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1.0 INTRODUCTION

1.1 Scope

The purpose of the Quality Manual is to provide a documented quality management system for BOLTEX mfg. The manual includes the organization structure, responsibilities, procedures, processes and resources for implementing and maintaining the quality management system. The quality system described in this manual applies to the control of quality throughout all areas of performance, including as appropriate, procurement, identification, stocking and issue of material; the entire process of manufacture; and the packaging, storing and shipping of material. Unless otherwise specified, all products and services provided by BOLTEX mfg. shall be manufactured and performed in accordance with the quality management system described in this Quality Manual.

2.0 Quality Standards and Specifications

2.1 Compliance

BOLTEX mfg. quality system is in accordance with the requirements of the following standards and specifications in the manufacturing of FORGED STEEL PRODUCTS.

IS0 9001:2015	Quality Management Systems Requirements
ASME B16.5	Pipe Flanges and Pipe Fittings
ASME B16.36	Orifice Flanges
ASME B16.47	Large Diameter Steel Flanges
MSS-SP-44	Steel Pipeline Flanges
MIL-STD-45662	Military Standard, Calibration System Requirements

2.2 References

ISO 9000:2015 Quality Management Systems-Fundamentals and Vocabulary

3.0 TERMS AND DEFINITIONS

3.1. Conformance

An affirmation indication or judgment that a product or service has met the requirements of the relevant specifications, contract or regulation; also the state of meeting the requirements.

3.2 Quality

The totality of features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs; fitness for use or purpose; conformance to the requirements.

3.3 Quality Assurance

All those planned or systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality.

3.4 Quality Audit

A systematic and independent examination and evaluation to determine whether quality activities and results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives.

3.5 Quality Control

The operational techniques and the activities used to fulfill requirements of quality.

3.6 Quality Management

That aspects of the overall management function that determines and implements the quality policy.

3.7 Quality Policy

The overall intentions and directions of an organization as regards quality as formally expressed by top management.

3.8 Quality System

The organizational structure, responsibilities, procedures, processes and resources for implementing quality management.

3.9 Quality System Review

A formal evaluation by management of the status and adequacy of the quality system in relation to quality policy and/or objectives resulting from changing circumstances.

3.10 NCR

Non-Conformance Report, a document for Quality Control to record non-conformance to specifications, standards or instructions. A means of obtaining a disposition for non-conformance.

NOTE: ***Throughout this manual, reference is made to "product" and "service". These words are used in a broad sense. "Product" and "service" may be written in singular form, but also applies to the plural case. "Product" may be tangible or intangible.***

4.0 QUALITY MANAGEMENT SYSTEM

4.1 Context of Organization

Boltex Mfg. here defines key elements of organization management system. By defining the key elements herein, the full context of organization can be understood and thus communicated to employees, customer, regulators and other third parties. By doing so, senior management is also able to guide the company through the use of an informed strategic direction.

4.2 Understanding the need and expectations of interested parties

Interested parties are those stakeholders who receive our forge steel products, who may be impacted by them, or who may otherwise have a significant interest in our company. They are as follow:

4.2.1 Customers:

Customers are directly receipt of Boltex's forged products. They are identified as external stakeholder.

4.2.1.1 Customer's need and expectation

Boltex's customer expects to meet or exceed their expectation by our supplied product.

4.2.1.2 Related SOP

BQP-SACF-7.1-001	Forge contract review
BQP-SALF-7.1-001	Contract review (non-standard product)
BQP-SALF-7.1-002	Contract review (Standard product)
BQP-SALF-7.1-003	Contract review (Standard Flange forging)

4.2.2 Employees:

Boltex employees are responsible for realization of our forge product, to meet or exceed customer expectation.

4.2.2.1 Employees need and expectation.

Boltex provides its employees with environment where they can develop professionally and competitive pay and incentives.

4.2.2.2 Related SOP

BQP-QAQC-6.2.2-001 Competence and Awareness and Training

4.2.3 Supplier

Suppliers are responsible to supply raw material and services to produce forge product which will meet or exceed customer expectations.

4.2.3.1 Supplier need and expectations:

Boltex's supplier expect a well define specification for product and expected time for delivery and services.

4.2.3.2 Related SOP

BQP-PUR-8.4.2-001	MATERIAL SPECIFICATION FOR CARBON STEEL BILLETS AND FORGINGS (ASTM A 105/A105M)
BQP-PUR-8.4.2-002	MATERIAL SPECIFICATION FOR CARBON STEEL FORGINGS (ASTM A350-A350M GRADE LF2 12)
BQP-PUR-8.4.2-006	MATERIAL SPECIFICATION FOR CARBON STEEL BILLETS AND FORGINGS (ASTM A694/A694M GRADE F42 THRU F70)
BQP-PUR-8.4.2-007	MATERIAL SPECIFICATION FOR CARBON STEEL BILLETS (SAE 1055)
BQP-PUR-8.4.2-008	MATERIAL SPECIFICATION FOR CARBON STFEEL BILLETS (ASTM A694/A694M GRADE F70, ASTM A350 LF2 Cl.1, AST
BQP-PUR-8.4.3-001	PURCHASING

4.2.4 Competitors:

Provide challenge to our ability to provide forged product to our customers at a competitive advantage.

4.2.5 Certification Bodies:

Assess conformity of Boltex's QMS to ISO 9001 standard.

4.2.6 Regulatory bodies

Dictate controlling regulation that impact on QMS and Boltex's forge product.

4.2.7 Public at large

Society at large may expect Boltex to demonstrate its contribution at place in which it operates.

4.3 Determining the scope of Quality management system:

BOLTEX mfg. has established and maintains a quality management system that meets requirements of ISO9001-2015 as a means of ensuring the implementation, effectiveness, and continual improvement of **BOLTEX mfg**. product.

BOLTEX mfg. employs no design function. Product design is controlled by the application industry specifications or special customer requirements.

4.4 Quality Management system and its process

The Quality Manual provides the required documentation of the quality management system. The system includes:

a) Documented quality control procedures in accordance with industry and customer standards and specifications.
b) The means to effectively implement the documented quality system procedures included in this manual.
c) The means to effectively measure, monitor and analysis of processes.

BOLTEX mfg. has identified all key processes needed for the quality management system and their application throughout the organization. The sequence and interaction of these processes are identified in flow charts (Exhibit 4-1), and different procedures in the standard operating procedures manual.

4.4.1 Responsibility

All **BOLTEX mfg.** employees are responsible for assuring that the quality management system, as defined by the Quality Manual, is maintained and revised as necessary.

4.4.2 Reference Procedure

BOLTEX mfg. Standard Operating Procedure Manual.

