Lindström

Contents

Introduction

This Handbook explains Lindström Group Quality Assurance (QA) processes and standards to be applied when delivering products for Lindström Group.

This Handbook is meant to be used by all our Suppliers of Lindström specific products, to familiarize themselves with our expectations prior to quoting for separately specified products; and, subsequently, as a reference guide to help Suppliers through the manufacturing phase.

The Handbook is comprised of two volumes.

Volume One (this part) describes the process and provides guidelines for what Suppliers are expected to do. It should be read in full by all Suppliers, prior to tendering.

Volume Two is divided into sections containing Lindström Group Product Category related instructions. The different sections contain product category specific reference material that is needed in the course of fulfilling a Lindström order. It shall be used as support and reference during the manufacturing process to ensure that all Lindström standards and expectations are met.

1. The Quality Assurance (QA) Process

The QA process gives an overview of how Lindström approaches Product Quality Assurance. It covers all the steps gone through and provides information on what Suppliers are required to do at each stage of the process.

In this Handbook following steps are covered:

- Quality Assurance Process Overview
- Quality Assurance Process Descriptions
- Quick Guide to Sample Submissions
- Compliance Guidelines.

Supporting materials

Supporting references and information for the different Product Categories are to be found in Volume 2 of this Handbook.

1.1. Quality Assurance Process Overview

Process Stages

The table below outlines the Lindström QA process, and the documentation/supporting items required at each stage.

Always required	Required at First Order	Required at Repeat Order
1: AGREEMENT/CONTRACT	Signed Agreement/Contract document	
2. SPECIFICATION	Lindström Specification OR Supplier Specification	
3: REQUEST FOR QUOTATION	Request for Quotation Supplier Spec (w/a) Fabric Test (w/a)	

	Requirements Form (w/a)	
4: QUOTATION		
	Quotation Document Copy of Request for Quotation Copy of Supplier Specification Copies of valid certificates	
5: PRE-PRODUCTION		
	LAB DIPS w/a Counter Sample	Fabric Lab Test
6. PRODUCTION		
	Production Sample	Production Sample

1.2. Quality Assurance Process Descriptions

In this section, each of the process stages is described in more detail. The different types of samples are defined in detail in each Product Category section in Volume 2, when applicable.

Examples of Document

For examples of all documents referenced in this section, please see respective Lindström Group Product Category section in Volume 2, when applicable.

1. Agreement/Contract

This is the master document that is used across the entire Procurement function within Lindström Group and sets out the mandatory requirements and contractual arrangements covering the general supply of products to Lindström Group.

This Handbook is to be used in conjunction with Agreements/Contracts between Lindström Group and its Suppliers.

An Agreement/a Contract must be negotiated and signed before any orders can be placed with a Supplier.

2. Specification

The product specification may be provided by Lindström, or may, in some circumstances, be provided by the Supplier. This will occur, for example, for products which are produced under the Supplier's own brand.

Lindström Specification/Tech Pack

This document consists of sketch/picture of the product, a size chart, material, accessories, stitching and construction. The product specific Specifications / Tech Packs are to be found in respective sections for each Product category in Volume 2 and their appendices, when applicable.

Supplier Specification

The Suppliers are asked to use Lindström product specification forms when compiling their own product specifications.

A copy of the Supplier specification must accompany every sample submitted to Lindström. The Supplier must fill this in, or Lindström will not audit the sample.

3. Request for Quotation

This document outlines the policies and requirements behind the quoting process to Lindström Group.

4: Quotation

This document is a generic format that is intended to formalize the submission of quotations to Lindström Group. It is used in conjunction with the Request for Quotation document. When the Supplier is quoting on his own product specification a copy of the specification must be submitted along with the quotation.

Lindström reserves the right to send the RFx documents in electronic format. In such a case only replies given over the same software will be accepted.

