

# Global Supplier Quality Manual



**OSHKOSH™**



Edition 7.0



This Oshkosh Corporation Supplier Quality Manual has been reviewed, approved and signed by the Quality and Purchasing leadership.

A handwritten signature in black ink, appearing to read "Sean Ketter".

Sean Ketter  
Vice President, Supply Chain Operations  
GPSC



## Global Supplier Quality Manual

### Table of Contents

1. Introduction .....	4
2. Purpose .....	5
3. Global Procurement and Supply Chain (GPSC) Vision.....	5
4. Global Procurement and Supply Chain (GPSC) Responsibilities .....	5
5. Quality Management System.....	5
6. Supplier On-Boarding Process (New Supplier Approval Process).....	6
7. Global Supplier Quality Audit and Global Supplier Process Audit.....	6
8. Advanced Product Quality Planning.....	7
9. Production Part Approval Process – PPAP.....	7
10. Supplier Change Request.....	8
11. Nonconforming Material.....	9
12. Corrective Action Requirements for Suppliers .....	9
13. Supplier Performance Monitoring.....	12
14. Parts Per Million – (PPM).....	12
15. Delivery Requirements.....	12
16. Warranty and Cost Recovery .....	12
17. Product Traceability .....	13
18. Distributor Requirements .....	13
19. Control of Customer – Supplied Product.....	13
20. Tooling Management .....	14
21. Preventative Maintenance .....	14
22. Sub-tier Supplier Quality Assurance .....	14
23. Packaging and Shipping .....	14
24. Identification, Preservation, Package and Packing .....	15
25. Fastener Quality Requirements .....	15
26. Record Retention .....	15
27. Shelf Life.....	16
28. Welding Requirements.....	16
29. Hydraulic and Pneumatic Component / System Cleanliness .....	17



## 1. Introduction

The Global Supplier Quality Manual (GSQM) serves as a guide for aiding suppliers in understanding the key elements of Oshkosh Corporation Quality Requirements and Expectations. The SQM sections are the minimum practices that supplier facilities are required to effectively implement. In addition, Segment specific requirements are listed in the addendum section.

These requirements apply to ALL SUPPLIERS of:

- Production Materials
- Production or Service Parts
- Distribution Centers
- Manufacturers of Machinery

All Oshkosh suppliers are required to meet all Oshkosh Corporation Quality Requirements identified in this document. Use of the words “shall” and “must” indicate that the statement is a Requirement.

In addition, all Oshkosh suppliers are expected to meet Oshkosh Corporation Quality Expectations identified in this document. Failure to do so is likely to have an impact on future business. Use of the word “should” indicates that the statement is an Expectation.

It is Oshkosh Corporation’s mission to provide our customers with defect-free products and service and to supply them globally at the lowest total cost. The goal is simple – to be the benchmark supplier in every market. This goal can only be achieved with the support and commitment between you, our supplier and us. Clear, concise expectations and requirements will make the supplier-customer relationship more rewarding for all.

When referenced, Oshkosh Corporation includes but is not limited to the products produced under the brands of Oshkosh<sup>(R)</sup>, JLG<sup>(R)</sup>, Pierce<sup>(R)</sup>, Kewaunee<sup>(R)</sup>, McNeilus<sup>(R)</sup>, Jerr-Dan<sup>(R)</sup>, Frontline<sup>(TM)</sup>, CON-E-CO<sup>(R)</sup>, London<sup>(R)</sup> and IMT<sup>(R)</sup>.

All Oshkosh Corporation Suppliers are required to support the Oshkosh Corporation GPSC 4 Priorities.



