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0. GENERAL

- 0.1. This awareness and training manual establishes the general requirements applicable to any statistical product acceptance methods and/or process approval implemented by HSF Savunma Havacilik Ltd. Sti. (HSF).
- 0.2. This awareness manual is valid only for the statistical methods of the requirements of product acceptance and process approval implemented by the HSF Quality Management System (QMS).
- 0.3. HSF is not responsible for any nonconformities experienced obtained the data from this document by online visitors.
- 0.4. The sampling plans designated in this document are applicable, but not limited, to the inspection and approving of the following processes implemented by HSF QMS:
 - 0.4.1. End items (ready for delivery),
 - 0.4.2. Components and raw materials (external operations),
 - 0.4.3. Operations in process,
 - 0.4.4. Materials in process,
 - 0.4.5. Administrative procedures.
- 0.5. The main purpose of the sampling plans applied by HSF is to control and approve the production processes in a continuing series of lots or batches.



HSF QMS does not interpret the Acceptance Quality Limits explained in this document as sufficient approval for a product or process acceptance and delivery of the final product to the customer. For HSF, it is a mandatory condition for product acceptance and/or process approval that all products comply with the requirements in the production standard, purchase order, and engineering drawings.

- 0.6. HSF does not apply a single specific plan that can be considered best suited for all applications or processes. Depending on the project requirements listed in the customer purchase order, OEM, and standard references, HSF determines the required AQL method.




If there is no definition for the AQL classification in the production requirements, HSF accepts the **“Normal Major (.65 %)”** as its default product acceptance limit.

1. DEFINITIONS AND TERMINOLOGY

The definitions and terminology HSF accepts for the main definitions of the AQL Policy are in accord with **ISO 3534-2** and **AS9138** Standards. The following definitions are particularly important when applying HSF's AQL Policy.

- 1.1. **Acceptance Quality Limit (AQL):** According to **ANSI/ASQC Z1.4** and **ANSI/ASQ Z1.9**, The AQL is the quality level that is the worst tolerable product average.
- 1.2. **Acceptable Quality Level (AQL):** According to **AS9138**, The maximum percentage or proportion of nonconforming units in a lot or batch that, for purposes of acceptance sampling, would be considered satisfactory as a process average.
- 1.3. **Defect:** Nonfulfillment of a requirement related to an intended or specified use.
- 1.4. **Nonconformity:** Nonfulfillment of a requirement.
- 1.5. **Lot Size (Lot Qty):** The number of items in a lot.
- 1.6. **C=0 (C is equal to zero):** An acceptance sampling plan that requires rejection of the lot, batch, or grouping if the sample contains one or more nonconformances. **“C” = Nonconformity**
- 1.7. **Conformance:** When a characteristic of a product or process meets its requirements; fulfillment of specified requirements.
- 1.8. **Inspection Switching Rules:** The inspection rules depend on the product classification and customer requirements; it can be set to tighten or reduce inspection levels according to the quality patterns in the process.




HSF AQL Policy has the following inspection rules (**see chart 1**):

- **Normal Inspection:** The default level of lot-by-lot inspection sampling plans with switching rules.
- **Tightened Inspection:** A level of sampling with inspection rules with tighter inspection than a “Normal” inspection rule, but generally less than “C=0 100%” inspection type.
- **Reduced Inspection:** A level of sampling with inspection rule with reduced inspection than a “Normal” inspection rule.

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1.9. Product Classification: The product classification depending on the defect effects on the end item.



HSF AQL Policy has **three** product classifications (**AS13100**):

- Catastrophic Products:** A failure that could result in death, permanent total disability, and/or financial loss exceeding a defined contractual limit.
- Major Products:** A failure that could result in permanent partial disability and/or injuries or occupational illness resulting in hospitalization of at least three personnel.
- Minor Products:** is a part whose failure may, but is not likely to, result in hazardous effects.

1.10. Index Value: The percentage value of the inspection rule. It is classified as the Rejectable Quality Level (**RQL**) and minimum acceptance value.



HSF AQL Policy has **seven** percentages for the index value (**AS13100**):

Inspection Rule	Index Value	MIN. AQL
C = 0	100 %	100.00 %
Normal Inspection – Major	0.65 %	99.35 %
Normal Inspection – Minor	2.50 %	97.50 %
Tightened Inspection – Major	0.40 %	99.60 %
Tightened Inspection – Minor	1.50 %	98.50 %
Reduced Inspection – Major	1.00 %	99.00 %
Reduced Inspection – Minor	4.00 %	96.00 %

- 1.11. Rejectable Quality Level (RQL):** The minimum acceptable percent defective rate when using an inspection rule.
- 1.12. Simple Random Sampling:** Simple random sampling maps the number of units either in a lot, batch, or continuous production flow to the outcomes of the randomization device. Then, whatever outcomes are generated, the corresponding unit is selected. This is repeated until the number of units to be selected is reached. This method is the equivalent of thoroughly mixing the units in the population to be sampled. Places where random sampling can be more easily mapped onto individual units than packaged lots or batches are production lines, loading operations, or unloading operations. Whenever establishing a process to select random samples, randomization devices (e.g., dice, marked marbles, random number generators, tables) are strongly recommended to be used. Periodic audits should verify that the randomization process is performed correctly and effectively.
- 1.13. Initial Reliability Requirement (or Inspection Reliability Requirement) (IRR):** The IRR defines a minimum acceptable outgoing yield or probability of conformance (**see chart 2**).

