


Quality procedure – supply chain			 עִפּוּר מְעֻבְּרָת ייצור בע"מ SHAFIR PRODUCTION SYSTEMS LTD.	
External providers quality requirements		W.I. No'		7.4-1 SOP
Date	05/2025	REV		A

This document defines the quality requirements for Shafir subcontractors and suppliers and constitutes an integral and binding part of Shafir's purchase order. By approving the order, the subcontractor/supplier confirms acceptance of this document and agrees to act in accordance with its provisions.

1 Applicability of the Requirements in This Document

At the end of this document, there are appendices focusing on additional requirements by topic:

- **Appendix G** – Electrical Harnesses and Wiring
- **Appendix D** – Hydraulics
- **Appendix E** – Packaging
- **Appendix V** – Built To Spec


The requirements in the appendices are in addition to those listed in the main body of the procedure. Requirements from multiple appendices may be combined, depending on the nature of the order. For example, an order for the design and supply of electrical harnesses would require compliance with: the main procedure, Appendix V, Appendix G, and Appendix E.

2 Applicable Documents

The following documents are referenced and applicable to this procedure:

Ref. No.	Document Name	Description
2.1	ISO 9001:2015	Quality Management System – Requirements
2.2	93.00.63 Edition 30	Special Quality Assurance Requirements for Orders (Rafael Document)
2.3	SAE Standard: AS9100	Quality Management System for Aviation, Space, and Defense Industries
2.4	RFD Form No. F003	Request for Deviation or Engineering Query Form
2.5	Doc-Gen-01-110523	Supplier Letter – Engineering and Quality Control Guidelines


Quality procedure – supply chain			
External providers quality requirements		W.I. No'	7.4-1 SOP
Date	05/2025	REV	A



Ref. No.	Document Name	Description
2.6	QAP 8.1-1	Procedure for Work Transfer Control
2.7	Form 11032011	Source Inspection Scheduling Form
2.8	111.26	General Organic Coating Specification (Rafael Document)
2.9	111.21	General Surface Treatment Specification (Rafael Document)
2.10	111.24	General Thermal Treatment Specification (Rafael Document)
2.11	111.22	General Corrosion Protection Systems Specification (Rafael Document)

Term / Abbreviation	Description
Quality level 2	Quality level aligned with ISO 9001 and Shafir Systems procedures. Typically applies to civilian projects without special defense industry requirements, or auxiliary manufacturing tools for defense/aerospace.
Quality level 1	Defense/aerospace quality level per Shafir Systems procedures, customer requirements, and AS9100 standard. The default for Shafir orders unless stated otherwise.
Special Process	Processes whose compliance cannot be fully verified post-execution (e.g., welding, heat treatment, coating, surface treatment, painting). Must be performed by certified personnel using approved equipment and under proper control.

Quality procedure – supply chain			
External providers quality requirements		W.I. No'	7.4-1 SOP
Date	05/2025	REV	A



Term / Abbreviation	Description
COC	Certificate confirming compliance with requirements.
COT/A	Certificate of test or laboratory analysis.
FAI	First production lot inspection.
MRB	Material Review Board – internal Shafir committee authorized to approve deviations or concessions.
FOD	Failures due to foreign object presence. Foreign Object Damage/Debris
SOW	Document defining the required scope of work.
Work Transfer	Transfer of work within or outside the organization (e.g., between sites, from customer to supplier, etc.).
Product Safety	Product's ability to perform its intended use without posing unacceptable risk to people or property.
Part (for counterfeit parts definition purposes)	Component, module, assembly, or other item supplied to Shafir.
Counterfeit Parts	Parts with misleading origin, material, characteristics, or performance. Includes relabeled, refurbished, defective, or expired parts.
RFD	Request for deviation approval.
BTS	Built to specification – includes both design and manufacturing per customer specification.

Quality procedure – supply chain			
External providers quality requirements		W.I. No'	7.4-1 SOP
Date	05/2025	REV	A



Term / Abbreviation	Description
BTP	Built to print – manufacturing only, based on customer-provided drawings.
WPS	Welding process specification.
PQR	Process qualification report.
Supplier, External Provider, Subcontractor	Manufacturer, subcontractor, or external provider.

4 Quality Management System

The supplier shall maintain a quality system that complies with the requirements of Shafir.


