Avistrata for Part 21 approval holders

How Avistrata supports design and production approval holders under 14 CFR Part 21, AS9100 / IA9100 product realization and EASA Part 21, element by element.

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Summary

Avistrata is an aviation operations, maintenance and quality platform. Its **Production** workspace serves the people who design and make aircraft parts and products: STC, PMA and TSOA holders, production certificate holders and their suppliers. It keeps the whole chain a Part 21 manufacturer has to prove in one system:

- approved design data under change control;
- production orders and travelers, signed by trained people with their stamps, with inspection of every part or a sample by calibrated gauges;
- material from approved sources;
- deviation permits, nonconformance and the Material Review Board;
- the FAA Form 8130-3, EASA Form 1 or a domestic certificate of conformity, and shipment to the customer with the product's packaging and shelf life;
- a risk register for product safety and operational risk, with safety-critical characteristics always inspected 100%;
- on-time delivery by order, month and customer;
- the feedback, quality escapes and design defects, failure reports, airworthiness directives and ICA revisions that come after delivery, with each holder's acknowledgment.

The same record then carries the product into service: operations, maintenance, reliability and continued airworthiness.

15 / 15	15 / 15	FAA + EASA
elements of the 14 CFR 21.137 quality system supported	AS9100D clause 8 areas supported	8130-3 and EASA Form 1; 21.3 and 21.A.3A reporting

How the rules are kept. Who may sign what, the order of operations, material before work, independent inspection, trained and qualified operators, inspection stamps, sampling and its switching rules, safety-critical characteristics, calibrated gauges, approved sources, shelf life and the checks before a release are enforced in the database itself. The website and the mobile apps follow the same rules, so nothing can be signed that the rules don't allow, and every signature is kept with who, what and when.

1. How Part 21 is built

Part 21 sets the procedures for certifying products and articles. It has three layers: approving a design, approving its production, and approving each product or article for airworthiness and release.

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Layer	Subparts	What it covers
General	A (21.1 to 21.9)	Applicability and definitions; **21.3**: TC, STC, PMA and TSO holders report listed failures, malfunctions and defects to the FAA within 24 hours.
Design approval	B Type certificates, C Provisional, D Changes to type certificates, E Supplemental type certificates	The certification basis, showing compliance, minor and major changes (21.93 to 21.97), **21.50** Instructions for Continued Airworthiness (ICA), 21.99 design changes required by airworthiness directives.
Production approval	F Production under a TC, G Production certificates, K Parts Manufacturer Approval, O Technical Standard Order authorization	A production certificate, PMA and TSO authorization all rest on the **same quality system, 21.137**, a quality manual approved by the FAA (21.138 / 21.308 / 21.608), an accountable manager (21.135 / 21.305 / 21.605) and FAA approval before moving a facility (21.139 / 21.309 / 21.609).
Airworthiness and release	H Airworthiness certificates, I Provisional, L Export airworthiness approvals, N Import acceptance	Standard and special airworthiness certificates, export approvals, and the authorized release document (FAA Form 8130-3), completed under FAA Order 8130.21J (September 2025).

Subparts J and M are reserved. The 2024 safety management system (SMS) rule brought Part 21 holders of a type certificate and a production certificate under 14 CFR Part 5 (effective May 28, 2024); an STC-only or PMA-only company is not in scope of that rule. In Europe the equivalents are EASA Part 21 Subpart J (design organisation approval) and Subpart G (production organisation approval), which now include safety management (Regulation (EU) 2022/201).

2. What Avistrata provides

Area	In Avistrata
Approvals and part master	A register of the TC, STC, PMA, TSOA and PC approvals you hold, with eligibility, limitations, status and documents. Products carry their approval, current revision, critical-part and serialization settings and 45.15 marking, and their handling and preservation: shelf life, cure date, ESD, storage, packaging and cleanliness. Each revision holds its design data, bill of materials, routing (with the training each operation needs) and inspection characteristics (with a sampling plan where one applies), and is locked once released.
Production orders	Orders are made only from released revisions, and only under an active approval. The traveler is copied from the routing and the parts get serial or lot numbers. Material is issued before any work is signed. Operations are signed in sequence, only by people with current training where the routing asks for it, and bought off by an inspector who didn't do the work; each signature carries the person's stamp. Orders can be held or cancelled, and operations marked not applicable, each with a reason. A contract review, with the customer's special requirements, is required before an order is released (on by default). A first article can be split off into its own order, and the rest isn't released until its inspection is accepted. Labor hours are logged per operation against the estimate. The traveler prints as a PDF.
Inspection	A result for every characteristic and serial number, or for a sample of a lot under a sampling plan (AS9138 style, c=0), going to 100% after a reject, with switching between normal, tightened and reduced inspection by the results of each lot (ANSI Z1.4 style); key characteristics, safety-critical characteristics and critical parts always 100%. Pass or fail is worked out from the drawing limits. A gauge that is overdue for calibration is refused. Final inspection is blocked until everything passes. An as-built record is kept for each order.
Product safety and risk	A risk register per product, and for the organization: hazard, cause and worst credible effect, severity and likelihood before and after the controls, the level, an owner and a review date with reminders. Safety-critical risks name the characteristics their controls depend on; those are marked in the revision and always inspected 100%. A hazard can be sent to the SMS risk register. A risk with a history can't be deleted, only closed with the reason.

