

# SUPPLIER QUALITY MANUAL

SVANEHØJ

# 1. LET'S POWER THE FUTURE



Svanehøj is a global leading specialist in handling mission-critical liquids – both at sea and on land. We design, manufacture, and supply a wide range of solutions and applications for cargo and energy pumps that can facilitate the transition to cleaner energy types. As a long-trusted industry partner in pumping solutions for fuel and energy cargo supply, we are set to make a difference.

The accelerating climate changes call for a complete transformation from fossil fuels to clean and renewable energy types. At Svanehøj, we take pride in having the knowledge, the pump solutions, and critical components to develop a safe and fast transition. This includes service and maintenance to improve and extend the life of your pumps and vessels.

# 2. PURPOSE AND SCOPE

This Supplier Quality Manual sets the rules, standards, and requirements for Svanehøj Suppliers to meet our expectations through the product and process development phases, to final serial production approval.

Critical and strategic suppliers are required to comply with relevant requirements set out by and agreed with Svanehøj, when supplying/manufacturing non-standard components/products according to Svanehøj specifications ex:

- Items critical to safety including ATEX components
- Items critical to function
- Expensive and/or complicated to replace including single source suppliers
- Business-critical and/or significant turnover



# 3. SUPPLIER QUALIFICATION AND APPROVAL PROCESS

Svanehøj will qualify critical and strategic suppliers as business partners – ready for business. The qualification process can involve visiting and auditing the Quality management system and processes at the Supplier.

ISO 9001:2015 or equivalent is required for critical and strategic suppliers.

Supplier qualification audit can be done by a Svanehøj Group Quality team on request. Main focus are listed below, but can affect other areas:

- Supplier quotation activities
- Internal logistic
  - Order management
  - Management of fabrication processes
  - Handling of raw material
  - Non-conformance process
- Workers education and capability
- Control plan and process capability
- Evaluation methods and capability
- Environment in general
- Working environment



# 4. SUPPLIER AUDIT

After supplier approval, Svanehøj may require a system or a process audit at the Supplier's manufacturing facility. This will be carried out after mutual agreement with the Supplier. This audit focuses on the specific process quality controls that the Supplier has put in place for production. In addition, Svanehøj reserves the right to conduct such an audit on the Supplier's sub suppliers.

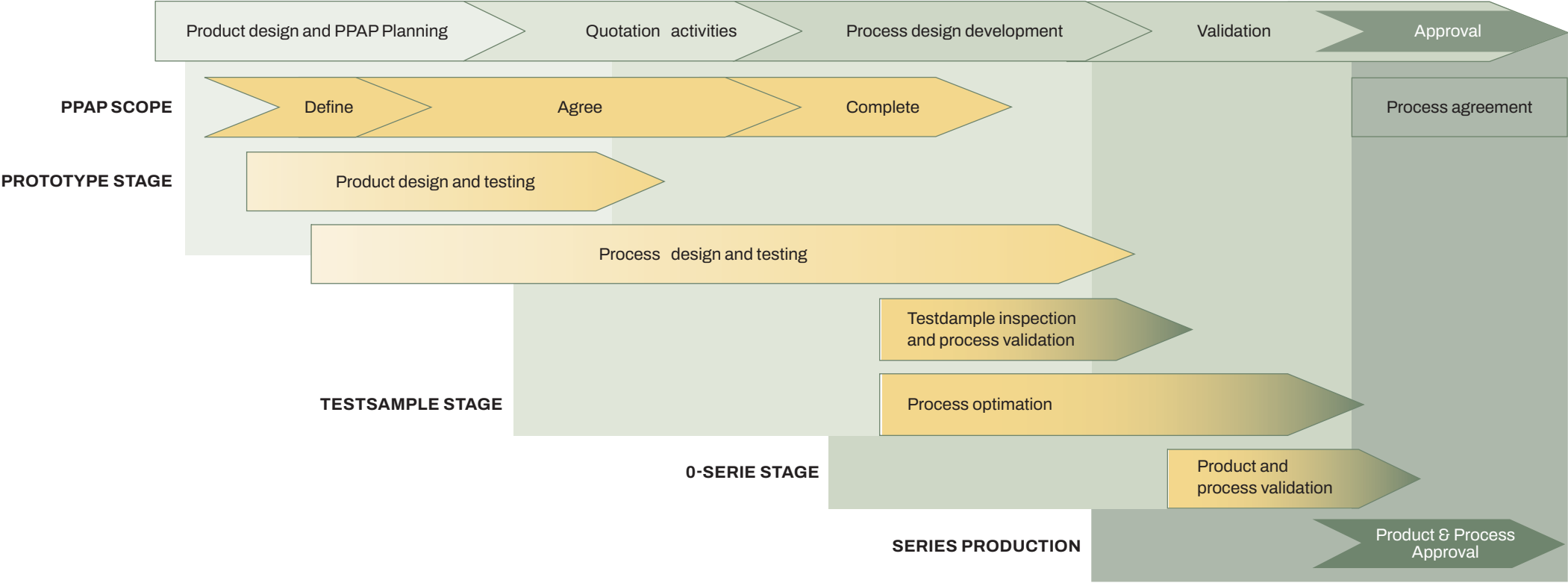
**The main focus areas are listed below, but can affect other areas:**