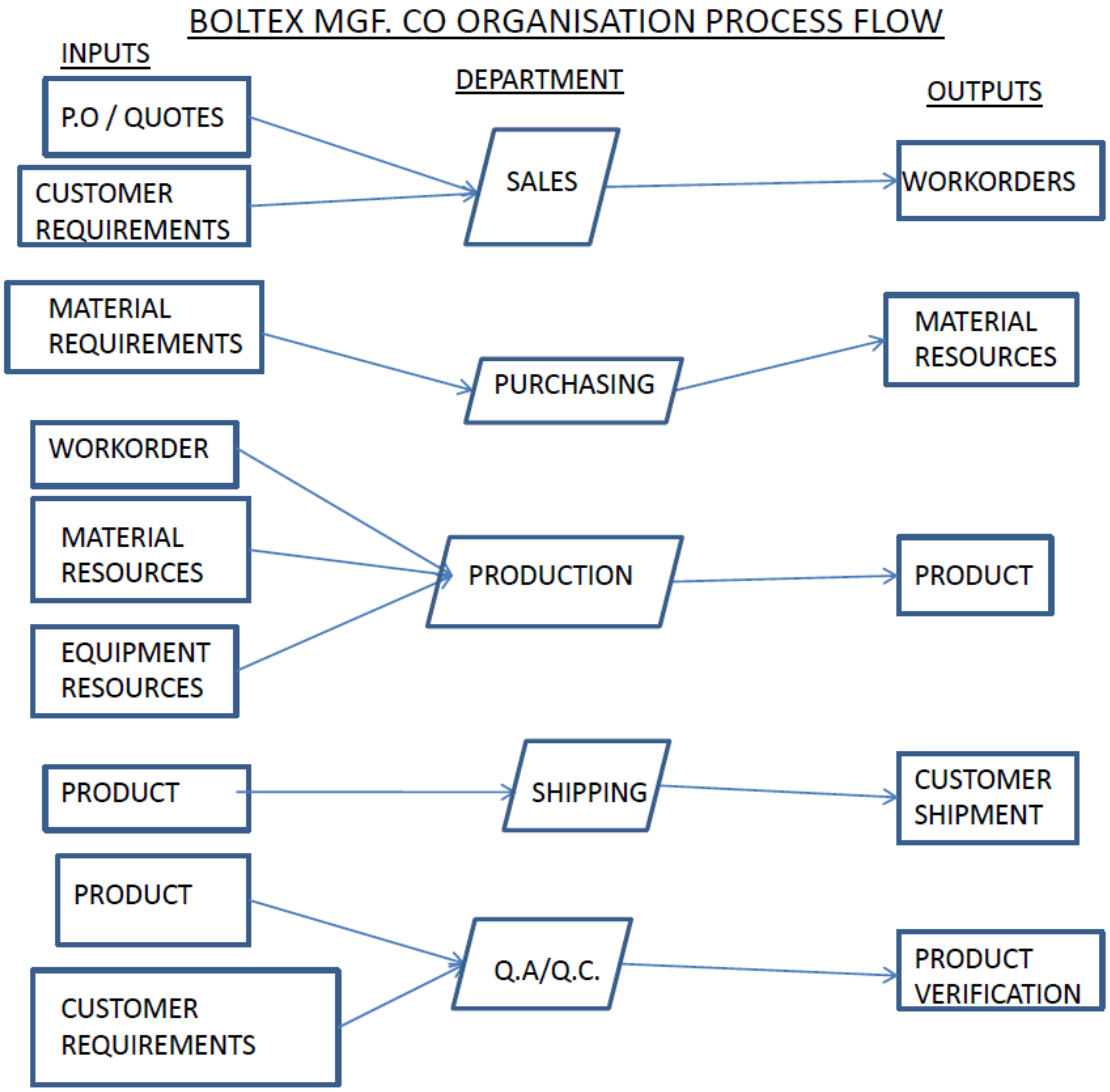
BOLTEX MGF. CO ORGANISATION PROCESS FLOW
INPUTS
DEPARTMENT
OUTPUTS
P.O / QUOTES
CUSTOMER REQUIREMENTS
SALES
WORKORDERS
MATERIAL REQUIREMENTS
PURCHASING
MATERIAL RESOURCES
WORKORDER
MATERIAL RESOURCES
EQUIPMENT RESOURCES
PRODUCTION
PRODUCT
PRODUCT
SHIPPING
CUSTOMER SHIPMENT
PRODUCT
CUSTOMER REQUIREMENTS
Q.A/Q.C.
PRODUCT VERIFICATION

Exhibit 4-1

5.0 Management Responsibility

The organization at BOLTEX mfg. is shown in Exhibit 5-1. Although distinct departments are defined in the organization, BOLTEX mfg. maintains flexibility in duties and responsibilities, without compromising the function of each department. The objectives of the organization's structure are to provide efficient operation or function of each department, reduce operating costs, limit the number of levels of management and minimize departmental barriers.

5.1.1 MANAGEMENT COMMITMENT

All employees at BOLTEX mfg. are responsible for the quality of the products and services provided. Each employee has an individual responsibility to assure their contribution to the product or service complies with customer requirements. Where necessary, BOLTEX mfg. may choose to delegate the responsibility for internal or external quality assurance. The company or persons so delegated shall be independent of the activities reported on. The Quality Assurance Department, by the direction of the Quality Assurance Manager, has the direct responsibility and authority to assure that the company complies with the company's quality system requirements and to verify products and services meet customer quality requirements. Communication of the effectiveness of the company's quality system takes place through annual management reviews and presentations to the employees on a quarterly basis.

5.1.2 CUSTOMER FOCUS

Top management at BOLTEX mfg ensures that current and future customer needs and expectations are determined, converted to requirements, and fulfilled.

Boltex mfg top management ensures, through Management Reviews and communication with our employees, that customer satisfaction is a continuous focus of our efforts.

5.2 QUALITY POLICY

Boltex mfg. is committed to providing quality products and services, which meet or exceed customer requirements. The quality commitment is achieved through the active participation of all employees. Employees have the responsibility and authority to maintain the requirements of the quality system and to provide the necessary input for continuous improvement of the quality of the product and services provided to our customers.

5.3 RESPONSIBILITY, AUTHORITY AND COMMUNICATION

5.3.1 Responsibility and authority

All employees at BOLTEX mfg. are responsible for the quality of the products and services provided. Each employee has an individual responsibility to assure their contribution to the

product or service complies with customer requirements. Where necessary, BOLTEX mfg. may choose to delegate the responsibility for internal or external quality assurance. The company or persons so delegated shall be independent of the activities reported on. The Quality Assurance Department, by the direction of the Quality Assurance Manager, has the direct responsibility and authority to assure that the company complies with the company's quality system requirements and to verify products and services meet customer quality requirements. Communication of the effectiveness of the company's quality system takes place through annual management reviews and presentations to the employees on a quarterly basis.

5.3.1.1 President

Ultimate responsibility for control and functioning of the organization. Develops and establishes the quality objects to which the company will perform and conform.

5.3.1.2 Quality Assurance Manager

The Quality Assurance Manager reports directly to the President. Responsible for providing the major impetus of the company's quality system. The Quality Assurance Manager has the responsibility and authority to provide the resources necessary to support the quality system. It is the Quality Assurance Manager's responsibility to establish and maintain a system to provide the organizational freedom and authority to:

A. Guide management for continuous improvement of quality program,
B. Initiate action to prevent the occurrence of product nonconformity,
C. Identify and record any product quality problems,
D. Initiate, recommend or provide solutions through designated channels,
E. Verify the implementation of solutions,
F. Control further processing, delivery or installation of non-conforming product until the deficiency or unsatisfactory condition has been corrected and
G. Provide management with changing customer requirements.

