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## Section I – Supplier Expectations

### 1.0 Introduction

This Supplier Quality Manual (SQM) has been created to assist our suppliers in understanding the purchasing expectations and quality requirements for products and/or services supplied to Monroe Engineering. This Supplier Quality Manual will communicate the operating principles, general expectations, and procedures of Monroe Engineering. Adherence to the guidelines described in this manual is required by all Monroe Engineering suppliers. Acceptance of any and/or all purchase orders constitutes acceptance and commitment on behalf of the recipient to comply with this manual’s content. These guidelines are provided as supplement to, and do not replace or alter, any purchase agreement terms and conditions which are included as requirements of applicable drawings, specifications and other contractual documents. This manual describes the minimum requirements for which the supplier has responsibility. However, system improvements that exceed the requirements specified within this manual are always encouraged.

### 1.1 On-Time Delivery

Monroe Engineering requires all suppliers to meet their on-time delivery requirements. To further clarify this, we consider unauthorized early (more than 10 business days) and unauthorized late and partial deliveries (more than 2 business days) or over shipments to be unacceptable. The quantity shipped per order or release cannot vary from specified quantity without prior written (or Email) consent.


### 1.2 Transportation Costs

Unless otherwise instructed, a supplier shall ship, as directed by Monroe Engineering. Any excess transportation costs, due to the supplier not meeting the shipping instruction requirements, will be deducted from the purchase price.

## Section II - Supplier Selection and Performance

### 2.0 Supplier Evaluation and Selection

Monroe Engineering’s supply base will consist of organizations supportive of our business needs. Criteria for evaluation and selection of suppliers for placement on Monroe Engineering’s Approved Supplier List is based on the suppliers’ abilities to consistently deliver defect free products and/or services, meet our delivery requirements, be cost competitive and be responsive to Monroe Engineering’s needs.

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## 2.1 Supplier Monitoring

Approved supplier performance will be measured monthly. Suppliers must score at least a minimum of 89 in their Overall Performance Rating in the monthly Supplier Rating system. Failure to do so for three consecutive months will require the supplier to submit a corrective action plan for improvement.

The supplier may be contacted to discuss development goals to assist in the improvement of their performance. Supplier performance shall be measured on their ability to meet Monroe Engineering's quality and delivery expectations and requirements. To remain on the Approved Supplier List, suppliers must meet minimum requirements defined for product quality, delivery and responsiveness.

A supplier rating report will be generated monthly. The formulas for determining a supplier rating are explained in section 2.2.

## 2.2 Supplier Rating Criteria

Supplier Quality Rating (SQR) criteria: the number of Accepted Parts divided by the total Delivered Parts multiplied by 45. (Counts for 45% of score.)

Example:

100 = Parts Delivered (PD)

98 = Parts Accepted (PA)

$$\text{SQR} = (\text{PA} \div \text{PD}) \times 45$$

$$\text{SQR} = (98 \div 100) \times 45$$

$$\text{SQR} = .98 \times 45$$

$$\text{SQR} = 44.10$$

Supplier Delivery Rating (SDR) criteria: the total number of shipments divided by the number of on-time shipments multiplied by 45. (Counts for 45% of score.)

Example:

100 = Parts Delivered (PD)


97 = Parts Delivered On Time (PDT)

$$\text{SDR} = (\text{PDT} \div \text{PD}) \times 45$$

$$\text{SDR} = (97 \div 100) \times 45$$

$$\text{SDR} = .97 \times 45$$

$$\text{SDR} = 43.65$$

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Supplier Responsiveness Rating (SRR) criteria: the sum of scores for 5 categories designed to rate supplier responsiveness. These categories include: responsiveness to RFQs, responsiveness and availability through emails, responsiveness and availability through phone calls, responsiveness to last minute changes and responsiveness in providing requested documentation. Each of these categories are worth 2 points.

Overall Performance Rating (OPR) criteria: the Supplier Quality Rating (SQR) score added to the Supplier Delivery Rating (SDR) score added to the Supplier Responsive Rating (SRR).