4.1 Communication with Shafir and Flow-Down of Requirements

- All communication must be documented in writing. Verbal or phone summaries are not acceptable.
- The RFD form shall serve as the formal tool for approving changes or deviations from the engineering data in the purchase order or from quality requirements.
- The quality requirements outlined in this document and its associated specifications and customer procedures must be flowed down to the supplier’s entire supply chain.
- The supplier shall direct all questions to the Shafir buyer listed on the purchase order. The buyer serves as the liaison and coordinator with Shafir departments.

4.2 Guidelines from the Defense Export Control Agency (Ministry of Defense), Export Licenses, and Declarations

- Shafir is committed to complying with the guidelines of DECA (Defense Export Control Agency) and places great importance on them.
- By accepting Shafir’s orders, the supplier commits not to transfer, in whole or in part, to individuals (e.g., foreign nationals) or to foreign-controlled companies in Israel or abroad, any equipment, parts, knowledge, information, or intellectual property (e.g., contracts, drawings, specifications, etc.) defined as defense-related and provided by Shafir in the context of RFQs or purchase orders, without explicit written approval from an authorized Shafir representative.

Quality procedure – supply chain			
External providers quality requirements		W.I. No'	7.4-1 SOP
Date	05/2025	REV	A



- The supplier also commits not to use raw materials or components that require an export license (Israeli or foreign) and/or special authorization such as an End Use/User Declaration.

4.3 Access to Supplier Sites

- The supplier shall grant unrestricted access to Shafir employees and representatives, Shafir customers, and regulatory authorities to all applicable areas of all sites involved in the order, at every level of the supply chain (including the supplier's own subcontractors), for the purpose of verifying compliance with the order requirements.
- The supplier shall provide all necessary support for this task, including access to facilities, personnel, tools, and coordination with its subcontractors.

4.4 Review of Shafir Purchase Order Requirements

- The supplier shall review the order and ensure all details match, including version checks. In case of discrepancies, the supplier must contact the buyer.
- The supplier shall examine the order, all its appendices, and the linked specifications. By confirming the order, the supplier assumes full responsibility for being familiar with all related materials and confirms its ability to meet all order requirements.
- Identical part numbers may exist across different projects, distinguished by paint system definitions specified in Shafir's purchase documents. The supplier must differentiate part numbers accordingly.
- For Rafael products, if the supplier is not recognized or approved by Rafael and lacks access to the Rafael portal, the supplier must formally request the necessary specifications from the Shafir buyer.


4.5 Procurement of Raw Materials and Components

- Raw materials and components must be purchased only from reliable suppliers who provide COC/COT certificates confirming compliance with drawing requirements.

4.6 For Quality Level 1

- Raw materials and components must be purchased only from suppliers approved by Shafir or its customers, such as Rafael or Israel Aerospace Industries.
- The supplier must obtain from its vendors a copy of the original supplier's COT/COA for the batch from which the material was supplied, or a COC referencing the lab report.
- Raw materials intended for Shafir orders must be received and stored separately from those for other customers.
- Procurement of raw materials must follow Shafir SOP 8.5.1-3.

Quality procedure – supply chain			
External providers quality requirements		W.I. No'	7.4-1 SOP
Date	05/2025	REV	A



- Special processes such as welding, coating, and painting must be performed by contractors approved by Rafael and holding valid certification at the time of order execution.
- Components (mechanical, electronic, electromechanical, hardware, etc.) and raw materials used in the production/assembly of ordered items must be procured according to the BOM referenced in the production documents or item drawings, and from manufacturers listed in the AML (Approved Manufacturers List) as defined in the supplier portal or from authorized distributors.
- Components and raw materials covered by an STS agreement for Rafael must be ordered exclusively from those suppliers/manufacturers, with the order clearly stating they are intended for Rafael.
- For Rafael orders, the supplier must request the original supplier's COT/COA for components and raw materials.
- Procurement of raw materials and parts (e.g., hardware) must comply with the quality specifications of Rafael or Shafir. If the supplier performs assembly, Shafir is responsible for providing the relevant specifications.
- Shafir reserves the right to request and receive samples of raw materials for verification of material and process compliance.

4.7 Traceability

- **Quality Level 1:** The supplier must provide traceability for raw materials used in the production batch, internal inspection reports, and reports for special processes including welding, coating, and painting. See detailed requirements in the relevant quality control sections.
- **Quality Level 2:** The supplier must provide reports only for parts where such documentation is explicitly required in the purchase order.


