



Supplier Quality Advanced Controls Program

* Marine Canada Acquisition Inc. DBA SeaStar Solutions



*** Supplier Quality Advanced Controls Program
- Terms and Conditions**

CD161-4

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1 Objective.

The objective of these Terms and Conditions is to provide any Supplier who has been selected by SeaStar Solutions for its Supplier Quality Advanced Controls Program with an understanding of the quality requirements of the program and the inherent responsibilities of any supplier in this program to supply SeaStar Solutions with products or services as established herein.

This document is additional to Section 2 of the current SeaStar Solutions Supplier Handbook, CD161-3, available for reference or download at:

http://canada.seastarsolutions.com/wp-content/uploads/supplierdocs/CD161-3_supplier_handbook.pdf

2 Scope.

These Terms and Conditions apply to suppliers who provide production materials used in support of SeaStar Solutions product manufacturing and have been selected by SeaStar Solutions to be specifically on its Supplier Quality Advanced Controls Program as part of the general SeaStar Solutions Quality Program.

It describes SeaStar Solutions requirements for the Advanced Controls Program for the manufacture of Products by these selected Suppliers for SeaStar Solutions.

Products are specified per Purchasing Agreements and/or Purchase Orders (POs).

Product requirements are defined per Engineering Drawings (DWG) and Engineering Specification (ES) documents.

This document does not supersede other sections of the current SeaStar Solutions Supplier Handbook, CD161-3. Furthermore this document is intended to be a supplement to, and does not replace or alter other terms and conditions covered by written purchase contracts, specified warranty agreements, or other separate written agreements signed by an authorized representative of SeaStar Solutions. In the event of any conflict between the terms of this document and any such written agreement, the terms of such written agreement shall govern.

3 Supplier's Process Requirements.

Supplier shall adhere to a quality/manufacturing plan (including data collection/tracking/reporting system), that will ensure compliance with the requirements of the Quality Program, Purchase Agreement, Drawings and ES documents.

3.1 Advanced Product Quality Planning (APQP)

SeaStar Solutions, at its sole discretion, may choose to follow an Advanced Product Quality Planning (APQP) process to produce a Product Quality Plan which will support development of a product or service that will satisfy SeaStar Solutions Quality Requirements.



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3.2 Quality Data and Records.

When required by SeaStar Solutions, the Supplier must create, retain and submit reports such as Certificate of Compliance, Certificate of Analysis, Test & Inspection Records, and/or SPC data. Failure to do so may delay inspection and payment or result in cancellation of Purchase Agreements and /or Purchase Orders.

3.3 Process Certification.

SeaStar Solutions may conduct, at its sole discretion, a Process Certification Test. The purpose of this test is to have Supplier demonstrate that the Manufacturing process is stable and capable of producing high quality product in volume. SeaStar Solutions will inform Supplier of required documentation before the Process Certification Test.

Supplier is solely responsible for the quality of Products and/or components procured or manufactured for SeaStar Solutions. Approval of Supplier's Process by SeaStar Solutions does not relieve Supplier of this ongoing responsibility.

3.4 Production Part Approval Process (PPAP).

When required by Purchase Order, the supplier shall submit PPAP samples along with the appropriate paperwork as prescribed on the PPAP Submission Checklist (CF282) by using PPAP Part Submission Warrant (CF069), both supplied with the Purchase Order. Following submission of the PPAP samples and documentation to SeaStar Solutions, the supplier must ensure that a signed off PPAP warrant is received from SeaStar Solutions prior to shipment against SeaStar Solutions Purchase Orders. For suppliers unfamiliar with PPAP, training is available upon request through your assigned SeaStar Solutions Supplier Quality Engineer (SQE).

3.5 Control of Purchases.

The Supplier shall have a Quality Program that provides a reliable means of determining the quality and reliability levels of all purchase supplies, materials and components used in the manufacture of SeaStar Solutions Products.

Supplier shall make no change to their Supplier or Source without prior written authorization from SeaStar Solutions. In the event the Supplier desires to change the vendor or selected source of a component used in the manufacturing of Products sold to SeaStar Solutions, Supplier shall collect quality/evaluation data to support and justify the change (data must show that quality levels are sustained and/or improved). The quality data shall be made available to SeaStar Solutions upon request.

3.6 Defect Free Program

SeaStar Solutions goal is to receive Products that are defect free. Supplier shall document and implement a defect free program as part of the Process which constantly reduces the defect rate of its Products to a level which achieves 500 Parts Per Million Defects (PPM) and /or further attempts to achieve zero defects through a continuous improvement program. SeaStar Solutions will not be obligated to accept any defective Products shipped by Supplier regardless or PPM levels unless separately negotiated in a supply agreement.



