



Supplier Quality System Requirements

1.0 SCOPE

This document defines quality systems that are required for those suppliers, vendors, and subcontractors (here after referred to as the "Seller") providing materials/products/services to Moldtronics Inc. (here after referred to as the "Buyer"). Any revision to this document shall be adhered to by Seller upon receipt thereof.

The provisions of Buyer's subcontract, purchase order or purchase agreement (hereafter referred to as Order) titled "Additional Provisions", "Inspection and Acceptance" or "Quality Requirements" are supplemented by this document which is hereby incorporated by reference into the Order. Seller shall comply with establishing and maintaining quality systems required by this document whether the Order is received by the Seller in paper form or by electronic data interchange. This document also defines additional supplier requirements and expectations.

Seller shall flow down applicable product specifications, descriptions and requirements to sub-tier suppliers, including key characteristics as required.

2.0 PURPOSE

The purpose of this document is to identify the Seller's quality requirements. Also it is intended to aid the Seller in determining which quality level is required, relative to the complexity of the product/service that is being procured.

3.0 REFERENCES

Quality Management System – Requirements	ISO 9001
Quality Systems – Aerospace - Model for Quality	AS/EN 9100
Assurance in Design, Development, Production, Installation and Servicing	
Requirements for Handling Electrostatic- Discharge-Sensitive (ESDS) Devices	EIA JESD-625
Requirements for Soldered Electrical STD-001 and Electronic Assemblies	J-
Acceptability of Printed Board Assemblies	ANSI/IPC A-610
Inspection and Test Requirements for Key Characteristics of Components	QMF-67
U.S. Department of Transportation, Conducting workplace drug and alcohol testing.	49 CFR PART 40
Drug and Alcohol Testing Program	14 CFR PART 120

4.0 ACRONYMS

CFR	Code of Federal Regulations
C of C	Certificate of Conformance
COTS	Commercial off-the-shelf
DOD	Department of Defense
FAA	Federal Aviation Administration
ISO	International Organization for Standardization
NASA	National Aeronautics and Space Administration
OEM	Original Equipment Manufacturer
QPL	Qualified Products List
MI	Moldtronics Inc.
TBD	To Be Determined
SPC	Statistical Process Control
MRB	Material Review Board

4.1 DEFINITIONS

4.1.1 MI Manufacturing

Fit - Physical size, interconnection, and mounting requirements of an item.

Function - The attribute of an end item equipment or assembly pertaining to operation or performance (e.g. safety, accuracy, testability, compatibility, reliability, maintainability, etc.)

Form Internal structure (composition material) and the external outline (shape) within the limits set forth in the equipment specification

Interchangeability - Ability of a part to replace or be replaced in the existing end item equipment, irrespective of part number, wherever installed. The replacing part must meet all physical, functional, and structural requirements of the part it replaces and be installed by the application of normal means of attachment.

Performance - The quantitative specification of an item's characteristics which may include the operating range, limits and values.

Repair - The subjection of nonconforming material to an approved process designed to reduce but not completely eliminate the nonconformance

Rework - All work performed on articles with known deficiencies so as to cause such articles to fully comply with documented requirements

Use as is - Material with minor non-conformances disposition by formal MRB where authorized, when the material is determined to be satisfactory for its intended use.

5.0 REQUIREMENTS

5.1 GENERAL

During the performance of this Order, the Seller shall perform a self-assessment and determine the applicable Supplier Category (Refer to

Table 1) The Seller shall maintain a quality system compliant with the applicable Quality System Requirements Matrix (Refer to Table 2). All requirements specified in the Quality System Requirements Matrix (identified with an "X") under the applicable Supplier Category apply to this Order. The Buyer may assess a different Supplier Category and the Seller shall meet the requirements of a new Supplier Category assessment. MI uses various methods, which may include an on-site survey, to verify that these requirements are being met.

NOTICE:

In the event that the Seller's quality system is non-compliant, or if the Seller's ISO registration is suspended, changed or expires during the performance of the Order, the Seller shall notify the Buyer in writing. Notification shall be within ten (10) working days of the revocation, suspension, change or expiration.

The Seller must conform to the requirement defined in Quality System Compliance Matrix, table 2 of this document after selecting the appropriate Supplier Category from the Supply Category Definitions table which is table 1 of this document.

Seller shall flow down applicable product specifications, descriptions and requirements to sub-tier suppliers, including key characteristics if required.

5.2 MATERIAL REVIEW AUTHORITY

Material review authority shall not extend to "repair" or "use-as-is" for supplier specified or customer specified requirements without prior documented approval from the customer. Seller shall submit to Buyer all requests for variance from Contract, Purchase Order, specification or drawing requirements

5.3 ELECTROSTATIC DEVICE PROTECTION

Devices identified as electrostatic discharge sensitive shall be handled, stored, packaged and shipped in such a manner as to preclude damage from electrostatic discharge. Electrostatic protection process shall be modeled after EIA JESD-625 "Requirements for Handling Electrostatic-Discharge-Sensitive (ESDS) Devices". Electrostatic protection requirements specified on the component specification/drawing or elsewhere on the Order take precedence over this paragraph.

