

Tronair Supplier Quality Manual

Revision: 01



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Manual

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1.0 Purpose:

This document defines the mandatory requirements of Tronair in regards to practices, procedures and adherence to standards and regulations of any supplier providing goods or services to Tronair.

These requirements are necessary to ensure that material delivered to Tronair by its suppliers will meet or exceed required quality levels, delivery schedules and risk tolerance requirements. The requirements, as listed, are based on a defect prevention system, which will improve quality, lower costs and increase productivity.

2.0 Scope:

These procedures apply to any and all suppliers providing goods or services to Tronair.

This manual supplements the requirements stated on Tronair Purchase Orders (PO) and applicable commercial and military standards listed in Section I. In case of conflicting requirements, PO requirements take precedence.

Acceptance of the PO is considered acceptance of all Tronair PO requirements, including this document.

3.0 Responsibility:

Tronair's Quality Assurance (QA) Department, with the assistance of Purchasing, has responsibility for communication and oversight of this document. Suppliers who have accepted Tronair PO's have the responsibility to adhere to these requirements.

4.0 Background:

4.1 Introduction

Tronair's products and services have earned a worldwide reputation for the highest standards of quality and reliability. We expect our suppliers to contribute to that reputation.

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4.1.1 Creating a Partnership

Tronair partners with suppliers who deliver the best quality, value and service at the most competitive cost. We expect our suppliers to be innovative and dedicated to driving continuous improvement in their operations. Together, we will identify all cost reductions, waste elimination and efficiency improvements possible. Tronair expects its supplier partners to share in the risk and costs associated with winning new business.

4.1.2 Corporate Information

Tronair is a manufacturer of Aircraft Ground Support Equipment (AGSE) with research, engineering, marketing and manufacturing activities aimed at one goal: The creation of quality AGSE at a reasonable cost.

The company was formed in 1972 to supply equipment to the emerging corporate business jet and turbo-prop market. The high growth and demands of the market gave Tronair the opportunity to develop a wide array of AGSE products. The experience gained has allowed the company to expand into the regional and commercial airline market as well as worldwide government and military agencies.

5.0 Tronair's Quality Philosophy:

Tronair's Quality Mission Statement, Quality Policy, Principles, Values and Goals are listed below:

5.1 Quality Mission Statement:

We, the employees of Tronair, are committed to being a global, innovative provider of quality Aircraft Ground Support Equipment for the aerospace industry.

It is our policy to design and to manufacture products efficiently, perform services as specified and deliver products on time.

We are dedicated to working together, employing our technical knowledge and utilizing the most current technology in our products and business systems for global aviation and aerospace markets.

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5.2 Quality Policy

Tronair will achieve customer satisfaction by continuously improving our systems of designing, producing and supporting innovative AGSE products and services to meet customer requirements.

5.3 Principles

We will accomplish our Quality Mission Statement and Quality Policy by adhering to the following principles:

- Be responsive to changing customer demands.
- Foster an environment of trust and integrity.
- Be the preferred supplier for the products that we sell.
- Strive for employee satisfaction through involvement with product development and improvement.
- Develop long-term partnerships with customers and suppliers.
- Achieve continuous improvement with measurable progress.
- Be a good corporate and community citizen.

5.4 Values and Goals

The highest level of performance and ethics are expected from our employees. We promote an environment where teamwork and innovation can flourish. Every employee is valued as an individual and is treated with respect, dignity, fairness, and equality. Opportunities are available for each of us to develop and reach our full potential, and to achieve our professional and personal goals.

6.0 Supplier Code of Conduct:

Tronair's Supplier Code of Conduct helps us to select business partners who follow workplace standards and business practices that are consistent with our company's values.

6.1 Code of Conduct

6.1.1 General Principle: Supplier's plants shall operate in full compliance with the laws of their respective countries and with all other applicable laws, rules, and regulations.

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6.1.2 Gift and Gratuity Policy: The offering or acceptance of kickbacks, bribes and other illegal payments will not be tolerated. Tronair prohibits the offer or acceptance of gifts or gratuities that the recipient likely would consider to be of substantial value. Violation of this policy will subject the supplier to immediate suspension.

6.2 Compliance Monitoring

The supplier will allow Tronair and/or any of its representatives access to its facilities and all relevant records.

