



**ADVANCED PRODUCT  
PLANNING AND DEVELOPMENT.**

**PROCEDURES FOR SUPPLIERS**





**PLEASE NOTE LATEST CHANGES ARE IN RED**

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INTRODUCTION



The purpose of this manual is to ensure that suppliers and sub-suppliers meet the quality requirements of Nifco UK limited both before and after commencement of volume production.

It is intended that this will be achieved by the use of Advanced Planning & Development techniques during pre-production, as outlined in section 1 of this manual and by compliance with Section 2 which specifies those procedures which must be followed during volume production to maintain the supply of defect free products. By prior agreement, suppliers own documentation may be substituted for documents listed in section 3 of this manual.

In addition to the requirements of this manual , an audit of the suppliers system for achieving the desired quality requirements may be undertaken by a representative of Nifco UK Limited .

The elements of this manual are based upon the requirements of QS 9000, and further explanations of the techniques used may be found within the QS 9000 group of documents.

In addition, as an ISO14001 and TS16949 accredited company, Nifco UK limited recognizes that the protection of the environment and the development and maintenance of an effective quality management system must be an integral part of our operations and activities. As a consequence we are committed to ensuring that our suppliers develop their activities with Nifco UK limited along similar lines. This is reflected in certain sections of the documentation.



## **SECTION 1**

# **PRE-PRODUCTION PARTS** **REQUIREMENTS**



**SECTION 1.           ADVANCED PRODUCT PLANNING DURING PRE-PRODUCTION**

**1.1    SUPPLIER MASTER TIMING PLAN**

**Introduction**           A Master Timing Plan is required at the outset of the project and must be in the form of a Gantt chart. The purpose of the timing plan is to detail when the Advanced Quality Planning activities, required by this manual, are to be completed.

**Submission**           The supplier must submit a Master Timing Plan to Nifco UK limited QA and Purchasing departments at the outset of the project.

**Completion**           The Master Timing Plan should be completed by the person with overall responsibility for the project.

The Master Timing Plan should detail milestones for the following:

- Project Start
- FMEA
- Significant Characteristics (Component Review Team)
- Inspection Standard
- Quality Control Plan
- IMDS
- Testing
- Production Tooling / Gauging
- Capacity/Run at Rate
- Parts Manufacture and Submission
- Sub-Supplier Approval
- Capability Study
- ISIR Approval
- SOP

The plan should also detail who has responsibility for each item.

The timing plan must be completed in accordance with the overall project timing plans, as issued by Nifco UK limited Engineering Department, which are derived from the customers requirements (as detailed in the sketch below).





## 1.2 FAILURE MODE AND EFFECT ANALYSIS

### Introduction

Failure Mode and Effect Analysis (FMEA) is an analytical technique used to ensure that all recurrence prevention items, previous concerns and potential concerns have been considered and addressed during the development of a product or process. The FMEA identifies high-risk items for improvement activities or special controls.

In order to anticipate and prevent concerns during the production preparation activity, the supplier should actively involve representatives from all affected areas in the completion of an FMEA.

A FMEA should be completed for each part (**where practicable**) or by generic process and should form the basis for the Quality Control Plan.

### Submission

The FMEA should be started at the outset of the Project and should be reviewed at each parts submission stage.

The FMEA should be reviewed and updated as required after any customer concern.

With agreement from Nifco UK QA, the suppliers own format may be used.

### Completion

The document should be completed detailing each stage of process and manufacture and for each stage detail the following:

- Potential Failure Modes (consider previous concerns on similar products)
- The Potential Effects of these failures on the customer (internal as well as external)
- The Potential Causes of the failure
- The current controls already existing within the process (if any)
- Any recommended actions detailing when they will take place and by who
- A review of these actions
- Each potential failure should be graded according to the scoring system detailed in QS 9000.
- Update FMEA copies may be requested following a parts concern

## 1.3 INSPECTION STANDARD

**Introduction**            The Inspection Standard is a supplement to the product specifications and drawings. It is used to define and clarify the methods used to assure product quality and to define ongoing production requirements.

