TIMKEN
Where You Turn

Supplier Requirements Manual
Revision 10
Timken Corporate Standard 29.1

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Forward / Introduction

Suppliers are responsible for the quality of their products and services.

The goal of The Timken Company's Supplier Requirements Manual is to communicate clearly the conditions for doing business regarding quality with The Timken Company and its global affiliates and to develop systems that drive continuous improvement, prevent defects, reduce variation and waste in the entire supply chain. Information presented in this manual takes precedence, unless officially notified by authorized Timken personnel.

Our suppliers are expected to have zero quality incidents and zero disruptions, provide products with zero defects, and have flawless delivery performance and on time responsiveness to issues.

Type I Materials: are materials that become a part of the products sold by The Timken Company. It also includes services used to produce (in whole or part) product sold by the Timken Company.

Scope of this manual applies to the product quality of all suppliers of Type I production materials, production or service parts, and manufacturers of machinery and related components.

The original of this manual is a controlled document. Copies of the Timken Supplier Requirements Manual distributed to suppliers, printed or downloaded are considered uncontrolled and will not be automatically updated.

Suppliers to The Timken Company are responsible for obtaining and following this document via The Timken Company supplier website at http://tsn.timken.com. Suppliers are required to check the website periodically for revisions and updates to this document.

Suppliers are responsible for ensuring that products and services they supply conform to the latest revision of this document when shown on purchase orders, supply agreements, or as mailed, electronically transmitted or viewed online at http://tsn.timken.com/.

Failure to include reference to The Timken Company Supplier Requirement Manual in a request for quote, purchase order or supply agreement does not excuse Suppliers from compliance.

Standard Requirements – Quality

To be a supplier to The Timken Company, all suppliers must meet our requirements for quality.

Our standard requirements include:

1. ***Planning for Quality / Advanced Product Quality Planning (APQP)****:* As requested, the Supplier must have resources available and be capable of participating in Quality Planning / APQP, including such efforts as Feasibility Reviews, FMEA's, Design Reviews, Prototype Production, and Production Part Approval Process.

2. ***Corrective Action****:* In the event of a quality issue related to a supplier's products, the supplier will be required to provide a written corrective action report, filed electronically using the Timken Quality Information System (QIM).

3. ***Hazardous Materials****:* All information related to Hazardous Materials, and the fulfillment of all governmental and safety requirements must be provided by the suppliers. Suppliers will be required to submit Material Safety Data Sheets (MSDS) for all identified items.

4. ***Managing Change:*** Suppliers must agree to notify The Timken Company of any intended process change and obtain Timken's approval prior to implementation. Suppliers must also make this a condition of their own entire supply chain. In some cases, samples and documentation will be required as part of the approval process.

5. ***Material and Process Specifications****:* Suppliers must produce for Timken products to the specific material and process specifications. In certain cases, we will require approval of the supplier's sub-suppliers.

6. ***Material Source Approval:*** When Timken specifies material, Timken must approve all material sources. Suppliers may be required to utilize the Material Certification Database prior to shipping material to a Timken facility.

7. ***Non-Conforming Product:*** Suppliers must only ship product that meets specification or obtain a written deviation prior to shipment for any non-conforming product. Timken's consent to shipping non-conforming product does not relieve supplier of its responsibilities to Timken.

8. ***Quality Management System:*** Suppliers must have a documented quality management system and agree to on-site assessments. Suppliers may be required to be registered to ISO 9001:20xx, IATF 16949:20xx or AS 9100:20xx. As appropriate, ISO 14001:20xx registration or conformance may be required.

9. ***Records:*** Suppliers must maintain certain records for defined periods. Timken will define record retention including, as appropriate, disposition of records.

10. ***Shipment and Packaging Requirements:*** Suppliers must comply with Timken's specifications for shipping and packaging. This includes labeling specifications or requirements.

11. ***Supplier Escalation:*** A supplier will be placed on an increased level of activity as a result of the supplier's continuing failure to perform in the areas of quality, delivery or costs.

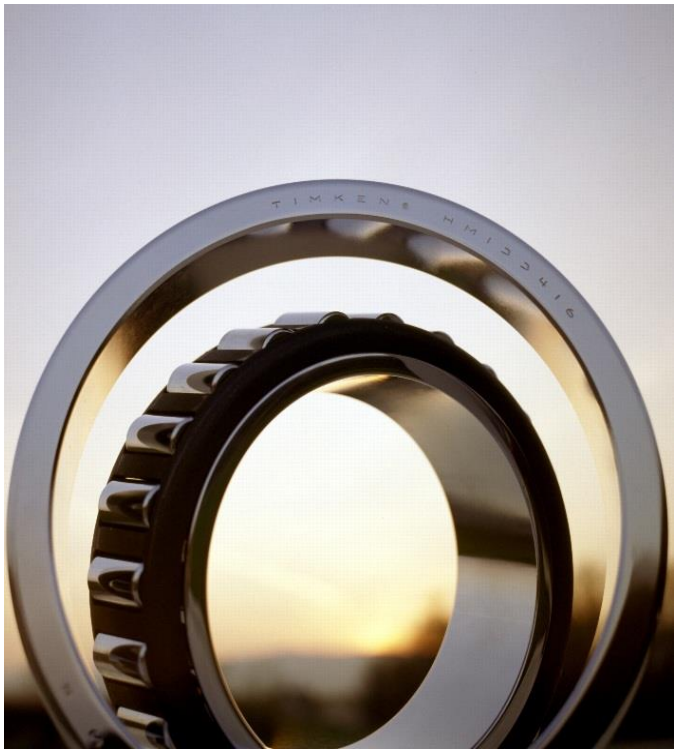
12. ***Supplier Cost Recovery and Chargeback Process***: A formal process where Timken will recover costs associated with a supplier's unacceptable performance.

13. ***Supply Chain Management:*** Suppliers must be willing to identify and manage their own entire supply chain. It is a supplier's responsibility to ensure that its sub-suppliers meet Timken requirements.

14. ***Traceability:*** Product traceability is a requirement. Suppliers must provide unique identification of product batches/lots as required by Timken.

15. ***Verification of Purchased Product:*** Suppliers must allow on-site product verification by Timken, its customer, or the customer's representative.

These Standard Requirements are further detailed on the following pages.



1.0 Supplier Minimum Requirements

1.1 Introduction

Welcome to the Timken Company Supplier Requirements Manual for Type I Suppliers.

Type 1 Suppliers are defined as those that provide products or services that constitute, in part or in whole, the products and services sold by The Timken Company.

Requirements described herein apply to all external Type I Suppliers to the Bearing and Power Transmission business unit of The Timken Company.

Suppliers of Indirect material shall comply with appropriate sections of the Supplier Requirement Manual as defined by purchase order requirements and/or other contractual obligations.

We expect The Timken Company quality reputation and Timken Brand Promise to be reflected in the products we purchase.

This manual defines the specific processes and information necessary to fulfill the intent of our Quality Policy.

It is expected that our suppliers will use a continual improvement approach to assist The Timken Company in creating a lean supply chain that minimizes the total cost of ownership for the supplier and The Timken Company through:

- *Customer focused leadership* – Striving to understand and anticipate the needs of The Timken Company, and proactively establishing the infrastructure to meet those needs.
    - This includes innovation, collaboration, speed, inventory management, and cost competitiveness.
- *Execution excellence* – Flawless delivery performance with zero disruptions and zero quality issues.

The remainder of this manual provides additional details of how The Timken Company will manage its supplier relationships.

1.2 Supplier Quality Management System Requirements

As a minimum, suppliers to the Timken Company are required to conform and may be required to acquire the latest revision of ISO 9001:20xx, AS9100:20xx or IATF 16949:20xx registration unless otherwise specified or approved by Timken Supplier Quality Development (SQD).

In the event that a supplier to Timken is so small as to not have adequate resources to develop a Quality Management System according to IATF 16949:20xx, AS9100:20xx or ISO 9001:20xx, Timken SQD will conduct audits on site using Supplier Risk Assessment audit or via the desk audit approach to assess gaps, identify risks and take appropriate actions to protect Timken and ultimate customers.

