HYVA QUALITY MANUAL

1. INTRODUCTION

1.1. PURPOSE

Hyva places a significant emphasis on quality, both in terms of our products and our processes. However, we depend heavily on our suppliers to provide the necessary components and materials for our wet-kits, cranes, hookloaders, and other products. Our commitment to quality extends beyond our internal processes and products to our supplier relationships. We work closely with our suppliers to establish clear quality expectations, monitor supplier performance, and address any issues promptly. Our ultimate goal is to achieve zero supplier defects to ensure uninterrupted production and delivery of high-quality products to our customers. By maintaining a strong focus on quality throughout our supply chain, we can ensure that our customers receive premium products that meet their expectations for manufacturing quality and product reliability.

As such, the Frame Purchase Agreement (specifically, Appendices B and C) and General Purchase Conditions of the Hyva Group, along with technical documentation provided by Hyva, outline the most significant quality requirements and procedures. The aim of this Manual is to elaborate on the fundamental guidelines for Supplier quality management and to guide the Supplier through Hyva's procurement process concerning quality matters.

Note that non-compliance with Hyva requirements can have serious consequences up to termination of the relationship and legal claims against the Supplier.

1.2. SCOPE

Supplier requirements contained in this Manual are applicable to all new and existing Suppliers who provide raw materials, production parts, or sub-contracted services as well as assemblies which are supplied to any company within the Hyva Group. However, there may be cases where a Supplier is required to provide materials or employ processes not specifically defined in this Manual.

To achieve our quality goals at Hyva, it is imperative that Hyva’s quality requirements are communicated and implemented consistently across our entire supply chain, including sub-tier suppliers. As a supplier to Hyva, the Supplier is expected to apply this Manual to their own suppliers and ensure that all quality requirements are followed throughout the supply chain.

1.3. SUPPLIER'S AREA ON HYVA's WEBSITE

Each Hyva's Supplier can have access to the Hyva Supplier's Area (https://www.hyva.com/en/Suppliers/). Suppliers will be provided with log-in details required to gain the access. Supplier's area is regularly updated and is the most accurate and full source of Supplier's information where Suppliers can find the most current version of this Manual and many of other documents mentioned herein. The Supplier is expected to regularly consult the Supplier's Area.

2. QUALITY REQUIREMENTS

2.1. QUALITY SYSTEM REQUIREMENTS

Suppliers are responsible for the quality of the delivered products and/or services. Each Hyva Supplier must develop and maintain a registered quality system that meets the requirements of ISO 9001 and to establish and maintain as a minimum the following elements (unless otherwise agreed to):

- Product traceability to raw material or components
- Material certificates
- Process Flow Chart, Control plan, PFMEA (not mandatory) and records
- Test and inspection records

- Operator instructions
- Tooling calibration records
- Control of non-conforming materials and components (Request for deviation)
- Corrective Action Process and 8D

Supplier's quality systems shall be ISO 9001 certified by a third-party qualified organization.

2.2. QUALITY OBJECTIVES

Hyva believes that quality is a critical aspect of our business, and we expect our suppliers to share this commitment. To ensure that suppliers meet our quality expectations, we have established the following Quality Objectives:

Defects per Million (DPPM) Reduction: Defects per Million (DPPM) as a common measure of quality in manufacturing. The following table shows the mandatory DPPM objectives that Hyva expects suppliers to achieve over the next three years:

Year	DPPM Value
1	1,200
2	1,080 (10% reduction from year 1)
3	970 (further 10% reduction from year 2)

On-time Delivery: Suppliers are expected to deliver products on-time and in-full, meeting Hyva's delivery schedules. Suppliers should work to reduce lead times and improve delivery performance to enhance customer satisfaction.

Continuous Improvement: Hyva expects suppliers to continually improve their quality management systems to enhance product quality, reduce defects, and improve customer satisfaction. Suppliers should implement effective quality control measures and monitor their performance regularly.

Meeting these quality objectives is a mandatory requirement for all Hyva suppliers. By aligning your own quality objectives with those of Hyva, you can ensure the highest level of quality for the products you supply, which will lead to improved customer satisfaction and stronger relationships with Hyva.

2.3. DUTY TO NOTIFY NON-COMPLIANCE

Quality issues can arise at any time. Hyva will report any non-conformity upon its discovery to the Supplier. The Supplier shall be aware that although Hyva seeks to inspect all products upon their receipt – this is not always possible. Hence, delivery of the products to Hyva does not by itself means that they have been accepted as compliant.

If the non-compliance is discovered by the Supplier, it shall notify Hyva quality, engineering and purchasing departments at all locations in writing as soon as it knows or suspects the product which has already been shipped and/or waiting for shipment does not conform to quality requirements. All defective products must be clearly identified.