5. Pre-Production

In the pre-production phase the design, construction, material and accessories are defined and checked that they comply with agreed specifications and other instructions. The compliance is checked by requested samples.

When requested the lab dips are to be sent to the in documentation nominated person at Lindström for approval, when specified.

Print strike-offs are approved by the abovementioned person for color and design only. All quality aspects of print strike-offs must be approved by Lindström.

Third party lab tests are made on materials and Products when requested by Lindström. Details of the test requirements will be sent separately by Lindström.

The supplier shall produce and send requested number of counter samples to Lindström for final approval. Any fit or construction amendments requested during the handling process must have been made on this sample ready for approval. The approved Counter sample shall be stamped by Lindström and one of them shall be returned to the supplier to be used as reference sample for future quality control.

Material and accessories must also receive final approval at this stage. The sample must be measured prior to submission and measurements noted on the accompanying copy of the size chart.

Product Category related instructions for pre-production phase are given in respective section in Volume 2.

6. Production

The production shall be done in accordance to what is agreed in the Agreement/Contract and what is stipulated in this Quality Assurance Handbook. The manufacturing of the product shall be as per the Counter sample mentioned in previous paragraph.

The Supplier shall provide Lindström with a production sample for the first and for the repeat orders.

2. Materials and Accessories

General

The quality of all materials and accessories used on Lindström products must be of a commercially acceptable standard and meet all stated Lindström quality standards.

In a situation where a quality issue arises, either from customer returns or as identified by Lindström before bulk products are delivered to Lindström, Lindström may require the Supplier to have further testing carried out. All testing is to be done at the Supplier’s expense.

2.1. Compliance with International and national standards

All products sold to Lindström Group companies shall fulfill the requirements of international and national standards, EN, GB, etc., applicable in countries Lindström is offering his services. Whenever a product is aimed to be sold only on a certain geographical area the Supplier is informed about special requirements, if any.

In deliveries to the European Economic Area (EEA) the Supplier shall keep himself aware of the European Union REACH directive and keep himself updated about the list: Restriction of the use of certain hazardous substances (RoHS). The Supplier shall pay special attention to that the regulations in REACH are strictly followed during the entire production process.

The special requirements at delivering goods belonging to any of the Lindström product categories, 2.1 to 2.7, in Volume 2 of this Quality Assurance Handbook.

2.2. Certification

Certification of products shall be done in the name of Lindström whenever required by EU or other authorities in Lindström market area. The Supplier of the product is responsible for the certification process on behalf of Lindström. The Supplier shall provide samples and valid data required for applying a certificate at any time.

The certification cost shall be borne by Lindström.

On Lindström labeled products only authentic, original, non-manipulated certificates are accepted.

On products his own label the Supplier shall provide Lindström with copies of non-manipulated renewed and new certificates without any separate request.

On request of Lindström the Supplier shall present the original documents.

2.3. Testing Laboratories

Testing of products sold to Lindström shall be carried out in accredited well-known laboratories. The Suppliers or the laboratories used are responsible for the correctness of test reports and certificates issued. If later, in control testing, it is detected that values on the original test report/certificate are false the issuer of the original documentation is held responsible for the failure and Lindström reserves the right for compensation for the costs caused by the failure.

No manipulated test results are accepted. Lindström reserves the right to approve or reject the laboratory used.

3. Labeling and Packing

This Section covers the guidelines for the various types of labels that are required by Lindström and the guidelines for packaging of items.

The section consists of:

- Guidelines for label approvals and testing
- Guidelines for packaging approvals and testing
- Legal compliance guidelines
- Requirements for label attachment
- Shipment packing requirements.

Supporting references and information about the different product categories of each Product Category are to be found in Volume 2 of this Handbook.

3.1. Label Approvals

Label wording

Please see Volume Two, User Instructions, and Labeling Requirements for specific wording requirements on Lindström labels for the various Product Categories.