Suppliers are required to notify, on a timely basis, the appropriate Timken Supplier Quality Development (SQD) associate if an IATF registered supplier quality management system is notified of special status conditions (such as new business hold – quality, needs improvement status, Q1 revocation) by any of the IATF (International Automotive Task Force) or other organizations.

The Timken Company reserves the right to perform an on-site audit as deemed appropriate to verify conformance of supplier Quality Management System or to verify effectiveness regarding corrective or preventive actions related to supplier escalation.

Type I suppliers must allow Timken's customers, the customer's representatives, government or regulatory agencies the right to conduct surveillance of the supplier's quality systems at the Supplier's premises. This may include visits extended to sub-contracted suppliers of the supplier.

All such visits will be approved and arranged by The Timken Company.

Type I suppliers sub-contracting products or services to suppliers are required to provide to sub-tier suppliers the applicable requirements in the purchasing documents, including key characteristics (however named), material or process requirements where required.

1.3 Inspection of Product

All products provided to The Timken Company shall be inspected by the supplier according to an agreed upon control plan. In the absence of a purchasing or a supply agreement, the supplier must develop, implement and maintain inspection methods necessary to assure the product conforms to the requirements of The Timken Company.

The supplier shall conduct in-process and outgoing audit inspections or tests as defined in the product / process control plan. Inspection data shall be retained by the supplier and be made available upon request.

Suppliers must allow Timken, its customer(s), its customer's representative(s), government or regulatory agencies the right to verify at the supplier's premises that the purchased products conform to specified requirements. The Supplier shall not use such verification as evidence of effective control of quality.

Verification by Timken, its customer(s), or its customer representative(s) shall not absolve the supplier of the responsibility to provide acceptable products, nor shall it preclude subsequent rejection by Timken or its customer(s) subject to final acceptance at its destination.

Where applicable, a quality history for the product shall be provided to The Timken Company. The quality history shall contain all verification documents generated during manufacturing, processing or fabrication.

1.4 Non-conforming (Discrepant) Product

Non-conforming or discrepant product is defined as: deviation from drawing specifications, purchase order requirements, Timken Company product and process specifications or standards and industry product and process specifications and standards, including but not limited to the areas of quantity, appearance, material, metallurgy, packaging, handling, shipping, delivery, cleanliness and dimensions. Counterfeit Parts shall be treated as nonconforming material.

When non-conforming product is detected by the supplier after product has shipped, is in transit or delivered to Timken, supplier shall take appropriate action to mitigate the effect including formal, detailed notification to The Timken Company.

Notification shall include a clear description of the non-conformity, which includes as required: parts affected, part numbers, quantities and dates delivered or in-transit. If required by Timken, supplier shall provide traceability information for lots or batches of material or product.

Discrepant Material Report (DMR) (Click here for Procedure) is used to notify the supplier of non-conformance, discrepancy and/or rejection. The DMR is sent via e-mail directly to the Supplier contact using Timken's **Quality Issue Management (QIM)** and can be initiated from any Timken Company facility receiving Type I material. A DMR may be initiated upon detection of non-conforming product. Requests for corrective action may be required from the supplier.

The supplier must respond directly to the DMR issuer within the directed timeframe using the QIM system.

Supplier Responsiveness – The Timken Company will monitor speed, timeliness and effectiveness of corrective or preventive actions using QIM and may use the supplier's response as input for awarding future business and monitoring performance.

Specific timing requirements will be stated on the DMR, if required. The provided general or default requirements are:

- An initial response (team/person assigned, problem description, containment action) for a DMR shall be supplied to the Timken Company within 3 working days.
    - Automotive and Aerospace suppliers must respond within 24 hours.
- If the Timken Company requires **an 8D process**, the initial 8D report shall be submitted within 15 calendar days.
    - Automotive and Aerospace suppliers must submit within 5 calendar days.
- A complete 8D report must be submitted to The Timken Company within 30 calendar days.
    - Automotive and Aerospace suppliers must submit within 10 calendar days.

If a supplier's product is determined to be defective in material and/or workmanship, as defined by the design requirements, product(s) will be immediately contained.

The Timken Company and the supplier shall determine if the product can be inspected to remove defects from the "lot" that has been contained.

If time does not allow the supplier's personnel to arrive, the supplier shall provide detailed inspection instructions to The Timken Company.

The Timken Company reserves the right to approve all inspection methods.

If it is determined that inspection alone cannot detect the defect, the product(s) will be returned to the supplier or scrapped as agreed upon by the supplier and Timken.
The Timken Company will identify any costs incurred from these defective parts and will initiate the Supplier Cost Recovery Chargeback procedure with the supplier.

If the purchased product is needed for urgent production at a Timken facility, the supplier shall provide a rapid inspection team to Timken's production facility for inspection, or agree (by providing purchase order to the third party) to the use of a third party inspection service with the cost of service being assumed by the supplier.

In most cases, as appropriate, the supplier shall be given the option regarding sorting methodologies by the effected Timken facility.

The use of a third party to sort defective product does not relieve the supplier of their responsibility for the quality or delivery of product.

The Timken Company shall have the right to perform any, and all, necessary safe, destructive and non-destructive tests to evaluate fully the performance of the supplier's product or services.

The Timken Company shall have the right to utilize the service of an independent 17025:20XX accredited testing laboratory.

The supplier shall reimburse The Timken Company for the expense of said tests only if testing confirms the product or service is defective.

The Timken Company must provide proper accounting of hours for inspection to the supplier.

If the purchased product is determined to be defective or non-conforming for reasons other than those defined on the design prints, the two parties will discuss and determine if containment action is required.

If containment action is required, inspection criteria will be established. If containment action is not required, the supplier's product will be approved for use in production with a proper record of using the deviation process.

1.5 Management of Design and Process Changes

After product approval, suppliers shall not make ***any*** type of change without **prior** written notification and approval from The Timken Company. Suppliers must also make this a condition of their own entire supply chain.

Changes are defined as alteration in the product design; product specification; purchased parts; material, service supplier or provider; manufacturing location; method of manufacturing; processing; testing; storage; packaging; preservation or delivery.

Changes shall be communicated through Timken's **Quality Issue Management (QIM).** These include changes to part design, material, sub-tier supplier, manufacturing location or process. When in doubt, suppliers are encouraged to contact their respective Corporate SQD or sourcing representative.

The supplier shall notify The Timken Company in advance and obtain approval for all design or process changes affecting the product manufactured, processed or serviced for The Timken Company.

Changes are classified based upon impact or the most adverse effect, either in the subsequent processing of a part, in its handling, or in its intended or foreseeable application.

The supplier change can be initiated by:

- Timken Engineering department
- Customer-initiated change communicated to the Timken Supplier Quality Development department by the customer's engineers or marketing department
- Timken's Purchasing and Supplier Quality Development departments
- Quality Advancement department
- Timken's manufacturing plant/user
- Supplier

The supplier shall issue the change request using Timken's QIM system. Submit the request to The Timken Company for approval to proceed with a defined validation plan. This plan may include or require new **Production Part Approval Process (PPAP)** submission or **FAI (First Article Inspection).**

For permanent changes, the Timken Supplier Quality Development representative determines if a new Production Part Approval Process is required and advises the supplier accordingly.

Following validation and/or Production Part Approval Process (PPAP) approval, the Supplier Product/Process Change Request is granted or denied, and the supplier is advised accordingly.

At this stage, the timing to phase in the approved change is established and communicated to the supplier and all interested parties.

1.6 Purchased Product Submission and Approval Process

Purchased Product Submission and Approval Process is implemented to determine if all design and specification requirements of purchased product are properly understood by Timken suppliers and to ensure that the supplier production process is capable of meeting Timken and the Timken customer's technical and quality requirements. The supplier submits documentation, determined during feasibility review with SQD, using Supplier PPAP/ISIR Submission Request Form.

The submission requirements will typically include initial sample parts; design review; dimensional layout; performance test results; material certifications; capability studies; process flow diagram; design **FMEA (Failure Modes and Effects Analysis**); process FMEA and supplier process control plan.

This process follows Timken's customer and The Timken Company internal requirements in accordance with the latest version ***AIAG-Production Part Approval Process (PPAP) manual.***

Unique customer specific requirements are addressed as defined and required.

The Timken Company follows **AIAG Production Part Approval Process** notification and submission requirements defined in the AIAG Production Part Approval Process manual, unless otherwise specified by the customer.

Timken-specific requirements related to the initial sample parts and identification include the following:

- Samples must be from production tooling operating under production conditions.
- Samples are to be uniquely identified, so that measurement correlation may be performed.
- Sample quantity may vary according to the nature of the product and the manufacturing process.
- Production material and processes.
- Analysis/Development/Validation Documentation (when requested).
- Unless sample quantities are defined in a Timken standard or specification, the following guidelines may be used:
  - A minimum of 5 samples (out of a 300 piece production run) is required from any single part producing tooling.
  - A minimum of 1 sample per cavity is required from multiple part tooling.

Suppliers are strongly encouraged to work with their Supplier Quality Development representative or designated plant quality personnel to obtain a full approval on time.

Supplier production parts are not to be released for shipment to the Timken user plant until the supplier receives notification from Timken that the PPAP has been approved or interim approved for volume production.

When requested by Supplier Quality Development personnel, the supplier shall establish a Safe Launch process, which will serve to validate the **Production / Process Control Plan (PCP)** and ensure that all shipped products meet Timken's expectations. (Reference 1.19 Supplier Safe Launch)

1.7 Measurement System Analysis

To fully understand the supplier measurement abilities, as appropriate and defined by the Supplier Quality representative, the supplier shall perform a **measurement system analysis (MSA)** in accordance with the latest version of the ***AIAG Measurement System Analysis manual.***

1.8 Prototype Submission Requirements

The intent of the prototype activity is to assemble and test product, processes and assembly systems, and perform conformance/measurement/design validation.

Part approval at Prototype (Click here for Procedure) insures component part problems are identified and corrected to minimize the impact of part variation upon design evaluation, manufacturing and assembly.

Suppliers of prototype parts are required to have completed, documented and available for review the items listed below:

- Timken Supplier Warrant of Material for Prototype
- Design records.
- Inspection results and inspection and/or test devices.
- Material certification.
- Part weight (mass)/Serialization information.

1.9 Documentation, Certification, and Data Requirements for Proprietary Information

The Timken Company and its customers may review, in the presence of the supplier and on the supplier premises, documentation that contains confidential and proprietary supplier information pertaining to the product manufactured for The Timken Company.

Where applicable, a quality history for the entire product shall be provided to The Timken Company.

The quality history shall contain all verification documents generated during fabrication of the product or service.

The supplier shall provide The Timken Company with appropriate documentation during design, manufacturing, inspection and testing. Documents shall include (where applicable) design records such as:

- **Design Failure Mode and Effects Analysis (DFMEA)**
- **Design Validation Plan and Report (DVP&R)**
- **Quality Planning / Advanced Product Quality Planning (APQP) Status Report**

1.10 Hazardous Materials - Material Safety Data Sheet (MSDS)

All materials used in, or incorporated into Timken Company products shall satisfy current governmental and safety constraints on restricted, toxic, and hazardous materials; as well as environmental, electrical, and electromagnetic considerations applicable to the country of manufacture and sale. A **Material Safety Data Sheet (MSDS)** must be submitted for all items as defined under applicable regulations. Material Safety Data Sheet(s) must be submitted to the receiving location.

A Material Safety Data Sheet(s), with full disclosure, must be submitted to the receiving location for approval as soon as possible following the feasibility meeting and/or receipt of a Purchase Order. At the latest, applicable MSDS sheets must be provided to the using Timken plant **prior** to first shipment / PPAP submission of any component, raw materials, or product.

Approval of each MSDS should be obtained as early as possible in the product launch. The Timken using plant will notify the supplier if the MSDS sheets are not acceptable. If MSDS information is not submitted, or approval is not obtained, the first shipment PPAP submission may not be approved. (Reference 2.8 Environmental Health and Safety)

Suppliers shall use IMDS (International Material Data System) as required.

1.11 Shipment and Packaging Requirements

In some cases, The Timken Company designates **'S'-Specifications** to define shipping and packaging requirements.

Requirements in any 'S' specification shall be considered an extension of the purchase order and /or product drawing / agreement.

Unless alternate methods have been agreed upon in writing with SQD or the receiving location, all production shipments must include or be preceded by the following:

- Material certifications as specified in all applicable material specifications.
- Applicable **Statistical Process Control (SPC)** data (for all print designated special or critical characteristics) unless instructed differently from SQD or the receiving location.
- Labeling, or bar code labeling, must be in accordance with appropriate AIAG guidelines or plant specific requirements.

Production shipment and packaging requirements discussions should begin during APQP activities or Feasibility review. All requirements shall be finalized prior to first shipment and PPAP submission.

1.12 Supply Chain Management

Suppliers must be willing to identify and manage, as appropriate, their entire supply chain. This includes raw material suppliers or manufacturers and any suppliers of components or processing used for products supplied to The Timken Company.

As appropriate, suppliers shall impose all of The Timken Company quality requirements on the entire supply chain used to produce the items supplied to The Timken Company.

1.13 Supplier Material Traceability

As required, suppliers shall be able to demonstrate adequate product traceability. Specific traceability requirements are identified and reviewed at initial feasibility, planning for Quality or APQP meetings. Suppliers to The Timken Company shall establish and maintain documented methods for unique identification of product, batches or lots, including product marking as necessary for identification or traceability purposes.

Lot numbers, as identified on shipping labels, must provide traceability from receipt and during all stages of production by the supplier, including shipment to Timken.

The Timken Company reserves the right to perform an on-site audit or request appropriate, timely documentation to verify conformance to traceability requirements.

Traceability information must include, and begin with an individual raw material heat/batch number, or equivalent.

A lot cannot contain more than one material heat / batch number.

1.14 Timken Material Certification Database (MCD)

The Timken Company has developed a material certification system to improve incoming material control. As required, suppliers of raceway, rolling element, and heat treat retainers (cages) must take the following specific actions before delivering any supplier owned/purchased material to any Timken plant for manufacture of our products. All exceptions must be approved in writing by Timken GMQ or SQD organization.

1. All raceway, rolling element, and heat treated retainers (cages) must be purchased from a Timken approved material source.
2. **Each supplier must transmit primary melt certificate to Timken at least 48 hours** before any shipment will arrive at a Timken plant via either:
    a. E-mail scanned certificates to: ter-mfgtech@timken.com
    b. Fax material certificates to: 001-330-458-6888

    Note: Only original heat certificates will be acceptable. Certificates with pencil modifications will be rejected.
3. Accompanying each transmission, suppliers must fill out an MCD Submission Form
    a. The MCD Submission Form is available on Timken Supplier Network website found at http://tsn.timken.com
    b. For accurate transcribing of data, please verify that the copy being faxed or emailed is legible.

    Note: Our email system accepts only attachments in the form of a .jpg or .tiff file types.
4. Once the certificate is received, the documents will be evaluated.
    a. If material certification data does not conform to the appropriate specification or is from a Non Timken Approved melt source, a Quality representative from the receiving plant will be notified that the batch of material submitted is non-conforming and will contact you to hold all products made from this material until further notice. Note: you will not be notified via the MDC system regarding approval status.
    b. The new requirement will not change your delivery schedule unless non conforming issues are presented.
    c. Do not delay shipment waiting for confirmation. Suppliers will only be notified if there is an issue that requires resolution.

Material Certification Database (MCD) – is utilized to track and verify that all steel supplied to Timken facilities has an approved chemistry. Suppliers are required to populate the material certification database with the appropriate supporting data from each lot of material sold to/received by all Timken facilities worldwide.

1.15 Control Item (∇) Part & Special Product or Process Characteristics

Control Item Parts are products with characteristics normally identified on drawings by an inverted delta (∇) preceding the part and/or raw material code number. Control Item parts may affect the safe operation and/or compliance with government regulations.