### GPSC 4 Priorities

Delivery / Supply Chain	Quality / Launch	NPD - Program Management	Competitiveness
<p><b>Develop Supply Chain Capability</b></p> <ul style="list-style-type: none"> <li>• On Time Delivery to Station</li> <li>• Premium Freight</li> <li>• Achieve Budgets (Logistics, Inventory, Containers)</li> <li>• Value Chain Mapping</li> <li>• Ensure Strong Supply Chain Capability</li> <li>• Manage Critical Supplier Issues</li> <li>• Support Manufacturing Footprint</li> </ul>	<p><b>Quality / Cost Improvements</b></p> <p><b>Total Cost Approach</b></p> <ul style="list-style-type: none"> <li>• Plant Disruptions / Stock Outs / Down Time</li> <li>• Flawless Launch Execution</li> <li>• Waste Elimination</li> <li>• Warranty Improvement</li> <li>• Business Compliance / Integrity</li> </ul>	<p><b>New Programs @ Right Quality, Right Time, Right Cost</b></p> <ul style="list-style-type: none"> <li>• Right Resources Dedicated to The Project</li> <li>• On Time Achievement of Milestones</li> <li>• Quality of Engineering / Design / Services / Technology</li> <li>• Design to Cost Vs. Cost of Design</li> </ul>	<p><b>Best Landed Cost Globally</b></p> <ul style="list-style-type: none"> <li>• Best Landed Cost (TLC)</li> <li>• Sustainable Cost Structure</li> <li>• Cost Driver / Detailed Supplier Cost Break Downs</li> <li>• Value Creation vs. Competition</li> <li>• Grow Best Performing Suppliers</li> <li>• Global Sourcing</li> <li>• Proactive Supply Base Restructuring</li> </ul>

**Suppliers Must Perform To All Four Priorities**

## 2. Purpose

The purpose of this GSQM is to provide a uniform method to communicate general requirements, expectations, customer specific requirements and guidelines to the Supply Chain.

## 3. Global Procurement and Supply Chain (GPSC) Vision

The GPSC Vision is to develop world-class procurement and supply chain team members providing the best in logistics, quality, new product development (NPD) and competitiveness to the Oshkosh family of companies on a global basis.

## 4. Global Procurement and Supply Chain (GPSC) Responsibilities

All raw material and components are obtained through the corporate purchasing process. All raw materials and component parts will be classified by commodity type to develop consistency across all suppliers within that commodity and Oshkosh Corporation facilities.

## 5. Quality Management System

All suppliers to Oshkosh Corporation are expected to be ISO 9001:2008/2015, ISO/TS 16949, or IATF 16949 registered by an accredited third party registrar.



Non-compliance to this expectation may have an impact on future business.

## **6. Supplier On-Boarding Process (New Supplier Approval Process)**

A new supplier is defined as a supplier who has never done business with Oshkosh Corporation or is a past supplier who has not supplied product to Oshkosh Corporation within the last three years. Suppliers are required to register their business as a potential supplier by visiting <http://osn.oshkoshcorp.com/> and completing the Supplier Profile. It is the supplier's responsibility to keep this information updated and current. Oshkosh Corporation must have a signed Non-Disclosure Agreement in place with a supplier prior to any intellectual information exchange. Suppliers shall also acknowledge that Defense-related technical information provided by Oshkosh Corporation is subject to export control laws and regulations of the US.

All new suppliers are subject to a Global Supplier Quality Audit (GSQA) and Global Supplier Process Audit (GSPA), if applicable. The audits will be conducted at the discretion of the Oshkosh Corporation business segment that is considering a potential supplier. Suppliers must also agree to providing information to perform a Financial Analysis and Risk Assessment. Additionally, all new suppliers are required to complete a W-9 Form and associated Accounts Payable Forms to permit the set up of a supplier ID. On-boarding is a defined and structured process involving Purchasing, Quality, Engineering, and Manufacturing working together to bring a new supplier into our system with limited disruptions.

## **7. Global Supplier Quality Audit and Global Supplier Process Audit**

The GSQA and GSPA are used to assess the supplier's capability and process in accordance with their Quality Management System. If a supplier is ISO 9001:2008/2015, ISO/TS 16949, or IATF 16949 registered and in good standing, Oshkosh Corporation may choose not to perform a site audit.

### **7.1 Global Supplier Audit Overview**

The audit process is used to determine how well a supplier's Quality Management System performs. The audit process contains Standard Process Elements and Special Process Elements (as required) which are scored. An audit will be required for all new suppliers and an audit may be scheduled for any suppliers with repetitive quality or delivery issues.

In addition, audits may consist of assessing new supplier capabilities as well as capacity and readiness for new product launches.



Oshkosh reserves the right to visit and/or audit all production facilities (including second tier suppliers) who supply product and or services.

## **8. Advanced Product Quality Planning**

The information provided within all the Advanced Product Quality Planning sections outlines the specific Oshkosh Corporation requirements for new product implementation.