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All products furnished shall conform to contractual requirements / specifications and are subject to inspection and approval by SeaStar Solutions after delivery. If fault is found with the material, SeaStar Solutions reserves the right to withhold payment pending resolution. SeaStar Solutions also reserves the right to reject and/or return at the risk and expense of the Supplier, all or any portion(s) of shipment(s) that fail to comply with SeaStar Solutions requirements or specifications.

3.7 Corrective Actions

Supplier shall establish a program to ensure the performance of effective corrective actions. This program will be based upon information derived from failure reporting and analysis and will ensure that parts, components or assemblies are corrected so as to properly perform their intended function.

Supplier shall have the capability to perform root cause analysis and report findings in a timely manner.

Supplier shall maintain records of corrective actions indicating the frequency of defect during fabrication of Products, integration with SeaStar supplied product at supplier's location, at Supplier's sub-supplier, of SeaStar Solutions customer returns to supplier, and the proposed corrective change in process, evaluation of its effectiveness, and an effective date for implementation. Such records are subject to review by SeaStar Solutions.

3.8 Supplier Corrective Action Request (SCAR)

Supplier shall maintain a Closed Loop Corrective Action (CLCA) process for reactive events (defects) as well as continuous improvement efforts. Any Supplier Corrective Action Request (SCAR) issued by SeaStar Solutions will be addressed by Supplier within Supplier's CLCA process. SCARs may be issued as a result of, but not limited to, an audit finding, quality defect, and process failure. Supplier will respond to SCARs per the time frames specified in the SCAR issued by SeaStar Solutions.

3.9 Stop Ship and Purges.

Supplier shall notify SeaStar Solutions in writing of any discrepancy in Product quality that is discovered and which may have a detrimental effect on previously shipped Product or result in a stop ship or purge requirement. Supplier will make recommendations regarding the disposition of this material and Supplier agrees, at SeaStar Solutions request, to sort and rework all material at SeaStar Solutions locations, make replacement material readily available for exchange or choose a 3rd party sort or rework solution that is acceptable to meet SeaStar Solutions production schedule requirements without interruption.

All costs associated with stop ship and purge activity, caused by Supplier, will be borne by Supplier and additional charge backs may be incurred as outlined in Section 3.2 of the SeaStar Solutions Supplier Handbook (CD161-3).



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3.10 Changes in Manufacturing Process.

In the event that a Supplier desires to change the fundamental manufacturing process, the Supplier shall notify SeaStar Solutions in writing within a reasonable period (no less than thirty (30) days under normal circumstances) prior to the effective date of the proposed change. The minimum thirty (30) days notice may be waived by SeaStar Solutions should an emergency change be required. Example of changes which require notification include, but are not limited to, the following:

- Changes in material
- Changes in major fabrication, processing or manufacturing equipment
- Changes in major test equipment
- Changes in test methods or environment
- Changes in manufacturing facility locations
- Changes in production line layout
- Changes in sourcing (when second sourcing / re-sourcing)
- When part resubmission is required due to supplier inactivity over all parts or for a specific part when inactivity has been more than 12 months (the part or manufacturing process must be PPAPed when the purchase order is placed)

Supplier shall implement such changes in the process only if collected quality/evaluation data verifies that quality and reliability levels would be sustained and/or improved as a result of such change.

Note: Supplier shall make no changes to Processes without prior written authorization from SeaStar Solutions.

3.11 Changes to Product.

Supplier shall notify SeaStar Solutions in writing as set forth in 3.10 above prior to implementing any of the following types of changes to the Products:

- Any changes that affect the fit, form (including appearance) or function of the Products
- Any change of a programmed part on the Products
- Any changes to the Products affecting clock speeds
- Any change to a custom or semi-custom Integrated Circuit (IC)
- Any change made to correct a problem in a SeaStar Solutions applications, made at the request of SeaStar Solutions
- Any changes made to the circuit board fabrication
- Any changes to critical component specification or approved Supplier. Critical components will be determined by mutual agreement between SeaStar Solutions and Supplier.
- Any changes in reliability or product life
- Any update of specified compliance standards that impacts product design or labelling

Note: Supplier shall make no changes to Products without prior written authorization from SeaStar Solutions.



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3.12 Engineering Change Orders /Specification Update Notices (SUNs)

Supplier shall have the capability to manage Engineering Change Orders (SUNs). This capability shall be managed throughout all stocking locations and implemented in a timely manner. Supplier shall coordinate with SeaStar Solutions in writing, prior to implementing any change to the Product that may impact form, fit, function, quality, reliability, serviceability or safety.

3.13 Re-Qualification.

Major changes in manufacturing process or product construction/design will require re-qualification and/or process re-certification to the Product Specification. Where a Supplier seeks to make a change for its own purposes, SeaStar Solutions may require, at its sole discretion, that Supplier perform reliability tests at its own expense to confirm an equivalent or improved reliability of the Products. Supplier shall coordinate notification of planned major changes with SeaStar Solutions. At SeaStar Solutions request, Supplier shall run a pilot production.