5.3.1.3 Quality Engineer

Quality Engineer directly reports to Quality Manager. Quality Engineer is responsible to continuously improve the effectiveness of Quality Management system.

5.3.1.4 Quality Inspectors

The Quality Inspector reports directly to the Quality Assurance/Control Manager. Responsible for performing the quality functions as assigned. Quality Inspectors have the authority to reject any product or service, which does not meet specifications. Quality Inspectors may also be assigned tasks such as gage coordination, SPC coordination and inspection documentation control.

5.3.1.5 Plant Manager

The Plant Manager reports directly to the President and is responsible for all production, generation of process drawings, process control, tooling design, and scheduling of machines.

5.3.1.6 Sales Manager

The Sales Manager reports directly to the President. Responsible for marketing and sales efforts includes the accurate communication of customer's standards and special requirements. Responsible for communicating customer feedback to management.

5.3.1.7 Purchasing Manager

The Purchasing Manager reports directly to the President. Responsible for the purchasing of components to specifications established by national standards or customer requirements.

The Purchasing Manager is also responsible for defining type and extent of controls requirements for any outsourced processes.

5.3.1.8 Finance and Accounting Manager

The Finance and Accounting Manager reports directly to the President. Responsible for the accounting and payroll functions. Preparation of financial documents and year-end accounting activities.

5.3.1.9 Shipping/Receiving Warehouse Manager

The Shipping/Receiving Warehouse Manager reports directly to the President. Responsible for visually inspecting incoming materials for damage and assuring certificates are received along with the material. Pulling of inventory against sales order and arranging for shipment.

5.3.1.10 Accounting/Records Clerk

The Accounting/Records Clerk reports directly to the Finance and Accounting Manager. Responsible for processing all sales orders. Check Mill Test Reports (MTR) for accuracy and assigns BOLTEX's heat codes for traceability.

5.3.1.11 Machine Shop Manager

The Machine Shop Manager reports directly to the Plant Manager. Responsible for selecting appropriate process control methods for machining processes. Determines production personnel and equipment requirements.

5.3.1.12 Production Manager

The Production Manager reports directly to the Machine Shop Manager. Responsible for controlling and monitoring the machining process. Programs machining operations for completion of product to product standards.

5.3.1.13 Maintenance Manager

The Maintenance Manager reports directly to the Machine Shop Manager. Responsible for maintaining the production equipment and environment in accordance with equipment manufacturer's recommendations.

5.3.2 Management Representative

The Quality Manager shall act as the management representative having defined authority and responsibility for promoting the awareness of customer requirements throughout the organization and ensuring the requirements of the quality manual, quality control procedures and quality control specifications are implemented and maintained. The management representative shall also communicate the effectiveness of the quality management system throughout the organization.

BOLTEX MFG. CO.
ORGANIZATIONAL CHART

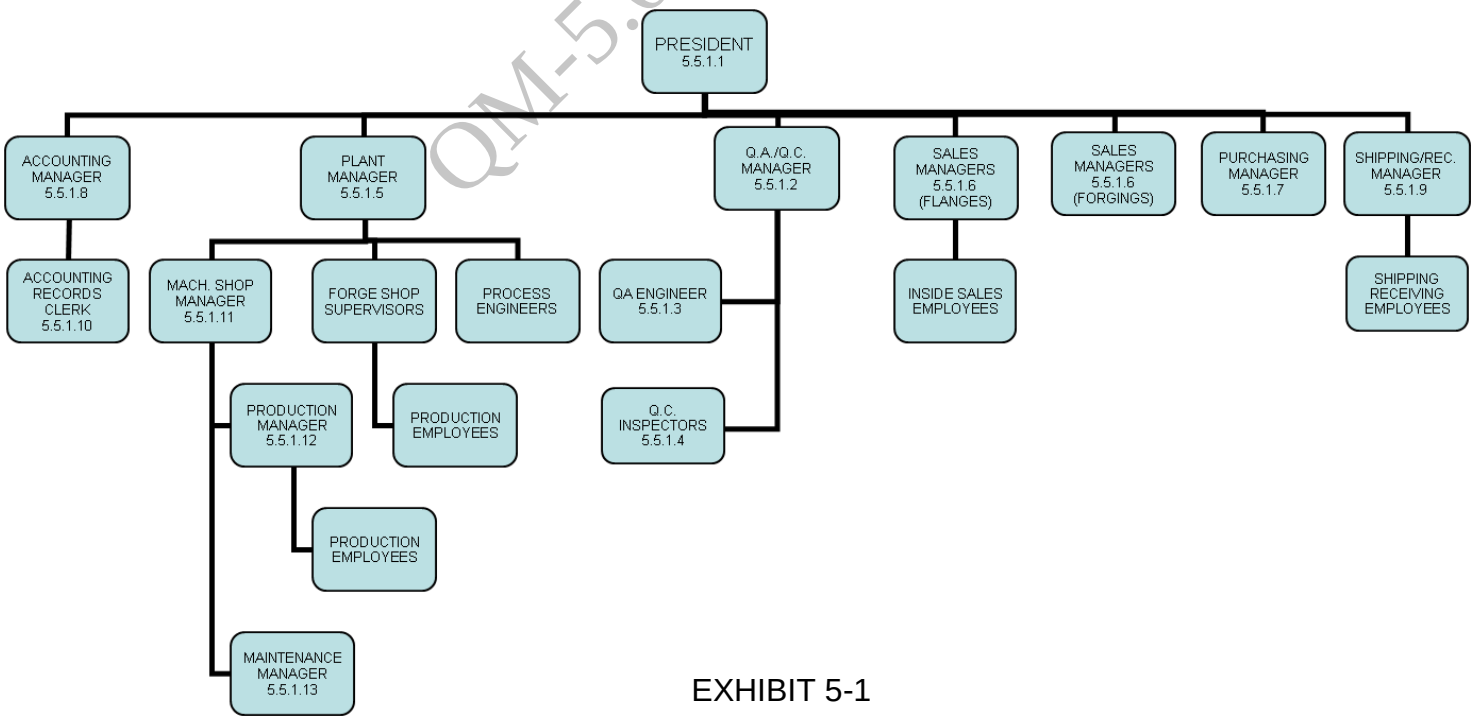

EXHIBIT 5-1

6.0 PLANNING

6.1 Action to address risks and opportunities

Quality Procedure for 6.1, Action to address risk and opportunities, is available in QISS, the Boltex Mfg quality management software. QISS provides mechanism to ensure that requirements are fulfilled.

6.2 Quality Objectives

Quality objectives at relevant functions and levels of the quality management system are established at the management review meetings. The quality objectives shall be measurable and consistent with the quality policy. All quality objectives will be reviewed yearly to ascertain whether the objectives have been reached. Analyses are made and quality objectives are maintained and/or changed for the following year.