2. MINIMUM AQL REQUIREMENTS FOR HSF's PRODUCTION AND PROCESS APPROVAL STAGES

COMPONENTS AND PARTS	MIN. AQL
Machined parts (general features, except as noted under mechanical characteristics below)	97%
Machined parts; special applications (e.g., key characteristics, location holes)	99%
Conductivity	99%
Hardness	99%



AWARENESS & TRAINING DOCUMENT

ACCEPTANCE QUALITY LEVEL (AQL) POLICY

ANSI/ASQ Z1.4 & ANSI/ASQ Z1.9 & ISO 2859-1 & ISO 3534-2 & SAE AS9138 & SAE ARP9013

Document Number	HSF-Training12	First Release Date	02.01.2025	Does Not Contain ITAR Controlled Data
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Composite part – structural 98.7%

Composite part – nonstructural 95%

Cable form 98%

Connector assemblies 99%

Printed circuit boards 97%

Conformance of printed circuit board configuration 99%

PROCESSES

MIN. AQL

Sheet metal fabrication 95%

Receiving inspection of standards 97%

Nondestructive Testing (NDT), where permitted 98.7%

Paint, alodine, anodize, and plating 92%

Electrical wire wrap 98%

Cleanliness test for printed circuit boards 97%

MECHANICAL CHARACTERISTICS

MIN. AQL

Fastener hole diameter tolerances 0.001 inch/0.025 mm or less 99%

Fastener hole diameters tolerances ≥ 0.001 inch/0.025 mm, location on non-locating holes of $> \pm 0.01$ inch/0.25 mm linear or equivalent diametral tolerance 95%

Thickness with tolerance of ± 0.005 inch/0.127 mm or less 95%

Thickness with tolerance of $> \pm 0.005$ inch/0.127 mm 92%

Linear dimension tolerance $\leq \pm 0.01$ inch/0.25 mm 95%



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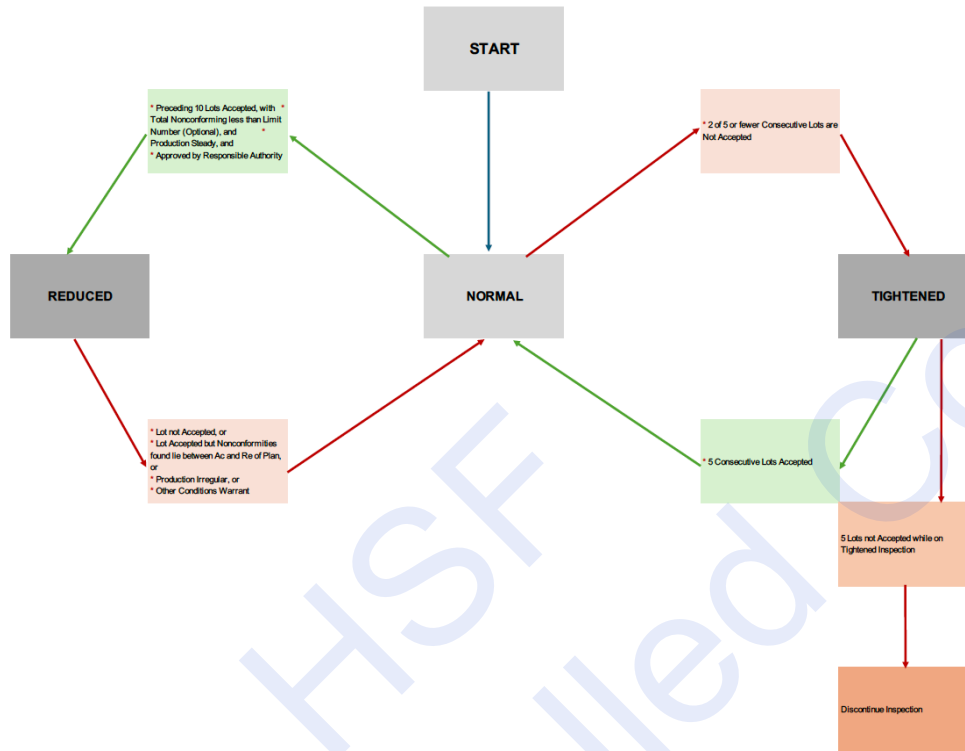
Document Number	HSF-Training12	First Release Date	02.01.2025	Does Not Contain ITAR Controlled Data
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Linear dimension tolerance > ±0.01 inch/0.25 mm	92%
Radii total tolerance range < 0.02 inch/0.51 mm	97%
Radii total tolerance range > 0.02 inch/0.51 mm	92%
Angle total tolerance range ≤ ±0.5°	97%
Angle total tolerance range > ±0.5°	92%
Concentricity, non-controlled contours, diameter, or fillet radius tolerances > ±0.01 inch/0.25 mm; flatness, straightness, parallelism, perpendicularity, and profile	92%
Controlled contour [e.g., Master Dimension Definition (MDD), Master Dimension Surface (MDS)], diameter or fillet radius tolerances ≤ ±0.01 inch/0.25 mm	95%
Surface finish roughness (Ra) < 32 µin or 0.8 micron	99%
Surface finish roughness (Ra) ≥ 32 µin or 0.8 micron	95%
Flatness (carbon face seals) using optical flats	99%
THREADED PARTS	MIN. AQL
Internal profile pre-load locking	99%
Straight screw threads – total tolerance on pitch diameter	99%
Standard electrical connectors [e.g., US Military Standards (MS) part numbers]	97%
All other thread applications/characteristics	99%
Gears and splines (all characteristics)	99%
Dimensions with only maximum or minimum values which directly control material thickness of weldments, castings, or forgings; and at least one surface is machined	99%
Absence of magnetism (ferrous parts)	99%
Spring rate, when specified by Engineering	99%

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3. PROCESS CHARTS

3.1. Chart 1 – Inspection Switching Rule



3.2. Chart 2 – Product Acceptance Plan:

