

Quality System Procedure

QPRO4.10.04

SUBJECT: First Piece Inspection Rev (R) Page 1 of 4

Purchased Parts

Supersedes NA

Changes

Effective Date: 05/13/09

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Introduction: To provide a uniform method of first piece part sample approval for purchased production parts. The first piece inspection process demonstrates the ability to manufacture product to written specification.

Definitions:

Purchased Production Parts - These are parts made to Knape and Vogt specifications that will be incorporated into finished product. This also includes KV specified packaging.

First sample inspection is required at the following times:

Before a new purchased product is released to production.

When an engineering change affects product specifications.

When a revision to a purchased part tool has occurred.

When a tool is moved to another supplier.

Scope: All Grand Rapids Purchased Products

When a supplier is chosen to provide a product that has already been in production from a different source.

In the course of normal business, it may be necessary to request other information, data, or part inspections from the supplier. The Purchasing dept. will make all requests to suppliers. Also, the Purchasing dept. will make arrangements for the data analysis and inspection if required. These records will *not* be required to be maintained as per QPRO4.16.01.

Procedure:		

Approved By: Gordon Kirsch Signature on file Date:



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1.0 Obtain first piece samples

1.1 Responsibility: Purchasing Agent

The Purchasing Agent is responsible for contacting vendors and requesting First Piece sample submissions when any of the above instances occurs. Sample approval is a part number program. Each part # must have a sample approval.

If there are multiple cavities, impressions, or tools, each will require a sample approval inspection layout.

Purchasing and Engineering will have a review meeting (Marketing and Quality Assurance may attend if needed for clarification). This will ensure that specifications and drawings accurately convey any changes in tolerance, material, etc. to potential suppliers. Deliverables may include marked & signed drawings, written performance specifications, "best" and "worst" case samples, tolerances, material or aesthetic specifications, and all other items necessary to convey the intended final product requirements.

2.0 Part Layout

2.1 Responsibility: Supplier

2.2 The supplier will sequentially number or letter each dimension/specification on Knape & Vogt's part print. The sequence numbers and dimensions/specification must be transferred to a summary report. The inspection layout results are to be written next to the print dimension on the summary report, including the nominal dimension, tolerance, and a determination whether the results are in or out of specification.

All parts submitted must be made on production tooling and must not be altered in anyway by a non-production tool operation. One part completely laid out (all characteristics), and three parts with all *criticals* laid out will be submitted for approval. The parts from multiple tools, cavities, or impressions will be permanently marked. The print shall be attached together with all related reports. The inspection report shall include the type of measurement device used for each individual print dimension. Only numerical values should be recorded even if a dimension is typically checked with an attribute gage. Parts used for Supplier inspection will be submitted with the First Piece Submission, labeled "First Piece



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Any out of specification conditions found in the layout must be circled on the submitted layout summary form. The Supplier must have written approval from Knape & Vogt's Product Engineering prior to submission of a layout with an out of specification condition. The Deviation/Change request must include the inspection report, print and reason for the request. If the layout is submitted with out of specification conditions it must also contain a corrective action plan for those conditions.

- 2.3 Shipping First Piece Submission
- 2.4 Responsibility: Supplier
- 2.5 The samples should be treated with extra care. Package samples individually in a sealed plastic bag to prevent contamination during shipment. Sufficient padding materials shall be used to guard against damage to all critical features. Samples should be packed in cartons so no damage will occur during shipment to Knape & Vogt.

The following four items shall be present in the carton for each submission:

- Identified sample(s)
- Inspection Report
- Labeled Print
- Packing List
- 2.3 Capability Study: A thirty (30) piece capability study of selected critical characteristics may be requested by Product Engineering or Quality Assurance Department. The Capability Study will be performed on production run parts. A CPK of 1.33 or greater must be achieved. If the initial capability of the process can not meet a CPK of 1.33, a corrective action must be submitted and the capability study must continue until a CPK of 1.33 is achieved.
- 3.0 Internal Layout Review
- 3.1 Responsibility: Purchasing, Product Engineer, Packaging Engineer,

Quality Assurance



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3.2 The Purchasing Agent will receive the samples and submit them to the Product Engineer in charge of the product. Packaging will be submitted to the Packaging Engineer. After the appropriate Engineer reviews the parts, and ensures the correct print and revision level was used, the print, layout, and parts are delivered to Quality Assurance for a layout inspection/review.

4.0 Layout/Part Approval

- 4.1 Responsibility: Quality Assurance, Product Engineer, Packaging Engineer, Purchasing, and Marketing
- **4.1** Quality Assurance Inspection reviews the submission for accuracy and reports the results on form QA006 and/or QA012 to the responsible Engineer. The internal inspection review will utilize the vendor's dimensional/characteristic identification system for consistency.

The Engineer, after reviewing the layout results, will give approval/disapproval to the Purchasing Dept. on form QA006 and/or QA012. If the samples are acceptable, but not to print, a deviation must be issued per QPRO4.5.05 Product Revision Control or an ECN will be issued to change the print specification to ensure that a part to print condition exists at start of production. If a discrepancy is noted between the vendor inspection and the internal inspection review, the responsible engineer will investigate and determine which if either is representative of the detail. The issue and determination will be added to the submission records. An ECN or deviation is required to release a part/product to production. The Product Engineer will record the deviation/ECN number on the First Piece Inspection form. If Purchasing decides not to purchase this part from this Supplier, they must note so in the remarks section of form (QA006), "Supplier not to be used" or any other disposition and sign off form (QA006) and return form to Quality Assurance.

Quality Assurance will send form <u>QA006</u> and/or <u>QA012</u> to Marketing for sign off of any part color approval, and/or graphics related to packaging, as required.

For a summary of this procedure (Purchasing, Supplier, & Engineering

responsibilities), see QPRO4.10.04 Summary.

Records: Customer and KV layout records are maintained in accordance with QPRO4.16.01.