Example:

$$\text{OPR} = \text{SQR} + \text{SDR} + \text{SRR}$$

$$\text{OPR} = 44.10 + 43.65 + 8$$

$$\text{OPR} = 95.75$$

**Overall Performance Rating**


<b>100 – 97</b>	<b>Excellent</b>
<b>96 – 93</b>	<b>Good</b>
<b>92 – 89</b>	<b>Improvement expected</b>
<b>88 or less</b>	<b>Improvement required</b>

2.3 Probation criteria

Approved suppliers whose ratings fall below 89 for three consecutive months will be put on probationary status. A request will be issued to the probationary supplier to submit a written Action Plan with recommended improvements, responsibilities and implementation dates to be returned to Monroe Engineering. Monroe Engineering’s Quality Manager and Purchasing Manager will review the submitted action plans. Acceptable plans will be acknowledged and the supplier will submit progress reports. Suppliers who show minimal improvement or deterioration in product quality in the following 12 months may be subject, but not limited to:

- a) On-Site Survey
- b) Limited access to new business
- c) Removal from Approved Supplier Status

Unacceptable Action Plans shall be critiqued, and reviewed with the Supplier until a satisfactory Action Plan can be developed or the supplier is removed from the Approved Supplier List. Suppliers shall not be awarded new orders if they have been removed from the Approved Supplier List. If a supplier is determined to be unacceptable, the Purchasing Manager will initiate the appropriate actions to find other qualified resources prior to the removal of the supplier from the Approved Supplier List. In the event a supplier is a mandated source by a Monroe Engineering customer, customer’s approval will be required.

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### Section III - Supplier Quality Requirements

- 3.0 Monroe Engineering must approve the product, any procedures and processes associated and the equipment used. If any changes occur after the initial approval the supplier shall notify Monroe Engineering of such changes.
- 3.1 Suppliers are expected to have the resources necessary (personnel, property, facilities, equipment and materials) to supply the products and/or services required to accommodate Monroe Engineering's production schedule and/or PO requirements. The supplier should provide for fluctuations in requirements due to scheduling changes.
- 3.2 Suppliers of Monroe Engineering are requested to be compliant to the ISO 9001:2008 international quality standard. In addition, we encourage our suppliers to seek a third-party accreditation. Supplier quality systems shall be formally documented, implemented and maintained to ensure suppliers' products and/or services conform to the identified purchase specifications, engineering or material specifications and/or contract requirements. The suppliers' quality documentation shall be made available to Monroe Engineering upon request.
- 3.3 Each article delivered under a purchase order must be identified with a part number or other identification. All purchased materials and services are subject to inspection for compliance to the purchase order and all applicable quality requirements. No material or process substitutions, quantity variations or splits from the purchase order may be made without prior written authorization from Monroe Engineering. Information concerning the identification and revision status of specifications, drawings, process requirements, inspection/verification instructions and other relevant technical data will be communicated to the supplier when they quote the job, on the purchase order and/or on the supplementary documents from Monroe Engineering.
- 3.4 All suppliers to Monroe Engineering must have a lot identification system that distinguishes one lot from another when shipping finished product. Each lot of material should be clearly identified on the product (where applicable) and/or on the product packaging. All material lots should be traceable to raw or component material lots as identified by the supplier's supplier.
- 3.5 If any tests are required the purchase order and/or supplementary documents would state that information to the supplier.
- 3.6 Products and/or services provided by suppliers must be at the highest level of quality.

When drawing, specification, and/or Purchase Order includes "key characteristic" requirements the Supplier shall utilize Variation Management to ensure key characteristic integrity. The Supplier shall develop control plans for applicable key characteristics and shall have a Cpk goal of 1.33 or better.



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### 3.7 Sampling Plans

The supplier shall adhere to the AQL defined in the documents provided by Monroe Engineering.

The order of precedence shall be:	If no AQL is defined the following AQL shall apply:
A. Purchase Order	Critical = 100% inspection
B. Performance Specification	Major = 1.0 AQL
C. Drawing	Minor = 4.0 AQL


If classification of characteristics is not defined, supplier shall use a minimum of 4.0 AQL.

**Note:** Reference to AQL is only to be used for determining sample size.

Where lot sampling is utilized, the supplier shall inspect characteristics in accordance with the C=0 Sampling Plan unless directed to use a different sampling plan in the purchasing documentation. The supplier may, at their option, use their own sampling procedure, if written approval is granted by Monroe Engineering quality department prior to its use.

#### C=0 Sampling Plan

LOT SIZE	AQL						
	.65	1 Major	1.5	2.5	4.0 Minor	6.5	10
2 - 8	ALL	ALL	ALL	5	3	2	2
9 - 15	ALL	13	8	5	3	2	2
16 - 25	20	13	8	5	3	3	2
26 - 50	20	13	8	5	5	5	3
51 - 90	20	13	8	7	6	5	4
91 - 150	20	13	12	11	7	6	5
151 - 280	20	20	19	13	10	7	6
281 - 500	47	29	21	16	11	9	7
501 - 1200	47	34	27	19	15	11	8
1201 - 3200	53	42	35	23	18	13	9
3201 - 10000	68	50	38	29	22	15	9
10001 - 35000	77	60	46	35	29	15	9
35001 - 150000	96	74	56	40	29	15	9
150001 - 500000	119	90	64	40	29	15	9
500001 & OVER	143	102	64	40	29	15	9

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3.8 The supplier shall ensure that nonconforming product is identified and controlled to prevent unintended use or delivery. The supplier shall not ship nonconforming materials without prior authorization by Monroe Engineering.