6.3 Application to Subcontractors

All PO requirements apply and shall flow down to any subcontractor(s), where it is permissible for the supplier to subcontract work. The supplier is fully responsible for compliance by any such subcontractor(s) as if it were the supplier itself.

6.4 Event of Violation

If the supplier does not comply with all PO requirements, Tronair requires that the supplier implement a corrective action plan to cure the non-compliance within a specified time period. If the supplier fails to meet the corrective action plan commitment, Tronair shall have the right to terminate the business relationship, including suspending placement of future orders, and canceling orders in process at no cost or liability to Tronair.

In the event that the supplier is providing processing services of any type, including treatments or machining, and as a result of their process the material becomes nonconforming, the supplier shall be liable for the full cost of the materials.

7.0 Environmental Awareness:

Our suppliers are encouraged to obtain a third party approval to a recognized environmental management system standard (for example ISO 14001) where deemed appropriate, and shall be measured against that standard. Tronair expects its suppliers to provide products and conduct their business operations in a way that protects and sustains the environment in compliance with all applicable laws and regulations.

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8.0 Proprietary Information:

Information (both commercial and technical) that a supplier receives through business dealings with Tronair must be kept confidential and never used for personal gain or shared with Tronair competitors. Appropriate non-disclosure or confidentiality agreements are and will continue to be used for protecting proprietary information. Refer to the Tronair's terms and conditions between our respective organizations or existing non-disclosure agreements for details on obligations relating to proprietary and confidential information.

9.0 Supplier Quality System Evaluation Criteria:

9.1 Evaluation against a Quality Management System (QMS) standard, processing standard/procedure, and approval thereto is required for suppliers to reach and maintain an approved status. Tronair QA makes the final determination of the compliance requirement. The factors to be considered are the scope of approval, whether the supplier is required to be compliant or compliant and registered, and supplier's ongoing quality system projects.

9.2 Tronair QA follows the guidelines below when determining the supplier quality system requirements:

9.2.1 All Suppliers must meet the requirements set forth in the Tronair PO.

9.2.2 Suppliers who design and build products for incorporation into Tronair deliverable products: approved to ISO 9001, AS9100, ISO 9001:2000, AS9100-A with the appropriate scope.

9.2.3 Build-to-print suppliers for products incorporated into Tronair deliverables: approved to ISO 9002, AS9100, ISO 9001:2000, AS9111-A with the appropriate scope, or to MIL-I-45208A.

9.2.4 Suppliers who provide special processing, such as welding, plating, heat treatment and surface treatment, which are incorporated into Tronair deliverable products: approved as to having a system which controls the process as defined in the applicable specification.

9.2.5 Suppliers of metals incorporated into Tronair deliverable products: approved as to having the controls required for distributors.

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9.2.6 Suppliers who are distributors of hardware incorporated into Tronair deliverable products: approved as to having the controls required for distributors.

9.2.7 Suppliers of non-OEM test and calibration services: approved as to having the required controls for specific testing and/or calibration per ANSI/NCSL Z540-1 or MIL-STD-45662A.

10.0 On-site Assessment and Source Inspection:

Tronair QA and Purchasing Departments may perform an on-site survey prior to adding a supplier to Tronair's approved vendor list. The purpose of this survey is to determine the supplier's ability to supply a product that will meet the requirements of the PO, and to determine the appropriate risk level.

10.1 Supplier Desktop Assessments

If the prospective supplier appears to have the required knowledge, background and quality system in place, a desktop assessment is conducted in accordance with Tronair's procedures. Tronair QA and Purchasing personnel review the documentation and a determination of approval or need for further evaluation such as an on-site visit is made.

10.2 Supplier On-site Assessments

On-site assessments of prospective suppliers are conducted in accordance with Tronair's procedures. The date and time of the on-site assessment will be arranged in advance through the Tronair Purchasing Department. A Tronair representative familiar with specific regulatory, industry, customer and internal requirements will perform the on-site assessment and verify that the prospective/existing supplier can meet these requirements. On-site assessment checklist(s) are developed, as applicable to the assessment scope, and used to record the scope and results. The success of the assessment depends on the supplier's ability to demonstrate its capability to consistently supply the product in compliance with the PO, applicable drawings, and military specifications (as applicable).