- Supplier quotation activities
- Internal logistic
- Workers education and capability
- Control plan; The main document for process audits
- Stable work processes – Capability and capacity
- Measuring tools are calibrated and in a good condition
- Correct choice of measuring tools
- Sub-supplier evaluation
- Engineering Change management
- Traceability and record retention
- Handling of non-conforming parts, containment actions and corrective actions
- Environment in general



# 5. ORDER EXECUTION PROCESS AND PROCESS APPROVAL

## PRODUCT APPROVAL PROCESS



# DEFINITIONS

## **PPAP**

Production Part Approval Process, define individual requirements for the specific Prototype or testsample activity. Svanehøj and the supplier will, in the product quality planning phases of a project – agree on PPAP requirements.

## **Prototype activities**

Are used for product design tests, where design is under development at Svanehøj A/S.

## **Testsample activities**

Are used for final designed parts. Executed to assess supplier capability and capacity in relation to consistent quality, and may be initiated in relation to following examples:

- New supplier
- New parts at existing supplier
- Significant changes at supplier production process
- Catings
  - New patterns for new parts, as well as new pattern for existing parts (2nd supplier).
  - Existing patterns transferred to a new supplier

## **0-series activities**

Proves the supplier's ability to produce within the specified tolerances. This is typical the first trail order.

## **Serial production**

The validated process design and suppliers choice of subsuppliers are approved. The setup is now frozen. In case of changes, a re-qualification shall be done as applicable and required by Svanehøj.



# PRODUCT APPROVAL PHASES

## Product design and PPAP planning

Svanehøj product design owner or Supplier quality responsible define the PPAP requirements for tests.

## Quotation activities

Technical documents and PPAP requirements to be reviewed by supplier. A product quality planning tool, should be used and aligned with Svanehøj request. On PPAP request, Process chart must be fulfilled for Svanehøj review. Any concerns from Supplier site, must be clarified with Svanehøj A/S.

## Process design development

Activity by the supplier with support from Svanehøj AS, to design and prepare the operating processes, for optimal performance for cost, lead time, quality and environmental impact. Supplier or Svanehøj A/S can, at any time, provide a Kick-off meeting, to align or clarify any requirements or concerns.

## Validation

The PSW is the Warrant from the Supplier to Svanehøj, and validate that all requirements have been met and documented as agreed. Quality team at Svanehøj AS will review the PSW. Approval will be communicated as acceptance. In case of rejection, Svanehøj A/S will issue an NCR.

## Approval

When Approved (or Conditionally Approved), the Supplier is released for continuous production of the parts covered by the PSW.



# 6. HANDLING OF NON CONFORMITIES – NCR



Any deviation from Svanehøj specifications, will result in a Non Conformance Report (NCR). Svanehøj reserve the right, to take one of the following decisions for the parts:

**Scrapped:** Parts will be scraped at Svanehøj or returned to supplier. Cost will be stated in the NCR. Credit note must be issued by the supplier with reference to NCR number.

- **Repaired** by Svanehøj at suppliers cost. Cost will be added NCR after final repair. Credit note must be issued by the supplier with reference to NCR number.
- **Concession:** Parts can be used with the deviation, without any risk for the function or quality for the final assembly or operation.