5.4 BUYER DEFINED CRITICAL OR KEY CHARACTERISTICS

Devices having one or more characteristics identified as "Critical" or "Key" or by the symbols " KC", shall be inspected and/or tested in accordance with QMF-67 "Inspection and Test Requirements for Key Characteristics of Components". Optional methods may include 100% inspection and/or test. The Seller's may submit an alternate SPC plan to the Buyer for consideration and approval. Approval in writing must be received from the Buyer prior to product acceptance. Unless otherwise specified, inspection/test reports or SPC data shall be submitted with each lot for part numbers that contain key characteristics

5.5 WORKMANSHIP

The Seller shall establish workmanship plans and acceptance standards in writing in accordance with the performance and reliability requirements of the Buyers specifications. For electrical parts, the plans and acceptance standards shall be modeled after J-STD-001 "Requirements for Soldered Electrical and Electronic Assemblies" and ANSI/IPC-A-610 "Acceptability of Printed Board Assemblies". Other types of parts shall have workmanship plans in accordance with the relevant drawings, specifications and the supplier's quality system. Workmanship requirements specified on the component specification/drawing or elsewhere on the Order take precedence.

5.6 UNIQUE PART NUMBER CONTROL

The Seller shall maintain a documented process to assure published data and specifications maintain a unique part number. The Seller shall change the Seller's part number or implement a documented revision control process when introducing changes which affect the performance, form, fit, function, or interchangeability of the Seller's product. For requirements for changes please see paragraph 5.9.

5.7 RIGHT OF ACCESS

The Buyer, Buyer's customer, and cognizant government agencies shall have **access to all applicable areas of Seller's facilities at any level of the supply chain involved in the order and to all applicable records**. This right shall also extend to the Seller's subcontractors. Seller shall be notified within a reasonable amount of time () by the Buyer to host such events. Failure to meet schedule, quality or program requirements may cause long term visitation plans to be put in place.

5.8 BUYERS SOURCE INSPECTIONS AND PROCESS VERIFICATIONS

Buyer's source inspections or process verifications shall not absolve the Seller of the responsibility to provide acceptable product nor shall it preclude subsequent rejection. Use of a Buyer's subcontractor shall not be considered by the Seller as evidence of effective control of quality by the subcontractor.

5.9 CHANGES IN PRODUCT, FACILITIES OR QUALITY MANAGEMENT SYSTEM

The Seller shall notify the Buyer and obtain written approval prior to shipping products with changes in product, processes, components, sub- suppliers / subcontractor , manufacturing facility location , packaging ,shipping method or outside processor. The Seller shall also notify the Buyer in writing prior to any change in top management, ownership, quality management system, or a major change in the number of employees or resources used in a Moldtronics Inc. Sub Contract.

If the Buyer deems any of these above changes significant, a full or partial part / product requalification will be necessary to validate the change. Since these changes are driven by the Seller, all cost of product or process requalification needed to validate products will be at the Sellers' expense.

To comply with Moldtronics Inc. Changes in Facility, Product or Quality Management System the supplier must complete form QMF-68 from Moldtronics Inc.

5.10 SUBCONTRACTING OF THE ORDER

The Seller shall not subcontract in whole, or substantially in whole, performance of this Order without prior written consent of the Buyer.

5.11 RECORDS

Records shall be established and maintained in accordance with all information flowed to the supplier. Records shall provide evidence of conformity to requirements and to the effective operation of the quality management system. Records shall be available for review by Buyers representative, customers and regulatory authorities. Unless otherwise indicated, the Seller shall retain quality and product conformity records for a minimum of 99 years plus the current year and all other documentation for 10 years after Order completion. All requested information shall be provided in the language required by the contract and English when language is not specified.

5.12 SHIPMENT CONFORMANCY

5.12.1 Seller's shipment of articles to Buyer shall constitute certification that the articles were manufactured, processed, and inspected to the requirements of the Buyer's Order. Specific certificates of conformance may be required.

5.13 NOTICE OF DISCREPANT MATERIAL OR REQUEST FOR CORRECTIVE ACTION

5.13.1 In the event of delivery of discrepant material, the Seller is subject to the receipt of a Supplier Corrective Action Request. Per requirements of the Supplier Corrective Action process, the Seller is required to provide a Containment Statement in three working days; a root cause corrective action response within ten working days; and be subject to an elevation of notification for delinquent response. An extension may be granted with agreed upon business case. Regardless of the products warranty status, when requested, the supplier is required to provide a root cause and corrective action for failures that occur on parts, the first time they are installed. These are sometimes referred to as out of box failures.