2.4. CORRECTIVE ACTION PROCESS (CAP) AND 8D

When quality issues occur, in addition to the remedies Hyva is entitled to in accordance with the Frame Purchase Agreement or the General Terms of Purchase, the Supplier is required to determine the root cause and corrective action to resolve issue and to ensure no recurrence. When a formal reply is requested, the Supplier should provide the report which shall include the following 8 elements:

D1 – The Team: Describe the team of people assembled to solve the problem. This team should have members from different areas of the organization who have the necessary skills and knowledge to solve the problem.

D2 – Problem description: The team must clearly define the problem, including the scope and impact of the problem. Problem description shall be based on the data, facts, and evidence.

D3 - Containment actions: The team should implement containment actions to prevent the problem from getting worse.

D4 - Root cause analysis: The team should identify the root cause of the problem using techniques such as the 5 Whys, Fishbone diagrams, or Pareto charts. The team shall also analyse causes for failure mode and validate them.

D5 - Corrective actions: The team should develop and implement corrective actions to address the root cause of the problem.

D6 – Implementation and verification: The team should implement the corrective action, update applicable FMEA and control plans as well as verify that the corrective actions are effective and have solved the problem. This may involve testing, auditing, or monitoring the process.

D7 – Prevention and standardization: The team should develop and implement preventive actions to ensure that the problem does not recur. This could involve process improvements, training, or changes to procedures.

D8 – Effectiveness: The team should monitor the effectiveness of corrective action by using check sheets and regular audit.

The Supplier shall be aware that mere statements from the Supplier indicating that the corrective action is to alert or retrain the operator and/or increase inspection, alone, are NOT acceptable corrective actions.

The Supplier shall respond to a request for corrective action as follows:

Required Action	Timeline
D3- The immediate containment actions to be taken	I day
Update of containment plan	3 days
D4 - Submission of Root Cause Analysis	7 days
D5 - Corrective Action Report	15 days
D8 - Submission of completed non- conformity and corrective action report indicating the permanent actions taken	30 days

2.5. APPROVAL OF NON-COMPLIANT (DEFECTIVE) PRODUCTS

Hyva quality and engineering department are the only ones entitled to approve deviation from specifications and to release/approve non-compliant deliveries. These releases are only valid for a limited delivery period or quantity and must be properly documented by specific module that will be send to the Supplier by Hyva with the following mandatory information:

- Item number and description
- Drawing number
- Deviation quantity (expiration date)
- Traceability reference (production date, serial number etc.)

If the deviation is not approved, the Supplier may not deliver the product, and unapproved product will be rejected.

2.6. SUPPLIER QUALITY AUDIT

Hyva may schedule a Supplier or Supplier's process/product or quality management system audit at any time:

- where Supplier performance regarding quality and/or delivery does not meet Hyva's expectations
- where Supplier's product and/or process has high complexity or criticality
- where new or changed processes are being implemented by Supplier
- at Hyva's own choice

Hyva has right to request sub-tier Supplier audits in order to evaluate the effectiveness of the sub-tier management and ensure the products and/or services procured from sub-tier sources conform to Hyva requirements.

2.7. PRODUCT AND PROCESS CHANGES

Any change made by the Supplier shall be communicated and approved in accordance with Hyva Supplier Change Request Procedure (SCR) available in the Hyva Supplier's Area (https://www.hyva.com/en/suppliers/) and in **Annex I** hereto. It provides the detailed description on how the Supplier should proceed when planning to make any change to the products. It is critical that approval by Hyva is obtained before the Supplier can make changes to a product or process. Based on the received SCR, Hyva may decide to also initiate the PPAP as described in section 2.8. below.

If SCR is not followed, Hyva has a right to reject the product and seek the compensation of losses.

2.8. PRODUCTION PARTS APPROVAL PROCEDURE (PPAP)

If Supplier selection process involves the process of selection and validation for the products. Before any product can be accepted for production and supply to Hyva, **Production Parts Approval Procedure** (**PPAP**) needs to be followed. PPAP ensures that all HYVA engineering design and specification requirements are understood by Suppliers and that all products consistently meet the requirements during an actual production run.

Hyva may decide to initiate the PPAP for introduction of any new product or process or if at any time after the initial selection and validation there is a need to make a change to the product. PPAP is available in the Hyva Supplier's Area (https://www.hyva.com/en/Suppliers/) and in **Annex II** hereto.

3. SPECIAL QUALITY REQUIREMENTS

3.1. WELDING

The Supplier must guarantee the entirety of welded components through the manufacturing process certification and the certification of workers involved in the welding processes. The welding process is defined by international norms that establish quality requirements (Norm ISO 3834) and welding

procedures. Welders must be qualified according to Norm ISO 9606-7:2073, while robot workers must be qualified according to Norm ISO 74732:2073.

Supplier must take in consideration all other requirements of welding documents communicated by HYVA.