### **8.1 Advanced Product Quality Planning Overview**

Advanced Product Quality Planning (APQP) is a structured approach for defining, establishing and specifying goals for product quality. Quality planning focuses on developing process controls that, when properly managed, ensure a high degree of quality within the manufacturing/assembly system.

Quality planning begins with a company's management commitment to defect prevention and continual improvement, as opposed to defect detection.

The five common phases of the Advanced Product Quality Planning Process are:

- 1) Plan and Define Program
- 2) Product Design and Development
- 3) Process Design and Development
- 4) Product and Process Validation
- 5) Feedback Assessment and Corrective Action

The Supplier shall establish a structured approach to implement new processes. It is recommend that the Supplier utilize the Advanced Product Quality Planning approach. This structured approach to new product planning will enable the Supplier to effectively launch new products and ensure controls are established to achieve the highest levels of Quality. This planning will enable the supplier to provide the required Production Part Approval Process (PPAP) documentation.

## **9. Production Part Approval Process – PPAP**

The Oshkosh Corporation Production Part Approval Process (PPAP) defines requirements for production part approval. The purpose of PPAP is to determine if all customer engineering Design Record and specification requirements are properly understood by the Suppliers and that the manufacturing process has the



capability to produce product consistently to meet these requirements during an actual production run at the quoted production rate. Detailed procedures, training and PPAP forms can be found on the Oshkosh Supplier Portal at <http://osn.oshkoshcorp.com/gsq-en.htm>.

### 9.1 PPAP Requirements

The Supplier shall meet all specified PPAP requirements outlined in this Supplier Quality Manual as well as the Oshkosh Corporation Production Part Approval Process procedure (OSK-P2000), training (OSK-T2000) and form (OSK-F2000)

If any part specifications cannot be met, the Supplier shall document its problem-solving efforts and contact the appropriate Oshkosh Corporation agent to engage Quality and Engineering for concurrence in determination of appropriate corrective action.

## 10. Supplier Change Request

Suppliers (Tier 1 and Tier 2) may propose design changes or modifications to help reduce cost, improve quality, and increase reliability and process capability of the product. ALL proposed design changes or modifications, whether permanent or temporary and including proprietary designs, MUST be approved in writing by Oshkosh Corporation. The detailed Oshkosh Corporation Supplier Change Request procedure (OSK-P1000), training (OSK-T1000) and form (OSK-F1000) can be found on the Oshkosh Supplier Network at <http://osn.oshkoshcorp.com/gsq-en.htm>.

If a Tier 1 Supplier wishes to change manufacturing locations, the Supplier must notify Oshkosh Corporation. The new manufacturing location shall be qualified by an audit, material/parts validated, and a PPAP will be required. A PPAP submission may be required even if the change is at the Tier 2 level.

The supplier must communicate all change requests utilizing the Supplier Change Request form (OSK-F1000). This form should be submitted at least 12 weeks prior to the planned change implementation. The form is available on the Oshkosh supplier portal at <http://osn.oshkoshcorp.com/gsq-en.htm>.

The completed form shall be sent to Oshkosh Corporation per the requirements in OSK-P1000.

There are five types of Change Requests:

- Temporary Process Change – Change to the PPAP approved process, tooling move, plant move, improved/new tooling, etc., however it may be functionally acceptable temporarily





- Temporary Product Change – Change to the product such the design intent, material change, etc. however it may be functionally acceptable temporarily
- Permanent Process Change – Change to the PPAP approved process, tooling move, plant move, improved/new tooling etc, on a permanent basis
- Permanent Product Change – Change to the product such that it meets the current design intent and requires a design change
- Supplier Cost Reduction Ideas Program (SCRIP) – Change to the product, process or design, generated and proposed by the Supplier to reduce product cost

## 11. Nonconforming Material

The Supplier shall establish and maintain documented procedures to ensure that proven or suspected nonconforming products are prevented from unintended use or installation. The control procedures and activities must provide for identification, documentation, evaluation, segregation, and disposition.

In the event that nonconforming material is present on finished product in the field, on sales lots, or becomes a warranty claim, the Supplier is responsible to aid Oshkosh Corporation in evaluating and correcting the issue. Oshkosh Corporation is entitled to recover from the Supplier all costs reasonably incurred in taking corrective action per the terms and conditions.

