

Quality assurance and inspection protocols

Automates quality inspection protocols for aerospace components by triggering inspections after manufacturing, performing dimensional analysis, conducting non-destructive testing, and generating compliance documentation. Ensures parts meet stringent safety standards while maintaining traceability throughout the quality assurance process.

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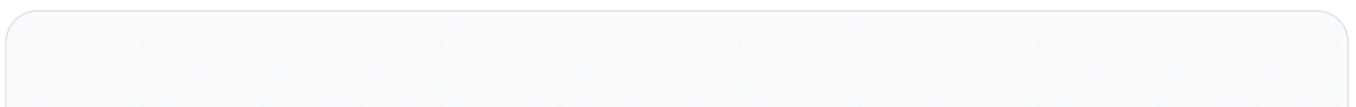


WORKFLOW TRIGGER

Manufacturing completion signal received from production line for aerospace component batch.

Visual Flow

Each node represents an automated step. Connections show how data and decisions move through the workflow.



STEP 1 · TRIGGER

Manufacturing Batch Completed
SAP for Aerospace & Defense

STEP 2 · ACTION

Retrieve Design Specifications
CATIA PTC Windchill

STEP 3 · ACTION
Perform Dimensional Analysis

Siemens NX PTC Windchill

STEP 4 · ACTION
Execute Structural Testing

ANSYS SAP for Aerospace & Defense

STEP 5 · DECISION
Evaluate Quality Compliance

SAP for Aerospace & Defense PTC Windchill

STEP 6 · OUTPUT

Generate Compliance Documentation
SAP for Aerospace & Defense PTC Windchill



Step-by-Step Breakdown

Detailed explanation of each automated stage in the workflow.

1

⚡ TRIGGER

Manufacturing Batch Completed

Production line sends completion signal with batch ID and component specifications to initiate quality inspection workflow. System retrieves manufacturing data and quality requirements from enterprise systems.

SAP for Aerospace & Defense

Dassault DELMIA

2

 ACTION

Retrieve Design Specifications

Automatically pulls CAD models, dimensional tolerances, and material specifications from product lifecycle management system. Creates inspection checklist based on component type and certification requirements.

CATIA

PTC Windchill

3

 ACTION

Perform Dimensional Analysis

Coordinates with automated measurement systems to capture component dimensions and compares against design tolerances. Generates dimensional inspection report with pass/fail status for each critical dimension.

Siemens NX

PTC Windchill

4

Execute Structural Testing

Initiates non-destructive testing procedures including ultrasonic, radiographic, or penetrant testing based on component requirements. Collects test data and analyzes results against aerospace quality standards.

ANSYS

SAP for Aerospace & Defense

5

DECISION

Evaluate Quality Compliance

Analyzes all inspection data against FAA, EASA, or other regulatory standards to determine component acceptance. Routes non-conforming parts for rework or rejection while advancing compliant parts to certification.

SAP for Aerospace & Defense

PTC Windchill

6

OUT PUT

Generate Compliance Documentation

Creates comprehensive quality certificates, inspection reports, and traceability records required for aerospace certification. Updates inventory status and triggers next workflow stage for approved components.

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PTC Windchill



Outputs

- Quality inspection certificates
- Dimensional analysis reports
- Non-conformance notifications
- Updated inventory status



Key Metrics

- First-pass quality rate
- Inspection cycle time
- Regulatory compliance score



Tools & Integrations

- SAP for Aerospace & Defense
- Dassault DELMIA
- CATIA
- PTC Windchill
- Siemens NX
- ANSYS

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