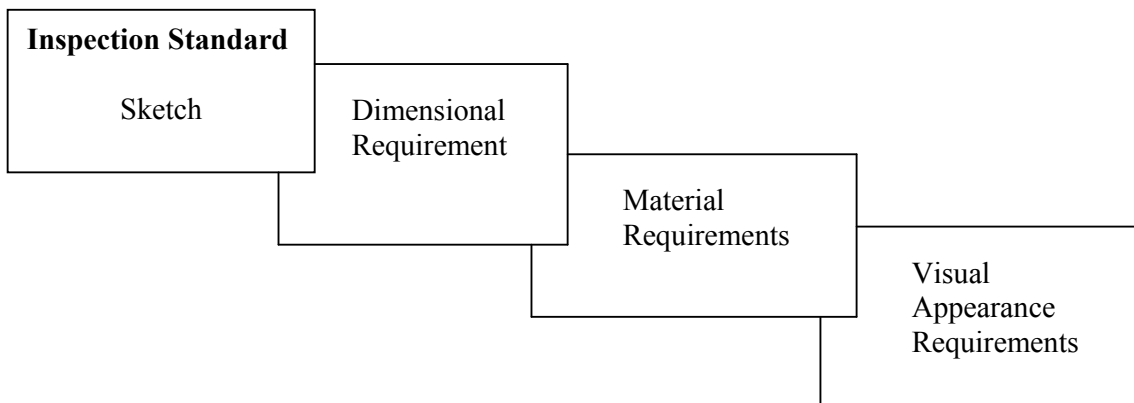
to confirmation

**Submission**            The Inspection Standard shall be started at the outset of the project And shall be updated and available for submission prior to each trial Stage.

**Completion**            The Inspection Standard should include the following information:

- Key features which would affect fit, function, serviceability and process capability items.
- Standards of acceptance where the drawing requires or specification requires Further clarification, e.g. colour, gloss, grain, appearance etc.
- Confirmation of material acceptability (test reports / certificates of conformity).

The Inspection Standard should follow the following schematic layout:





## 1.4 INITIAL SAMPLE INSPECTION REPORT (ISIR)

### Introduction

The Inspection Report is a standard report form, to communicate product quality data (as identified in the Inspection Standard). **The Inspection report should only report on the status for the specific features identified on the Inspection Standard.**

However an Initial Sample Inspection Report (ISIR) covering all dimensions, tolerances, testing and any other requirements specified on the drawing will be required when the production process and tooling has been confirmed.

The layout of the Inspection Report should reflect the format used for the Inspection Standard (Ref 1.3). The ISIR can be submitted in the supplier's own format.

### Submission

An Inspection Report, must be submitted to Nifco UK limited with each trial parts submission.

A full Initial Sample Inspection Report (ISIR) must be submitted once production process and tooling has been confirmed. This should include the following features:

- Full drawing dimensional data. (include all cavities and suites if applicable)
- Material Certification
- Visual Clarification and Inspection Records
- Test results (if applicable)
- A drawing referencing identifying all inspection points

In the event of subsequent design changes after the commencement of volume production, full ISIR may be required at Nifco UK limited request.

Unless otherwise specified by Nifco UK limited quality dept, an I.S.I.R. (accompanied by PSW and capability studies on SC features) will be required to be submitted on an annual basis for each part.

### Completion

The inspection report should contain the following information for 5 Parts: In the case of multi-cavity tools 5 parts from each cavity are required.



- Nifco part number and description
- Design level for the part(s).
- Characteristic checked, tolerance and specification
- The actual values
- Final Judgment OK / NG

## 1.5 PART SUBMISSION WARRANT (PSW)

### **Introduction**

The Part Submission Warrant is a supplier confirmation that sample parts have been supplied to and meet a given level of documentation and process/product development. The document indicates submission levels and reasons for submission i.e. initial submission, process change.

### **Submission**

The PSW is submitted after satisfactory completion of all the requirements for measurement and testing. A separate PSW must be completed for each part number unless otherwise agreed by the responsible Nifco UK limited Quality Engineer. Sample part evaluations must be submitted for each cavity, mold tool, die, Pattern, or production process (i.e. cell/ line). The specific cavity, cell etc shall be identified on the PSW in the mold /cavity/production process section.

### **Completion**

The supplier will complete all information. The Request submission level shall be by agreement with the responsible Nifco UK limited Quality engineer but at a minimum of level 3 PPAP (ref. QS9000).



## 1.6 APPEARANCE APPROVAL REPORT (AAR)

<b>Introduction</b>	The Appearance Approval Report is a supplier confirmation that a sample part has been supplied to and meets a given level of documentation and process / product development.
<b>Submission</b>	Appearance Approval Reports are required when an appearance item has been identified on a design record, typically the AAR applies to parts with colour, grain or surface requirements. The AAR is submitted after satisfactory completion of all the requirements for measurement and testing. A separate AAR must be completed for each part number unless otherwise agreed by the responsible Nifco UK limited Quality Engineer.
<b>Completion</b>	The supplier will complete all information relevant to the submitted part. The information required for submission shall be by agreement with the responsible Nifco UK limited Quality engineer.