Special characteristics are those product or process requirements for which reasonably anticipated variation is likely to affect a fit, function or the ability to process or build the product.

Special characteristics will be designated on the Timken print, or specification. 'KPC' or a diamond (◊) placed near the characteristic typically designates special characteristics. Alternate designations may be used. Timken specific characteristics are indicted appropriately being placed near the characteristic.

Requirements for Special / Specific Characteristics are;

- All Special Characteristics must be made in a process having a special control method(s).
- SPC is the most common and preferred special control method.
- To be considered valid, Cpk values cannot be calculated until there is a stable and capable process.
- Cpk is typically calculated based on data from 20 days of production; minimum is 100 individual sample or data points.
- The Cpk value must be noted on control charts.
- Reaction plans to out-of-control signals must be indicated on the chart. Both parts and process must be described.
    - Refer to the AIAG SPC manual for out-of-control signals.
- On occasion, the Special Characteristic designation will be applied to characteristics, such as raw material, hardness, etc., and therefore, typical SPC cannot be applied. In such cases, you must identify the special controls used for these characteristics in your quality control plan.

Your control plan will require concurrence from Timken prior to PPAP. This discussion should begin at the initial Quality Planning, APQP or Feasibility meetings.

1.16 Records

Suppliers shall maintain appropriate records on file according to requirements of the supplier, The Timken Company or regulatory bodies.

Quality performance records, including control charts, inspection and test results shall be retained for one calendar year after the year in which they were created.

ALW (Aircraft Landing Wheels) suppliers are required to retain records for a minimum of eleven years and indefinitely for all other aerospace suppliers. Prior to the destruction of records, the supplier shall notify Timken in writing for authorization to destroy records. When the decision is communicated to dispose of records, records shall be destroyed in a manner that renders them unusable by suitable means.

1.17 Supplier Evaluation and Performance

Timken has recognized that certain processes and operations in our supply base required to make our product have levels of risk that must be managed appropriately. Timken has processes to evaluate levels of risk with our supply base. If during the course of business we determine a process or operation to have an unacceptable level of risk, we will contact supplier directly with specific measures that will need to be implemented to bring the level of risk to a manageable level.

The Timken Company's supplier evaluation process is designed to measure supplier performance over time.

The evaluation typically focuses on five performance areas:

- Quality
- Delivery
- Cost
- Customer Service
- Continuous Improvement / Lean

Specific supplier or supplier locations may be evaluated using only delivery and quality performance as determined by the Timken Company.

The evaluation is completed on a periodic basis by a cross-functional team, which typically consists of The Timken Company user plant, purchasing, order fulfillment and Supplier Quality Development personnel.

Explanations of the four performance measures are as follows:

- *Quality* – Product quality demands stringent adherence to purchase, transportation, engineering and packaging specifications – including cleanliness, and consistent, reliable service to assure customer satisfaction.

Examples of measures:

  - Number of DMRs
  - P.P.M. (Parts Per Million)
  - Number of external complaints
  - Overall Cost of Quality
  - Warranty claims and field returns

- *Delivery* – **On-time delivery (OTD)** is having the correct material in the right quantity at the right place and at mutually agreed upon delivery time and date. The delivery date is considered to be the acknowledged or re-promised date.

  Examples of measures:

  - OTD rate
  - Deviation of gross total receipts from total due / average percent deviation
  - Expedited shipments
  - Average percent deviation

Additional requirement: The supplier shall notify, in advance of occurrence, the appropriate local plant contact, supplier quality contact or contact individual listed on the purchase order, of any actual or potential late delivery conditions.

- *Cost* – examples:
  - Level of prices
  - Contractual agreement
  - Delivery cost
  - Payment terms

- *Customer service and innovation* – examples:
  - Invoicing problems
  - Supplier's ability to respond to requests
  - Supplier's ability to provide correct line and releases, quantities received
  - Continual Improvement activities
  - Cost reduction ideas
  - New product development
  - Supplier lean work with the plants, purchasing, and SQD to drive problem solving and cost reduction initiative(s).

1.18 Supplier Escalation Process

The supplier escalation process is an increased level of activity with a supplier resulting from the supplier's continuing failure to perform in the areas of quality, delivery or cost. Escalation may also be initiated when there are noticeable trends that indicate that quality systems may be stressed or deteriorating at a supplier.

Supplier Quality Escalation is the methodology used by Timken SQD personnel to define actions, resolve and improve overall supplier performance.

Supplier escalation definition, consequence and entrance criteria, refer to below link: **Supplier escalation process**

Escalation stages vary up to and include notification to the supplier's registrar of ongoing systemic quality issues or recognition that it may be in the best interests of The Timken Company and supplier to discontinue doing business.

1.19 Supplier Controlled Shipping (CSI/CSII)

The intent of Controlled Shipping is to implement a rigorous process that protects Timken from the receipt of nonconforming parts and/or material.
Level One Controlled Shipping (CSI) - Controlled Shipping is a formal demand by Timken for a supplier to put in place an additional inspection process to sort for nonconforming material, while implementing root-cause analysis and corrective actions. The Controlled Shipping process is in addition to normal controls. The data obtained from the Controlled Shipping inspection process is critical as both a measure of the effectiveness of the containment process and the corrective actions taken to eliminate the initial nonconformance.

Level Two Controlled Shipping (CSII) - Includes the same processes as Level I Controlled Shipping with an additional inspection process that is completed by a third party. Timken and the supplier will mutually agree upon the third party company and location. The third party company must be minimum certified to ISO 9001:20xx.

Based on the severity of issue, Timken determines whether Level I or Level II would be appropriate.

1.20 Supplier Safe Launch

Safe Launch Plan (SLP) is implemented to verify product & process stability in an organized manner. SLP is intended to be a learning period. Collected data will be monitored, analyzed, and product & process adjustments should be made when necessary and should take place when new production is starting.

Safe Launch is to be used as appropriate for all pre-production and production requirements that require the Production Part Approval Process (PPAP) and whenever requested by a Timken Plant or Timken Customer on any parts that present significant risk. Safe Launch should not be used for discrepant material received at the customer's plant.

SLP is recommended as appropriate in the following situations.

- Process - new, changed, moved, or re-sourced processes.
- Product - new, transferred, or changed product.
- Suppliers - new suppliers or existing suppliers on modified or new product.
- Correlation Activities - correlation of testing, inspection, or gage equipment.

2.0 Supplier Development and Recommended Best Practices

2.1 Advanced Product Quality Planning and Prevention

When requested, the supplier shall provide The Timken Company with a product quality plan prior to or upon receipt of a purchase agreement.
For each stage of product / process design and development, product and process validation and verification, feedback, assessment, and corrective action, the product quality planning process shall include but not be limited to:

- Advanced Product Quality Planning
- Special characteristics
- Feasibility reviews
- Product safety
- Process Failure Mode and Effects Analysis
- Mistake / error proofing
- Control Plan to cover three distinct phases: Prototype, Pre-launch, and Production

Suppliers that are design responsible for Type I material are expected to use the DFMEA approach for robust design integrity. Suppliers that use Timken-generated designs are not responsible for Design FMEA activities but may participate in DFMEA planning activities with Timken.

Timken requirements and reference to its technical specification shall be included (documented) in the planning of product manufacturing or processes as a component of the quality plan.

Suppliers shall incorporate lessons learned from previous experiences, process knowledge or other sources into quality planning documentation.

Lesson learned are to be identified as such throughout the entire quality planning documentation process and available to Timken personnel upon request.

2.2 Goal-Setting and Problem Resolution

Timken and its suppliers strive to achieve excellence in manufacturing, and may review certain Timken units and other companies for examples of best practices.

Best practices are business principles, often identified through benchmarking, that produce better results. Suppliers are strongly encouraged to become familiar with these concepts and become effective practitioners of continual improvement. Suppliers shall be able to determine areas that need correction and improvement:

- Quality results
    - Supplier quality performance indicators - e.g. PPM, number of Discrepant Material Reports, etc.
- Delivery
    - On time delivery, deviations in deliveries, etc.
- Cost
    - Price reduction, cost of quality, etc.
- Service and innovation
    - Continual improvement initiative, capacity planning, invoicing problems, responsiveness to change notices, etc.

