Postal Service.

SECTION 6: Production Stage Activities and Documents

6.1 Notification of Control Plan change or Process Change

A supplier is required to notify the appropriate InSinkErator Buyer of any proposed changes to their control plan or any significant change to the production process prior to implementing the change. In most cases, these changes require a new PPA submission. Situations that require notification of proposed changes and PPA approval prior to implementation include but are not limited to:

- Relocation of production to another manufacturing facility
- New or re-built process
- Change in inspection / test methods
- Change in material suppliers

- Change in suppliers of subcontracted services

SECTION 7: Commercial Terms

7.1. Product Labeling Requirements

Minimum product marking on each container must include the Supplier Name, InSinkErator Part Number, Revision Level, the Quantity per Container, and Lot Number or Date of Manufacture.

If additional product marking is required, it will be noted on the part drawing.

7.2 Payment Terms

Emerson's standard payment terms are 5th 3rd Prox. Existing and potential suppliers are expected to comply with these terms.

7.3 Domestic Freight

Terms are stated on the face of each purchase order. Standard terms are:

- FedEx Ground for shipment < 100 lbs.
- Refer to InSinkErator routing guide, or as directed by the Buyer or InSinkErator Logistics > 100 lbs.
- Collect third party billing to InSinkErator through CASS Logistics.

7.4 International Freight

Terms are defined in EMR 2006; contact the buyer for details of this standard.

7.5 Legal Terms

Emerson standard terms and conditions appear on the back of the purchase order.

7.6 Packaging Guidelines

InSinkErator adheres to the 1991 revised NIOSH Guidelines for packaging/ manual material handling. All cartons should conform to generally practiced guidelines sufficient to meet normal safe handling requirements in the typical stockroom.

Packaging Guideline Checklist

Individual Container Weights:

- The maximum weight is 35 lbs (15.88Kg) unless otherwise specified by InSinkErator.

Individual Container Labeling

- Labeling must comply with all special requirements noted on the drawing.
- Minimum Individual Container labeling requirements, when no special requirements are noted, must include:
    - Supplier Name
    - InSinkErator Part Number
    - Revision Number
    - Quantity per Container

- Lot Number or Date of Manufacture

Automated Kan Ban Labeling (when required) on individual containers:

- For participants in Automated Kan Bans the labeling is determined by the program in use.

Palletized Loads Weights and Dimensions:

- Pallet size is 40”x48” (101.6 cm x 121.92 cm) 4-way, constructed per uniform standards for wooden pallets, unless otherwise specified.
- The target maximum weight is 2,000 lbs (907 Kg.).
- The target maximum height is 60 in. (152.4 cm.).

Pallet Labeling - Homogeneous Product must include:

- Supplier Name
- Part Number
- Revision Number
- Total Quantity on Pallet

Pallet Labeling - Mixed Load

- Master pallet label must show all part numbers and quantities
- Individual containers should be palletized so that labels are visible on the outside perimeter of the pallet.

Returnable Packaging

- InSinkErator provided packaging
  - Part specific packaging may include Bins, Trays, Special Liners, Plastic Pallets, Baskets, etc.
  - Is clearly identified as InSinkErator owned packaging.
- Supplier provided packaging
  - May include wire baskets, special pallets, dividers, etc.
  - All supplier provided packaging is clearly identified with the suppliers name.

SECTION 8: Supplier Quality Feedback

8.1 Notification of Nonconforming Material

Nonconforming parts and materials are immediately segregated and the details are recorded as a Material Nonconformance. All nonconforming material is reviewed by InSinkErator personnel. The Buyer or designate sends a copy of the Material Nonconformance to the supplier to communicate the issue and to request immediate action where necessary. At a minimum, the supplier provides a record of actions taken to correct the condition, take action to prevent shipment of any additional nonconformances.

8.2 Request for Corrective Action

When necessary, a request for corrective action is generated. A Supplier Corrective Action Request (SCAR) is issued for:

- Repeat non-conformance issues
- All non-conforming key characteristics
- Any other issues deemed appropriate

8.3 Supplier Response to SCAR

It is expected that the supplier

- Acknowledge the receipt of the SCAR within 3 days
- Complete investigation, identification of root cause and provide a response within 14 days.

8.4 Supplier Performance Measurement

InSinkErator provides periodic Supplier Performance Measurement Reports.

SECTION 9: Additional Supplier Handbook Files

9.1 Appendix

The ‘Appendix’ file is a Microsoft Excel workbook containing the examples, forms and instructions used by the supplier and InSinkErator as described within the Supplier Handbook.

The file is provided to all InSinkErator suppliers and potential suppliers when requested through the InSinkErator Buyer, Procurement Engineer or the Supplier Quality Manager.

The ‘Appendix’ workbook addresses several topics including:

- Process flowchart
- Failure Modes and Effects Analysis (FMEA)
- Control Plan
- Initial Sample Inspection Report (ISIR)
- Supplier Capability Study Report (SCSR)

9.2 Supplier Quality Audit Checklist

The ‘Emerson Supplier Audit Checklist’ file is a Microsoft Excel workbook containing forms and instructions used by the supplier and InSinkErator as described within the Supplier Handbook.

The file is provided to all InSinkErator suppliers and potential suppliers when requested through the InSinkErator Buyer, Procurement Engineer or the Supplier Quality Manager.

The “Emerson Supplier Audit Checklist” workbook includes:

- Supplier Profile
- Supplier Self-Audit (within the Standard Checklist)
- Process Audit