**Supplier NCR process – Minimum requirements:**

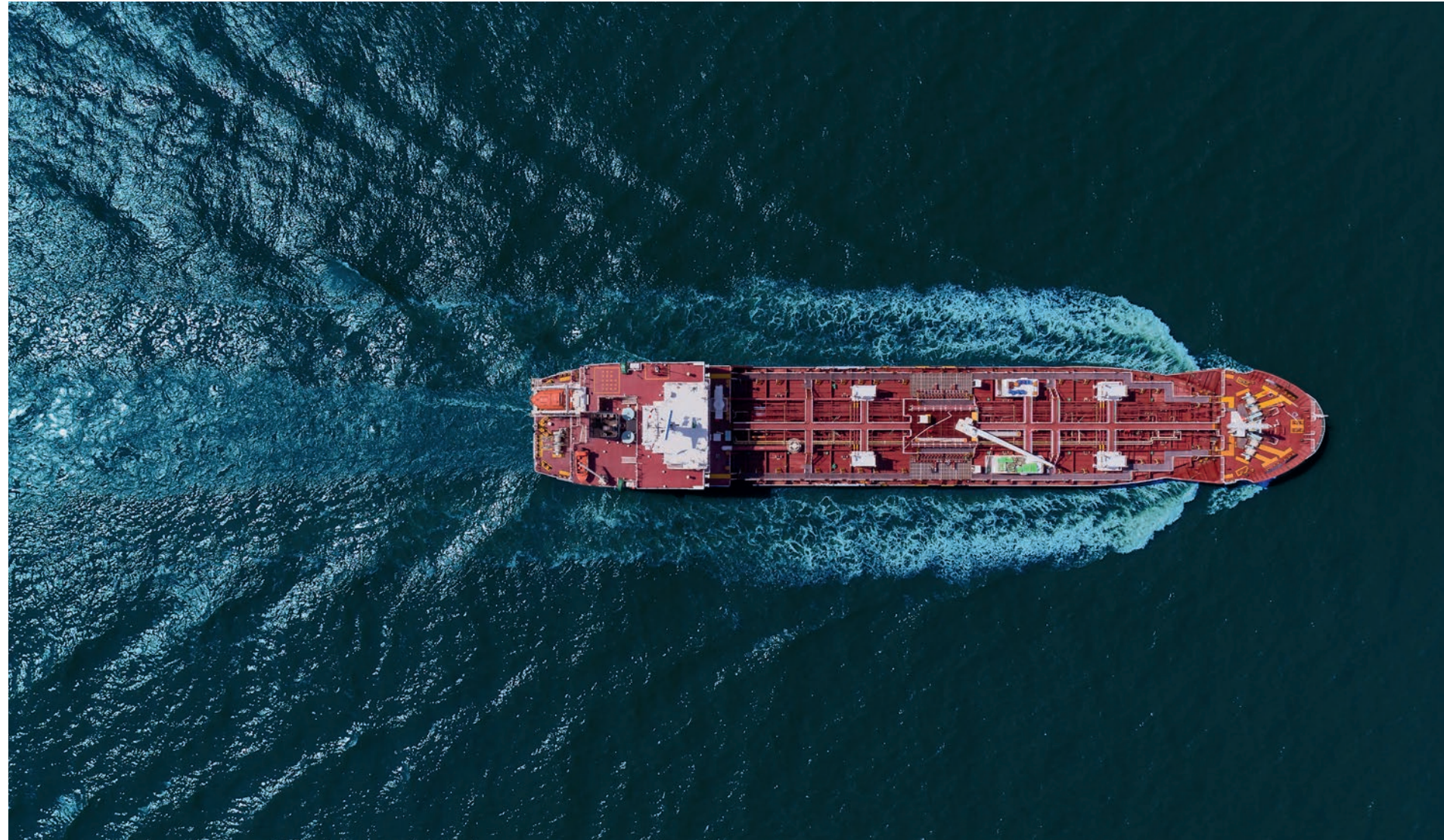
- **Containment plan:** The supplier shall investigate and ensure the quality of parts in stock or pipeline. Report eventual orders in shipping.
- **Root cause investigation:** Why and what leads to the Non-Conformance.
- **Corrective actions:** Actions to prevent the deviation for further orders. Actions must consider parts in similar design-/manufacturing group.

Implementation of corrective actions will be monitored doing next audit from Svanehøj.

# 7. CONTINUOUS IMPROVEMENT

The supplier should promote and implement a continuous improvement philosophy applying proven methodology and processes.

These methods and processes shall be used through the supplier organization to continually improve the quality, delivery, cost and service of supplier products.



# 8. TECHNICAL REQUIREMENTS

Purchase order will include a collection of specific documents, requirements or standard references to complete the order. Ex the latest drawing revision, special instructions or other additional requirements. Examples are listed below:

**Specifications to PPAP requirements:**

Process Flowchart (Supplier form can be used)	B20140021
PSW – Part Submission Warrant (sample test)	B20120066
Visual Surface inspection	AI20120003 (MSS SP55)
Cleanliness	XAAA197689
Pressuretest (to be defined pr order) instruction	AI20150010 + Pump specific
Section cut	To be specified be Svanehøj
Capillary test (API parts)	AI20120059
Radiographic test, X-ray	EN 12681
Dye pen test. Weldings	ISO 23277- 2X
<b>Castings:</b>	
Unmachined:	ASME VIII Div. 1 App. 7-3
Machined:	ASME VIII Div. 1 App. 8

**Additional requirements to standard specifications**

General packing instruction	AI20140012
Complete preservation	AI20130022
Supplementary requirements – Castings (If required)	AI20130006
Surface and tolerances for casting	AI20120003
Welding repair – Castings	AI20120004
Threads in general	AI20140007
Welding – General requirements:	80999-00
Balancing standard requirements	ISO 1940-1 grade 6,3
Balancing API requirements (if required)	ISO 1940-1 grade 2,5
Acid cleaning (Pickling), Stainless steel castings and weldings	
Parts to be Cleaned for assembling	
Edges to be painted (flamecutted, water cut etc) must be radius 2 ± 1	

# POWERING A BETTER FUTURE



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