Enerpac Prototype and low Volume Supplier Quality Manual Policy

Intellectual Property Category:	1	2	3	4

4 - UNRESTRICTED - Free distribution to all parties

Rev No	Rev Date Month/Year (MM/YYYY)	Prepared (Initial, surname and department)	Approved (Doc Owner(s)) (Initials, surnames and departments)	Approved HSSEQ (Initial, surname, dept)
2.0	Jan 2021	Mark Boardman	Mark Boardman	Quality Steering Committee
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Table of content

1 Objectives and Scope

The purpose of this document is to communicate Enerpac's expectations for prototype submission requirements and low volume production requirements (< 100 pieces per annum = Prototype, 100-250 pieces per annum = low volume).

These requirements are for dedicated prototype suppliers and or regular production suppliers that will provide prototype parts and or low volume production parts for Enerpac.

2 Requirements.

2.1 A Part Submission Warrant:

Shall be completed in full (no blank fields) and signed by an authorized official of the supplier who is responsible for the preparation of this submission package. There shall be a separate warrant form for each part number and subsequent revisions. Enerpac Format only

2.2 A Control Plan and Complete Process Flow Chart:

Shall be created and submitted that captures the process and/or processes for the manufacturing of these parts. This document shall also capture the dimensional features being checked (highlighting the SC/CC's), sample size and frequency of inspection. The frequency of the dimensional checks is typically higher than that of production parts. Additionally, alternate process flow's or rework must be clearly identified in the control plan. If there are sub-tiered suppliers, (Ex: plater, heat treat, and paint) these processes need to be included in this document. AIAG format or Enerpac Forms pack is acceptable.

2.2.1 For low volume production parts only, a Process FMEA may be required and to be agreed with the Enerpac SQE. AIAG format or Enerpac Forms pack are acceptable.

2.3 Dimensional Characteristic Inspection:

For prototype parts being shipped to Enerpac for testing: A 100% fully ballooned drawing (including the notes), along with a corresponding 100% dimensional layout inspection report shall be conducted based on Table 1 in this section. If the supplier is able to or has access to a laser scanner, this data would also be required in the submission package.

For prototype parts being shipped to an Enerpac facility for assembly: A 100% fully ballooned drawing (including the notes) along with a corresponding 100% dimensional layout inspection report shall be conducted based on Table 1 in this section.

For prototype parts being shipped from an Enerpac plant to another Enerpac plant: A 100% fully ballooned drawing (including the notes) along with a corresponding 100% dimensional layout inspection report shall be conducted based on Table 1 in this section.

For low volume production parts being shipped to an Enerpac facility: A 100% fully ballooned drawing (including the notes) along with a corresponding 100% dimensional layout inspection report shall be conducted based on Table 1 in this section.

Suppliers are responsible for performing, or having performed legible, signed inspections and/or tests required to substantiate conformance to design record. Suppliers shall use the Enerpac FSIR form.

Castings, forgings, plastics or rubber parts being made from multiple molds or cavities, require one part from each mold or cavity to have a 100% dimensional layout. 'Blackbox' suppliers are to provide dimensional data on part interface dimensions as a minimum per the frequency suggested by the receiving Enerpac facility.

Table 1:

Significant Production Run Quantity	Required Quantity for FSIR
2 to 8	2
9 to 15	2
16 to 25	2
26 to 50	3
51 to 90	4
91 to 150	5
151 to 250	6

2.4 Significant or Critical Characteristics SC/CC's:

For prototype parts being shipped to Enerpac for testing: all SC/CC dimensions are to be 100% measured on every part, unless otherwise specified. Additional features deemed critical by Product Engineering and or plant Quality may also be required.

For low volume production parts being shipped to an Enerpac facility: all SC/CC dimensions are to be 100% measured on every part, unless otherwise specified by the receiving Enerpac facility. When capability has been demonstrated the supplier will be required to track via SPC charting maintaining the data and providing when requested. 'Blackbox' suppliers are to provide dimensional data on SC/CC dimensions as directed by the receiving Enerpac facility direction as required.

If the characteristic to be inspected is a destructive inspection, the supplier is to coordinate with the appropriate Enerpac SQE for direction.
Supplier must provide inspection records including dimensional data (for variable measurements) and/or pass/fail results (for attribute characteristics) for each shipment as per the control plan.