PPAP re-submission will be required if requested by SeaStar Solutions.

Note: Changes initiated by SeaStar Solutions are communicated to suppliers with a Specification Update Notice (SUN) and SeaStar Solutions is responsible for reasonable expense necessary to implement such requested change, including provision of Purchase Orders for PPAP parts.

3.14 Labelling / Packaging.

Supplier shall comply with the requirements specified in the Drawings and ES documents for Part Identification Label, Bar Coding Marking Standard and Packaging Procedure. These requirements apply for new units as part of new orders and for reworked, repaired or new units shipped to replace failed units at SeaStar Solutions facilities or in the field.

3.15 Cosmetics / Appearance Standards.

Supplier shall comply with the requirements specified in the Drawings and ES documents for cosmetics requirements.

4 Product Performance Program.

This section describes the quality and reliability requirements for Supplier’s Products.

4.1 Failure Rates.

The failure rates calculation will include failures which occur at Point of Use (POU). Maximum Failure rates/goals during production are:

Table 4.1: Maximum Failure rates/goals during production			
Production Time	0-3 Mos	4-6 Mos	7 Mos & Beyond
Maximum Failure Rate/Goal	PPM 6000	PPM 1500	PPM 500



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$$\text{Failure Rate} = \left(\frac{\text{\# of verified failures}}{\text{\# of units tested}} \right) \times 1,000,000$$

In the event product fails to meet failure rates as per Table 4.1, the Supplier shall implement corrective actions, as set forth in Section 3.7, at Supplier's expense, to screen out the defects causing the yields to exceed the maximum failure rates. Corrective actions may include, but are not limited, to the following:

- Extended component, sub-assembly and/or final assembly level testing to remove any latent failures
- Special screening tests in the Supplier's process, such as sorting good from bad material.
- Root Cause Analysis and implementation of Poke Yoke in the production process.

4.2 Special Screening of Products.

If products exceed the failure rates as per Table 4.1, SeaStar Solutions, at its sole option, may implement special screening of Products. SeaStar Solutions will make every reasonable attempt to work with a supplier to implement Corrective and Preventive action required to the necessity for Special Screening.

Therefore if special screening is deemed necessary by SeaStar Solutions, Supplier shall reimburse SeaStar Solutions for the actual costs incurred in implementing said screening. Said costs may include, but are not limited to, the following:

- All direct labour costs, either SeaStar Solutions employees or temporary service personnel
- All supervisory and engineering support costs directly related to set up and management of the process
- All materials directly associated with the screen (i.e. test cables, tools, etc.)
- Rental expenses, if any, for equipment used in the process
- Expenses associated with rented space if SeaStar Solutions facilities cannot accommodate the process activities.
- Any additional costs incurred due to material movement

5 Outgoing Quality.

SeaStar Solutions and Supplier shall agree to a statistically valid method for estimating the outgoing quality level of every shipment prior to delivery to SeaStar Solutions. The recommended method is ANSI/ASQ Z1.4 or any update to that standard.

Any lots not meeting the agreed upon quality level will be 100% screened by Supplier to ensure their conformance to the Product Specification using an Automotive Industry based GP12 Inspection Process or similar inspection and records keeping process.



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At SeaStar Solutions request, Supplier shall conduct SeaStar Solutions application-specific process monitoring tests; which will be provided or described to the Supplier where necessary by SeaStar Solutions.

The purpose of this testing is to monitor the ongoing performance of manufacturing processes and product designs and to identify Supplier's manufacturing process and design problems at the Supplier's site and implement Corrective Action to eliminate such process and design weaknesses.

5.1 Self Surveillance.

Supplier shall implement, within its facility, a means of tracking, analyzing and continuously improving post-process quality results, subject to approval by SeaStar Solutions. This may take the form of final inspection or end of line/out of box audit.

6 Audit Programs.

After the products have been introduced to manufacturing, SeaStar Solutions may choose to conduct the following inspection processes to ensure conformance to the Product Specifications.

6.1 Source Inspection.

SeaStar Solutions may elect to require source inspection of lots prior to shipment from Supplier's factory until supplier can consistently achieve the failure rate goal. Source inspection may be initiated or terminated at SeaStar Solutions option. Inspection shall be performed and lot acceptance shall be determined in accordance with a pre-agreed upon sample plan based upon application of ANSI/ASQ Z1.4 standard.

Acceptance at source inspection does not limit Supplier's responsibilities for failures. Product quality and reliability is at all times the responsibility of the supplier.

6.2 Supplier Process Audits.

SeaStar Solutions may conduct quality audits at any time of Supplier's facility during normal business hours to determine Supplier's compliance with SeaStar Solutions requirements. These audits will include review of all aspects of the Process.