In the event that nonconforming product is reworked, the Supplier shall verify that the reworked product meets the design requirements.

## 12. Corrective Action Requirements for Suppliers

Oshkosh Corporation will notify suppliers of problems regarding quality, delivery, packaging and services in writing. Initial response and containment is expected within 24 hours. This initial response includes, at a minimum:

- Utilization of a documented corrective action format (Oshkosh Template – OSK-F3000)
- The problem description
- All personnel assigned to resolve the concerns
- Containment actions taken or in-process (Sorting on-site at Oshkosh Corporation facility by the supplier or a third party company and/or replace with properly identified certified material to meet production needs)
- Containment of all in transit material



The completion of the final corrective action report should be furnished to Oshkosh Corporation no later than 45 days after the initial request. The final corrective action report should include all documentation of problem solving tools used such as, pareto analysis, 5 Whys, fishbone diagram, DOE and include the updated FMEA's and Control Plans. Corrective actions should focus on addressing root causes by making improvements to the manufacturing process and Supplier's system. Root causes focused on inspection failures, operator error, or other types of blame are unacceptable and should be avoided.

Corrective Actions may be issued for reasons including, but not limited to:

- Delivery
- Packaging
- Nonconforming material
- Slow or no responsiveness to inquiries
- Non-compliance to ISO 9001:2008/2015, ISO/TS 16949, or IATF 16949  
OR this Supplier Quality Manual

The Oshkosh Corporation 8D Corrective Action procedure (OSK-P3000), training (OSK-T3000) and form (OSK-F3000) can be found on the Oshkosh Supplier Portal at <http://osn.oshkoshcorp.com/gsq-en.htm>.

The Supplier is expected to address rejects and failures regardless of whether Oshkosh Corporation requires submission of a corrective action, in order to prevent recurrence of the problems.

### **12.1 Containment and Short Term Corrective Action**

An initial response concerning Containment Measures is expected within 24 hours after nonconformance discovery by Oshkosh Corporation or the Supplier. The Supplier must contain all materials at Oshkosh Corporation's facilities, off-site warehouses, and any material in transit. The Supplier must also put a Short Term Corrective Action in place. Upon request, the Supplier shall provide immediate containment at the Oshkosh Corporation facilities to ensure no stoppage of production. The Supplier is responsible to provide a detailed report of containment, Short Term Corrective Action and disposition activity upon request. The Supplier must provide Returned Goods Authorization (RGA) at that time, if parts are to be returned.

The 8D Corrective Action initiator may require the supplier to implement Containment Level 1 if the nature of the Quality incident is of the following category:

- Repeat Nonconformances
- Major Disruptions



- Field Campaign
- Production Downtime
- Production Shortage

**Containment Level 1 (CL1):** Is an Oshkosh Corporation requirement that a supplier put in place a redundant inspection process at the supplying location. To sort for a specific and specified nonconformance, execute the 8D corrective action methodology, and insulate the customer from the receipt of nonconforming parts/material. The redundant inspection is in addition to normal controls, is executed by the supplier's employees, and must be in addition to the normal production process controls. The Supplier shall follow the process defined in the Oshkosh Corporation Containment Level 1 and 2 procedure (OSK-P3100), training (OSK-T3100) and form (OSK-F3100).

If the Containment Level 1 criteria is not executed properly and the Oshkosh Facility continues to receive nonconforming material, the Supplier will be placed on Containment Level 2.

**Containment Level 2 (CL2):** An Oshkosh Corporation requirement that includes the same processes as Containment Level 1, **with an added inspection process by a third party** representing the customer's interests specific to the containment activity. The third party is selected by the supplier, approved by Oshkosh Corporation, and **paid for** by the Supplier. The Supplier shall follow the process defined in the Oshkosh Corporation Containment Level 1 and 2 procedure (OSK-P3100), training (OSK-T3100) and form (OSK-F3100).

## 12.2 Sorting and Rework

When the Supplier's parts do not meet specifications and the customer production schedule is at risk, the Supplier shall assume responsibility of sorting and rework activity. The Supplier shall provide detailed Standardized Work including re-inspection requirements for rework activities that are approved by the Oshkosh Quality Representative. The Supplier must also provide detailed Standardized Work for sorting activities including both variable and attribute acceptance criteria if applicable.