6.2.1 Quality Management System Planning

Each Department Manager/Supervisor determines, provides and maintains the infrastructure needed to achieve conformity to product requirements. The infrastructure includes, as applicable:

- Buildings, workspace and associated utilities.
- Hardware and software process equipment and tooling to support the operation.
- Supporting services, communication, and transportation, cleaning of equipment and workspaces.

6.3 Planning for change

Quality Procedure for 6.3, Planning for change, is available in QISS, the Boltex Mfg quality management software. QISS provides mechanism to ensure that requirements are fulfilled.

7.0 Support

7.1 Resources

7.1.1 Human Resources

The procedure provides for the identification of training, skills and experience necessary for personnel in implementing the quality program.

7.1.2 People

It is the responsibility of management to provide an environment necessary to implement, identify and provide training within the company to maintain and improve the effectiveness of the quality program.

7.1.3 Infrastructure

Each Department Manager/Supervisor determines, provides and maintains the infrastructure needed to achieve conformity to product requirements. The infrastructure includes, as applicable:

A. Buildings, workspace and associated utilities.
B. Hardware and software process equipment and tooling to support the operation.
C. Supporting services, communication, and transportation, cleaning of equipment and workspaces.

7.1.4 Work Environment

Production equipment and machines are regularly maintained following the schedules or recommendations provided by their manufacturers. Proper maintenance of buildings and equipment and regular cleaning of the production area ensure suitable work environment.

7.1.5 Control of Monitoring and Measuring Equipment

The purpose of this procedure is to establish and maintain control, calibration and maintenance of inspection, measuring and test devices, whether owned by **BOLTEX mfg.**, on loan or provided by the customer, to demonstrate the conformance of product to the specified requirements. Devices shall be used, calibrated and cared for in a manner, which insures that the measurement uncertainty is known and is consistent with the required measurement capability.

The Quality Assurance Manager shall be responsible for the control, calibration and maintenance of monitoring and measuring devices.

Devices used to inspect, measure and/or monitor product shall be appropriate for the characteristic, feature or function inspected.

Inspection, measuring and monitoring devices owned by BOLTEX mfg. or provided by the customer shall be identified and calibrated at prescribed intervals, against certified equipment having a known valid relationship to a nationally or internationally recognized standard(s). Where no such standard exists, the basis for calibration shall be documented.

7.1.5.1 Calibration Status

Inspection, measuring and monitoring devices shall be identified indicating, as a minimum, serial number, calibration date, calibration due date and by whom calibration was performed. Serial numbers shall correspond to the appropriate calibration records. When it is impractical to apply a calibration label directly on an item (i.e. gage block), the calibration label may be affixed to the container or some other suitable measures may be used to reflect calibration status. Upon receipt of a loan or customer inspection, measuring or monitoring device, the Quality Assurance Manager shall verify the proper calibration status is affixed to the instrument or container.

7.1.5.2 Calibration Records

BOLTEX mfg. shall maintain calibration records for inspection, measuring and monitoring devices. The records shall document that established schedules and procedures are followed to maintain the accuracy of all devices and measurement standards. The records shall include an individual record of calibration or other means of control for each item of inspection, measuring and monitoring devices and measurement standards, providing a description or identification of the item, calibration source, and calibration procedure used, calibration results and calibration action taken.

7.1.5.3 Calibration Intervals

BOLTEX mfg. has established and maintains calibration intervals to assure acceptable accuracy and reliability throughout the established interval. Calibration intervals vary form prior-to-use to annually, depending on the type of device and usage. Intervals shall be shortened, or may be lengthened, when the results of previous calibrations indicate that such action is appropriate to maintain acceptable reliability. Records of calibration intervals are maintained and available from the Quality Assurance Manager.

7.1.5.4 Calibration Recall

Prior to the end of the calibration interval, the Quality Assurance Manager shall recall the devices requiring calibration and re-calibrate as necessary. Any device found out of calibration shall be sent to the Quality Assurance Manager. Devices which are not currently in use to inspect product and/or are out of calibration shall be properly identified (i.e., Out of Service).

*

This includes devices, which are out of calibration and in storage. Provisions may be made for temporary extension of the calibration due date for a limited period of time under certain specific conditions, such as the completion of a test or job in progress.

7.1.5.5 Calibration Procedures

Calibration procedures are utilized for the calibration of all inspection, measuring and monitoring devices. Each procedure is commensurate with the equipment type. The procedures are in accordance with manufacturer's industry association, Government **ISO010012-1** and/or published standard practices.

7.1.5.6 Measurement Standards

Measurement standards used for calibration shall be traceable to certified device having a known valid relationship to a recognized standard. Where no such standard exists, the basis used for calibration shall be documented. All deviations shall be documented.

7.1.5.6 Environmental Conditions

Inspection, measurement and monitoring devices shall be calibrated and utilized in an environment controlled to the extent necessary to assure continued measurements of the required accuracy. Consideration shall be given to temperature, humidity, vibration, cleanliness and other controllable factors. When applicable, compensation corrections shall be applied to calibration results obtained in an environment, which departs from acceptable conditions.

7.1.5.7 Out-Of-Calibration or Tolerance

When inspection, measuring and monitoring devices are found to be “out-of-calibration” or tolerance, previous inspections and tests shall be assessed and documented to consider validity and impact.

7.1.5.8 Handling, Preservation and Storage

Inspection, measurement, monitoring devices and standards shall be handled, preserved and stored such that the accuracy and fitness for use is maintained.

7.1.5.9 Reference Procedure

Boltex mfg. Standard Operating Procedure No. BQP-QA/QC-7.1.5-001, BQP-QA/QC-7.1.5-002, BQP-QA/QC-7.1.5-003, BQP-QA/QC-7.41.5-004.

7.2 COMPETENCE, AWARENESS AND TRAINING

Management will determine and provide the resources necessary to implement and improve the effectiveness of the quality program.

All employees are encouraged to provide recommendations for training programs and courses. The identification of training requirements is generally provided by the following sources:

A. Management recommendations,
B. Employee suggestions,
C. Performance appraisals,
D. Quality system deficiencies,
E. Customer requirements and/or recommendations,
F. Introduction of new technology or equipment and/or
G. Research and development requirements

7.2.1 Training Classes

Training classes for the employees of BOLTEX mfg. are provided by several sources including:

A. External courses and seminars,
B. Internal training programs,
C. Customer sponsored courses,
D. On-the-job training,
E. Video training and/or
F. Self-help/self-taught courses.

7.2.2 Qualifications

Each manager will determine the qualifications necessary for personnel performing specific assigned tasks within their respective areas of responsibility that will affect product quality. The qualifications shall be based on the specific job requirements to complete a specific assigned task. The manager will determine when an employee is qualified for a specific job task.

7.2.3 Records

Appropriate training records for each employee who has the responsibility of product quality shall be maintained and up-dated as required by each manager.

7.4 Internal Communication

Communication of the effectiveness of the company's quality system takes place through annual management reviews and presentations to the employees on a quarterly basis.

7.5 DOCUMENTATION REQUIREMENTS

7.5.1 General

The document and data control procedure establishes the review, approval and control of all documents and data that relate to the requirements of the Quality Management System.