5.13.2 Failure to comply with the rules of this Supplier Corrective Action process requirement may jeopardize compliance to the contract requirements. In the event Seller fails to remedy discrepancies as required by the Supplier Corrective Action Request, or if Seller fails to make progress so as to endanger the performance of this **agreement** with its terms, Moldtronics Inc. may exercise its rights and remedies under the Cancellation/Termination Article of the **agreement** between Moldtronics Inc. and your company. When corrective action progress is insufficient, Moldtronics Inc. may place a supplier on probation status. Suppliers on probation status will not be considered for new procurement activity.

5.13.3 The supplier must promptly notify a Moldtronics Inc. Procurement Representative in writing when a non-conformity is discovered in the supplier's processes or components/ assemblies for a product already delivered. The notification must include at a minimum:

- a) A clear description of the nonconformity
- b) Affected programs, part numbers, serial numbers, date codes etc.
- c) Quantity delivered, reference PO, ship date
- d) Containment plan including replacement availability and recovery plan.

Upon Buyer's determination that the non-conformity has been closed, the Seller must provide Moldtronics Inc. a root cause statement and long term corrective actions taken.

5.14 Reserved

6.0 DPAS

When noted, DPAS ratings must be followed IAW current revision of DoD4400.1-M.

Table 1 - Supply Category Definitions

Supplier Category	Category Title	Description	Part Categories that may be supplied
4	Build-to-print component	A supplier of build to print component, assembly, minor system or subsystem for which the supplier has less than total design	Build to print product, basic material or standard
5	Off-the-shelf (Industrial)	A supplier of Off-the-shelf Industrial products for which the supplier has total design authority	Off-the-shelf product or standard services and software
6	Retail commercial	A supplier of retail commercial products offered to the public	Retail commercial products
7	Basic materials	A supplier of basic and raw materials	Basic materials, retail commercial product
8	Franchised Distributor	A distributor or OEM representative	Off-the-shelf product
9	Contract processes & services except	A processor or service provider that performs specific tasks with the exception of inspection and testing services	Services not including inspection and test or retail
10	Contract processes & services inspection	A processor or service provider that performs inspection and testing services	Inspection and testing services, other services, retail
11	Broker	A supplier of specific commodities which are not typically available because of OEM discontinuance or obsolescence	Obsolete or discontinued product

Table 2 - Quality System Compliance Matrix

Supplier Category

ISO 9001 Paragraph		1	2	3	4	5	6	7	8	9	10	11	12	13	CAS5	CASG	14
4.1	Understanding the Organization and its context	X	X	X	X	X		X	X	X	X						
4.2	Understanding the needs and expectations of interested parties	X	X	X	X	X		X	X	X	X						
4.3	Determining the scope of the management system	X	X	X	X	X		X	X	X	X						
4.4	Quality Management System and its	X	X	X	X	X		X	X	X	X						
5.1	Leadership and commitment	X	X	X	X	X		X	X	X	X						
5.2	Policy	X	X	X	X	X		X	X	X	X						
5.3	Organizational roles, responsibilities and authorities	X	X	X	X	X		X	X	X	X						
6.1	Actions to address risks and opportunities	X	X	X	X	X		X	X	X	X						
6.2	Quality objectives and planning to achieve them	X	X	X	X	X		X	X	X	X						
6.3	Planning of changes	X	X	X	X	X		X	X	X	X						
6.3	Infrastructure	X	X	X	X	X		X		X	X						
7.1	Resources	X	X	X	X	X		X	X	X	X						
7.2	Competence	X	X	X	X	X		X	X	X	X						X
7.3	Awareness	X	X	X	X	X		X	X	X	X						X
7.4	Communication	X	X	X		X		X									
7.5	Documented information	X	X	X	X	X		X	X	X	X						X
8.1	Operational planning and control	X	X	X	X	X		X	X	X	X						X
8.2	Requirements for products and services	X	X	X	X	X		X	X	X	X						
8.3	Design and development	X	X	X	X	X		X	X	X	X						
8.4	Control of externally provided processes, products and services	X	X	X	X	X		X	X	X	X						X
8.5	Production and service provision	X	X	X	X	X		X	X	X	X	X					
8.6	Release of products and services	X	X	X	X	X		X	X	X	X						X
8.7	Control of nonconforming outputs	X	X	X	X	X		X	X	X	X	X					
9.1	Monitoring, measurement, analysis and evaluation	X	X	X	X	X		X	X	X	X						
9.2	Internal audit	X	X	X	X	X		X	X	X	X						
9.3	Management Review	X	X	X	X	X		X	X	X	X						
10.1	General	X	X	X	X	X		X	X	X	X						
10.2	Nonconformity and corrective action	X	X	X	X	X		X	X	X	X						
10.3	Continual Improvement	X	X	X	X	X		X	X	X	X						