The supplier should be able to relate all goals to Timken requirements and priorities.

It is very important to determine the scope of the issues or processes to be studied. The supplier should identify any gaps between current processes and the requirements, determine severity of the gaps, and prioritize its efforts to minimize and eliminate gaps, using a structured, and improvement methodology.

The Timken Company recognizes the **8D Process** for problem solving. Especially in the resolution of a nonconforming (discrepant) product using the Timken Quality Information System (QIM).

It is a disciplined eight-step problem-solving process and report format. This technique is applicable also to continual improvement initiatives.

1. Use the team approach

Establish a key group of people with the process/product knowledge, allocate time, authority, and skill in the required technical disciplines to solve the problem and implement corrective actions. The group must have a designated champion.

2. Describe the problem

Specify the internal/external customer problem by identifying in quantifiable terms the who, what, when, where, why, how, how many (5W, 2H) for the problem.

3. Implement and verify interim (containment) actions

Define and implement containment actions to isolate the effect of the problem from any internal/external customer until corrective action is implemented. Verify the effectiveness of the containment action.

4. Define and verify root causes

Identify all potential causes, which could explain why the problem occurred. Isolate and verify the root cause by testing each potential cause against the problem description and test data. Identify alternative corrective actions to eliminate root cause.

5. Verify corrective actions

Quantitatively confirm that the selected corrective actions will resolve the problem for the customer and will not cause undesirable side effects. Define contingency actions, if necessary based on risk assessment.

6. Implement permanent corrective actions
Define and implement the best permanent corrective actions. Choose on-going controls to ensure the root cause is eliminated. Monitor the long-term effects and implement contingency actions if necessary.

7. Prevent recurrence
Modify the management systems, operating systems, practices, and procedures to prevent recurrence of this and all similar problems.

8. Congratulate team / Read Across
Recognize the collective efforts of the team.
The supplier shall apply (Read Across) to similar processes, services or products the corrective action, and controls implemented, to eliminate the cause of a potential nonconformance in other areas.

2.3 Cost Reduction Policy

Cost reduction is an integral element of the Timken strategy affecting Timken's Suppliers. To achieve and improve their competitive position in the market, Timken and suppliers must implement focused, systematic methods and tools to reduce the costs of products sold.

Cost reduction goals can be achieved in the following ways:

- Cost reductions by Timken through the promotion of long-term agreements with suppliers and market analysis benchmarking.
- Implementation, after Timken approval, by suppliers of internal quality improvement programs, value engineering and value analysis methodology.
- Development of Timken supplier joint cost reductions based on a review of both supplier and customer prices, delivery means and business performance measures.

Recommended techniques by Timken that could be used to achieve cost reduction:

- 8D problem solving
- Kaizen philosophy
- Value Analysis/Value Engineering
- 5-S Principles
- 5-Why Analysis
- Seven Tools of Quality
- Brainstorming
- Benchmarking
- Cross-functional Teams Gap Analysis
- Mistake – Proofing
- VA/NVA value add/non value add (lean)

2.4 Cost Recovery Process

The Timken Company, when appropriate, can recover costs associated with a supplier not meeting defined expectations. The issuance of an 8D DMR in the **Quality Issue Management (QIM)** can initiate the recovery process.

The Timken Company may recover additional costs using the Timken Supplier Chargeback process or by direct negotiations with the supplier.

2.5 Mistake – Proofing

The Timken Company's expectation is zero defects.

Achieving this level of quality requires capable processes combined with statistical process control techniques and the utilization of mistake-proofing methodology.

When potential causes of non-conformance are determined, the supplier shall employ solutions in the process to prevent or detect these non-conformances. These solutions shall be independent of operator's actions.

Solutions should be designed and installed integral to the process to prevent or detect a wrong setting of an element (e.g. the proper position or inverted), defects in the element, machine, or standard, thereby making further use impossible.

2.6 Statistical Techniques

Suppliers shall monitor process performance using the appropriate statistical techniques in accordance with the latest revision of ***AIAG Statistical Process Control manual***. The determination of need is based on the ability to control and verify the process capability and product characteristics. The use of quality planning tools such as Design Failure Mode and Effects Analysis (DFMEA) and/or **Process**

Failure Mode and Effects Analysis (PFMEA) is essential. The supplier shall submit capability data for key characteristics when requested by Timken personnel.

The supplier is encouraged to use statistical techniques including:

- Gage R&R study
- Predictive maintenance
- Defect analysis
- Sampling and (C=0)
- Process analysis and control charting methods
- Regression analysis - analysis of variance
- Other graphical methods

2.7 Continual Improvement Process

The supplier should promote and implement a continual improvement philosophy that provides a sustained approach to achieving competitively superior performance in those areas critical to business success by rigorously applying proven methodology and processes.

Timken recognizes that the Timken Quality Management System (TQMS) provides elements that provide a foundation for continual improvement.

TQMS Supplier Fundamentals provides a systematic approach that helps suppliers achieve flawless launches, zero defects and a higher level of customer satisfaction, enabling continual process improvement.

TQMS Supplier Fundamentals complements the supplier quality management system by applying tools to reduce errors, improve productivity and ensure closed-loop feedback.

Supplier TQMS elements include:

- Quality System Certification
- RPN Reduction Methodology
- Standard Work
- Standard Training
- Layered Process Audits
- Control of Non-conforming Material
- Error Proofing Verification
- Fast Response

These methods and processes shall be used throughout the Supplier organization to continually improve the quality, delivery, service, and cost of Supplier products to the benefit of its customers and associates.

The Supplier should perform the functions of leading importance to continual improvement by means of:

- Continual improvement of own actions and distribution of resources.
- Advising the employees of objectives and tasks
- Providing an environment which encourages open communication.
- Supporting every employee and any process improvement efforts covering all employees with a training system.

Additional recommended tools that assist in the implementation of the continual improvement process are:

- Benchmarking
- Brainstorming
- Pareto Analysis
- 5-Why Analysis
- Affinity Diagram
- Involvement Worksheet
- Cost Benefit Analysis
- Cause and Effect Diagrams
- Process Capability/Performance
- Process Mapping

2.8 Environmental, Health and Safety

Suppliers are expected to adhere fully to all applicable governmental laws and regulations to protect the environment and ensure the health, safety and quality of life within their communities.

In particular, Suppliers must adhere to laws and regulations that apply to the health and safety of their workers.

No abnormal or harmful radioactivity levels shall be permitted in any material. Nor harmful elements or

additives shall be permitted that are listed in any EU, ISO or local standards banning such materials at the time of shipment to Timken.

All materials used in product manufacture shall satisfy current government and safety constraints on restricted, toxic and hazardous materials.

Suppliers shall not supply chemicals detailed on the following list:

Controlled Substances List (Click here for list)
Suppliers are required to comply with appropriate restricted or reportable substance notification on PPAP submissions.

Suppliers are encouraged to define, implement and maintain environmental management systems such as ISO 14001:20xx.

Goals of the Supplier environmental management program should be:

- *Commitment to compliance* with all applicable laws, regulations and company policies relating to environmental protection, to prevent pollution at its source by minimizing emissions, effluents, and waste in the design, operation and maintenance of their facilities.

- *Commitment to prevention* including source reduction, recovery, reusing and recycling. Where feasible, eliminating negative environmental impacts associated with Suppliers operations and products.

- *Commitment to continual improvement* to increase the general awareness of environmental requirements among associates, facilitating an understanding of the environmental implications of their day-to-day responsibilities. Developing the capabilities and support mechanism necessary to achieve the Suppliers environmental policy, objectives and targets.

3.0 Supplier Quality Assurance Aerospace Provisions

3.1 Sample Plan Requirements

Sampling inspection must be in accordance with the latest revision of ANSI/ASQC Z1.4, “Sampling Procedures and Tables for Inspection by Attributes”.

Acceptance criteria shall be defined by the supplier and, where required, approved by Timken.
For all data sampling, the acceptance level shall be zero defects C=0.