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Area	In Avistrata
Gauges	When calibration finds a gauge out of tolerance, the gauge recall lists everything it measured since its last good calibration, by order and serial, shows which parts have already been released or shipped and which results were near a limit, and raises nonconformance reports from there. Gauge R&R studies (AIAG average and range) give repeatability, reproducibility, %GRR of the variation and of the tolerance, and the number of distinct categories.
Material traceability	Material is issued from Stores only if it was accepted at receiving, is certified, came from an approved source and is the part on the BOM (or an approved alternate). Lot, certificate and source stay with the order. An override needs the quality manager and a recorded reason.
Special processes and suppliers	Special processes with their specification and Nadcap requirement, and qualified operators with expiry dates. The approved supplier list records what each supplier is approved for. Your production requirements print on purchase orders to those suppliers, and each supplier's acknowledgment is recorded.
Deviation permits	A departure from the approved design agreed before the parts are made, for an order, a revision or a period, with the characteristics it covers. Engineering and quality approve it; a major one needs the FAA's (or the design approval holder's) approval reference first. It's fixed once approved and kept in the as-built record and the release remarks.
Nonconformance	Nonconformance reports with containment and evidence. The Material Review Board dispositions them. Use as is, repair and regrade need engineering, a second MRB member and the approved data; a major departure also needs the FAA's approval reference. Rework and repair are re-inspected before the report closes. A suspected unapproved or counterfeit part is quarantined in Stores straight away, with a draft of the FAA report. Corrective action goes into the quality system.
Release	FAA Form 8130-3 and EASA Form 1 for new parts, issued only by authorized signatories. Neither can be issued until the first article inspection is accepted and no nonconformance is open. A voided form stays on file. Both print in the form's block layout. An export release records the importing country and its special import requirements in block 12. For domestic customers who don't need an airworthiness approval, a certificate of conformity after the same checks; it is refused for an export.
Shipping	Released parts go out on a shipment with a packing slip and a certificate of conformance in your own wording. Each serial number is marked shipped to that customer, so a field report or an escape finds who holds which part. A shipped shipment stays on file; only carrier and tracking can be added. The product's packaging instructions show on the shipment and the packing slip, and a part past its shelf life, or without its cure date when it's tracked, isn't shipped.
On-time delivery	Each order's due date against the day its last part shipped: the rate by month and by customer, each order with its days late, and a CSV for customer scorecards. The Overview shows the last 90 days.
After delivery	Field reports from operators and customers. Quality escapes, including design defects (a part that met its drawing and still failed), which raise the change order that fixes the design, with the 21.3 (24-hour) or 21.A.3A (72-hour) reporting clock, a report draft and the record of the report. Alerts go by email, Microsoft Teams and text message as the deadline nears.
Continued airworthiness	ICA, flight manual supplements, installation instructions and service bulletins for each approval, by revision, with the list of holders, who has the current revision, and sending the new one by email with a download link (or recording it as sent by mail). Each holder acknowledges the revision from their own link, or returns a printed acknowledgment form that is recorded against their copy; holders still waiting are reminded. Airworthiness directives against your own approvals are evaluated and, where a change is needed, raised as a change order.
Configuration management	Change orders classified minor or major under 21.93, with effectivity, the handling of work in progress and a delta FAI. Engineering and quality both approve, and a major change needs the FAA's approval first. The new revision is drafted from the current one. Functional, allocated and product baselines are kept.
Process verification	First article inspection on the AS9102 forms 1 to 3, built from the order's own records. A new FAI is required after a change or two years without production. An SPC control chart with Cp and Cpk for each characteristic.