- Charge Backs: are for sorting and rework done by Oshkosh Corporation that will be debited against the supplier for all expenses related to the activity.
- Supplier of Third Party Activity: are for additional temporary manpower needed by Oshkosh Corporation's temporary agency, the supplier will be billed directly by the agency.
- Supplier Support: is the presence of a required supplier representative while sorting and rework operations are conducted. If the Supplier provides their own manpower to sorting and/or rework material, they



will be allowed to sort and/or rework material on Oshkosh Corporation properties, space permitting.

### **13. Supplier Performance Monitoring**

The purpose of Supplier Performance is to identify the Supplier's conformance to Oshkosh Corporation standards. Parts and services furnished to Oshkosh Corporation are expected to meet and maintain zero defects and 100% on-time delivery. The Supplier Performance to the Oshkosh Corporation 4 Priorities is monitored. This data will be used for sourcing decisions by the GPSC Purchasing Department. If the Supplier's performance does not meet the expectations of Oshkosh Corporation the Supplier could be placed on new business hold or removed from the supply base. The Supplier can review Quality and Delivery performance by accessing the Oshkosh Corporation Supplier Performance Dashboard. The dashboard can be reached by logging into the Oshkosh Supplier Network ([osn.oshkoshcorp.com](http://osn.oshkoshcorp.com)).

### **14. Parts Per Million – (PPM)**

PPM (parts per million) is a method of stating the performance of a process in terms of actual nonconforming material. PPM data is used by Oshkosh Corporation Quality Representative and Purchasing to assess the performance of the Supply Chain relevant to Quality. Oshkosh Corporation requires its Suppliers to participate in and provide necessary improvements to reduce PPM levels in alignment with the Oshkosh Corporation PPM Goals.

PPM is calculated using the following formula:

$(\text{Total Nonconforming Quantity} / \text{Total Receipt Quantity}) * 1,000,000$

### **15. Delivery Requirements**

The Supplier is required to meet 100% on-time delivery, including quantity and timing requirements by the Oshkosh Corporation facility. Failure to meet these requirements will result in the Supplier being responsible for any premium freight as well as downtime incurred at Oshkosh Corporation.

### **16. Warranty and Cost Recovery**

The Supplier shall review all warranty claims on their parts. Failure to review warranty returns does not relieve supplier responsibility to assure Customer Satisfaction. When a part in a product fails during the warranty period, there is a cost associated with repairing the product. If the part that fails is purchased, Oshkosh Corporation may look to the Supplier for reimbursement. Oshkosh Corporation's expectation will be for the Supplier to collaborate with Oshkosh Corporation to determine the root cause of the failure as well provide



reimbursement for the repair expenses. See Oshkosh Corporation's Terms and Conditions for further defined requirements.

## **17. Product Traceability**

The Supplier shall adhere to the ISO 9001:2008/2015, ISO/TS 16949, or IATF 16949 for Product Identification and Traceability and always identify its products from applicable drawings, specifications, or other documents, during all stages of production, delivery, and installation, where appropriate.

If traceability is a specified requirement, the Supplier shall use unique identification for product (serial number, batch number, etc.). This information must be documented and retained appropriately. This traceability requirement also applies to the Supplier's sub-tier suppliers.

## **18. Distributor Requirements**

Distributors shall have in place a system to understand all parts origin, traceability to manufacturing location, and required specifications. The distributor shall be responsible for proper handling and storage to prevent damage and product deterioration. Stock control shall be implemented, as appropriate, for shelf life items and the removal of obsolete/unacceptable product. Packaging shall provide adequate protection to ensure safe delivery. The distributor is responsible for corrective actions in regards to nonconforming product supplied to Oshkosh Corporation. All requirements within this Manual apply to the Distributor.

## **19. Control of Customer – Supplied Product**

If Oshkosh Corporation provides product for incorporation into the Supplier's product or related activities the Supplier shall establish and maintain documented procedures for the control, verification, storage and maintenance of Oshkosh Corporation product. Any such product that is lost, damaged, or is otherwise unsuitable for use shall be recorded and reported to Oshkosh Corporation Purchasing. Oshkosh Corporation owned returnable packaging is included in this specific requirement.