3.2 Acceptance Authority Media (AAM)

Suppliers shall comply with AS9100 requirements regarding the application of Acceptance Authority Media (AAM) requirements. Suppliers shall ensure that within their organization and its supply chain, the use of AAM is clearly defined within the Quality Management System. Suppliers shall maintain compliance to AAM requirements by assessing its process and supply chain as part of its internal audit activities, including but not limited to: application errors, untimely use, misrepresentation, and training deficiencies. Additionally, this communication shall reinforce the importance of ethical behavior in their daily activities. The use of AAM must be considered as a personal warranty of compliance and conformity. Suppliers shall, upon Timken request, be able to demonstrate evidence of communication to their employees and their supply chain.

3.3 Inspection and Test Report

The seller shall maintain on file and submit upon request a report for the delivered end items or assemblies with the following information included as a minimum: part number, revision letter, part name, purchase order number, lot number, lot quantity, inspection sample size, characteristics/ parameters inspected and/or tested, inspection test data, quantity passed/rejected by characteristic, date of inspection/test, and signature/stamp of seller's inspection / test representative.

3.4 Certificate of Conformance (C of C)

Seller shall prepare and submit a certification of conformance to Timken for each shipment made under a Purchase Order (or each designated item if specific items are designated in the body of the Purchase Order.) The certification shall be signed by the Seller's Responsible Quality Representative as evidence that the deliverable product conforms to stated requirements: i.e., Material Certifications, Process Requirements, Supplier Qualification Status, Hardware Qualification, etc.

The sub-tier specifications used and certified for each operation must be the current revision as defined by Timken standard EGS-D0005 and listed in EGS-D0005-A.

Completion of the Certificate shall not modify or limit any representations, warranties or commitments made or in any way affect the obligation of seller to perform strictly in accordance with the provisions of the Purchase Order.

The following information shall be provided as a minimum: seller's name, quantity of shipment, lot numbers/date codes/serial numbers if applicable, Timken part number and drawing revision, country in which the part was manufactured, Timken purchase order number and revision, and a statement that all other applicable requirements as called out by the purchase order, drawings or specifications have been met.

3.5 First Article Inspection

On the first initial production and the first article produced, subsequent to design change incorporation, the seller shall perform and document a comprehensive inspection and test of that article to assure articles' conformance with all drawing and specification requirements. When multi-cavity molds/dies are used, First Article Inspection is required for each cavity.

A new First Article Inspection shall be required if:

- A significant design or process change has been made that affects the original First Article and is applicable only to those characteristics affected by the change
- The item has not been produced for a period of one year
- A change in manufacturing location.

The seller's report shall provide, as a minimum: purchase order number, part number, revision level, part name, seller's name, drawing requirements (including tolerances), method used to obtain results and actual results of each measurement. Part(s) used for the inspection shall be identified when shipped to Timken as "First Article Inspection Sample". First Article data, regardless of format, shall accompany the first shipment to be delivered.

3.6 Traceability

The seller shall establish and maintain a system for traceability of supplies to their source (including sub tier suppliers) by lot, batch, heat, melt and part. Records of traceability shall be maintained by the supplier as part of this objective evidence of quality control and acceptability, and such records shall be made available to representatives of Timken. See section 1.13 for additional details.

3.7 Documentation Retention

ALW suppliers are required to maintain all records on file for a minimum period of eleven years from date of last delivery**.** All other aerospace suppliers are required to retain records indefinitely. Prior to the destruction of records, the supplier shall notify Timken in writing for authorization to destroy records. When the decision is communicated to dispose of records, records shall be destroyed in a manner that renders them unusable by suitable means. All other requirements of the modified notes(s) are still applicable. Compliance with documentation required by the drawing or specification is required.

3.8 Change Approval

Upon approval by Timken as a qualified source, through first article or first lot acceptance, the seller shall not make any changes in design, materials or processes which may affect the acceptability (dimensional, visually, functionally, durability, etc.)

of the items to be delivered to Timken without prior notification and approval of Timken. For the purpose of this clause, a process is defined as any procedure, system or practice used during the manufacture or production of a deliverable item (i.e. machining, de-burring, heat treating, soldering, cleaning, finishing, etc.).

Examples of process changes that require customer notification and approval are as follows:

- Change in inspection and/or testing methods.
- Changes in product or processing of components used in the manufacture of the end item including components manufactured by the seller or a sub-tier supplier.
- Change of sub-tier suppliers.
- Production from new or modified tools, dies, molds including replacements (excluding perishable tools).

- A change in manufacturing location.
- A special process change.

See section 1.5 for additional details.

3.9 MRB Authority

Unless otherwise specified in the purchase order, the seller and/or any of their sub-tier suppliers do not have authority to process "USE-AS-IS", "REPAIR", "STANDARD REPAIR PROCEDURES (SRPS)" or "NON-SRPS" via their internal material review board (MRB).
These dispositions, as well as deviations and request for waivers, requiring MRB disposition shall be submitted to Timken for approval (this does not include rework or scrap). The seller shall contact Timken purchasing to obtain a waiver form.

3.10 Government Property

In furtherance of the performance of a purchase order, Timken may deliver Government Property to Supplier. "Government Property" is property owned by or leased to the U.S. Government or acquired by the U.S. Government and placed in the possession of a supplier.

Supplier shall comply with the requirements of FAR 52.245-1 with respect to any Government Property delivered to Supplier in connection with a Timken purchase order. Without limiting the foregoing, Supplier shall not remove, rework, repair or scrap Government Property without the prior written approval of the Timken Contract Administrator.

3.11 Right of Access

Timken and/or its customers may conduct an audit of Supplier's and/or Supplier's sub tier supplier's facility, including without limitation all manufacturing processes and documentation used in the manufacturing of products under the purchase order, to determine compliance with the requirements of the purchase order. See Section 1.2 for further information.

3.12 DFARS 252.225-7009 Restriction on Acquisition of Certain Articles Containing Specialty Metals (supersedes 252.225-7014)

Pursuant to contracts with the U.S. Government and U.S. Government contractors, Timken is subject to DFARS 252.225-7009, which places certain restrictions on the acquisition of articles containing specialty metals. This regulation requires that specialty metals be melted or produced in the United States, its outlying areas, or a qualifying country. To the extent that articles supplied by Supplier contain specialty metals, as defined in paragraph (a) below, the articles must comply with the requirements of DFARS 252.225-7009. Additionally, supplier must insert this clause in its contracts with vendors supplying articles in support of a Timken purchase order.

RESTRICTION ON ACQUISITION OF CERTAIN ARTICLES CONTAINING SPECIALTY METALS (JAN 2011)

(a) Definitions. As used in this clause—

(1) "Alloy" means a metal consisting of a mixture of a basic metallic element and one or more metallic, or non-metallic, alloying elements.

(i) For alloys named by a single metallic element (e.g., titanium alloy), it means that the alloy contains 50 percent or more of the named metal (by mass).

(ii) If two metals are specified in the name (e.g., nickel-iron alloy), those metals are the two predominant elements in the alloy, and together they constitute 50 percent or more of the alloy (by mass).

(2) "Assembly" means an item forming a portion of a system or subsystem that—

(i) Can be provisioned and replaced as an entity; and

(ii) Incorporates multiple, replaceable parts.

(3) "Commercial derivative military article" means an item acquired by the Department of Defense that is or will be produced using the same production facilities, a common supply chain, and the same or similar production processes that are used for the production of articles predominantly used by the general public or by nongovernmental entities for purposes other than governmental purposes.

(4) "Commercially available off-the-shelf item"—

(i) Means any item of supply that is—

(A) A commercial item (as defined in paragraph (1) of the definition of "commercial item" in section 2.101 of the Federal Acquisition Regulation);

(B) Sold in substantial quantities in the commercial marketplace; and

(C) Offered to the Government, under this contract or a subcontract at any tier, without modification, in the same form in which it is sold in the commercial marketplace; and

(ii) Does not include bulk cargo, as defined in section 3 of the Shipping Act of 1984 (46 U.S.C. App 1702), such as agricultural products and petroleum products.