4.8 Foreign Object Damage (FOD) Prevention

Subcontractors must implement special preventive and control measures to avoid the intrusion or entrapment of foreign objects in parts or assemblies during all stages of production, packaging, and shipping.

4.9 Product and Service Release

- The supplier shall designate authorized personnel within their organization to release products to Shafir.

Quality procedure – supply chain			
External providers quality requirements		W.I. No'	7.4-1 SOP
Date	05/2025	REV	A



- Release records, such as the Certificate of Conformity (COC), must be approved by the authorized representative of the supplier.

4.10 Packaging and Shipping

- The supplier shall package products using best practices and experience to ensure no damage occurs during transport and handling. See the Packaging Appendix at the end of this procedure.
- Each product must be clearly labeled with identification tags.
- All shipping documents, including quality documentation, must be enclosed within the packaging to prevent loss or damage during shipment.

A centralized email address has been established for sending shipping documents (quality paperwork):

✉ certs@shafir.co.il

Documents may be sent to this address instead of physical delivery.

4.11 Supplier Performance Monitoring

Objective metrics such as price, on-time delivery, and quality are periodically measured and analyzed. These are weighted into a supplier score, which Shafir management uses to evaluate and initiate improvement actions as needed.

4.12 Retention of Quality Records


All documented information related to the quality of products supplied to Shafir must be retained by the supplier for a period of at least 7 years.

4.13 Counterfeit Parts Prevention

The supplier confirms that by accepting a purchase order from Shafir, all materials supplied are new and authentic, and do not contain counterfeit parts. This includes direct supply from original equipment/component manufacturers (OEMs/OCMs) or through authorized distributors or other approved sources.

The supplier also confirms that they possess (or will obtain) and provide Shafir with full documentation verifying traceability of each supplied item to the applicable OEMs/OCMs or authorized distribution chain.

Quality procedure – supply chain			
External providers quality requirements		W.I. No'	7.4-1 SOP
Date	05/2025	REV	A



4.14 Product Safety

The supplier shall ensure that all final products delivered to Shafir are safe for use and operation under reasonable conditions, without posing unacceptable risks to people or property. Products must comply with applicable legal and regulatory requirements and include operating instructions (if applicable) to ensure safe use.

The supplier must notify Shafir of any safety risks discovered in a supplied product.

In Shafir drawings (typically in the lower-right corner) or in the introduction of other documents, the following note shall appear in red when applicable:

Attention! – Product safety dimensions/processes/elements are marked by:

Where applicable, processes, dimensions, or notes related to product safety must be clearly marked and reported in inspection reports.

Employees involved in handling or manufacturing safety-critical items must be aware of the importance of these items and the relevant requirements. These items must be handled with care and appropriate control measures must be applied.

4.15 Customer Property

As part of the purchase order, the supplier may receive raw materials, parts, or components provided by Shafir or its customers. The supplier is responsible for inspecting the quality of the received items during incoming inspection and identifying at minimum any visual defects before incorporating them into the final product.


Raw materials provided by Shafir must be clearly segregated, especially those supplied by Shafir’s customers. If raw materials are delivered with a Rafael “usable tag” directly to the supplier’s warehouse, the supplier must document the tag in the quality records of the production batch.

Test equipment transferred from Shafir as part of a project shall be managed by the supplier as measurement tools. The supplier must ensure calibration validity and request calibration from Shafir as needed.


4.16 Personnel Competence

The supplier shall ensure that its employees and any individuals under its supervision who perform work affecting the quality of products or services supplied to Shafir are competent in terms of knowledge, education, health (e.g., vision), and experience to perform their duties properly.

For activities requiring certification or approval by an authorized body (e.g., welding, soldering, non-destructive testing – NDT), personnel must hold valid certificates demonstrating their qualifications.

Quality procedure – supply chain				 עֲפִיר מְעַרְכֹת ייצור בע"מ SHAFIR PRODUCTION SYSTEMS LTD.
External providers quality requirements		W.I. No'	7.4-1 SOP	
Date	05/2025	REV	A	

Supplier personnel involved in the order must be aware of their contribution to product quality, product safety, and ethical conduct.