Suppliers are requested to:

- prepare and make available for Hyva the Welding Procedure Specifications, with data relative to process parameters, that for new products must be integrated in the documentation concerning PPAP, while for series production products must be kept and make available in case of request from the Hyva Quality department;
- perform a complete control of a sample (verifying hardness, penetration, visual aspect), to be made at the beginning of the product line batch and at the end; it must be made available as and when requested by Hyva;
- keep the sample and documentation in accordance with what established by Hyva (3 years for non-safety products, 15 years for products with safety properties);
- prove the degree of qualification of workers that execute welding operation, through certifications issued from qualified authorities, that must be available under request of Hyva's Quality department.

If impossible to execute internally, the Supplier must utilize a ISO/IEC 77025 qualified laboratory or national equivalent norm for the execution of production process qualification tests and for its monitoring.

3.2. HEAT TREATMENTS

The Supplier must have an equipped laboratory to confirm that the requirements specified in the technical documentation are respected. If this is not confirmed or there is a need to have the tests performed by an external laboratory, the Supplier must avail himself only of ISO/IEC17025 qualified laboratories or national equivalent norm.

3.3. SURFACE COATING

The Supplier must have an equipped laboratory to confirm that the requirements specified in the technical documentation are respected (for example, corrosion resistance, thickness, adhesion tests, etc.). If this is not confirmed or there is a need to have the tests performed by an external laboratory, the Supplier must use only ISO/IEC17025 qualified laboratories or equivalent national norm.

4. UPDATES AND CHANGES TO THE MANUAL

This Manual may be updated periodically by Hyva. The latest version is always available in the Hyva Supplier's Area (available at https://www.hyva.com/en/Suppliers/) and will be distributed by purchasing contacts. The Supplier shall be responsible for using the most current revision of this Manual.

Last updated on 17 March 2023

ANNEX I. SUPPLIER CHANGE REQUEST (SCR) PROCEDURE

PURPOSE
The purpose of this is Supplier Change Request (SCR) procedure is to ensure that all changes made by HYVA Suppliers are communicated, understood and approved by all the Stakeholders and PPAP is initiated if required.

SCOPE
This procedure regulates the process for the communication and approval of any changes made by HYVA Suppliers in Products delivered to HYVA or related Processes.

KEY PRINCIPLE
Approval by Hyva must be obtained before a Supplier can make changes to a product or process.

Revision History:

Date	By:	Approved
2023 03 17	**O.Skripova**	**M. Valentini**

Olia Skripova

1. INTRODUCTION

The Supplier Change Request (**SCR**) procedure describes the steps to be taken and data which needs to be delivered for approval of any change in product (material, component, manufacturing process) or processes (such as packaging or transportation) requested by a Supplier. The SCR procedure is mandatory and needs to be followed before any change can be implemented.

2. PROCEDURE

Step 1. Initiation of SCR. If the Supplier wishes to make any change to the product or any related process, the Supplier shall prepare a formal Supplier Change Request (SCR). The SCR shall include the following information:

- request date
- description of the change requested
- reason for the change
- impact on Hyva's operations
- associated costs or savings
- timeline for implementation
- quality control measures to be taken
- any additional information or documentation necessary to support the request

The SCR shall be sent to Hyva at SCR@hyva.com.

Step 2. Approval of SCR. Upon receiving the SCR, HYVA's Purchasing department will inform all stakeholders about the received SCR and add the request to the overview of the change notifications.

Hyva Purchasing department shall inform all other relevant departments of the requested change. The LoB shall create a multi-functional team that shall include key members of all departments (R&D, Quality, Logistics, Purchasing, Operations, Application Engineering, After-Sales). The multi-functional team shall review the SCR and may decide to:

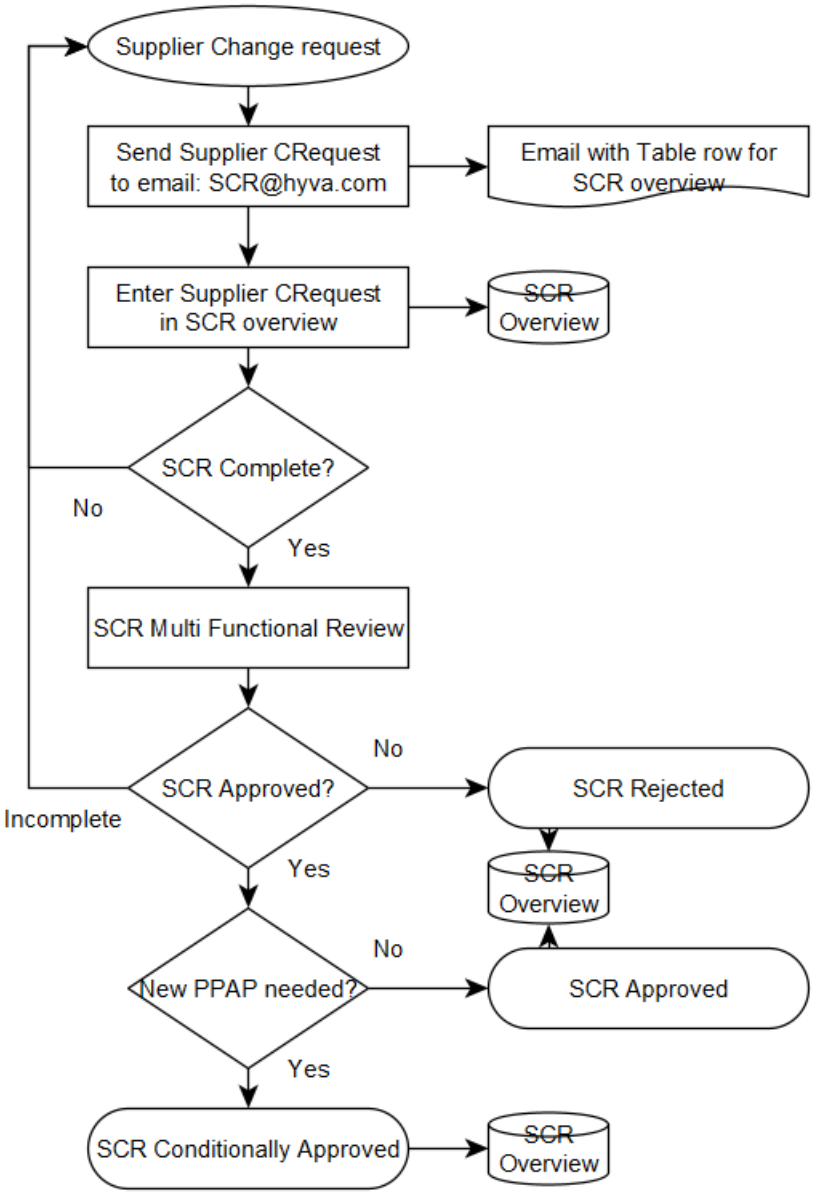
- **Ask for more information:** If the Supplier's request is incomplete or missing important information, HYVA will ask the Supplier to provide more information. HYVA will state what information is missing and why it is needed to evaluate the request.

- **Approve the change:** If the Supplier's request is complete and is acceptable, Hyva may approve the request.

- **Conditionally approve:** The change is approved subject to verification of suggested changed for production following the formal PPAP process. If the verification is successful, the change can go forward.

- **Reject the change:** If the Supplier's request cannot be accommodated by HYVA, HYVA will reject the change. This includes providing a clear and specific explanation of why the change cannot be made. HYVA will also indicate what the multi-functional team sees as a more probable solution to the Supplier's problem.

Step 3. Communication of results. HYVA Purchasing department shall communicate the outcome of the SCR to the Supplier by email ensuring that there is a written record.



Resp: Supplier
Supplier sends SCR (filled out row of table) to Hyva Purchase

Resp: Hyva Purchase
Fill out Table row with full details of change. Check if all data is complete.

Resp: Hyva Purchase
Multifunctional team: LoB, R&D, After Sales, Quality, Purchase, Logistics, Operations, Application Engineering checks feasibility and determines to go ahead or not.

Resp: Multifunctional team
- Check if new PPAP is required.

Resp: Multifunctional team
Conditionally approve until full PPAP is available.

ANNEX II. PPAP

PURPOSE

This Product Part Approval Procedure (PPAP) seeks to ensure that all HYVA engineering design and specification requirements are understood by HYVA Suppliers and that all HYVA products consistently meet the requirements during an actual production run.

SCOPE

The PPAP is applicable to purchase of all new or changed direct materials including finished, semi-finished parts, components for HYVA as well as revalidation of existing PPAP documents.

The PPAP is always required prior to the first production shipment of product in the following situations:

- **Initial submission**
- **Engineering change**
- **Change in material source**
- **Production following any change in part, process or method of manufacture. Other changes like re-release of inactive tooling**

KEY PRINCIPLE

PPAP emphasizes the importance of understanding and meeting customer requirements and providing confidence to HYVA that the Supplier is capable to provide products that consistently meet HYVA requirements.