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10.3 Supplier Risk Assessment

Suppliers may be evaluated and managed on a risk appraisal basis. Areas that maybe considered are: the type of product or service provided (including complexity); the potential impact of the product or service on final product quality; the reports of quality audits and/or historical data of demonstrated capability, performance and process control; and Tronair's ability to inspect product upon receipt. For risk assessment purposes, suppliers are classified by the type of product, process or service they will supply to Tronair as follows:

10.3.1 Special Process

Special Process Supplier, including, but not limited to, Nondestructive Testing (NDT), Heat Treat, Welding/Brazing, and Chemical Processing/Plating.

10.3.2 Critical

Conformance to a specification, which cannot be readily or economically verified by receiving inspection.

10.3.3 Major

Conformance to a specification, which can be determined by receiving inspection.

10.3.4 Other

Products, which have minor quality requirements.

10.3.5 Limited

A supplier with ten or fewer employees that is unable to pass the Tronair on-site assessment is subjected to 100% receiving inspection. This classification is only to be used when a viable option is not available to replace this supplier.

10.3.6 Customer Required

Supplier specified by customer, such as on a print. Special process and Critical suppliers may not be listed in this classification.

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10.3.7 Supplier Certification

Tronair QA may also assess qualifying suppliers for the purpose of supplier certification to provide product on a dock-to-stock basis. Certification will be done on a part number/family basis arranged with Tronair QA through the Purchasing department.

10.3.8 Source Inspections

Tronair or its designated representative, customer or Government representative may perform source inspections at the supplier's plant.

10.3.9 Certificate of Compliance

A Certificate of Compliance (CoC) will be supplied with each shipment of parts when required by the PO. CoC shall include as a minimum:

- 10.3.9.1 Supplier name, address, and telephone number.
- 10.3.9.2 Part number and total quantity.
- 10.3.9.3 Lot number and quantity in each lot (if applicable).
- 10.3.9.4 Date code (if applicable).
- 10.3.9.5 Serial numbers (if applicable).
- 10.3.9.6 Reference to a specific industry or government standard must be cited, if applicable (include the specification number and revision level).
- 10.3.9.7 Statement that all parts comply with drawing, specification and PO requirements.
- 10.3.9.8 Statement of traceability for raw materials and processes to the products delivered to Tronair.
- 10.3.9.9 Approval signature(s) by an authorized supplier representative.
- 10.3.9.10 Tronair PO number.
- 10.3.9.11 Any additional requirements stated on the PO.

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11.0 First Article Inspection:

All parts delivered to Tronair must comply with all drawing and specification requirements by the manufacturer before shipment.

- 11.1 When stated on the PO, the supplier must perform First Article Inspections (FAI) per Tronair QMS procedures. The supplier must verify all dimensions and requirements. Tronair may verify dimensions on at least one piece of incoming lot. Major attributes are checked on a sample basis. Any deviations must be explained and a request for approval must be obtained in writing.
- 11.2 The supplier is to provide measurement / test results and attribute type data in a report format detailing specified test parameters and results as required by the PO.

12.0 Manufacturing and Quality Requirements:

In order to ensure manufacturing control, the supplier shall establish and document process standards and criteria for all aspects of the manufacturing operation. These standards shall include documented process sheets and processing specifications that identify specific requirements.

- 12.1 Inspection standards for evaluation of the manufactured product based on drawings and engineering specifications shall be established and documented. Unless otherwise noted on Tronair PO's, inspection sample plans may be used to evaluate product quality. The use of established plans such as MIL-STD-1916; 1 April 1996, C=0 sampling and MIL-STD-414 for variable data; or Dodge-Romig for attribute data, is encouraged.
- 12.2 Acceptable Quality Levels (AQL'S) must be set by the supplier to ensure acceptable product quality levels are maintained. AQL selection is governed by the capability of the manufacturing process to maintain tolerance. In all cases, it is based on a statistical probability and does not relieve the supplier from maintaining tolerance conformance on all parts.