7.5.2 Quality Manual

BOLTEX mfg. shall establish and maintain a Quality Manual that includes:

a) A definition of scope of Quality Management System, including details and justification for any exclusion.
b) The documented procedures established for the Quality Management System or reference to them.
c) A description of the interaction between the processes of Quality Management system.

Our quality policy manual is a controlled document, which is reviewed and approved by top management.

7.5.3 Control of Documents

It is the responsibility of the Quality Assurance Manager to maintain the requirements of document and data control.

7.5.3.1 Document Approval

The Quality Assurance Manager has the responsibility to review all national standards that directly affect product produced by Boltex mfg. co. to ensure the latest revision of that standard is being met. This review will be yearly or when required by that standard. The results of that review will be documented.

All pertinent production documents shall be reviewed and approved for adequacy by authorized personnel prior to issue. Customer and/or industry association documents are assumed to have authorized approval prior to issue. Customer documents are reviewed by BOLTEX mfg. in accordance with Section 6.0 (Contract Review). Documents, which do not have clear approval, shall be reviewed by the Quality Assurance Manager or the appropriate support function/group, prior to release.

7.5.3.2 Document Storage

National standards and/or customer specifications are to be stored in a location controlled or authorized by the Quality Assurance Manager. Only authorized personnel shall have access to documents. Customer documents are to be stored by customer name and/or document

number. Industry association or military specifications/standards are to be stored by organization name and document number. Customer drawings, sketches modifications and/or special requirements will be stored with the purchase order or project file.

Pertinent production documents are to be released/issued to manufacturing with the work order. All locations where operations essential to the effective functioning of the quality system are performed shall have access to the necessary production documents. At the completion of the work order, quality control documents are to be forwarded to the Quality Assurance Department and work orders are forwarded to the Sales Department.

7.5.3.3 Document Changes/Modifications

Changes or modifications to documents shall be reviewed and approved by the same functions / organization that performed the original review and approval, unless specifically designated otherwise. The designated organizations shall have access to pertinent background information upon which to have their review and approval.

Where practical, the nature of the change shall be identified in the document or appropriate attachments. Documents shall be re-issued after a practical number of changes have been made.

Changes or modifications affecting work-in-progress are to be reviewed to determine impact. New or updated documents will be issued to manufacturing as applicable and previously released documents removed.

7.5.3.4 Obsolete Documents

Obsolete documents are stored in a location separate from current documents. Obsolete documents previously released to the shop floor shall be collected and properly disposition.

7.5.3.5 Reference Procedure

Boltex mfg. Standard Operating Procedure No. ***BQP-QAQC-7.5.3-001, BQP-QAQC-7.5.3-002.***

These controls are elaborated in:

Quality Procedure for-7.5.3, Document Control, available in QISS Software, the ***BOLTEX mfg.*** *quality management system software. QISS also provides the mechanism to ensure that the requirements shown above are fulfilled.*

7.5.3.6 Control of Quality Records

Quality records shall be maintained to demonstrate achievement of the required quality and the effective operations of the quality system. This procedure establishes requirements for identification, collection, indexing, filing, storage, maintenance and disposition of quality records generated by the requirements of BOLTEX mfg. Quality system.

7.5.3.6.1 Responsibility

It is the responsibility of the originating department to identify, collect, index, file, store, maintain and dispose of quality records generated by the requirements of the quality manual or customer.

7.5.3.6.2 Format

Quality records shall be in a format that provides adequate description of the data requirements as prescribed by the quality manual and/or customer specifications. All quality records shall be legible and identifiable to the product.

7.5.3.6.3 Retention Period

Retention times for quality records shall be one (1) year, unless otherwise specified. Where agreed contractually, quality records shall be made available for evaluation by the customer or customer's representative. Unless otherwise specified, all records for customer product shall be maintained at BOLTEX mfg.

7.5.3.6.4 Storage

Quality records shall be indexed according to a logical and retrievable method. Quality records shall be stored and maintained in such a way that they are readily retrievable in facilities that provide a suitable environment to minimize deterioration or damage and to prevent loss.

7.5.3.6.5 Quality Record

Quality records shall include, but not limited to, the following:

A. Records of Management Review
B. Records of Approved Subcontractors and Suppliers
C. Material Test Reports (MTR)
D. Product Identification and Traceability
E. Records of Purchase Orders
F. Records of Sales Orders
G. Inspection and Test Records
H. Calibration Records

I. QC Non-Conformance Reports (NCR)
J. Internal Quality Audits
K. Training Records
L. Records Pertaining to Qualified Processes
M. Corrective or Preventive Action Records
N. Heat Treating Records
O. Customer Communication (feedback)
P. Machine Maintenance Records

8.0 Product Realization

The contract review procedure establishes a system to ensure customer requirements are met to ensure customer satisfaction. All Contracts or purchase orders received by BOLTEX mfg. shall be reviewed to ensure that:

A. The requirements are adequately defined and documented,
B. Any requirements differing from those in the tender/quotation are resolved and
C. The capability to meet the contractual requirements exists within the company or by outside services.

It is the responsibility of the Sales Manager or his authorized representative at BOLTEX mfg. to assure the obligations of the contract or purchase order are adequately defined, correct and can be met as specified. Assistance may be obtained from any support function or department within the company or from outside sources. Any discrepancies must be resolved with the customer in a prompt manner.

8.1 Planning of Product

This procedure establishes the requirement to identify and plan the production processes, which directly affect quality, and to ensure that the processes are carried out under controlled conditions. Controlled conditions shall include the following:

A. Documentation defining the manner of production where the absence of such instructions would adversely affect quality, use of suitable production equipment, suitable working environment, compliance with applicable standards/codes and quality control procedures.
B. Monitoring and control of suitable process and product characteristics during production.
C. The approval of processes and equipment, as appropriate, and,
D. Criteria for workmanship, which shall be stipulated, to the greatest practical extent, in written standards or by means of representative samples.

8.1.1 Responsibility

Product realization is the responsibility of Production Control, Manufacturing, Purchasing and Inspection, as applicable. Responsibilities are assigned according to function and/or requirements.

8.1.2 Product Realization Process

All production jobs are based on customer requirements and communicated to production supervisor on written schedule or work orders.

Machined flanges are processed per BPQ-PRCN-8.5.1-001

Forgings are processed per customer requirements communicated by means of a production schedule by the manufacturing management. Production tooling for each scheduled run is prepared by tool room.

8.1.3 Special Processing

These are processes, the results of which cannot be fully verified by subsequent inspection and testing of the product and where, for example, processing deficiencies may become apparent only after the product is in use. Accordingly, continuous monitoring and/or compliance with documented procedures are required to ensure the specified requirements are met. Special processes shall be qualified and shall also comply with the other requirements of this procedure. Records shall be maintained for qualified processes, equipment and personnel, as appropriate.

8.1.4 Welding

All hard face welding will be subcontracted to a qualified vendor. All welding shall be performed in accordance with approved procedures. The Q.A. Manager shall review and approve the vendors welding documentation.

8.1.5 Heat Treat

Heat Treat operations, including stress relieving, shall be performed in accordance with BOLTEX, customer or vendor approved procedures. Inspection shall assure that heat treat operations have been performed within the parameters of the applicable procedure(s).