(5) "Component" means any item supplied to the Government as part of an end item or of another component.

(6) "Electronic component" means an item that operates by controlling the flow of electrons or other electrically charged particles in circuits, using interconnections of electrical devices such as resistors, inductors, capacitors, diodes, switches, transistors, or integrated circuits. The term does not include structural or mechanical parts of an assembly containing an electronic component, and does not include any high performance magnets that may be used in the electronic component.

(7) "End item" means the final production product when assembled or completed and ready for delivery under a line item of this contract.

(8) "High performance magnet" means a permanent magnet that obtains a majority of its magnetic properties from rare earth metals (such as samarium).

(9) "Produce" means the application of forces or processes to a specialty metal to create the desired physical properties through quenching or tempering of steel plate, gas atomization or sputtering of titanium, or final consolidation of non-melt derived titanium powder or titanium alloy powder.

(10) "Qualifying country" means any country listed in the definition of "Qualifying country" at 225.003 of the Defense Federal Acquisition Regulation Supplement (DFARS).

(11) "Required form" means in the form of mill product, such as bar, billet, wire, slab, plate, or sheet, and in the grade appropriate for the production of—

(i) A finished end item to be delivered to the Government under this contract; or

(ii) A finished component assembled into an end item to be delivered to the Government under this contract.

(12) “Specialty metal” means—

(i) Steel—

(A) With a maximum alloy content exceeding one or more of the following limits: manganese, 1.65 percent; silicon, 0.60 percent; or copper, 0.60 percent; or

(B) Containing more than 0.25 percent of any of the following elements: aluminum, chromium, cobalt, molybdenum, nickel, niobium (columbium), titanium, tungsten, or vanadium;

(ii) Metal alloys consisting of—

(A) Nickel or iron-nickel alloys that contain a total of alloying metals other than nickel and iron in excess of 10 percent; or

(B) Cobalt alloys that contain a total of alloying metals other than cobalt and iron in excess of 10 percent;

(iii) Titanium and titanium alloys; or

(iv) Zirconium and zirconium alloys.

(13) “Steel” means an iron alloy that includes between .02 and 2 percent carbon and may include other elements.

(14) “Subsystem” means a functional grouping of items that combine to perform a major function within an end item, such as electrical power, attitude control, and propulsion.

(b) Restriction. Except as provided in paragraph (c) of this clause, any specialty metals incorporated in items delivered under this contract shall be melted or produced in the United States, its outlying areas, or a qualifying country.

(c) Exceptions. The restriction in paragraph (b) of this clause does not apply to—

(1) Electronic components.

(2)(i) Commercially available off-the-shelf (COTS) items, other than—

(A) Specialty metal mill products, such as bar, billet, slab, wire, plate, or sheet, that have not been incorporated into COTS end items, subsystems, assemblies, or components;

(B) Forgings or castings of specialty metals, unless the forgings or castings are incorporated into COTS end items, subsystems, or assemblies;

(C) Commercially available high performance magnets that contain specialty metal, unless such high performance magnets are incorporated into COTS end items or subsystems; and

(D) COTS fasteners, unless—

(1) The fasteners are incorporated into COTS end items, subsystems, assemblies, or components; or

(2) The fasteners qualify for the commercial item exception in paragraph (c)(3) of this clause.

(ii) A COTS item is considered to be “without modification” if it is not modified prior to contractual acceptance by the next higher tier in the supply chain.

(A) Specialty metals in a COTS item that was accepted without modification by the next higher tier are excepted from the restriction in paragraph (b) of this clause, and remain excepted, even if a piece of the COTS item subsequently is removed (e.g., the end is removed from a COTS screw or an extra hole is drilled in a COTS bracket).
(B) Specialty metals that were not contained in a COTS item upon acceptance, but are added to the COTS item after acceptance, are subject to the restriction in paragraph (b) of this clause (e.g., a special reinforced handle made of specialty metal is added to a COTS item).

(C) If two or more COTS items are combined in such a way that the resultant item is not a COTS item, only the specialty metals involved in joining the COTS items together are subject to the

restriction in paragraph (b) of this clause (e.g., a COTS aircraft is outfitted with a COTS engine that is not the COTS engine normally provided with the aircraft).

(D) For COTS items that are normally sold in the commercial marketplace with various options, items that include such options are also COTS items. However, if a COTS item is offered to the Government with an option that is not normally offered in the commercial marketplace, that option is subject to the restriction in paragraph (b) of this clause (e.g. - An aircraft is normally sold to the public with an option for installation kits. The Department of Defense requests a military-unique kit. The aircraft is still a COTS item, but the military-unique kit is not a COTS item and must comply with the restriction in paragraph (b) of this clause unless another exception applies).

(3) Fasteners that are commercial items, if the manufacturer of the fasteners certifies it will purchase, during the relevant calendar year, an amount of domestically melted or produced specialty metal, in the required form, for use in the production of fasteners for sale to the Department of Defense and other customers, that is not less than 50 percent of the total amount of the specialty metal that it will purchase to carry out the production of such fasteners for all customers.

(4) Items manufactured in a qualifying country.

(5) Specialty metals for which the Government has determined in accordance with DFARS 225.7003-3 that specialty metal melted or produced in the United States, its outlying areas, or a qualifying country cannot be acquired as and when needed in—

(i) A satisfactory quality;

(ii) A sufficient quantity; and

(iii) The required form.

(6) End items containing a minimal amount of otherwise noncompliant specialty metals (i.e., specialty metals not melted or produced in the United States, an outlying area, or a qualifying country, that are not covered by one of the other exceptions in this paragraph (c)), if the total weight of such noncompliant metals does not exceed 2 percent of the total weight of all specialty metals in the end item, as estimated in good faith by the Contractor. This exception does not apply to high performance magnets containing specialty metals.

(d) Compliance for commercial derivative military articles.

(1) As an alternative to the compliance required in paragraph (b) of this clause, the Contractor may purchase an amount of domestically melted or produced specialty metals in the required form, for use during the period of contract performance in the production of the commercial derivative military article and the related commercial article, if—

(i) The Contracting Officer has notified the Contractor of the items to be delivered under this contract that have been determined by the Government to meet the definition of “commercial derivative military article”; and

(ii) For each item that has been determined by the Government to meet the definition of “commercial derivative military article,” the Contractor has certified, as specified in the provision of the solicitation entitled “Commercial Derivative Military Article—Specialty Metals Compliance Certificate” (DFARS 252.225-7010), that the Contractor and its subcontractor(s) will enter into a contractual agreement or agreements to purchase an amount of domestically melted or produced specialty metal in the required form, for use during the period of contract performance in the production of each commercial derivative military article and the related commercial article, that is not less than the Contractor’s good faith estimate of the greater of—

(A) An amount equivalent to 120 percent of the amount of specialty metal that is required to carry out the production of the commercial derivative

military article (including the work performed under each subcontract); or

(B) An amount equivalent to 50 percent of the amount of specialty metal that will be purchased by the Contractor and its subcontractors for use during such period in the production of the commercial derivative military article and the related commercial article.

(2) For the purposes of this alternative, the amount of specialty metal that is required to carry out production of the commercial derivative military article includes specialty metal contained in any item, including COTS items.

(e) Subcontracts. The Contractor shall insert the substance of this clause in subcontracts for items containing specialty metals, to the extent necessary to ensure compliance of the end products that the Contractor will deliver to the Government. When inserting the substance of this clause in subcontracts, the Contractor shall—

(1) Modify paragraph (c)(6) of this clause as necessary to facilitate management of the minimal content exception;

(2) Exclude paragraph (d) of this clause; and

(3) Include this paragraph (e).

(End of clause)

3.13 DFARS 252.225-7016 Restriction on Acquisition of Ball and Roller Bearings

When required by Timken's purchase order, suppliers supplying ball and roller bearings to Timken must comply with the following:

RESTRICTION ON ACQUISITION OF BALL AND ROLLER BEARINGS (DEC 2010)

(a) *Definitions.* As used in this clause—

(1) "Bearing components" means the bearing element, retainer, inner race, or outer race.