The supplier is responsible to notify Monroe Engineering of any changes in product and/or process, any changes of manufacturing facility location and receive approval of such change.

Suppliers of Monroe Engineering are required to communicate all information related to the job to any supplier they use to produce Monroe Engineering's products.

3.9 Suppliers are fully responsible for the quality of their products/services including their sub-tier suppliers. Both are responsible that the quality of their products/services meet all Monroe Engineering's requirements, specifications and drawings as identified on the purchase order. Zero defects are expected from our suppliers.

3.10 Record Retention

Suppliers and sub-tier suppliers shall establish and maintain records to provide evidence of conformity to requirements. Records shall remain legible, readily identifiable and retrievable. Product history records shall be maintained for a minimum of 7 years or as required by the purchase order.

3.11 Right of Entry

Monroe Engineering and its customers or any applicable regulatory authority shall have the right to enter the suppliers' facility to perform inspections or surveillance audits to verify the quality of work, records and to ensure compliance to the contract. When applicable, the access requirement shall be flowed-down by the supplier to the suppliers' sub-tier sources.

3.12 Aerospace Parts


In the event that the purchase order is for an Aerospace Field part, there may be additional requirements of the supplier as well as any sub-tier suppliers.

- The supplier must conduct a review of all the purchase order requirements to ensure their product or service conforms to those requirements.
- The supplier's Quality Management System must address the requirements contained in this document.
- Suppliers are required to flow down data & other requirements to sub-tier suppliers.



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- The supplier must maintain and calibrate precision measuring and test equipment with a method that is traceable to a recognized standard.
- The supplier must establish document and maintain a configuration management process appropriate to the product. For more information regarding configuration management refer to the International Standard ISO 10007: *Quality Management Systems – Guidelines for Configuration Management*.
- The supplier must preserve the product during internal processing and delivery to Monroe Engineering, maintaining conformity requirements. The supplier must provide packaging that protects the component from mechanical and environmental damage during transport and storage including effects of temperature, vibration and shock. This also includes: cleaning, removal of foreign objects, special handling for sensitive products, appropriate labeling, shelf life control, stock rotation and other special handling.
- If the supplied products are life-limited, the supplier is required to furnish either the expiration date or the material cure date.
- Product subject to special processing must be accompanied by certification documents that specify that process and the supplier's conformance to the requirements of that process. Suppliers must maintain records at their facility for seven years.
- A First Article Inspection (FAI) may be required using AS9102 forms as well as a number of additional documents such as: material certifications for raw materials, calibration records for gages used, process flow, traveler or routing sheets, control plans, inspection sheets, test records for special processes, appearance samples, functional test results as specified in print and/or specifications, Part Submission Warrants, capability studies, run at rate documentation and certificate of conformance (C of C) documentation. See the current AS9100 Aerospace Standard for a better understanding of other possible requirements.

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## Section IV - Special Requirements

- 4.0 The supplier will complete a First Piece Inspection for items on the purchase order. First Article Inspections for AS9100 classified parts will be recorded on the AS9102 forms. Otherwise, utilize Monroe's designated form or the supplier's form with Monroe Engineering approval.

The First Article Inspection report must show evidence of acceptance by the supplier's quality assurance representative. The first article(s) shall be produced on production equipment and using processes which will be utilized on production runs.

When requested, the first article(s) may be performed on prototype articles to determine conformance status to available data.

Additionally, the supplier shall perform subsequent first articles per the requirements of AS9100 (i.e. following every major tooling or design change, and subsequent to any evident quality degradation for a specified part or article).

Records of all first article activity will be documented as required in AS9100, treated as quality / acceptance records and made available to Monroe Engineering.

- 4.1 The supplier is responsible for ensuring items provided under the purchase order are packaged in such a manner that the product integrity is preserved, contamination and corrosion are prevented, no physical damage occurs and it prevents damage, deterioration or loss in transit.

The supplier shall label the exterior of the container to ensure adequate identification needed to ensure the identity of the product being shipped. The supplier must ensure the handling and shipping methods for a proper and on-time delivery without damage to the product. The supplier shall ensure that any special labeling requirements shall also be listed in the appropriate shipping documents and on each package.