Revision History: Date	By:	Approved
2023 03 17	**O.Skripova**	**M. Valentini**

1. INTRODUCTION

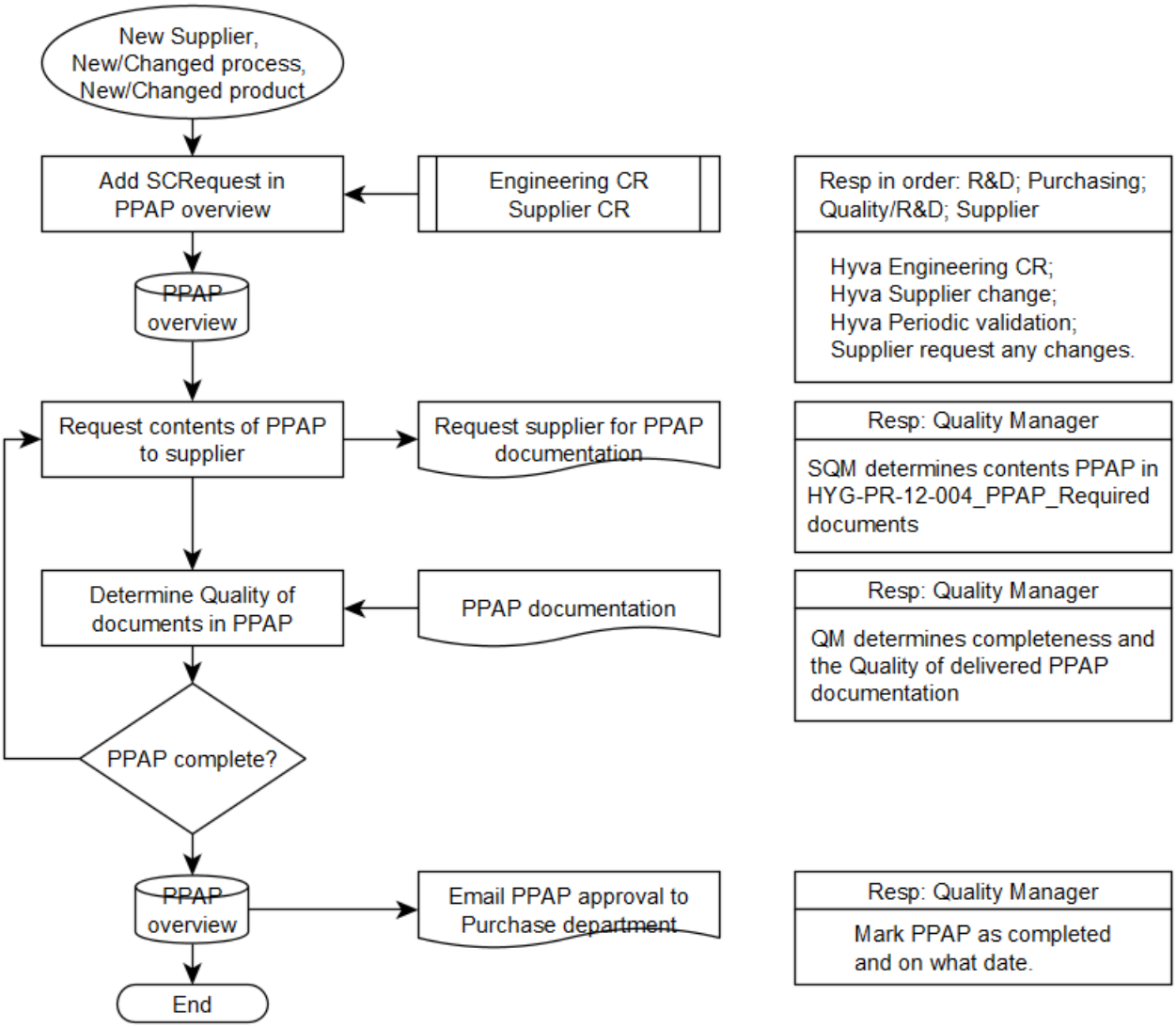
The PPAP is used for the approval of a new Supplier, new Part or any change in a Part or a process as well as for the revalidation of an existing PPAP. The PPAP is mandatory and needs to be performed before any delivery of new Parts can start or delivery of existing Parts can continue.

2. DEFINITION OF TERMS

AAR:	Appearance Approval Report
Control Plan:	Written descriptions of the system controlling production Parts
ECR:	Engineering Change Request
FMEA:	Failure Mode Effect Analysis
MSA:	Measurement System Analysis
PO:	Purchase Order
PPAP:	Production Part Approval Process
Part:	A Part manufactured at the production site using the production tooling, gauging, materials, operators, environment and production settings
Process:	A set of interrelated or interacting activities which transforms inputs into outputs
Process Flow Diagram:	A schematic representation of the process flow
PSW:	Part Submission Warrant is a document consisting of two parts. One part is filled in by the Supplier where the Supplier declares the conformity of the Product with the requirements. The second part is filled in by HYVA where HYVA evaluates the submission.
Regular production tooling:	Tooling with which Supplier intends to produce Production Parts
SCR:	Supplier Change Request
Site:	A location at which value-added manufacturing process occurs
Supplier	A third party that manufactures or sells Parts to HYVA
WPS:	Welding Procedure Specifications
WPQR:	Welding Procedure Qualification Record

3. PROCEDURE

Step 1. Initiation of PPAP. HYVA shall always be responsible for initiating the PPAP process. If the change is initiated by the Supplier, the Supplier shall do so by sending out a Supplier Change Request (SCR) as provided in SCR Procedure to HYVA that will decide if PPAP process is needed and inform the Supplier thereof. If the new project or the change is initiated by HYVA, the HYVA Purchasing department shall contact HYVA Quality department to initiate the PPAP.