Quality procedure – supply chain				 עֲפִיר מְעַרְכֹת ייצור בע"מ SHAFIR PRODUCTION SYSTEMS LTD.
External providers quality requirements		W.I. No'	7.4-1 SOP	
Date	05/2025	REV	A	

5 Quality Control

The supplier is responsible for performing inspections as detailed below and for flowing down these requirements to its supply chain:

5.1 Visual Inspection

- A 100% visual inspection shall be carried out on all items in the order.
- The inspection must verify all requirements that can be confirmed visually, including workmanship, appearance, color, and absence of visible defects such as cracks, scratches, dents, broken corners, burrs, dirt, stains, uneven paint or coating, and paint defects (where applicable).
- Visual inspection must be conducted under appropriate lighting with an intensity of no less than 1000 lux.


5.2 Sampling Method

- Appendix A of this procedure includes a sampling table based on the “Squeglia” standard for sampling plans.
- Shafir suppliers are required to be familiar with this standard and apply it for final inspection sampling.
- By default, the supplier shall inspect the production lot using plan C=0, Index Value = 2.5.
- The principle of the C=0 method is that if a single nonconforming characteristic is found in one part, 100% inspection must be performed for that characteristic across the entire lot. No deviations are allowed.

For special processes, the supplier may apply different sampling methods according to its internal procedures.

5.3 Dimensional Inspection

- The supplier must possess the necessary measuring and inspection tools to verify that manufactured parts meet drawing requirements.
- If the supplier lacks appropriate tools or equipment, they must notify Shafir when submitting their proposal and suggest alternatives, such as performing measurements at an approved external lab, at their own expense and responsibility.

Quality procedure – supply chain				 שפיר מערכות ייצור בע"מ SHAFIR PRODUCTION SYSTEMS LTD.
External providers quality requirements		W.I. No'	7.4-1 SOP	
Date	05/2025	REV	A	

- In exceptional cases (e.g., large structural parts without access to XYZ machines of sufficient size), the supplier may propose in-process measurement using the machining equipment, provided the method includes machine deviation calibration and is approved by Shafir.

Thread inspections must be performed using calibrated thread gauges:

- Minor diameter of internal threads: inspected with a pin gauge per thread standard.
- Major diameter of external threads: inspected with a micrometer per thread standard.

5.4 Measurement and Drawing Clarifications

- All drawing dimensions must be inspected, including surface finish, threads, etc.
- By default, drawing dimensions are considered pre-coating and pre-painting unless otherwise specified.

Exception: Threads.

If threads are to be coated, the supplier must ensure they remain functional after coating.


For precise diameters where coating adds thickness, Shafir’s design accounts for the coating layer.

Thus, drawing dimensions are calculated pre-coating to ensure post-coating functionality—unless the drawing explicitly specifies both pre- and post-coating dimensions.

5.5 Inspection Reports – Evidence of Product Testing and Inspection

For Quality Level 1, the following documentation is required for final inspection:

- Part number, revision, drawing number, production lot number.
- Sampling plan standard (including Index Value % and C=0).
- Lot quantity, sample size, inspector name, inspection date, inspector stamp and signature.
- All drawing dimensions (including welds, surface finish, angles, and geometric definitions) must be ballooned, and each balloon must correspond to a separate row in the report.
- Each dimension must specify the measuring tool used. The tool must comply with the 10:1 rule (tool accuracy must be 10 times greater than the tolerance).
- For each part inspected in the sample, individual measurements must be recorded in separate columns (a single MIN-MAX column is not acceptable). For Rafael parts, 5 parts = 5 columns. For other customers, a range of results is acceptable.
- Deviations must be approved via RFD form.
- Signature of the responsible person/inspector/supplier confirming execution of actions listed in the drawing’s RC table.
- Special process inspection reports.

Quality procedure – supply chain				 עֲפִיר מְעַרְכֹת ייצור בע"מ SHAFIR PRODUCTION SYSTEMS LTD.
External providers quality requirements		W.I. No'	7.4-1 SOP	
Date	05/2025	REV	A	

- Critical dimensions marked with (*) or other customer-defined symbols must be inspected 100% or as specified in the drawing and reported accordingly.
- FAI forms if required.
- Welding specifications (WPS) for welded components.
- For Rafael products, the supplier must comply with all inspection and quality control requirements defined in specification 93.00.63 as published in the Rafael portal.
- For Quality Level 2: a COC or inspection report must be provided.

5.6 Calibration of Measuring Tools and Test Equipment

- Calibration management must comply with ISO 9001 / AS9100 requirements.
- Measuring tools must be validated/calibrated and approved by a laboratory accredited to ISO 17025 for the relevant scope.