## 1.7 QUALITY CONTROL PLAN

<b>Introduction</b>	The Quality Control Plan is used to enable the supplier to understand and develop the requirements for each stage of the process and to plan an appropriate method of control. This should include the control methods used to ensure correctly labeled product is shipped to Nifco UK limited. The Quality Control Plan should be compiled using input from the suppliers QA, Design (if applicable); Engineering and Manufacturing departments based on an analysis of the FMEA.
<b>Submission</b>	The Quality Control Plan must be documented as soon as the production process is established and be available for submission with the ISIR. Submission is acceptable on the supplier's own format.
<b>Completion</b>	A Quality Control Plan must be completed for each product or part number and contain the following information: <ul style="list-style-type: none"><li>• The Nifco UK limited part number and description.</li><li>• A Process Sequence Diagram from goods-inward through to despatch, this will include all sub-processes and should identify any significant features.</li><li>• A description of the process stage.</li></ul>



- The type of equipment or machine
- Specific control points and checks on defined characteristics including the detailing of the inspection equipment being used, the specification, the frequency of checks and the methods used to record these checks.

## 1.8 PRODUCTION CAPACITY PLAN

<b>Introduction</b>	The Production Capacity Plan is used in conjunction with the Control plan. It is used during production preparation to record total production capacity of suppliers, allowing evaluation of their ability to support Nifco UK limited annual volume.
<b>Submission</b>	To be completed on confirmation of nomination of business, thereafter to be updated after any design or process change during the model life which affects capacity
<b>Completion.</b>	The supplier shall complete and submit the Production Capacity Plan listing all processes identified on the Process Flow Chart. The supplier should highlight any key bottlenecks within the process. Capacity and planning assumptions must be shown against each process, including supporting sub-component process whether external or internal.

## 1.9 PRODUCT / MACHINE CAPABILITY SUMMARY

<b>Introduction</b>	The supplier shall calculate the capability index for those key products, characteristics and features identified on the Quality Control Plan. It is recommended that other machines, processes and operations be studied to evaluate the extent of variation.
<b>Submission</b>	Machine Capability Studies should be completed as soon as the production process is finalised and established. Details of the studies should then be forwarded to Nifco UK limited on the suppliers own documentation.

A minimum of 1 submission is required prior to S.O.P. However, submission during the last two trial stages is preferred.



**Completion** The supplier shall carry out the study on components produced consecutively, using a sample size of not less than 50. This study must be completed on all key characteristics, which must be agreed with Nifco UK limited QA.

The final Cmk value must not equal less than 1.67.

It should be noted that once initial Cmk level has been achieved, ongoing capability on features identified by Nifco UK should fall below Cpk 1.33

## 1.10 PACKAGING METHODS

**Introduction** A supplier concept packaging approval request form shall be submitted for each part supplied to Nifco UK limited. Due consideration must be given to reusable packaging. If this is not possible then the supplier must assume that empty packaging will be returned to the supplier for recycling or recovery.

**Submission** The form must be completed and submitted for each part a minimum of 4 weeks prior to the first production trial, or as directed by the responsible Nifco UK limited Project Engineer.

**Completion** The form should detail packaging requirements in relation to individual parts and individual packages.



## 1.11 INITIAL PRODUCT CONTROL

<b>Introduction</b>	<p>'Initial Products' are those products, which are produced within the following criteria:</p> <ul style="list-style-type: none"><li>Trial parts / materials currently in development stage prior to SOP</li><li>Newly designed products</li><li>Parts produced to a modified design</li><li>Products produced from altered processes (which have been agreed with Nifco UK limited through the Process Change document).</li></ul>
<b>Submission</b>	<p>Each delivery of 'Initial Products' must be identified using the 'First products shipment' label. These labels should be attached to each discrete box or container that holds 'Initial Products'.</p>
<b>Completion</b>	<p>The 'First Production Shipment' label should detail the part name and number, the design level and design note that the parts were manufactured to as well as the supplier name. The label should also identify the reason for the first shipment.</p>