Step 2. Formulation of PPAP Requirements. After receiving the SCR from the Supplier or a request from HYVA Purchasing department, HYVA Quality department shall determine the list of documents required to be provided by the Supplier and a period for PPAP validation.

The following 6 items shall always be included in each PPAP:

- Ballooned drawing of the Production Parts from the Supplier;
- Feasibility meeting organized by HYVA Quality department and report drafted by HYVA Purchasing department;
- Process Flow Diagram from the Supplier;
- Control Plan from the Supplier;
- Dimensional results from the Supplier (check HYG-PR-12-004_PPAP_Required documents for quantity);
- AAR from the Supplier.

Step 3. Communication of PPAP Requirements. HYVA Purchasing department shall be responsible for informing the Supplier about the list of documents required to be provided by the Supplier for the purposes of PPAP. The Required documents shall be shared with the Supplier during feasibility meeting.

Step 4. Provision of Documents. The Supplier is responsible for the timely supply of the requested PPAP documentation. The Supplier is further responsible for notifying HYVA and resubmitting the required documentation whenever the Supplier makes a change to a Part or Process after the PPAP occurs.

Step 5. Part Submission Warrant
Upon completion of all PPAP requirements, the Supplier shall complete the Part Submission Warrant (PSW) where the Supplier shall confirm the compliance of the Product with all PPAP requirements. A separate PSW shall be completed for each customer Part number unless otherwise agreed with HYVA. A responsible employee from the Supplier organization shall approve the PSW and shall provide the complete contact information.

Step 6. PPAP Approval. SUPPLIERS SHALL NEVER SHIP PRODUCTS BEFORE RECEIVING PPAP APPROVAL. HYVA's Purchasing department shall notify the Supplier about the PPAP approval by completing the second part of the Part Submission Warrant. The PPAP approval can be granted by HYVA Quality and R&D which can give the following answers:

A. Production approval: indicates that the Part meets all specification and requirements. The Supplier is therefore authorized to ship production quantities.

B. Interim approval: permits shipment of material for production requirements on a limited time or piece quantity basis. Interim Approval will only be granted when the Supplier has:
- Clearly defined the root cause of the non-conformities preventing production approval and;
- Prepared an interim approval action plan agreed upon by HYVA. Resubmission to obtain the Production approval is required unless the Supplier is advised that HYVA has agreed to revise the drawings and or specifications to agree with the Part as manufactured.

C. Rejection: means that the PPAP submission, the production lot from which it was taken, and accompanying documentation do not meet HYVA requirements. Corrected product and documentation must be submitted and approved before production quantities may be shipped.

4. RECORD KEEPING & MASTER SAMPLE RETENTION

a. The Supplier shall retain a complete record of findings and other master sample(s) for each submission, including SPC results and, when applicable, appearance approval. This record should show conformance to all dimensional, chemical, metallurgical, physical, performance & other test specifications. Documentation required in this record includes copies of:

- Inspection results referenced to and accompanied by engineering approved design record for all dimensional requirements;
- Laboratory test reports covering all chemical, metallurgical, physical and performance tests specified for the material and Parts;
- Preliminary process capability results for all critical and significant characteristics;
- Measurement systems analysis (Gage R&R, accuracy, linearity, stability studies) results, Process Flow Diagrams, Process (and, when applicable, design) FMEAs, Control Plans, preliminary process studies, sub-contracted Supplier warrants and supporting documentation, appearance approvals, and master samples.

b. If changes are made to documents that are required as a Part of the PPAP, revisions must be submitted to HYVA Quality department. HYVA must be informed upfront in case of any revisions.

c. PPAP records shall be retained for the length of time that the Part is active for production and service requirements plus one calendar year.

d. Master samples shall be retained for the same period as the PPAP records or until a new master sample is produced for the same Part number for HYVA approval. Master samples are to be clearly identified as such and must identity the warrant approval date.

5. PRODUCTION PROCESS OF NEW PARTS

New parts, related to NPD, SPD or Resourcing shall be produced as per following steps. PPAP will be part of one of these steps which is Pre-series production:

Components status	Production condition	Use	PO Type	Control plan
1. PROTOTYPE	• Produced without definitive jigs. • p/n with design not yet frozen	• Prototype machine used only by technical dept	• Prototype order ➔ PURCHASING	• 100% (agreed with technical dept)
2. PRE-SERIES	• Produced with definitive jigs and definitive process • Parts not yet approved.	• Process validation (**PPAP approval**) • Distructive test If the **PPAP** is approved, supplier is allowed to produce series production.	• Pre-series order ➔PURCHASING Quantity strictly necessary for PPAP approval. (not link to production needs)	• **PPAP docs as per category** • 1 pcs for distructive test • 1 pcs or realistics portion of it for SST
3. SERIES	• p/n approved	• Proto/0-series/Field/Pre-series • Series	• Mass production order ➔ LOGISTICS	• As per incoming inspection • Free pass

6. PPAP DOCUMENTATION EXPLANATION

a. **Parts for PPAP shall be taken from a significant production run**
The significant production run shall be conducted at the production Site, using the production tooling, production gauging, production process, and production operators. The minimum quantity for the PPAP lot is indicated in the HYG-PR-12-004_PPAP_Required documents. HYVA's Quality department shall state on a case-by-case basis what additional data shall be required when the quantity is too low for statistical process control.

b. **Ballooned drawing**
The ballooned drawing is a drawing that the Supplier uses in the production run where the most critical dimensions are circled and agreed together with HYVA R&D. This will make clear where intense checking shall be performed during production.

c. **Feasibility meeting report**
Feasibility meeting is a technical meeting to discuss all production steps attended by the HYVA LoB, R&D, Quality, After Sales and the Supplier. Feasibility meeting shall take before any order is placed and the Supplier accepts any order from HYVA. The goal of the feasibility meeting is to check if it is feasible for the Supplier to produce the Part or whether any changes are needed to make production possible/ easier or more efficient.

d. **Appearance Approval Report (AAR)**
The Supplier shall provide the AAR which shall include photographs clearly showing how the part shall look like when arriving to HYVA (so visually and stated what protective agent is used). The AAR shall contain instructions for the removal of the agent and, if necessary, for usage. There should be a picture where the Part is also shown in the packaging with labels. The packaged Part shall also be shown inside the packaging box (with labels) and on the pallet (labelled) so that HYVA knows how the total packaging looks like.

e. **Dimensional data/ Material inspection and Performance testing**
Dimensional data/ Material inspection and Performance testing shall be performed on all Parts and product materials with dimensional requirements to determine conformance with all relevant

design record specifications (prints and /or specifications). Material tests shall be performed for all materials when chemical/physical/ metallurgical requirements are specified. In addition, performance test shall be performed for all Parts as required by design record specifications:

i. All dimensions (except reference dimensions), characteristics, and specifications as noted on the design record and Control Plan are to be listed and results recorded in the PPAP file.

ii. Blank or general statements of conformance are unacceptable. Statements must be detailed and document each test which has been done to demonstrate compliance.

iii. When third Party inspection services are used, the results must be submitted on their letterhead or HYVA Part Submission Warrant. The name of the inspection service that measured the Part(s) must be indicated, including completion date of test(s).

iv. It is the Supplier's responsibility to meet all applicable specifications. In case the results of tests show non-compliance with specifications, the Supplier shall be obliged not to submit such Parts and/ or documentation unless it is explicitly agreed with HYVA in writing. If the Supplier is unable to meet any of these requirements, HYVA Purchasing and Quality department shall be contacted for further instructions.

v. For Parts with HYVA developed material specifications and approved source list, Suppliers must procure materials and/or services (e.g. plating, heat-treating) from Suppliers on that list.

f. **Preliminary process capability studies**

The Supplier shall conduct process capability studies for all key characteristics designated by HYVA or the Supplier. An acceptable level for preliminary process capability must be determined in agreement with HYVA:

i. Preliminary process studies are short term and will not predict the effects of time and variation in people, materials, methods, equipment, measurement systems and analyse the data in the order they are produced.

ii. It is only necessary to perform a measurement system analysis (Gage R&R, accuracy, linearity, and stability studies) if Cpk/ Ppk levels are too low.

iii. For those characteristics that can be studied using X-Bar and R charts, a short- term study should be based on 25 or more subgroups of data containing at least a total of 100 individual readings. *Note that the Particular sampling plan used can influence the appearance of stability.

iv. The acceptance criteria for evaluating preliminary process capability studies shall be as follows:

Results	**Interpretation**
Capability index > 1.67	The process currently meets acceptance criteria
1.33 > Capability index < 1.67	The process may be acceptable. Contact HYVA representative for review of the results
Capability index < 1.33	The process does not meet the acceptance criteria. Causes should be identified, evaluated and wherever possible, eliminated. Use 100% inspection and increased SPC sampling until ongoing stability with a Cpk of 1.33 is

	demonstrated. A revised Control Plan for these interim actions must be approved by HYVA

v. Control charts and process capability studies should be examined for signs of instability. If there are signs of instability, corrective action should be taken. If stability cannot be achieved, the Supplier shall contact HYVA Purchasing and Quality department and jointly determine appropriate action.

g. **Coating testing (Salt Spray testing)**
The salt spray test shall be performed by testing:

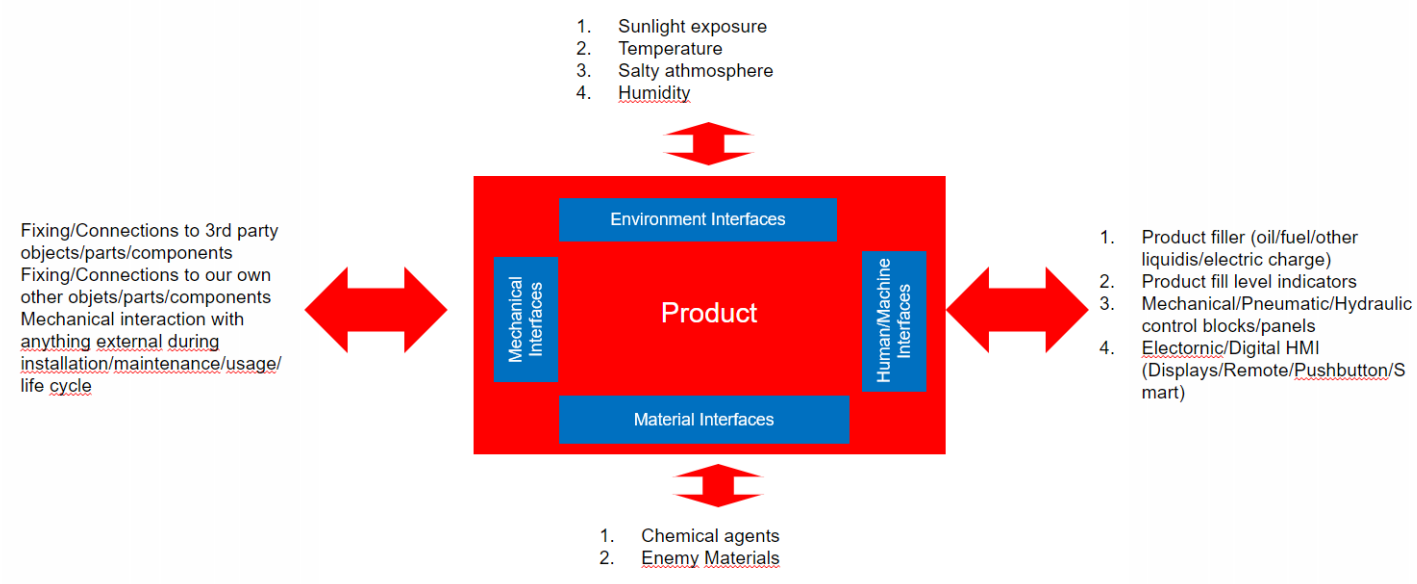
1) The complete finished Part in salt spray cabinet (as long as it fits in the salt spray test chamber/room) or
2) Slices cuts out from the finished product when dimensions are exceeding the salt spray test chamber/room. It is mandatory to include the following:
   a. All specimens containing geometrical shapes/corners where painting is difficult to adhere;
   b. All specimens containing different materials (eg. .cast iron Parts vs steel metal sheets);
   c. All specimens containing welding junctions.

h. **Welding testing**
The welding validation shall be performed by testing:

1) Complete finished Part tested with NDT (VT-MT-UT);
2) Each significant* portion cut from the entire structure: Macrografic analysis and Hardness
3) All specimens containing different materials (eg. cast iron Parts vs steel metal sheets)

i. **Interfaces review**
Special attention is required for interfaces between the product and the truck. The areas of interest are the physical connections of the product/Part to the hydraulic system; the connection to the truck of the product/ Part and the connection to other products/ Parts.

Interfaces review must be done once in PPAP process for sourcing of Parts of HYVA own production plants and sourcing of wet kit components. It is aimed to draw the attention of project team to the fact that interfaces between the Part/product subject to approval process and the «rest of the world» are in full a one off to be considered Part of the product development/approval itself. In the «interfaces» very high risks are present: each of HYVA Parts and product is at the end requested to interact with other Parts/components/products, as well as with environmental conditions, as well as with users (or during installation/or during maintenance/or during usage).



7.10. **Other requirements**

7.10.1 Whenever appearance requirements are documented on HYVA Prints and/or related engineering documents, the appearance criteria must be identified on the Component Inspection Report.

7.10.2 If production is from more than one cavity, mold, tool, die or pattern, a complete dimensional evaluation is required on one Part from each cavity, mold etc. This must be identified on the Part Submission Warrant.

7.10.3 The Supplier is responsible for providing the required test equipment necessary to complete all testing. It is the Supplier's responsibility to use gauging traceable to national or international standards. The Supplier shall also be able to demonstrate the gauge suitability for use in the measurement application through means of Gage R&R, accuracy, linearity and stability studies.

7.10.4 For submissions due to engineering changes, the inspection and testing requirements are determined by the extent of the change. For example, if certain dimensions are changed, the dimensional evaluation may be limited to those areas affected by the change. For guidance on specific changes, the Supplier shall contact HYVA Quality or HYVA R&D.

7. DELIVERABLES

All PPAP documents shall be sent by the Supplier to the following e-mail address:

PPAP@hyva.com

The PPAP file name shall be:
PPAP_Supplier name_Part number_