5.7 Work Transfer Control

Work shall not be transferred to a subcontractor who is not recognized and approved for the specific task unless explicitly authorized by Shafir's Quality Manager.

5.8 Source Inspection

- The supplier shall present products and supporting quality documentation for source inspection as defined in this procedure. Source inspection does not replace Shafir's requirement for final inspection and does not relieve the supplier of responsibility for product conformity.
- **Inspection Request** – The supplier shall coordinate with the source inspection company using the designated form No. 11032011.
- **Lot Approval** – Approval is indicated by a Shafir “usable tag” or a tag issued by the source inspection company.
- **Rejection** – The supplier shall not deliver items rejected during source inspection unless approved by Shafir's Quality Manager. If the supplier wishes to deliver a rejected item, they must submit an RFD form to the Shafir buyer.
- The supplier shall only request source inspection after completing all defined processes for the item. For example, if the item includes coating, painting, and hardware assembly, the source inspector must be invited only after all these processes are completed.
- If the drawing defines an in-process control point requiring customer inspection, the supplier must follow the drawing instructions and invite the source inspector accordingly.

Quality procedure – supply chain			
External providers quality requirements		W.I. No'	7.4-1 SOP
Date	05/2025	REV	A



- For complex, critical, or high-risk items (e.g., weld-intensive assemblies), the supplier is encouraged to consult with Shafir and propose additional source inspection points based on identified risks. Contact with Shafir’s Quality Manager is recommended.
- The source inspector is expected to thoroughly inspect special processes, especially painting and welding. The inspector may request evidence of in-process inspection (e.g., painted coupons) and review welder qualifications, WPS, and PQR documentation.

5.9 Electrostatic Discharge (ESD)

For orders involving electronic components or circuit boards, the supplier must handle equipment in a facility with proven infrastructure for ESD-safe operations and must comply with relevant ESD requirements.

The Certificate of Conformity (COC) must include a declaration of compliance with ESD requirements. Electronic components and circuit boards must be packaged in materials that protect against electrostatic discharge.

5.10 Special Processes

Special processes include welding, coating, painting, non-destructive testing (NDT), etching, printed circuit boards, thermal treatments, metal casting, and others.

A primary supplier subcontracting a special process must transfer the work only to a supplier approved by Shafir. The approved supplier list can be obtained from the Shafir buyer.


For Rafael products, the supplier performing the process must appear on the approved supplier list in the Rafael portal. If access to the portal is unavailable, the Shafir buyer will provide the list.

5.11 Paint Process Control

Shafir considers the painting process a critical special process due to its significant impact on product quality and customer perception of Shafir’s quality reputation.

- The painting process must be controlled through a detailed production management plan documented in the supplier’s RC (Route Card), ensuring traceability of production details including paint batches, execution times, and other data as specified in applicable standards.
- Each paint batch must be accompanied by coupons painted alongside the products. These coupons will be used to verify paint quality, including adhesion (destructive testing), color, gloss, thickness, and other criteria defined by the paint system.
- For Rafael products, painting performed by approved suppliers must comply with the project-specific paint specification and Rafael specification No. 111.26.

Quality procedure – supply chain			
External providers quality requirements		W.I. No'	7.4-1 SOP
Date	05/2025	REV	A



- The paint system for the project will be specified in the notes of Shafir’s purchase order. The supplier must ensure part number separation according to different paint systems.
- An inspection report summarizing the tests performed and traceability to the paint batches, signed by the supplier’s inspector and including order details, must be included in the quality documentation.


5.12 Welding Process Control

Shafir considers welding a critical process due to its importance to product performance and safety.

- Welding must be performed by a supplier certified by Shafir. No welding work may be subcontracted without approval from Shafir’s Quality Manager.
- Welding must be executed according to the drawing instructions by a welder certified to the standard specified in the drawing (or an equivalent standard approved by Shafir’s Quality Manager).
- Welding must follow a valid Welding Procedure Specification (WPS) for which the welder is qualified, and which matches the drawing requirements and the materials involved.
- **(For Quality Level 1 only):** During FAI (First Article Inspection), the supplier must submit the WPS used for the welding processes.

5.13 First Article Inspection (FAI) – Quality Level 1

- FAI shall be performed according to the latest edition of AS9102 standard forms.
- Full FAI procedures are described in Shafir Procedure SOP 7.5.2.
- If FAI is required in the purchase order but the supplier manufactured the item within the past two years, the supplier may present the most recent FAI and request an exemption.
- Exemption may also be requested based on similarity, as defined in AS9102.
- For Rafael orders, FAI must comply with specification 93.00.63 and the FAI level indicated in the Rafael order to Shafir (Level 1/2/3). The default is Level 2, which includes submission of FAI reports per the standard.