8.1.6 Non-Destructive Examination

A qualified vendor approved by Boltex and/or customer specifications shall perform subcontracted, non-destructive examinations. Subcontractor's NDE procedures shall be reviewed and approved by the Quality Assurance Manager. A minimum NDT level II technician per the requirements of SNT-TC-1A shall complete all non-destructive examinations.

8.1.7 Reference Procedure

Boltex mfg. Standard Operating Procedure No. BPQ-PRCN-8.5.1-001, BQP-PROD-8.5.1-001, BQP-PROD-8.5.2-001, BQP-PROD-9.1-001, BQP-PROD-8.5.2-003, BQP-QA/QC-7.2-001

8.2 Requirement for product and services

8.2.1 Determination of Requirements Related to the Product

The purpose of the review is to ensure that the contracts or purchase orders include the information described in Section 7.0. As a minimum, contract or purchase orders shall be reviewed for completeness of the following items:

A. Contract/purchase order number
B. Part/drawing description
C. Quantity
D. Price
E. Delivery date
F. Authorization/signature

When required, technical requirements in excess of industry accepted standards and specifications, shall be reviewed during the preparation of the quotation and verified after receipt of order. Any changes in the contract requirements or scope after quoting may require renegotiation of the contract.

8.2.1.1 Approval Record

After reviewing and approval of the contract, the authorized representative shall sign or initial the contract to indicate approval. When required by the customer, the acknowledgement copy shall be returned to the customer. Any unresolved issues must be clarified before an approval signature is applied.

8.2.1.2 Customer Communication

It is the responsibility of the Sales Manager or his authorized representative to establish communication on customer satisfaction with respect to the product shipped from Boltex mfg. co. This includes but not limited to, personal interviews, telephone surveys and mail /email questionnaires.

Customer communication will be documented and corrective action taken when appropriate.

8.2.1.3 Reference Procedure

Boltex mfg. Standard Operating Procedure No. BQP-SALF-8.1-001, BQP-SALF-8.1-002, BQP-SACF-8.1-001.

8.2.2 Review of Requirements Related to the Product

The Quality Assurance Manager has the responsibility to review all national standards that directly affect product produced by Boltex mfg. co. to ensure the latest revision of that standard is being met. This review will be yearly or w0hen required by that standard. The results of that review will be documented.

All pertinent production documents shall be reviewed and approved for adequacy by authorized personnel prior to issue. Customer and/or industry association documents are assumed to have authorized approval prior to issue. Customer documents are reviewed by BOLTEX mfg. in accordance with Section 7.0. Documents, which do not have clear approval, shall be reviewed by the Quality Assurance Manager or the appropriate support function/group, prior to release.

National standards and/or customer specifications are to be stored in a location controlled or authorized by the Quality Assurance Manager. Only authorized personnel shall have access to documents. Customer documents are to be stored by customer name and/or document number. Industry association or military specifications/standards are to be stored by organization name and document number. Customer drawings, sketches modifications and/or special requirements will be stored with the purchase order or project file.

Pertinent production documents are to be released/issued to manufacturing with the work order. All locations where operations essential to the effective functioning of the quality system are performed shall have access to the necessary production documents. At the completion of the work order, quality control documents are to be forwarded to the Quality Assurance Department and work orders are forwarded to the Sales Department.

Changes or modifications to documents shall be reviewed and approved by the same functions/organization that performed the original review and approval, unless specifically designated otherwise. The designated organizations shall have access too pertinent background information upon which to have their review and approval.

Where practical, the nature of the change shall be identified in the document or appropriate attachments. Documents shall be re-issued after a practical number of changes have been made.

Changes or modifications affecting work-in-progress are to be reviewed to determine impact. New or updated documents will be issued to manufacturing as applicable and previously released documents removed.

Obsolete documents are stored in a location separate from current documents. Obsolete documents previously released to the shop floor shall be collected and properly dispositioned.

8.2.3 Customer Communication

It is the responsibility of the Sales Manager or his authorized representative to establish communication on customer satisfaction with respect to the product shipped from Boltex mfg. co. This includes but not limited to, personal interviews, telephone surveys and mail /email questionnaires.

Customer communication will be documented and corrective action taken when appropriate.

8.3 Design and Development

BOLTEX mfg. employs no design function. Product design is controlled by the application industry specifications or special customer requirements. Products that are not contained in industry accepted specifications would require that the customer provide a detailed drawing of the item to be manufactured.

BOLTEX mfg. process design Engineer only assist customers to come up with forgings that can be manufactured by BOLTEX. All process design activities at BOLTEX will only effect processing of part & all customers have final authority to approve it. Process design activities will not affect the functionality of part.

8.3.1 Design Document Control

Customer supplied design documentation (drawings) shall be maintained in a manner to assure that only the latest revision(s) are used to manufacture the product.

8.4 Purchasing

8.4.1 Purchasing Process

This procedure establishes a system to ensure materials; products or services purchased conform to the specified requirements of BOLTEX mfg. and/or customer requirements.

Purchasing has the responsibility to administer the procurement requirements in this procedure and those of the customer. Assistance is obtained from the support functions/organizations and the customer, as necessary.

8.4.2 Purchasing Information

BOLTEX mfg. selects suppliers on the basis of their ability to conform to the specified requirements, including quality. Quality Assurance shall maintain a record of acceptable suppliers (approved vendors list). Where applicable, customer approval or specified vendors are used.

Where processes that affect product quality are outsourced, Boltex will approve the process before any processes are started.

8.4.3 Verification of Purchased Product

Purchasing documents shall contain data clearly describing the product or service ordered, including where applicable:

A. The title or other positive identification, and applicable issue of specifications,
B. The title, number and revision of the quality system standard to be applied to the product or service.

Purchasing shall review purchase requests and review/approve purchasing documents for adequacy of specified requirements prior to release. Technical and quality support shall be provided as necessary.

8.5 Production and Service Provision

8.5.1 Control of Production and Service Provision

Boltex mfg. has established, and maintains this procedure to verify that service conforms to industry or customer specified requirements.

Boltex mfg. employs no specified service function. When customers require service such as:

A. Billing information
B. Shipment status
C. Quality information
D. Special job requirements

They will be directed to the responsible department. Department managers will see that their department handles all service (information) in a prompt and professional manner.

8.5.2 Validation of Processes for Production and Service Provision

Where specified in the contract or purchase order, BOLTEX mfg. or the company's representative shall have the right to verify at source or upon receipt that purchased products or services conform to the specified requirements. Verification by BOLTEX mfg. or the company's representative shall not absolve the supplier of the responsibility to provide acceptable products or services, nor shall it preclude subsequent rejection. When BOLTEX mfg. customer's representative elects to carry out verification at the supplier's facility, such verification shall not be used as evidence of effective control of quality by the supplier.

8.5.2 Identification and Traceability

Where appropriate, products shall be identified from applicable drawings, specifications or other documents during all stages of production and delivery. Where, and to the extent that, traceability is a specified requirement, individual products, or batches shall have a unique identification. This identification shall be recorded and the certification stored.

8.5.3 Customer Property

Prior to delivery, arrangements shall be made between BOLTEX mfg. and the customer for the shipment of customer furnished materials. This includes raw materials, parts, components, tooling and gage. BOLTEX mfg. shall verify, identify, store and maintain property that is provided by the customer. Verification by BOLTEX mfg. does not absolve the customer of the responsibility to provide acceptable product. Customer furnished material shall be handled, stored, packaged and delivered in accordance with Section 7.5.5. Any such product that is lost, damaged or otherwise unsuitable for use shall be recorded and reported to the customer in a timely manner.

8.5.5 Preservation of Product

It is the responsibility of Warehouse Manager to regulate the handling, preservation, packaging and delivery of materials and product. Any support functions/organizations, which participate in the handling, preservation, packaging and delivery of product, shall adhere to this procedure.

Materials and products received or manufactured by BOLTEX mfg. shall be handled by a method commensurate with the item. Products, which require special handling, which is not obvious, shall be appropriately marked to indicate handling precautions. Any material or product, which is a safety or health concern, shall be marked with the proper handling procedures and/or precautions. Material handling equipment shall be capable of moving the product without causing injury to the operator or damage to the product or equipment.

Materials and product shall be stored to prevent damage or deterioration pending use or delivery. Adequate space, containers and identification shall be maintained to prevent damage or commingling of materials used in deliverable product. Materials shall be stored and issued by authorized personnel only. The following areas are authorized for use to store materials, as applicable.

Raw materials requiring machining or processing shall be stored in the raw material area outside the building prior to issue to production. Raw materials, which are used in one specific area or department, may be stored in that area as long as appropriate storage is available. Bulky materials may be stored outside the building provided adequate protection is provided to prevent damage or deterioration. Material shall be released from raw material storage by Production Control.

Product, which is used exclusively in one area, may be stored in that areas provided appropriate storage and control is available.

The tool room shall maintain control over consumable materials used to manufacture product.

Product, which is waiting for shipment, shall be identified and stored in the shipping area pending delivery.

BOLTEX mfg. shall control packing, preservation and marking processes (including materials used) to the extent necessary to ensure conformance to specified requirements. In addition, all products shall be identified, preserved and segregated from the time of receipt until BOLTEX mfg. responsibility ceases. Commercial packaging of a type commensurate with the product shall be used unless otherwise specified by the customer.

BOLTEX mfg. shall arrange for the protection of the product after final inspection. Where contractually specified, this protection shall be extended to include delivery to destination.

8.6 Release of product and services

All products produced by BOLTEX mfg. shall be subject to final inspection, testing and/or verification. During final inspection, all specified inspections and tests, including those specified either on receipt of product or in process must be completed and the data meet the specified requirements. Any products pulled from incoming or in-processing inspection, due to urgent circumstances, must be inspected at final inspection.

All final inspections and testing in accordance with documented procedures are carried out to provide objective evidence of conformance of the finished product to specified requirements.

No product shall be placed in inventory or shipped until all the activities specified in the documented procedures have been satisfactorily completed.

8.7 Control of Nonconforming Product

Control of non-conforming product shall be regulated by this procedure. This control is necessary to prevent the inadvertent shipping or use of non-conforming product. Control shall provide for identification, documentation, evaluation, and segregation when practical, disposition of non-conforming product and for notification of the functions concerned.

8.7.1 Responsibility

The proper control of non-conforming product is the responsibility of all employees of BOLTEX mfg. The primary responsibility is with manufacturing and quality personnel, however, all support functions/organizations shall provide assistance as necessary.

8.7.2 Identification of Non-Conforming Product

All non-conforming product shall be properly identified in accordance with Section 8.2.4 (Monitoring and Measurement Status) to indicate the product does not meet the required specification(s).

8.7.3 Non-Conformity Review and Disposition

Once a non-conforming product is discovered, a QC Non-Conformance Report (NCR) shall be filled out by the Quality Department. A review and disposition of the non-conformity shall be conducted, as soon as possible, to prevent unnecessary processing or delivery impact. The review may be conducted by quality, manufacturing, production control, sales representative and/or the customer, depending on the nature or severity of the non-conformance.

The non-conformance review and disposition shall include the following options:

A. Accept - The product will conform to the required form, fit or function, however, does not meet all product specifications or requirements.
B. Rework - The product may be processed from a non-conforming to a conforming condition without violating BOLTEX or customer specifications.
C. Rework - Provide additional processing and/or features, which were not originally specified which will allow the product to comply with the required form, fit or function.
D. Alternate use - Classify the product for an alternate use, revision or grade which would result in the product complying with the requirements of the new classification.
E. Scrap - The product cannot be brought to a condition, which will provide the desired form fit or function.

Upon completion of the non-conformance review, the results shall be documented on the NCR. Steps should be taken to resolve all non-conforming product as soon as practical. Reworked and repaired product shall be re-inspected to the original or revised requirements. Investigation to discover the root cause of the non-conformance will be taken and conditions corrected to prevent reoccurrence, if required.

8.7.4 Non-Conformance Notice

When required by the customer, the proposed use or repair of product which does not conform to specified requirements shall be reported for concession to the customer or customer's representative. A QC Non-Conformance Report shall be completed and sent to the responsible authority of the customer. Upon review, the customer shall complete the disposition and return the NCR to BOLTEX mfg. with the required action documented. For product which receives authorization to use-as-is or repair, a copy of the NCR shall be attached to the work order. For urgent requests, a verbal authorization may be accepted, however, must be followed by written

documentation. All other forms of customer authorization for non-conforming product shall be handled in accordance with this procedure.

9.0 Performance Evaluation

9.1.1 Measurement, Analysis and Improvement

The monitoring and measurement of products and services provided by BOLTEX mfg. is controlled by this procedure. Products and services shall be properly inspected and tested, to ensure compliance to customer requirements, through all phases of production.

9.1.2 Customer Satisfaction

It is the responsibility of the Quality Assurance Department to verify those products and services provided by the company meet the stated or implied requirements. Although the Quality Assurance Department has the primary responsibility for assuring the quality of products and services, all BOLTEX mfg. employees shall provide the inspection and testing support as necessary.

9.1.3 Monitoring and Measurement of Processes

This procedure describes the methods, which are used by BOLTEX mfg. to indicate the monitoring and measurement status (conformity) of products through production.

9.2.3.1 Responsibility

It is the responsibility of the person performing the manufacturing or inspection operation to provide the appropriate inspection and test status of products as they are produced. Included are both production and inspection personnel.

9.2.3.2 Identification

The monitoring and measurement status of product shall be identified by using marking, authorized stamps, tags, labels, work order routers, inspection records, physical location and/or other suitable means, which indicate conformance or non-conformance of product with regard to monitoring or measurements performed. Unless otherwise specified, only non-conforming product will be physically segregated. Products that are not in **QC Hold** or do not have an **NCR** shall be considered in conformance with specifications. The identification of monitoring and measurement status shall be maintained, as necessary, throughout production to ensure that only product that has passed the required monitoring and measurement requirements is shipped or used. Records shall identify the inspection authority responsible for the release of conforming products.