Origin
Fiber Composition
Sew-in Labels

Approvals

Sew-in labels must be submitted to Lindström for approval prior to production. If multiple products products/styles use a common label then only one sample label is required for approval but the Supplier must advise all products/styles that label is to be audited for. Label approvals should be submitted at the same time as the Approval Sample product.

On repeat orders the Supplier must use the correct sew-in labels for respective product.

Supplier must check labels prior to submission to ensure that the label details are as required by the specification, or as requested by respective Product Category. If labels are incorrect, they should not be submitted until they have been corrected.

Testing

Printed labels must remain legible for the life of the product after continuous washing and wearing.

Labels must have soft, smooth edges and must not be frayed. All labels must meet label durability

standards.

All products must comply with the Acts, Standards and Regulations stated in the Compliance Guidelines in this Handbook.

3.2. Packaging

Summary

This relates to the requirements for packing of the bulk ready for shipment.

Item	Requirement
Inner bags	Products must NOT be packed in individual polybags unless separate request in the purchase order is mentioned. More detailed instructions in Volume 2, Product Category related instructions.
Transport Package/Box	Transport Package/Box includes a combination of several Product Sales Lots loaded into a larger handling lot, e.g. a box. Each Transport Package/Box shall be lined with a sealed poly wrapper if not otherwise instructed in respective Agreement/Contract or purchase order. Recommended box sizes are: 600 x 400 x 320 400 x 300 x 320 400 x 320 x 180 (length x width x height). Measurements are in millimeters.

	More detailed instructions in Volume 2, Product Category related instructions.
Marking of Boxes	Markings on boxes must be as specified in the Delivery Instructions document.
Presentation of Products	The products must be dry before being packed.

More detailed Product Category related packing instructions are to be found in Volume 2.

4. Quality Control

This section outlines the AQL standard, and our expectations for the inspection processes.

All suppliers shall read this section and be familiar with our requirements prior to making a submission for a quotation. Inspections should then be carried out to this standard.

The section consists of:

- An introduction to what AQL is
- Guidelines on carrying out an AQL inspection
- What to do when an AQL inspection fails
- Tables of sample lot sizes and rejection points
- Tables of defect types and how they should be classified.

The Quality Control is based on what is written in this Quality Assurance Handbook. The inspection shall be carried out using the AQL standard described below.

4.1. What is AQL

The AQL is the maximum percent defective that for purposes of sampling inspection can be considered satisfactory as a process average. (In other words: the maximum number of defects per sampling size that is deemed acceptable).

When inspecting a sample from a lot of products (if the units are randomly selected and are a true representation of the whole), the sample gives an accurate projection of the true condition of the lot.
All statistical plans contain a built-in risk where you have to balance the greater accuracy of a larger inspection group with the extra time and cost. While it is possible to pass a bad lot or fail a good one using this method, if the sample is properly sized and selected it should reliably predict the outcome 85% to 90% of the time. If used correctly the system will work and is far more cost effective and practical than the 100% inspection method.

Categorizing defects

Defects are categorized as either: Critical, Major, or Minor. A single Critical defect will fail the order. The number of acceptable Major and Minor Defects varies by sample size (see table later in this section). Four minor defects equal one major defect.

Critical Defect - A defect that is likely to result in a hazardous or unsafe condition for an individual using the product or that contravenes mandatory regulations.

Major Defect – A defect that is likely to result in failure; reducing the usability of the product and obvious appearance defects affects if the product is saleable.

Minor Defect – A defect that does not reduce the usability of the product. It is nevertheless a workmanship defect beyond the defined quality standard.

4.2. How Shall a AQL Inspection Be Carried Out

Before inspecting

An inspection shall only commence when all of the following conditions are met:

1. An approval sample product with all relevant attachments is available
2. A sample/approval report from Lindström resp. Product Category is available
3. Order details are available
4. Material and accessories test reports have been submitted and approved
5. Print test report available (where applicable)
6. 100% of the stock is completed and available (must include all styles, sizes and colors as specified on order).