Quality procedure – supply chain			 עִפּוּר מַעֲרָכֹת ייצור בע"מ SHAFIR PRODUCTION SYSTEMS LTD.	
External providers quality requirements		W.I. No'		7.4-1 SOP
Date	05/2025	REV		A

Appendix V – Additional Requirements for Built To Spec (BTS) Suppliers

A BTS supplier is required to develop engineering design and manufacture a product based on written instructions received from Shafir.

This appendix applies when the supplier receives an order for the manufacturing of a product that does not include production drawings.

General Requirements:

- The supplier shall conduct a comprehensive customer order review, including documented verification of Shafir's requirements.
- The supplier shall manage customer requirement changes in a documented manner.
- The supplier shall designate a management POC and an engineering POC at the start of the project.
- Before design freeze, the supplier shall invite Shafir's project manager for a CDR milestone review to present the technical design, logistics plan for deliveries, and the quality control plan.
- The supplier shall maintain a configuration management system to ensure that all changes to the product configuration are documented and traceable for each item delivered.
- The supplier shall provide Shafir with the complete Technical Data Package (TDP) for product approval and configuration freeze, unless otherwise agreed during the quotation phase.
- Prior to product or system delivery, the supplier shall submit the product acceptance procedure (ATP) to Shafir. The specifications will be reviewed and approved by the project manager and, if needed, by Shafir's Quality Manager.
- A BTS supplier producing for a defense customer must perform special processes (e.g., welding, painting, coating, NDT, thermal treatments) using suppliers approved for those processes by Shafir's customer. The supplier must consult with the Shafir buyer to identify approved vendors.

Quality procedure – supply chain			
External providers quality requirements		W.I. No'	7.4-1 SOP
Date	05/2025	REV	A



Appendix A – Zero Acceptance Number Sampling Plan Table (6th Edition)

This appendix includes the sampling table derived from the standard known as "Squeglia," which outlines the methodology for applying a zero-acceptance number sampling plan.

Key Principles:

- Shafir suppliers are required to be familiar with this standard and apply it during final product inspections.
- By default, the supplier shall inspect the production lot using:
 - **Plan:** C = 0
 - **Index Value:** 2.5
- The core principle of the C = 0 method is that if a single nonconforming characteristic is found in one part, the entire lot must undergo 100% inspection for that characteristic.
- No deviations are permitted under this plan.


This sampling methodology ensures a high level of quality assurance by enforcing strict acceptance criteria and eliminating tolerance for nonconforming items in sampled lots

Table 1 Original c=0 sampling plans.

Lot size	Index values (associated AQLs)															
	.010	.015	.025	.040	.065	.10	.15	.25	.40	.65	1.0	1.5	2.5	4.0	6.5	10.0
2–8	*	*	*	*	*	*	*	*	*	*	*	*	5	3	2	2
9–15	*	*	*	*	*	*	*	*	*	*	13	8	5	3	2	2
16–25	*	*	*	*	*	*	*	*	*	20	13	8	5	3	3	2
26–50	*	*	*	*	*	*	*	*	32	20	13	8	5	5	5	3
51–90	*	*	*	*	*	*	80	50	32	20	13	8	7	6	5	4
91–150	*	*	*	*	*	125	80	50	32	20	13	12	11	7	6	5
151–280	*	*	*	*	200	125	80	50	32	20	20	19	13	10	7	6
281–500	*	*	*	315	200	125	80	50	48	47	29	21	16	11	9	7
501–1200	*	800	500	315	200	125	80	75	73	47	34	27	19	15	11	8
1201–3200	1250	800	500	315	200	125	120	116	73	53	42	35	23	18	13	9
3201–10,000	1250	800	500	315	200	192	189	116	86	68	50	38	29	22	15	9
10,001–35,000	1250	800	500	315	300	294	189	135	108	77	60	46	35	29	15	9
35,001–150,000	1250	800	500	490	476	294	218	170	123	96	74	56	40	29	15	9
150,001–500,000	1250	800	750	715	476	345	270	200	156	119	90	64	40	29	15	9
500,001 and over	1250	1200	1112	715	556	435	303	244	189	143	102	64	40	29	15	9

*Indicates entire lot must be inspected.
Note: The acceptance number in all cases is zero.