## **SECTION 2.**

# **QUALITY CONTROL DURING** **VOLUME PRODUCTION**



## SECTION 2      QA DURING PRODUCTION

### 2.1      **RESPONSIBILITY FOR QUALITY ASSURANCE**

<b>Introduction</b>	<p>The supplier shall assume full responsibility for the Quality Assurance of their parts, products and services supplied to Nifco UK limited.</p> <p>The supplier shall appoint a person with overall responsibility for quality assurance and his/her deputies) and notify Nifco UK limited via the 'Quality Responsibilities' document.</p> <p>The principal person responsible for Quality Assurance shall be the person who has responsibility for developing company Quality policy i.e. Quality Manager.</p>
<b>Submission</b>	<p>The supplier shall submit the completed 'Responsibility for Quality' form within 10 working days of receipt of the manual.</p> <p>In the event of change to organisational structure or personnel, then this document must be re-submitted.</p>
<b>Completion</b>	<p>The supplier shall complete the 'Responsibility for Quality' form as directed and submit to Nifco UK limited indicating whether it is Initial Notice i.e. for first submission, new supplier etc. Or Change Notice i.e. change to personnel etc.</p>

### 2.2      **PROCEDURE FOR PROCESS CHANGE**

<b>Introduction</b>	<p>During volume production it may become necessary to change the process of manufacture i.e. process sequence, manufacturing equipment, standard operations etc. Such changes must be properly considered whether they are the result of cost saving ideas or process improvement.</p> <p>There are two levels of process change: -</p> <ul style="list-style-type: none"><li>• Those requiring approval from Nifco UK limited <b>before</b> implementation.</li><li>• Those requiring reporting for Nifco UK limited information.</li></ul>
<b>Submission</b>	<p>The supplier must submit an 'Application for Process Change' form before adapting any of the changes listed in the table below.</p>



TYPES OF PROCESS CHANGE LEVEL	LEVEL OF APPLICATION
Change of material specification. Change of material supplier. Change of material production method.	Approval required
Change of Process Control method or equipment in processes identified as being critical on <i>Quality Control Plan</i> .	Approval required.
Change of manufacturing location. Change of Sub-Supplier or subcontractor.	Approval required
Change of Inspection Method for finished goods.	<b>Approval Required</b>

The form should be submitted to Nifco UK limited QA prior to the changes being, this should be one month before the adoption date.

In the case of an ‘Application for Approval’, Nifco UK limited will return a signed off copy of the form to the supplier to indicate acceptance. If the application is deemed not acceptable, the supplier will be informed of the reasons why by Nifco UK limited QA.

In the case of changes not listed above, the supplier should contact Nifco UK Q.A. for advice on whether formal approval is required. If formal approval is not required, the supplier may adopt the change but must retain details of the change within their internal systems. If additional data, revision of the change etc. is deemed necessary by Nifco UK limited then this will be reported to the supplier immediately.

The first delivery of parts following ‘Process change’ must be controlled into Nifco UK limited using the ‘Initial Product Control’ procedure as detailed in section 1.11.

**Completion**

The supplier must detail the following:

- All part numbers affected by the change.
- The level of change e.g. application or report.
- The reason(s) for process change.
- Details of the process change including timing plans.

**2.3 TREATMENT OF NON-CONFORMING PRODUCT**

**Introduction**

It is responsibility of the supplier to deliver defect free parts and materials to Nifco UK limited. In the event of non-conforming parts or materials being found at Nifco UK limited, then the supplier has a duty to take emergency steps to isolate, replace, inspect or remove affected material.



### 2.3.1 Concerns reported to suppliers by Nifco UK limited.

All quality concerns and non-conformances found within Nifco UK limited will be reported to suppliers in writing via an Incoming Materials Rejection Report (I.M.R.R) (suppliers will normally be informed immediately by tel./ fax). It then becomes the supplier's responsibility to take emergency steps to isolate, replace, inspect or remove affected material. Any associated costs incurred by Nifco UK limited will be passed on to the supplier. Where it is necessary to rework or sort parts on site the supplier will be given the opportunity to provide support or accept the costs of Nifco UK limited carrying out the work.

When a quality concern has been raised against a supplier, it is the supplier's responsibility to thoroughly investigate the cause of the concern. Investigation should be detailed on an 8d format and any timing plans submitted on a CCAR. When the cause of the concern has been established a countermeasure must be sought and adapted to prevent reoccurrence. Both the cause and countermeasures are to be detailed on the **8d**, along with the timings and responsibilities. This report must be returned to Nifco UK limited within the timing specified by the Nifco UK limited Quality Engineer.

N.B. The statement 'Operator re-instructed' or similar is not an acceptable countermeasure.