It should be noted that all inspections should be done in a clean and well-lit area.

How many inspectors are needed?

The number of inspectors needed depends on the total production, the lot size, the complexity of the item made and the present outgoing quality level. The inspection time per unit varies depending on the number of operations in the item.
It is best to use one inspector per lot. As an average order quantity for Lindström varies depending on respective product/product group.

Assuring random sampling

Statistical auditing involves selecting a few units from the whole lot, doing a very thorough inspection of those few and making a projection based on the results.
It is extremely important that the units are selected by random sampling i.e. the samples are selected from the entire production lot. The entire lot must be completed before the sample is taken, the sample cannot be taken from just the first 25-50 % of the lot.

With various items you have some assurance of getting random sampling by selecting units in ratio corresponding to the size and style breakdown. Below you find an example of how it can work:

How to inspect

The table below describes the basic procedure for carrying out the inspection. Please refer to tables of specific defects and their classification.
The inspection shall in first hand be done by comparing the stamped counter/reference sample to samples from production.

Product Category specific instructions are given in respective section of Volume 2.

Stage	Details
1. Review of Technical File and Order Details:	The inspector must make sure he has following items available: • Purchase order • Packing list • Product specification (size specs, sketches etc.) • Defect classification • Special instructions • An inspection form to record the outcome • Sample cards to accompany the final selected samples.
2. Inspection of Standard and Sampling	• Follow the AQL table as you go. Remember that: • Critical defects – not allowed

	• Major and minor defects – AQL 2.5, Level 2, if not otherwise stated in product/product group documents in Volume 2.
3. Carton Selection	• Obtain and review packing lists • Estimate number of cartons/quantity presented for inspection • Select cartons randomly for complete style, color and size range
4. Packing and Markings	Check following against specification/order: • Packing material • Packing method • Packing size • Inner and outer packing • Labeling • Shipping marks • Packing condition • Packing dimensions
5. Quantity/Assortment Check	Check following against shipment documents: • Number of pieces per export carton • Check style, size and color of assortment as per packing list and carton marking o Product o Size assortment – solid or assorted size ratio o Color assortment – solid or assorted size ratio • Check product, size and color as per documentation
6. Product Comparison	Compare product against specification and counter/reference sample for the following points • Product • Construction (e.g. seam structure, etc.) • Sewing method (e.g. types of stitching etc.) • Stitches per inch • Accessories (e.g. types, position, brand etc.) • Printing (e.g. design, size etc.) • Embroideries (e.g. design, size, stitching, density etc.) • Others
7. Material (Touch & Feel)	Compare material against reference sample/swatches by hand feel and touch. Comment on the material (touch & feel) as follows: • Similar to reference sample • Slightly stiffer, stiffer • Slightly softer, softer • Others
8. Color and Comparison	Compare color against the reference sample/swatches by visual comparison on the following: • Color of shell fabric • Color of lining fabric • Color of printing • Others
9. Size Measurement	Check size measurement against specification. If measurement is based on the factory's specification, please attach this size specification for reference. You must measure a minimum of 3 pieces per size.

10. Visual Quality Inspection (Workmanship)	Check workmanship according to the correct sampling plan. Indicate all defects in the product with red arrow defect stickers. Report one most serious defect per unit and classify as major or minor defects. Defect classification according to the following: • General cleanliness and appearance • Material faults (state which type of material faults) • Sewing defects • Defects on accessories • Other defects
11. RFID Check (w/a)	Check existence and positioning of RFID tag.
12. Checking of Other Things	• Smell and odor (e.g. bleaching agent, detergent etc.) • Moisture and damp condition • Mildew
13. Drawing of Samples	Draw samples as following and fill in data in the sample card: • Shipment sample: one piece in good condition per shipment • Defective sample: representative defectives for the majority defects • Laboratory testing samples: as per instruction • Provide reasons if unable to draw samples.