Zero Acceptance Number Sampling Plans, Sixth Edition
by Nicholas L. Squeglia
American Society for Quality

Quality procedure – supply chain			 עִפּוּר מַעֲרָכֹת ייצור בע"מ SHAFIR PRODUCTION SYSTEMS LTD.	
External providers quality requirements		W.I. No'		7.4-1 SOP
Date	05/2025	REV		A

Appendix G – Electrical Harness Requirements (BTP) for Rafael

Production of electrical harnesses based on Rafael Advanced Defense Systems engineering data shall comply with the following specifications:

- Rafael Specification 93.00.63 (latest edition)
- PS-39-756948 (latest edition)


General Requirements

- The supplier shall conduct a **purchase order review** to verify alignment between the order and the production references received from Shafir. In case of discrepancies, the supplier must contact the Shafir buyer or the electrical department manager.
- Personnel performing wiring and inspection must be certified according to **IPC-620**.
- **Measurement tools must be calibrated** in ISO 17025 accredited laboratories, with calibration scope covering the relevant instruments. Calibration frequency must follow the supplier's procedure and not exceed two years.
- **Backshell tightening** must be performed using calibrated torque wrenches, per supplier or specification instructions. After tightening, a visual alignment mark must be drawn between the backshell ring and connector body to confirm proper torque.
- A procedure for verifying backshell torque must be included in the supplier's quality control plan.
- **Harness labeling** must follow the purchase order specifications.
- **FAI (First Article Inspection)** must be performed based on Rafael's work instruction for open-ended harnesses. The FAI form must be completed per AS9102 standard.

FAI Inspection for Open-Ended Harnesses Includes:

- Braiding quality
- Soldering quality at splits
- Shielding layers as specified
- Wire types
- Insulation quality between shields
- Inspection and procurement documentation for raw materials used in the harness, with traceability to sources
- Completeness and accuracy of the FAI report per AS9102

Quality procedure – supply chain			
External providers quality requirements		W.I. No'	7.4-1 SOP
Date	05/2025	REV	A




- Completeness and accuracy of inspection reports as required for serial harnesses

Serial Harness Inspection Includes:

- Verification of part number, revision, and quantity between the purchase order and engineering/production references (PR)
- Full BOM compliance as per drawing, including connector backshells
- Geometric inspection: bends, lengths, radii, connector orientations, label placement
- Label compliance with drawing or specification
- Electrical testing (automated by default). Manual testing is allowed for harnesses with up to 8 wires, provided a detailed report is submitted
- Leakage testing per Rafael specification
- Assembly quality per IPC-620
- For grounding cables, plating of cable lugs must be verified for compliance and performed by a customer-approved plating supplier, including plating report

All deviations from engineering requirements, including requests to use alternative materials, must be submitted via Shafir’s RFD form.

Note: The requirements in this appendix are **in addition to** those outlined in the main procedure.

Quality procedure – supply chain				 עֲפִיר מְעַרְכֹת ייצור בע"מ SHAFIR PRODUCTION SYSTEMS LTD.
External providers quality requirements		W.I. No'	7.4-1 SOP	
Date	05/2025	REV	A	

Appendix D – Hydraulic Supplier Requirements

5.13.1

General Requirements

- Both flexible and rigid hydraulic tubing must undergo **100% pressure testing** for each tube supplied to Shafir.
- Pressure tests, geometric inspections against drawings and BOMs, and any additional required tests must be documented in inspection reports with traceability to the part number and serial number.

Hydraulic Manifolds

- Must undergo final **geometric and functional inspection** based on an ATP (Acceptance Test Procedure) approved by the customer.

Hydraulic Cylinders

- Must undergo **geometric and functional inspection** based on an ATP approved by the customer.

Integrated Hydraulic Systems

- If a hydraulic system includes multiple integrated elements, the supplier must perform a **full functional test** to verify system performance.
- The supplier must submit their ATP/ATR (Acceptance Test Procedure/Report) for approval by Shafir's project manager prior to source inspection and delivery.


Source Inspection

- Unless otherwise specified, the hydraulic supplier must schedule a **source inspection** before shipping the product.

Serial Traceability

- Required for:
 - Rigid and flexible tubing
 - Hydraulic blocks
 - Hydraulic cylinders
- The supplier must ensure clear identification of the serial number.