	Additional Appendices Requirements	1	2	3	4	5	6	7	8	9	10	11	12	13	CAS5	CASG	14
A1	C of C - Special Processor				X					X	X						
A2	Physical and Chemical Test Reports Applies only to First Article Inspection				X			X									
A3	Source Traceability								X			X					
A4	Reserved																
A5	Reserved	X		X	X												
A6	AS/EN 9100 (current revision)	X	X	X	X												
A7	ISO 9001(current revision)	X	X	X	X	X		X									
A8	Reserved																
A9	Requirements 5.1-5.14	X	X	X	X	X		X	X	X	X	X					
A10	Requirement 5.12 only						X						X				X
A11	AS 5553	X	X	X	X	X			X			X					X

Appendices

A1	<p>CERTIFICATE OF CONFORMANCE - SPECIAL PROCESSOR</p> <p>A COMPLETED COPY OF THIS CERTIFICATE OR COPIES OF PROCESSOR CERTIFICATES MUST ACCOMPANY EACH SHIPMENT.</p> <p>When the drawing reflects the requirement for subjecting product(s) to a Buyer defined special process, Seller may utilize Buyer certified special processors, or opt to use a processor approved by the Seller. When requested, Seller shall provide Moldtronics with documented evidence and rationale for processor approval. The Buyer defined special processes are:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">1) Welding/Brazing</td> <td style="width: 33%;">2) Anodizing/coating</td> <td style="width: 33%;">3) Plating/Electrodeposition</td> </tr> <tr> <td>4) Encapsulating/Potting</td> <td>5) Ultrasonic inspection</td> <td>6) Dry film lube</td> </tr> <tr> <td>7) Chemical Cleaning/Milling</td> <td>8) Bonding/Lamination</td> <td>9) Radiographic inspection</td> </tr> <tr> <td>10) Impregnation/Passivation</td> <td>11) Leak testing</td> <td>12) Eddy current inspection</td> </tr> <tr> <td>13) Heat Treatment/Annealing</td> <td>14) Penetrant inspection</td> <td>15) Vibration/Qualification test</td> </tr> <tr> <td>16) Magnetic particle insp.</td> <td></td> <td></td> </tr> </table> <p style="text-align: center;">CERTIFICATION</p> <p>Seller certifies that the special processes required by this order were performed by the processor listed below, and that the document(s) appended hereto in the form of processing certifications or listed below, is/are evidence of performance of Seller or processor in accordance with applicable specifications.</p> <p>Moldtronics purchase order number Moldtronics part number Number of items in shipment Processor name Processor address Process specification and revision Other</p> <p>Quality Manager</p> <p>Seller's Name</p> <p>Seller's street address</p> <p>City, State, and Zip Code.</p> <p>Date</p>	1) Welding/Brazing	2) Anodizing/coating	3) Plating/Electrodeposition	4) Encapsulating/Potting	5) Ultrasonic inspection	6) Dry film lube	7) Chemical Cleaning/Milling	8) Bonding/Lamination	9) Radiographic inspection	10) Impregnation/Passivation	11) Leak testing	12) Eddy current inspection	13) Heat Treatment/Annealing	14) Penetrant inspection	15) Vibration/Qualification test	16) Magnetic particle insp.		
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A2	<p>PHYSICAL AND CHEMICAL TEST REPORTS IDENTIFIED TO SPECIFIC LOTS</p> <p>When the applicable specification(s) establishes requirements for chemical and/or physical properties, Seller shall include with the packing sheet for each lot in each shipment, test reports, or copies thereof, which provide quantitative evidence that the materials shipped possess the chemical and/or physical properties required by the applicable specifications. Reports must provide, at a minimum the manufacturer's name, manufacturer's part number and the Buyer's Order number. Certification of compliance to base material requirement is sufficient evidence only when provided by the manufacturer of the material.</p>
A3	<p>CERTIFICATION OF CONFORMANCE TO SOURCE TRACEABILITY</p> <p>This Order provision requires Seller to submit a "Certificate of Conformance" attesting compliance as follows:</p> <p>MANUFACTURERS OR DISTRIBUTORS:</p> <p>QPL ITEM</p> <p>The Seller shall provide certification as required in the Buyer's procurement specification and/or military specification.</p> <p>DISTRIBUTORS ONLY:</p> <p>CONTROLLED SOURCE ITEM</p> <p>The Seller shall provide certification that the item(s) was manufactured by a source listed on the Buyer's procurement Specification.</p> <p>CONTROLLED SOURCE QPL ITEM</p> <p>The Seller shall provide certification as required in the Buyer's procurement specification and/or military specification, and certification the item was manufactured by a QPL source listed on the Buyer's specification.</p>

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