An affixed tag specifically containing the part number and/or customer name to identify ownership is the preferred approach. However, this requirement may be met by using a Supplier designated number cross-referenced with clear traceability back to the customer.



## 20. Tooling Management

The Supplier shall establish and implement a system for tooling management including the following:

- Maintenance and repair facilities and personnel
- Unique identification for tooling
- Storage and recovery
- Setup
- Tool change programs for perishable tools
- Tool modification, including tool design documentation
- Tool condition (wear, dimensional integrity, etc.) verification

Tools and Fixtures owned by Oshkosh Corporation must be marked "Property of Oshkosh Corporation" or with a tracking label if required by Oshkosh Corporation. This must be visually documented in the PPAP workbook.

## 21. Preventative Maintenance

The Supplier shall identify key process equipment and shall develop an effective planned total preventative maintenance system in order to prevent delivery or quality failures. The total preventative maintenance system should utilize predictive maintenance methods to continually improve the effectiveness and the efficiency of the identified key process equipment.

## 22. Sub-tier Supplier Quality Assurance

The Supplier is responsible for all communication of all purchase order requirements to include those specified within this SQM. The Supplier shall provide requirements and guidance to their Supply Chain consistent with the requirements of Oshkosh Corporation.

The Supplier shall have a process in place to ensure that all sub-tier Suppliers have and maintain a system to provide conforming product and services in accordance with Oshkosh Corporation requirements.

## 23. Packaging and Shipping

The Supplier shall provide for adequate facilities and instructions for handling, packaging and shipping to protect the products and prevent damage during storage and transit. The Supplier shall conform to the requirements of the Oshkosh Supplier Standards Guide Section J, which is available at <http://osn.oshkoshcorp.com>.



## **24. Identification, Preservation, Package and Packing**

The Supplier shall accomplish identification, cleaning, preservation, packaging, and packing in accordance with the applicable drawings, specifications, and instructions as referenced on the purchase order.

Unless otherwise specified, all uncoated or unprotected ferrous and nonferrous metal surfaces (internal and/or external) must be protected for a minimum of thirty (30) working days from date of shipment against rust and corrosion and be suitably packed to prevent damage from handling or shipping. All openings (i.e. hydraulic tubes, electrical connections, etc.) must be adequately protected by closures to prevent contamination or damage.

## **25. Fastener Quality Requirements**

The Supplier must develop a program to assure fasteners conform to the specifications to which they are represented to be manufactured, to provide for accreditation of laboratories engaged in fastener testing, to require inspection, testing and certification in accordance with standardized methods of fasteners.

All externally threaded fasteners in which drawings specify Grade 5 and metric 8.8 or greater, must have available chemical and physical certifications, from an accredited laboratory. Certifications must include lot traceability back through the manufacturing system to the heat lot of raw material used. It is not necessary for shipments to include certification documents; however, the Supplier must be able to provide these certifications to Oshkosh Corporation within 24 hours of request. Cartons must be marked with a unique lot number, which allows the Supplier to trace material back to the manufacturer. In addition, it is strongly recommended these requirements are communicated by the Supplier to the Tier 2 Suppliers.

Oshkosh Corporation will not accept any cap screws or flange bolts which do not have a manufacturers head marking on them. Cap screws must be produced per applicable International Fastener Institute (IFI), SAE J429, SAE 1199 or DIN Standards. Reference: Fastener Quality Act Public Law No. 106-34 (1999).

## **26. Record Retention**

Records/documents providing objective evidence of conformance to drawings, standards, and other applicable specifications considered essential to the effective operation of the program shall be maintained. They shall be legible, dated, clean, readily identifiable and maintained in an orderly manner. They shall provide traceability to specific products and use actual data, as required by applicable specifications, to indicate acceptability of the product.

Records/documents may be either hard copy or computer media. See segment addendums for any addition specific record retention requirements.



## 27. Shelf Life

The Supplier shall mark the parts and exterior shipping container in accordance to applicable specifications for any items subject to age control (i.e.: paint, adhesives, rubber, hose assemblies, etc.). If there is a shelf-life for the product, the expiration date must be noted on the outside of all containers.