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- 12.3 Workmanship standards shall be in compliance with those called out on the drawing or specification, or when not stated, best available industry standard is to be used. If internal standards are developed, or industry standards are used such as ANSI or SAE, they must be compliant with the invoked standards. They must also be acceptable to Tronair QA Department.
- 12.4 Tronair encourages the use of statistical methods to control quality. Such methods include Statistical Process Control (SPC) techniques. In some cases, Tronair may require the supplier to submit quality control plans and process flow charts in advance of the start of manufacturing to be approved by Tronair. These plans are to include:
- 12.4.1 Process capability determination CP, CPK indexes.
 12.4.2 X-bar & R charts for variable data: P, np, c & u for attribute data.
- 12.5 The supplier shall establish procedures for the verification, storage, maintenance, and accounting of Tronair owned material, products, tools and equipment provided to the supplier. This would include drawings, specifications, and official correspondence. Any items that are lost, damaged, or unusable, shall be reported to Tronair Purchasing immediately.
- 12.6 The supplier shall have procedures for the positive identification and control of all components, including raw materials, used during manufacturing, processing, and delivery so that in the event of a recall, traceability to raw materials and processing can be ascertained.
- 12.7 The supplier is responsible for ensuring that all items regardless if made by the supplier or a subcontractor, meet the technical specifications for form, fit, function, and methods, using stated or recognized industry best workmanship practices.
- 12.8 The supplier shall ensure that all incoming materials and components used in the manufacture of products to be delivered to Tronair shall be inspected, tested or otherwise verified to be conforming prior to use or processing.
- 12.9 Nonconforming material must be conspicuously identified and segregated. The segregation must prevent the mixing of conforming and nonconforming material. Material that cannot be reworked cannot be dispositioned as "Use As Is" without the written approval from Tronair prior to delivery.

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12.9.1 Deviations from the material specifications and/or the dimensional tolerances noted on Tronair drawings are cause for the issuance of a Discrepancy Report (DR) and the subsequent rejection of the product. Missed process operations, prior to delivery to Tronair, can be corrected and are not considered rework. Authorization for rework, which involves adding material to the base metal, must be obtained in writing from Tronair prior to attempting such repairs.

12.10 The supplier shall ensure prior to delivery that the product meets all requirements, standards, and acceptance criteria. No records shall be destroyed or otherwise dispositioned without the express approval of Tronair QA. Records created by and retained by suppliers shall be archived to prevent deterioration, and be readily retrievable and available for review.

12.11 The packaging methods used by the supplier shall ensure that the product will not be damaged during transit.

12.12 Tronair may require the supplier to participate in pre-production review and readiness meetings. Items covered in this meeting could include the following:

- 12.12.1 Quality Planning
- 12.12.2 Specifications drawing requirements
- 12.12.3 Process flowcharts and control
- 12.12.4 FMEA (Failure Modes and Effects Analysis)
- 12.12.5 Key characteristic selection
- 12.12.6 Process capabilities
- 12.12.7 Test and Qualification
- 12.12.8 First Article Inspection
- 12.12.9 Metrology, gauging, and measurement methods
- 12.12.10 Statistical Process Control
- 12.12.11 Packaging, labeling, and delivery
- 12.12.12 Documentation and record retention

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13.0 Periodic Evaluation:

13.1 Audits

13.1.1 Tronair will conduct periodic audits to ensure compliance with stated requirements.

13.2 Predictive Indicators

13.1.2 In addition to performance and survey results, Tronair may add additional evaluations such as a review of Predictive Indicators. These indicators will be applied to suppliers based on risk and classification. The intent is to proactively identify supplies that may be in jeopardy of deteriorating quality and delivery performance, as well as increased customer returns and scrutiny.

13.3 Risk

13.1.3 Suppliers may also be evaluated and managed on a risk appraisal basis, depending on the type and complexity of product or service provided.

14.0 Supplier Quality and Delivery Rating and Approval Listing:

14.1 Supplier Performance Rating Method

14.1.1 Periodic supplier ratings are processed quarterly. The evaluation interval may be extended or shortened depending on the supplier's performance.