### 2.3.2 Non-Conforming material Shipped to Nifco UK limited

When a supplier discovers that a batch or lot containing (or suspected of containing) non-conforming material has been shipped to Nifco UK limited, then the supplier must inform Nifco UK limited QA as soon as possible by telephone. The supplier should supply the following information:

- Detail of concern and causes
- Delivery date (into Nifco UK limited), delivery qty, lot / batch number etc.
- Emergency steps to be taken by the supplier i.e. isolate, replace, inspect or remove affected material.

Any associated costs incurred by Nifco UK limited will be passed on to the supplier. Where it is necessary to rework or sort parts on site the supplier will be given the opportunity to provide support or accept the costs of Nifco UK limited carrying out the work.



## 2.4 APPLICATION FOR CONCESSION / DEVIATION

**Introduction** In the case where a supplier has produced non-conforming product, but believe it may still be acceptable for use by Nifco UK limited, then they may request approval for the parts to be delivered under concession.

In the case where the supplier cannot meet some part of the specification on an ongoing basis, and where a permanent drawing change cannot be made, then the supplier may apply for a deviation to be approved.

**Submission** Concession – The application for concession must be made to Nifco UK limited **QA** at least 10 days in advance of the proposed delivery date.

Nifco UK limited may also require a small number of parts in question to be supplied along with the concession in order to assess their suitability.

**Completion** The *Application for Concession / Deviation* form should be completed detailing the following:

- Part name / number
- Reason for the request
- A detailed description of the concession / deviation
- Period and quantity requiring concession

If approval is given to supply under concession / deviation, Nifco UK limited QA will return an approved copy of the Application for Concession / Deviation form to the supplier. Only then can the supplier deliver the materials in question.

Any parts or materials delivered under concession / deviation must be controlled into Nifco UK limited using the 'Initial Product Control' procedure as detailed in section 1.11 and identify the parts as being delivered under concession.

## 2.5 REPORT ON THE USE OF SECONDARY CONTRACTORS

**Introduction** In the event that the supplier uses sub-suppliers or subcontractors to carry out all or part of manufacture or processing on Nifco UK limited products, then the supplier must keep Nifco UK limited fully aware of these activities.



- Submission** The supplier must submit the ‘Report on the use of Secondary Contractors’ form detailing what activities are being carried out and by who. This should be cross referenced to the *Quality Control Plan*.
- Completion** The supplier should detail the following:
- What part numbers / names are subject to these operations
  - The type of work being carried out
  - Which company is carrying out the work.

## 2.6 SUPPLIER MONITORING

- Vendor Rating** Nifco UK vendor rating system is based on the supplier evaluation prior to supply of production parts and expects all suppliers to attain 100% performance.  
Suppliers who do not receive a vendor rating report can conclude that their performance is acceptable.  
No report indicates that the supplier has 100% quality and delivery performance with zero Ppm.  
If a supplier has one quality or delivery concern they will be added to the failed supplier system and issued with a regular report. If the failed supplier should then have no concerns within the next 12 months they will be removed from the failed supplier list.  
If a supplier needs confirmation of their performance at any time they should contact Nifco UK Quality Manager.



## **SECTION 3.**

# **FORMS & DOCUMENTATION**



### 3.1 USE OF FORMS

Requirement As stated in the introduction, by prior agreement a supplier may substitute a Nifco UK standard form with their own. This is to be agreed with the Nifco UK Quality Engineer. Any substituted form must at a minimum contain all data required by Nifco UK standard form.  
Forms and documentation that should be submitted during the product realization process are detailed within this standard but are also listed in 3.2

Nifco UK standard forms are available upon request.

### 3.2 REQUIRED DOCUMENTATION

#### Forms & Documents

Supplier Master Timing Plan

Failure Mode & Effect Analysis

Inspection Standard

Inspection Report

Initial Sample Inspection Report

Part Submission Warrant

Appearance Approval Report

Quality control plan

Production Capacity Plan

First Production Shipment label

Quality Responsibilities

Packaging Methods

Process change request/ notification

Incoming Material Reject Report

8D Report

Concern & Corrective Action Request (CCAR)

Re-work costs of Supplied Product Nifco UK.



### 3.3 RECORD RETENTION

All suppliers should have a document retention system that ensures records of the product realization process are maintained.

Documents that are not submitted to Nifco UK and are deemed by Nifco UK as a requirement for the product realization process must be made available for review upon request.

Retention periods vary by document, information on this subject can be obtained from Nifco UK Quality Engineer.