## 28. Welding Requirements

At a minimum the Supplier must comply with the appropriate industry accepted codes and standards, such as AWS, ASME or MIL-specs, or otherwise specified by the Business Segment Design Authority. The Supplier MUST certify and maintain a record of any and all personnel that weld on Oshkosh Corporation components per the accepted codes and standards, along with maintaining that certification to satisfy Oshkosh Corporation's customer requirements.

The following list includes, but is not limited to the relevant Industry Accepted publications that are referenced in Oshkosh Corporation welding requirements.

- AWS A2.4 Standard Symbols for Welding, Brazing, & Nondestructive Examination
- AWS A3.0 Standard Welding Terms & Definitions
- AWS C1.1M (R2006) Recommended Practices For Resistance Welding
- AWS D1.1 Structural Welding Code -- Steel
- AWS D1.2 Structural Welding Code -- Aluminum
- AWS D1.3 Structural Welding Code -- Sheet
- AWS D9.1 Sheet Metal Welding Code
- AWS D14.3 Specification for Welding Earth Moving & Construction Equipment.
- GB 324 Welds – Symbolic Representation on Drawings
- GB 15169 Qualification Examination Method of Manual Welders for Steel Fusion Welding
- GB 985 Basic Types and Sizes of Weld Grooves of Gas Welding, Manual Arc Welding and Gas Shielded Welding
- GB 5293 Carbon Steel Electrodes and Fluxes for Submerged Arc Welding
- GB 19805 Qualification Test of Welding Operators
- GB/T 3669 Aluminum and Aluminum-alloy Electrodes for Metal Arc Welding
- GB/T 5117 Carbon Steel Electrodes
- GB/T 8110 Welding Electrodes and Rods for Gas Shielding Arc Welding of Carbon and Low Alloy Steel
- GB/T 19867 Welding Procedure Specification for Arc Welding
- GB 986 Basic Types and Sizes of Submerged Arc Welding Seam Grooves





- GB 3323 Radiography and Quality Classification of Steel Fusion Welding Butt Joints
- GB 6417 Classification and Explanation of Metal Fusion Welding Seam Defects
- GB/T 984 Hardfacing Electrodes for Shielded Metal Arc Welding
- GB/T 5118 Low Alloy Steel Electrodes
- GB/T 10045 Carbon Steel Flux Cored Electrodes for Arc Welding

### **28.1 Weld Fixtures**

All weld fixtures must be certified either by the fixture manufacturer or the Supplier. Certification requires that the weld fixture be validated by verifying the part dimensions to the Design Record requirements. For characteristics that may result in distortion or nonconformance concerns, the Supplier shall verify the weld process capability. Weld fixtures must be controlled in accordance to the requirements of Section 21 of this document.

## **29. Hydraulic and Pneumatic Component / System Cleanliness**

The Supplier shall ensure components and hydraulic assemblies are clean per Oshkosh Corporation Engineering Specification 01-MC. Procedures that meet or exceed the Oshkosh Engineering Specification 01-MC or QACO36 shall be maintained by the Supplier for review by the buyer or Oshkosh Quality Representative at request.

All hydraulic and pneumatic items shall have all fittings, ports, open ends, etc. protected from contamination by closures.

Regular sampling and testing of the hydraulic fluid used in test stands shall be conducted with the results available to Oshkosh personnel if requested as part of the PPAP Workbook (tab within – PSC). The Supplier is responsible for notifying Oshkosh Corporation Purchasing and Quality in the event that conforming test results are not achieved.



# ACCESS SEGMENT ADDENDUM

Currently there are no specific requirements for the Access Segment.



# DEFENSE SEGMENT ADDENDUM

Refer to the Defense Segment Addendum document for  
Defense specific requirements, available here:

[https://osn.oshkoshcorp.com/-/media/osn/supplier-resources/  
standards-guide/2022/defense/defense-addendum.pdf](https://osn.oshkoshcorp.com/-/media/osn/supplier-resources/standards-guide/2022/defense/defense-addendum.pdf)



# COMMERCIAL SEGMENT ADDENDUM

Currently there are no specific requirements for the Commercial Segment.



# **FIRE & EMERGENCY SEGMENT ADDENDUM**

Currently there are no specific requirements for the Fire & Emergency Segment.