The above is meant to be a guide only and may not be all inclusive for all cases.

4.3. If the Inspection Fails: Re-inspection and Corrective Action

100% inspection required

Whenever a lot fails 100% must be inspected to eliminate all classification of defects. The lot should either be repaired or in the event this is not possible, the good separated from the bad and the shortage quantity re-made.
Always remember if the defective units found in the samples exceed the allowed number (as per the table), the lot is rejected, even though it fails by only one unit. It is not allowed to increase the sample size as this would make the statistical plan invalid
– always follow the plan.

100% inspection process

When conducting a 100% re-inspection the following process will be used:

- After 20 % of the lot has been 100% inspected, process is paused and the data is reviewed.
- At this point the sample audit is combined with the 20% inspection data.
- If the projection is still running more than the AQL, then the 100% inspection must be continued.
- If it is running less than the AQL, the 100% inspection can be ceased

(Though even if inspection is ceased, it is strongly recommended that all damages found are either repaired or replaced).

Example of corrective action on 1000 units with AQL 4.0:

Process Action	UNITS INSPECTED	UNITS DEFECTIVE
Sample Audit	80	8
20% Inspection	200	23
TOTAL	280	31

Defective units (31) divide total inspected (280) = audit percent (11.07%). Action: continue 100% inspection.

4.4. AQL Sample Lots and Rejection Points

MIL STD-105/BS6001 level II sample size shall be chosen for final inspections conducted at factory.

		LEVEL II							
		The Lindström Standard							
ORDER QTY	SAMPLE SIZE	AQL 1.5		AQL 2.5		AQL 4.0		AQL 6.5	
		AC	RE	AC	RE	AC	RE	AC	RE
UP-150	20	0	1	1	2	2	3	3	4
151-280	32	1	2	2	3	3	4	5	6
281-500	50	2	3	3	4	5	6	7	8
501-1200	80	3	4	5	6	7	8	10	11
1201-3200	125	5	6	7	8	10	11	14	15
3201-10000	200	7	8	10	11	14	15	21	22
10001-35000	315	10	11	14	15	21	22	21	22

– AC – Accept Point
– RE – Reject Point
– Critical defects not allowed
– 4 minors equal 1 major

4.5. List of Defects

Each Lindström Product Category has its own lists of defects for their different product groups. These lists shall be used when carrying out Quality Control for a Lindström Group purchase order.

Supporting Material

Defect Lists of the Product Categories are found in respective Section in Volume 2

5. Inspection to AQL Standard

It is Lindström expectation that orders will be inspected to AQL standard MIL STD-105/BS6001: AQL 2.5, Level II, and as described in Paragraph 4 above if not otherwise stated in Procuct Category Instructions in Volume 2 for respective product/product category.
The inspection can take place in two different phases:

1. Final Random Inspection FRI (When goods are 100% produced and packed)
2. During Production Check DUPRO (When about 30% goods have been produced)

The inspection shall be carried out by a Lindström employee or a company nominated by Lindström, before goods are dispatched. This is the standard to which Lindström carries out its own Final Inspection on the goods.

5.1. Supplier Categories in Quality Control

The Suppliers are classified in three main categories according to the need of level of quality control for their products. The classification is based on their status in the Lindström Group supplier base and the product categories they supply to Lindström Group as follows:

1. Well-established regional supplier
    a. Long business relationship with Lindström Group
    b. products of established standard quality on Lindström Group or supplier specification

   Need of quality control: Random FRI

2. Well-established global supplier
    a. Long business relationship with Lindström Group
    b. Products manufactured on Lindström Group specification

   Need of quality control: Random DUPRO and FRI

3. Supplier in introductory phase or production under special observation
    a. New supplier in starting phase
    b. Existing supplier manufacturing a new product on given specification

   Need of Quality control: DUPRO and FRI. Accuracy to be decided case by case