First Article Inspection (FAI)

Quality procedure – supply chain			 עֲפִיר מַעֲרָכֹת ייצור בע"מ SHAFIR PRODUCTION SYSTEMS LTD.	
External providers quality requirements		W.I. No'		7.4-1 SOP
Date	05/2025	REV		A

During FAI, the supplier must present all documentation supporting product quality and compliance with the project-specific requirements and general quality standards. This includes:

- Evidence of raw materials used in the product
- Geometric measurements
- Coating, painting, and welding documentation
- Verification that the Shafir purchase order matches the actual execution, including configuration freeze of the technical product file

The supplier must complete an FAI form for the parent part number of the ordered product in accordance with **AS9102:C**.

Quality procedure – supply chain				 עֲפִיר מַעֲרָכֹת ייצור בע"מ SHAFIR PRODUCTION SYSTEMS LTD.
External providers quality requirements		W.I. No'	7.4-1 SOP	
Date	05/2025	REV	A	

Appendix E – Basic Packaging Requirements

References for This Appendix:

- Rafael Packaging Guidelines: RAFDOCS#2526417
- Packing Instructions: PS-38-576104 (English)

Purpose

This appendix establishes a packaging standard for products supplied to Shafir by its supply chain.

The goal is to:

- Streamline storage processes
- Preserve product condition under environmental conditions
- Prevent damage during transport and storage
- Ensure clear product identification

General Packaging Guidelines


- The supplier shall assess packaging needs during contract review or upon receiving Shafir's purchase order. If needed, the supplier should consult Shafir.
- Below are packaging guidelines for various product types:

Small Painted/Coated Items (up to 5 kg)

- Use new double-wall cardboard boxes only. Do not reuse old or damaged boxes.
- Each item must be wrapped in a layer of parchment paper and a thick 100-micron bubble wrap layer.
- Each item must be labeled with part number, revision, and Shafir purchase order number.
- If the box contains multiple items, separate them with cardboard dividers.
- The box must be labeled with part number, revision, Shafir PO number, and quantity.

Large Painted/Coated Items (over 5 kg) on Pallets

- Items must not exceed the pallet dimensions.
- Each item must be individually wrapped with paper and bubble wrap.

Quality procedure – supply chain				 עֲפִיר מְעֻרְכֹת ייצור בע"מ SHAFIR PRODUCTION SYSTEMS LTD.
External providers quality requirements		W.I. No'	7.4-1 SOP	
Date	05/2025	REV	A	

- Each item must be labeled with part number, revision, and Shafir PO number.
- Items must be placed on the pallet with proper separation, corner padding, and protective corrugated cardboard to prevent impact or crushing.
- The pallet must be shrink-wrapped and include a packing slip with full contents.

Small Components

- O-rings: Individually wrapped in paper. Follow Rafael specs 314029 and 1550 form 40. Label with part number, quantity, and expiration date.
- Hardware: Supplied in bags of up to 100 units, labeled with part number, quantity, and Shafir PO number.


Uncoated/Unpainted Steel Parts

Must be packaged to protect against both corrosion and physical damage. Acceptable corrosion protection methods include:

- VCI packaging (bags or paper) in appropriate quantity
- Long-term preservation oil, applied after solvent cleaning

Important Notes


- Do not wrap bubble wrap directly on painted/coated items.
- Ensure packaging materials do not compromise product quality.
- Labels must be printed on 100×150 mm stickers with font size 12, including: supplier name, part number, revision, quantity, and Shafir PO number.
- Avoid packaging materials that may become FOD (Foreign Object Debris), such as staples, paper clips, or loose screws.
- For closed wooden crates containing metal items, include silica gel desiccant bags at a ratio of 300–500 grams per square meter.
- Use dedicated packaging as defined in project documentation when applicable.

Quality procedure – supply chain			 עִפּוּר מַעֲרָכֹת ייצור בע"מ SHAFIR PRODUCTION SYSTEMS LTD.	
External providers quality requirements		W.I. No'		7.4-1 SOP
Date	05/2025	REV		A

This document was written by Benad Corem, Shafir's quality manager

Viewed and approved by Gil Yariv – Shafir's purchasing manager and Shachar Grinberg, Shafir's CEO.

Change control and signatures to be in the original Hebrew document.



We perceive our supply chain providers as partners.

Please feel free to contact us for any questions.

gil@shafir.co.il - Gil – purchasing manager

benad@shafir.co.il – Benad – quality manager