(2) "Component," other than a bearing component, means any item supplied to the Government as part of an end product or of another component.

(3) "End product" means supplies delivered under a line item of this contract.

(b) Except as provided in paragraph (c) of this clause—

(1) Each ball and roller bearing delivered under this contract shall be manufactured in the United States, its outlying areas, or Canada; and

(2) For each ball or roller bearing, the cost of the bearing components manufactured in the United States, its outlying areas, or Canada shall exceed 50 percent of the total cost of the bearing components of that ball or roller bearing.

(c) The restriction in paragraph (b) of this clause does not apply to ball or roller bearings that are acquired as—

(1) Commercial components of a noncommercial end product; or

(2) Commercial or noncommercial components of a commercial component of a noncommercial end product.

(d) The restriction in paragraph (b) of this clause may be waived upon request from the Contractor in accordance with subsection 225.7009-4 of the Defense Federal Acquisition Regulation Supplement.

(e) If this contract includes DFARS clause 252.225-7009, Restriction on Acquisition of Certain Articles Containing Specialty Metals, all bearings that contain specialty metals, as defined in that clause, must meet the requirements of that clause.

(f) The Contractor shall insert the substance of this clause, including this paragraph (f), in all subcontracts, except those for—

(1) Commercial items; or

(2) Items that do not contain ball or roller bearings.

(End of clause)

In support of Timken's compliance with the requirements of DFARS 252.225-7016, suppliers supplying bearing components (bearing element, retainer, inner race or outer race) to Timken shall provide certification of the country of manufacture of such products upon Timken's request

3.14 NADCAP Required for Special Processes

Special Processes are defined as Heat Treat, Welding, Plating, Passivation, Coatings, Non Destructive Testing, and Eddy Current.
When required, the use of a Nadcap certified supplier must be used when special processes are performed for Timken. Timken must be notified if the vendor loses Nadcap accreditation or if there are findings as a result of an audit conducted by Nadcap/PRI.

3.15 Foreign Object Damage (FOD):

Supplier must have a program in place to protect product from damage during production and handling from foreign debris.

3.16 Government Rated Orders (DPAS)

Timken receives rated orders from the U.S. Government and U.S. Government contractors for national defense use. In turn, Timken is required to flow priority ratings to suppliers of items needed to fulfill these rated orders. Likewise, suppliers receiving rated orders from Timken must comply with the requirements of 15 CFR 700 and give due priority to rated orders to meet required delivery dates.

3.17 Compliance with International Traffic in Arms Regulations (ITAR)

Terms in quotations below in this Section 3.16 are as defined in the Arms Export Control Act ("AECA" at 22 U.S.C. 2778) and the International Traffic in Arms Regulations ("ITAR" at 22 CFR 120-130).

If Supplier is providing to, or on behalf of, Timken, a "defense article" or a "defense service" then the following apply:

(a) Supplier shall be registered with the Directorate of Defense Trade Controls ("DDTC"), U.S. Department of State;
(b) Supplier shall not permit any "Foreign Person" (not a U.S. citizen or permanent resident alien), access to any technical data relating to the defense article or defense service;
(c) Supplier shall not "Export" any "defense article" or "defense service" unless Supplier has first obtained a license from DDTC and provided prior notification to Timken;
(d) Supplier shall otherwise comply with the ITAR and AECA; and
(e) Supplier shall indemnify and hold Timken harmless from and against any cost or other liabilities arising out of Supplier's failure to perform the above.

3.18 Non Disclosure of Proprietary Information

Timken's Non-Disclosure agreement shall be reviewed and signed by all suppliers having access to material that is considered intellectual property of Timken. Compliance to Timken's Terms and Conditions apply.

Glossary

3-D REPORT: The less detailed problem solving approach using 3 of the 8 disciplines.

8-D Process: A problem-solving method, especially in the resolution of a nonconforming (discrepant) product, using the Timken Quality Information System (QIM).

AIAG: Automotive Industry Action Group

AIAG-APQP: Automotive Industry Action Group - Advanced Product Quality Planning, reference manual.

AIAG-PPAP: Automotive Industry Action Group - Production Part Approval Process.

ALW: Aircraft Landing Wheels

APQP: Advanced Product Quality Planning

Control Item Parts: Products with characteristics normally identified on drawings by an inverted delta (∇) preceding the part and/or raw material code number. Control Item parts may affect the safe motor vehicle operation and/or compliance with government regulations.

Controlled Shipping (CS1) - Controlled Shipping is a formal demand by Timken for a supplier to put in place an additional inspection process to sort for nonconforming material, while implementing root-cause analysis and corrective actions.

Controlled Shipping (CSII) - Includes the same processes as Level 1 controlled shipping with an additional inspection process that is completed by a third party.

Counterfeit Parts: Shall mean a part, component, module, or assembly whose origin, material, source of manufacture, performance, or characteristics, are misrepresented. This term includes, but is not limited to (A) parts that have been (re)marked to disguise them or falsely represent the identity of the manufacturer, (B) defective parts and/or surplus material scrapped by the original manufacturer, and (C) previously used parts pulled or reclaimed and provided as new. Counterfeit Parts shall be treated as nonconforming material. The seller and its sub-tiers shall comply with the requirements of AS5553 and or AS6174 current revision as appropriate. The Seller shall ensure that only new and authentic materials are incorporated unless written approval is granted by Timken.

DFARS: Defense Federal Acquisition Regulation Supplement

DFMEA: Design Failure Mode and Effects Analysis

DISCREPANT: Nonconformance from drawing specifications, purchase order specifications, Timken Company Product and Process Specifications and Standards, or Industry Product and Process Specifications and Standards, including but not limited to the areas of quantity, appearance, material, metallurgy, packaging/handling/shipping, and dimension.

DMR: Discrepant Material Report(s) and is used to notify the subcontractor of discrepancies and/or rejections documented at any Timken Company facility regarding the Type I material received and requests corrective action from the subcontractor.

DVP&R: Design Validation Plan and Report

FAI: First Article Inspection

FAR: Federal Acquisition Regulation

FMEA: Failure Modes and Effects Analysis

GASL: Global Approved Supplier List

IMDS: International Material Data System

ISIR: Initial Sample Inspection Report;
MSA: Measurement System Analysis

MSDS: Material Safety Data Sheets

Nonconforming or discrepant product: Product does not meet drawing specifications, purchase order requirements, Timken Company product and process specifications (or standards), and industry product and process specifications and standards. This includes, but does not limit, the areas of quantity, appearance, material, metallurgy, packaging, handling, shipping, delivery, cleanliness, and dimensions.

OTD: On-time delivery

PCP: Process Control Plan

PFMEA: Process Failure Mode and Effects Analysis.

PPAP: Production Part Approval Process

Product: is a tangible or intangible output that is the result of a process that does not include activities that are performed at the interface between the supplier (provider) and the customer.

Purchased Product Submission and Approval Process: Process used to determine if all design and specification requirements of purchased product are properly understood by Timken suppliers, and ensures that the supplier production process is capable of meeting Timken and the Timken customer's technical and quality requirements.

QA: Quality Assurance Representative

QIM: Quality Issue Management

Read Across: Process of reviewing other similar processes, services or products the corrective action, and controls implemented for a defect, to eliminate the cause of a potential nonconformance in other areas.

'S'- Specifications: The Timken Company designation defining shipping and packaging requirements.

Safe Launch: Additional inspection activities to protect Timken facilities while supplier manufacturing process is maturing to full production volumes.

SPC: Statistical Process Control

SQD: Timken Supplier Quality Development team or their representative.

SQA: Supplier Quality Assessment

Special characteristics: Product or process requirements for which reasonably anticipated variation is likely to affect a fit, function, or the ability to process or build the product.

SR: Status Report

Submission Level: Part approval submission as per AIAG-PPAP guidelines.

TSN: Timken Supplier Network

Type I Materials: Materials that become a part of the products sold by The Timken Company. This includes services used to produce (in whole or part) product sold by The Timken Company.

Type I Suppliers: Suppliers that provide products or services that constitute, in part or in whole, the products or services sold by The Timken Company.