2.5 Material Certifications:

The material certification is a required document from the material producer and or heat treatment source that states manufacturing location, lot number, product identification number, product name, dates of test, actual test data compliance to the product specifications. Material certification shall be deemed part of the submission. Material certification(s) should be dated on the supplier letterhead (i.e.: XYZ
Plating, Inc.) Traceability must be maintained at supplier location. Enerpac FORM is to be used. This is required per heat.
Metals/plastics/rubber certifications: (i.e.: chemical and mechanical properties)

Heat treatment certifications: (i.e.: temperature, temper, core/surface hardness, case depth, microstructure)

Paint/Plate/Primer/Rust Preventative certifications: (i.e.: thickness, grade, viscosity)

Heat Treated parts: Only one part is required for sample testing, by the supplier. (i.e.: surface/core hardness, case depth)

2.6 Simulations:

Per the direction of Product Engineering and or Materials Engineering, simulations may be required to be performed on prototype and or low volume production parts.

2.7 Tooling(castings):

Prototype part suppliers are required to report out what type of tooling is to be used. i.e.: red-board tooling or brown-board tooling.

2.8 X-Ray Requirements:

(Film Radiography and or Digital Radiography that include Image Quality Indicators) Existing Production Casting foundries providing prototype parts are not required to 100% X-Ray parts, unless otherwise specified.
Only the first piece requires destructive testing. All Reader Sheets and or films shall be submitted with the package.
Dedicated Prototype Casting foundries providing prototype parts shall be 100% X-Rayed, depending on drawing requirements. Per the casting specification, All Reader Sheets, x-ray mapping and/or films shall be submitted with the Prototype submission package.

2.9 Magnetic Particle Inspection Requirements:

For forgings, it will be to the discretion of the Enerpac Product Engineer as to what is required.

2.10 MSDS Requirements:

MSDS sheets are required in the submission.

2.11 Serialization Information/Part Identification:

Each part must be identified with the part number and the serial number. Parts shall be numerically serialized and referenced to test/inspection results. Serial numbers shall begin with Prt001 and continue in sequence through the last part shipped. Placement of the serial number on each part shall not affect the appearance, fit or function of the part (location to be agreed with Enerpac Product Engineer). Design records, test results, and supplementary inspection result sheets must have the part serial numbers(s) clearly indicated.

Part serialization is required. Common methods of marking include: laser etch, hand etch, pin stamp or punch stamp. When supplying multiple lots for the same part number, the serialization shall be consecutive to avoid duplicate numbering of parts from different lots, unless the serialization starts with the unique lot number.

2.11.1 For smaller parts such as nuts, bolts or on parts where there is no reasonable area to be marked, Enerpac Supplier Quality may waive this requirement.

2.12 Inspection and or Testing Devices:

When an inspection and/or testing device such as a gage, fixture, check-aid, or template is used to inspect and/or test a part, the supplier is responsible for inspecting and verifying that the device has been constructed to the same engineering release and change number as the part being inspected and/or tested. Supplier must have completed appropriate measurement system analysis (e.g. GR&R or similar study) for the gage and the gage must be calibrated with full traceability to standards. Results of these activities must be available for review and sent to Enerpac quality personnel upon request.

2.13 Deviations:

If parts do not meet design record requirements, i.e.: dimension(s) out of specification or if parts do not meet metallurgical requirements, the supplier is responsible for filling out the Temporary Deviation Request FORM and submit it to the responsible Enerpac Supplier Quality Personnel for circulation of signatures from a cross discipline team as applicable. The Deviation Request form must include a Corrective Action from the supplier in order for the form to begin circulation for signatures. This form needs to be approved before the supplier is allowed to ship parts.

Please note that submitting this form does not guarantee Enerpac approval. If the deviation requires engineering change or the change is permanent, then a supplier change request FORM should also be submitted.

2.14 Reason for Submission and Submission Type:

It is the responsibility of the supplier to check the appropriate box(s) as applicable on the submission warrant.

2.14.1 Parts/Submissions being shipped to Enerpac for DV testing, PV testing an electronic copy of the submission is to be sent, unless hardcopies are specified, to the Enerpac Supplier Quality Engineer and Product Engineer for each to review and disposition.

2.14.2 The supplier will also be responsible for sending an electronic copy of the Submission to Enerpac user Plant Quality Engineer, unless hardcopies are specified.

2.14.3 Parts/Submissions being shipped to an Enerpac Plant location, an electronic copy of the submission are to be sent, unless hardcopies are specified, to the Enerpac Supplier Quality Engineer for review and disposition.

NOTE: All specific PPAP/PSW and APQP Requirements will be given in the Enerpac APQP/PPAP Manual.

3 Part Disposition

Depending on the location to where the parts are being shipped, the responsible Enerpac personnel will disposition the Warrant and will communicate status back to the supplier, Category Buyer, Product Engineering and Program Manager. Plant Quality and/or Supplier Quality are responsible for loading the submission into the designated storage system.

A. PSW APPROVED - This status indicates that the supplier has manufactured material that conforms to all specifications. This is NOT considered a production approval when the part number is in prototype status.

B. Interim PSW - This status permits the usage of the non-conforming part(s). The Deviation Request form AND a corrective action plan is required and must be signed off by Enerpac cross functional team members as applicable: Product Engineering and Plant/Supplier Quality before shipping parts. Supplier request for change to be submitted and acknowledged by Product engineering if applicable.

C. REJECTED - This status indicates that parts failed to meet requirements. Corrected parts and revised submission shall be re-evaluated prior to shipment.

4 Shipping Methods:

Suppliers are to ship parts using the approved shipping method specified by the receiving Enerpac location. All suppliers shipping material to an Enerpac location shall indicate the following on the shipper:

- Part number, Engineering Level, Program, Supplier Identification, and serial numbers.
- Prototype/Production Purchase Order number.
- Shipment weight.
- Quantity of parts.
- Fixture number of any fixtures accompanying shipment.
- Date shipped.
- Packing list.

Shippers which do not contain the proper information may result in rejection at the shipping/receiving dock. An SCAR will be issued as appropriate.

4.1 Shipping Container Labelling

All containers must be identified with the part number, Engineering Revision Level, Supplier Identification, addressee, and serial numbers. A Prototype Parts Tag must also be affixed to the container.

4.1.1 PPAP and prototype samples:

Each sample part must be properly tagged and identified as a PPAP sample part with information listed below. The box that ships the parts should also be clearly labeled as containing Unapproved PPAP Sample Parts in order to avoid being misplaced or inadvertently mixed with approved production parts.

Your sample parts must contain the following information listed below at a minimum or could possibly be rejected back for re-submission:

- Identifying the part as a PPAP Sample Part
- Enerpac Part Number
- Revision Level
- Supplier Name
- Quantity of Sample (Indicate Partial Shipments)

4.2 Packaging:

Suppliers are responsible to package parts accordingly to prevent any damage so as to maintain part integrity.

4.3 Contamination or rust prevention:

All suppliers will ensure compliance to ES404, to ensure prevention of rust during storage at both the supplier and Enerpac locations. All details are contained within the ES404.

5 Record Retention

Suppliers are required to maintain Prototype Part submission packages for a minimum of three years after final shipment.

6 Supporting Documents

- Supplier form pack
- Supplier APQP and PPAP Manual.
- Supplier Corrective Action Report (SCAR)

7 Acknowledgement and Acceptance

If the Terms and conditions have already been signed, this is no longer required, these documents are referred to in the terms and conditions already.

Enerpac Prototype and Low Volume SQM.

Acknowledgement and Acceptance

The Enerpac Prototype and Low Volume SQM compliance is a mandatory requirement for all prototype/low volume production material suppliers to Enerpac Group

Please confirm your intent to comply by forwarding this official document to your main Procurement Contact Person within Enerpac. This is required before any new business is awarded.

Company details

Company name: _____

Address: _____

_____

_____

Supplier code _____

Name: _____

Function, Department: _

Email address: _____

Phone: _____

Location, Date: _____

Signature: _____

Company Stamp:

8 Revision History

Rev No	Reason for change
1.0	Created and released
2.0	Brand Image Change

NOTE: This document is released across a number of sites ISO 9001 document systems.
The document is also known under the following numbering:

Site	Form Number
CPC	**TBD**
EDE	ETG-QAP-004
Morpeth	ETG-QAP-004
Mirage	MML 477
ACI	QR173
AST	QR173
Hengelo	**TBD**