Reference Procedure

Boltex mfg. Standard Operating Procedure No. BQP-QAQC-9.2.3-001, BQP-QAQC-9.2.3-002, BQP-QAQC-9.2.3-003.

9.1.3 Monitoring and Measurement of Product

9.1.3.1 Receiving Inspection and Testing

Incoming materials and products received by BOLTEX mfg. shall be verified prior to use in production. Receiving Department shall review incoming products and determine if the product and data supplied conforms to the requirements specified on the purchase order (Section 9.0 Purchasing). Verification shall be to a level commensurate with the product and/or application of the product. Consideration shall also be given to the control exercised at source and the documented evidence of quality conformance provided. Any products determined to require additional inspection or verification, or requiring special inspection instructions, shall be forwarded to the Quality Assurance Department or applicable support function/organization. Products that have been verified shall be identified and accepted to inventory or issued directly to manufacturing.

9.1.3.2 First Article Inspection and Testing

The applicable process drawing shall define the first article inspection requirements. The parts shall be inspected for compliance to the feature(s) or operation(s) produced at that sequence. Any parts found in non-compliance require the re-submittal of another unit until the specified requirements are met.

9.1.3.3 In-Process Inspection and Testing

The purpose of in-process inspection and testing is to:

A. Inspect, test and identify product as specified by the applicable documentation,
B. Establish product conformance to specified requirements by use of process monitoring and control methods,
C. Hold product until the required inspection and tests have been completed or necessary reports have been received and verified, and
D. Identify nonconforming product.

During production, in-process inspection and testing shall be performed to ensure products are manufactured to specifications. In-process inspection and testing shall be performed by the operators and inspectors, as applicable. In-process inspections and testing which must be performed by the Quality Assurance Department are specified in BOLTEX Quality Control Procedures. All other inspections or tests will be performed by the operators or designated personnel.

9.2.4.5 Acceptance Sampling Plans

Acceptance sampling plans may be used during incoming, in-process and/or final inspection, as deemed necessary/approve. The acceptance plan must be commensurate with the use or function of the product. Acceptance Sampling plans is defined in BOLTEX Quality Control Procedures.

9.1.3.6 Monitoring and Test Records

BOLTEX mfg. shall maintain records that provide objective evidence the product passed inspection and/or test with defined acceptance criteria (first article, in-process and final inspection). Inventory Transfer Sheet (Exhibit 1); will be filled out after such verification, transferring acceptable product into stock.

9.1.3.7 Reference Procedures

Boltex mfg. Standard Operating Procedures No. BQP-QAQC-8.6-001, BQP-QAQC-8.6-002, BQP-QAQC-8.6-003, BQP-QAQC-8.6-007, BQP-QAQC-8.6-008, BQP-QAQC-8.6-009,

9.2 Internal Audit

The purpose of this procedure is to establish a system of planned and documented internal quality audits to verify whether quality activities comply with planned arrangements and to determine the effectiveness of the quality system. Quality audits and follow-up actions shall be carried out in accordance with this procedure.

9.2.1 Responsibility

The Quality Assurance Manager is responsible for the auditing of the quality system, with the support of the functional organizations. Where a conflict of interest may exist between the manager's position and the audit, the President shall appoint an unbiased party to prepare and/or conduct the audit.

9.2.2 Audits

BOLTEX mfg. shall schedule audits on the basis of the status and importance of the activity, or when a condition arises that adversely affects quality (one year maximum). Prior to beginning the audit, a plan shall be established such that the effectiveness of the system or procedure being audited is evaluated. The results of the audit shall be documented and brought to the attention of the personnel having responsibility in the area audited. Where deficiencies are found by the audit, the personnel responsible for the area shall take timely corrective action. A follow-up audit will be conducted as necessary. The results of the audit and any corrective action taken will be documented and will become part of the management review meeting.

9.2.3 Reference Procedure

Boltex mfg, Standard Operating Procedure No. BQP-QAQC-9.2-001.

9.3 MANAGEMENT REVIEW

9.3.1 General

The management of BOLTEX mfg. shall review the quality system defined in this Manual and Quality Control Procedures, at appropriate intervals (1 year maximum). The review will evaluate the need for changes to the quality system, including policy and management objects. Records of management reviews of the quality system will be maintained in accordance with the applicable quality control procedure.

9.3.2 Review Input

As a minimum, the agenda comprises the following topics as review input:

a. Review customer feedback with regard to the quality management system.

b. Results of internal quality audits and external audits.

c. Effectiveness of the quality management system in satisfying the requirements of the ISO Standards.

d. Effectiveness of corrective and/or preventive actions.

e. Assessment of continuing stability of the quality management system through measurement results.

f. Management objectives for the quality management system.

g. Supplier evaluations over the past year.

h. Follow-up actions from previous management review meetings.

i. Review changes in all applicable specifications including customer & all applicable specifications.

9.3.3 Review Output

At minimum the minute of management review should have following items as review output:

a. Goal for next year's Quality Objectives.

b. Measures requires for continuously improve customer satisfaction.

c. Implement improvement recommendations for the quality management system.

d. Changes in QMS due to revision in applicable specification.

10.0 Improvement

10.1 Continual Improvement

Each month the Quality Assurance Department will publish a recap of the inspection actives for the preceding month. These actives will include but not limited to, First Articles, In-Process and Final Inspections results. At the end of the year, the Quality Assurance Department will compile each month's report into one report recapping the entire year of inspection actives. This report will become part of the management review meeting.

10.2 Corrective Action

As a result of a corrective action request, an evaluation shall be performed. The purpose of this evaluation shall be to:

A. Investigate the cause or potential cause of non-conforming product and the corrective action needed to prevent recurrence,
B. Analyze all processes, work operations, concessions, quality records, service reports and customer complaints to detect and eliminate potential causes of non-conforming product,
C. Initiate preventative or corrective actions to deal with problems or potential problems to a level corresponding to the risks encountered.
D. Apply controls to ensure that corrective actions are taken and are effective and/or
E. Implement and record changes in procedures resulting from corrective actions.

Evaluations shall be conducted by quality and/or manufacturing personnel, depending on the cause, nature or severity of the non-conformance. This evaluation shall be recorded on a Corrective Action Request. Feedback shall be provided to the source of the non-conformance and all functions/organizations, which are affected. The initiating function/organization shall monitor the corrective action and recommend or implement changes as necessary. All functions/organizations shall support the corrective action process.

All corrective actions generated in a calendar year will be reviewed in the management review meeting the following year. That review will include the status, effectiveness and results of the corrective action taken.

10.3 Continuous improvement

This procedure establishes the analysis of data utilized at Boltex mfg. for improvement actives through the analysis of data collected.

The Quality Assurance Department shall be responsible for identifying and evaluating processes and production requirements to facilitate improvements through the analysis of data.

Through the analysis of measurements, customer feedback and non-conformance reports the Quality Assurance Department shall evaluate manufacturing processes, inspection processes and specific customer requirements to facilitate improvements in the quality program.

10.3.1 Reference Procedure

Boltex mfg. Standard Operating Procedure No. BQP-QAQC-9.3.1-001.