14.1.2 Supplier Performance Ratings are calculated as follows:

14.1.2.1 Calculation of Supplier Quality Rating:

$$\text{Quality Rating} = \frac{\text{Quantity Acceptable Parts Received}}{\text{Quantity Total Parts Received}}$$

14.1.2.2 Calculation of Supplier Delivery Rating:

$$\text{Delivery Rating} = \frac{\text{Quantity Lots Received On-Time}}{\text{Quantity Total Lots Received}}$$

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14.1.2.3 Calculation of Responsiveness to Corrective Action Requests (CARs):

$$\text{CAR Responsiveness Rating} = \frac{\text{Quantity CARs Received On-time}}{\text{Total Number of CARs Issued}}$$

14.1.2.4 Calculation of Parts Per Million (PPM) Defective:

$$\text{PPM} = \frac{\text{Defective Parts Received}}{\text{Total Parts Received}} \times 1,000,000$$

The ratings may be adjusted by subjective factors such as a new technology, engineering/design development problems or factors unforeseen when the PO/contract was issued. Purchasing, Engineering, QA, Manufacturing and others who have knowledge of the project may provide these factors.

15.0 Supplier Classification:

15.1 Supplier Rating Results and Quality System evaluations are used as input to supplier classification.

15.2 Input from Supplier Ratings is used as follows:

For Quality:

- 100% Considered for Certified Supplier status.
- 99% Considered for Preferred Supplier status.
- 97-98.9% Minimally acceptable.
- 95-96.9% Subject to Probationary status pending corrective actions; improvement is mandatory.
- 94.9% and below Subject to termination.

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For Delivery:

- 98%-100% Considered for Certified Supplier status.
- 95%-97.9% Considered for Preferred Supplier status.
- 90%-94.9% Minimally acceptable.
- 80%-89.9% Subject to Probationary status pending corrective actions; improvement is mandatory.
- 79.9% and below Subject to termination.

For Responsiveness to CARs:

At the discretion of Tronair QA, performance is rated:

- Acceptable.
- Subject to Probationary status pending corrective actions; improvement is mandatory.
- Subject to termination.

15.3 Supplier Classification Based on Quality Ratings

Input from Quality System Evaluations is used to classify suppliers and maintain approval. Typically, a previously acceptable supplier, whose performance has deteriorated, is given an opportunity to provide evidence of corrective actions before termination. Depending upon the severity of the deficiencies, Tronair may or may not issue new PO's while corrective actions are pending.

15.4 Supplier Classification Levels

Supplier Classification can be maintained or upgraded as a result of a Supplier Performance Evaluation process with positive results. Either Purchasing or QA may downgrade Supplier Classification.

15.4.1 Certified Supplier

- 15.4.1.1 A supplier that has achieved a Certified Supplier status for a minimum of one quarter, and at the discretion of the QA department, may participate in one of our reduced incoming inspection programs.

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15.4.2 Preferred Supplier

- 15.4.2.1 A supplier that has achieved a Preferred Supplier status for a minimum of one quarter. Suppliers at this level have demonstrated and maintained high performance levels for Quality, Delivery and CAR responsiveness.

15.4.3 Approved/Approved - Conditional Supplier:

- 15.4.3.1 A supplier who has met the minimum qualification criteria, has been approved to supply a required product or service, and who performs satisfactorily.
- 15.4.3.2 Approved - Conditional Suppliers may have open Corrective Actions. Failure to submit a Corrective Action Plan, or implement the Corrective Actions according to the plan may cause a supplier to be classified as Probationary. Tronair may institute increased inspection while a supplier is classified as Approved - Conditional.
- 15.4.3.3 PO's may be issued to suppliers with Approved and Approved - Conditional Statuses.

15.4.4 Probationary Supplier:

- 15.4.4.1 A supplier who has met the minimum qualification criteria, has been approved to supply a required product or service, but has performed less than satisfactorily.
- 15.4.4.2 Tronair Purchasing Department may only issue PO's to these suppliers pending the acceptance and approval of a Corrective Action Plan. Tronair may institute increased inspection while a supplier is at probationary status.
- 15.4.4.3 Failure to submit a Corrective Action Plan, or implement the Corrective Actions according to the plan may cause the supplier to be classified as a Terminated Supplier.

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15.4.5 Terminated Supplier:

- 15.4.5.1 A supplier who has not met the minimum qualification criteria, has not been approved to supply a required product or service, has not maintained acceptable performance levels, or has failed to implement and/or provide evidence of effective corrective actions.
- 15.4.5.2 Tronair Purchasing Department will not issue any PO's to these suppliers.

16.0 Dock to Stock:

The Dock to Stock program exempts a supplier's product/parts from the receiving inspection process at Tronair. In order to qualify for the "Dock to Stock" program for a supplier must have completed or be involved in the following:

- 16.1 Process Audit (Self Assessment or On-site).
- 16.3 Acceptable Quality third party Certification.
- 16.4 A Quality rating of Certified Supplier status for six months.

A supplier's Dock to Stock may change when a Discrepancy Report is issued for a part or product. A new inspection frequency may be established, or the part/product may be removed from the Dock to Stock status. Any changes made along with corrective action required will be established and communicated by Tronair.

17.0 Corrective Action:

Suppliers must have a system for Corrective Action. Corrective Action refers to an internal problem solving process initiated to prevent recurrence of nonconformance and to prevent the future delivery of defective product. Emphasis should be on identifying the root cause(s) of the nonconformance and selecting corrective actions, which will prevent recurrence.

- 17.1 A team knowledgeable in the area or process that caused the nonconformance should complete the corrective action. The team will conduct root cause analysis of the problem and develop corrective action(s), which will prevent recurrence.
- 17.2 The effectiveness of the corrective action(s) taken should be verified.

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- 17.3 Preventative action should be taken which will prevent recurrence of the current or similar nonconformance. The preventive action(s) identify recommendations for systemic improvements.
- 17.4 Tronair may request that a supplier take corrective action via a written Corrective Action Request (CAR). The CAR may be initiated by the severity or the recurrence of the nonconformance.
- 17.5 The reason for rejection will be stated on the CAR which may accompany the returned product or will be forwarded to the supplier. The supplier has the responsibilities stated on the CAR and must describe the implemented corrective action in the reply.
 - 17.5.1 The CAR form originates from Tronair QA and is addressed to a designated individual at the supplier's facility.
 - 17.5.1.1 The CAR specifies the nature of the nonconformance. The supplier is responsible for analyzing the defect as stated in the CAR.
 - 17.5.1.2 The supplier shall provide information on the root cause(s). The corrective action block(s) shall state the change to the operation or process that the supplier/manufacturer has implemented to eliminate the root cause.
 - 17.5.2 The CAR shall be reviewed by supplier management for concurrence and then must be returned to Tronair's QA Department for review and approval.
 - 17.5.3 Suppliers shall provide a CAR response within fifteen (15) business days. If CAR's are not responded to in a timely manner, Tronair reserves the right to terminate any open PO's with the supplier. Requests for extended time to complete the CAR due to unusual circumstances must be submitted in writing to Tronair's QA Department prior to the expiration of the 15 days.
 - 17.5.4 A Tronair Work Instruction will accompany the CAR. The work instruction will serve as a guide for completion of the CAR.

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18.0 Change and Deviation Request:

When quoting a Product or service, the supplier is solely responsible for meeting all specifications.

Any questions about these requirements shall be directed to the Tronair Purchasing Department.

18.1 The supplier is responsible for alerting Tronair (in writing) of any discrepancies or problems within 24 hours after they have been detected. This includes previously shipped product.

18.2 A request can be made to Tronair to accept the product with a minor deviation. The deviation should be of an inconsequential nature such that it will not affect form, fit or function. The product should be of a value that scrapping it would be uneconomical. Deviation Requests will only be considered for unusual circumstances and will not be accepted on a routine basis.

18.3

18.3.1 Deviation requests must include the Tronair part number, PO number, number of pieces affected and a clear description of the discrepancy. Deviations will be considered only for those pieces being shipped.

18.3.2 Lots with the same discrepancy will not be accepted. The supplier must implement corrective action to prevent recurrence. If a specific parameter is impossible to meet, the supplier should request a review by Tronair.

19.0 Charge Back Policy:

Tronair retains the right to charge back costs associated with accepting products that are not strictly compliant to requirements. The charge back cost includes and is not exclusive to the cost of concessions or reworks carried out by Tronair in order to remove non-conformance.

Tronair QA and Purchasing have the responsibility and authority to settle all disputes with suppliers regarding the quality of their material/products/services or matters such as inspection and testing methods.

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