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Area	In Avistrata
Certification	A compliance register with the certification basis, means of compliance (MC0 to MC9), compliance documents, who shows each one and the finding. Requirements import from the MBSE tool with traceability to how each is verified. Conformity: the 8120-10 request, the 8130-9 statement and the 8100-1 record. An inbox for design releases from PLM. Design review records with participants, outcome and actions.
Quality system	Audits, findings and corrective action; document control with read and sign; calibration; receiving inspection; training records with the training each operation needs and reminders before they expire; an inspection and work stamp register (a number is never reissued); SMS. Record retention of 5 or 10 years, and records on file can't be deleted. A compliance matrix for 21.137, the holder duties, AS9100, IA9100 and EASA Part 21 Subparts G and J. The accountable manager signs each quality manual revision; changes notified to the FAA and authority delegated to suppliers are recorded.
Shop floor	The Mechanic app (iPhone, iPad, Android). Sign operations, accept or reject them, answer the special-process question, and record measurements for each characteristic and serial with the gauge used, all next to the part. Lots are measured sample piece by sample piece, hours are logged against the order and prepared shipments are shipped from the phone; the app also shows open high risks, on-time delivery and ICA acknowledgments. The same training, stamp and material rules apply as on the website.

3. The 21.137 quality system, element by element

21.137 element	Status	How Avistrata supports it
(a) Design data control	Supported	Revisions with their design data; released revisions locked; changes only by change order; orders only from released revisions.
(b) Document control	Supported	Read and sign for the quality manual and procedures, with revisions; design documents kept with each revision.
(c) Supplier control	Supported	Approved supplier list by scope, enforced when material is issued and when special processes are signed; flow-down on purchase orders, with acknowledgment; supplier scorecard and audits.
(d) Manufacturing process control	Supported	Production orders and travelers; material issued before work; operations in sequence, signed only by people with the training the routing asks for; special processes only by qualified people or approved sources; first article split off before the rest is released.
(e) Inspecting and testing	Supported	Inspection characteristics for each revision, results for each serial or for a sample of a lot under a sampling plan, and buy-off and final inspection blocked until everything passes; functional tests recorded on the FAI.
(f) Inspection, measuring and test equipment	Supported	Calibration records and due dates; a gauge overdue for calibration is refused when a measurement is recorded; gauge recall when one is found out of tolerance; gauge R&R studies.
(g) Inspection and test status	Supported	Status for each operation and each serial number (in work, conforming, nonconforming, released, shipped, scrapped), and to which customer each serial was shipped; the inspector's stamp on every buy-off.
(h) Nonconforming product	Supported	Deviation permits agreed before production; nonconformance report and Material Review Board, with dispositions, signatures, approved data (and the FAA's approval for a major departure) and re-inspection; suspect parts quarantined.
(i) Corrective and preventive action	Supported	Raised straight from a nonconformance or a quality escape: root cause, actions, effectiveness check.
(j) Handling and storage	Supported	Handling and preservation for each product (shelf life from the cure date, ESD, storage, packaging, cleanliness) on the traveler and packing slip, with expired parts refused at shipping; receiving inspection, quarantine, shelf life and locations in Stores.

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21.137 element	Status	How Avistrata supports it
(k) Quality records	Supported	Retention of 5 or 10 years, settable; records on file can't be deleted, only cancelled or voided; an as-built record for each order.
(l) Internal audits	Supported	Audit programme, checklists, reports and findings; the compliance matrix points each element at its evidence.
(m) In-service feedback	Supported	Field reports for each part and serial, evaluated into nonconformances or quality escapes.
(n) Quality escapes	Supported	Affected serials, containment, customer notice, service bulletin, the 21.3 decision and the report; design defects raise the change order.
(o) Authorized release documents	Supported	FAA Form 8130-3 and EASA Form 1 for new parts, issued by authorized signatories after the checks above.

4. Holder duties beyond the quality system

Duty	Status	How Avistrata supports it
Report failures, malfunctions and defects (21.3; EASA 21.A.3A)	Supported	The reporting clock starts at the determination; then a report draft, the record of the report, and alerts by email, Teams and text as the deadline nears.
Marking (45.15)	Supported	Marking for each product, checked on the routing, and printed in the release form remarks.
PMA holder responsibilities (21.316)	Supported	Conformity to the approved design, marking and the approval documents; authority delegated to suppliers recorded with its scope, period and conditions.
Instructions for continued airworthiness (21.50)	Supported	ICA and supplements by revision for each approval, the holders, who has the current revision, new revisions sent to the holders without them, and each holder's acknowledgment (from their email link or a printed form), with reminders.
Design changes required by ADs (21.99)	Supported	ADs against your approvals, with applicability, evaluation and due date, raised as change orders; the service bulletin goes out through ICA distribution.
Accountable manager and quality manual (21.135, 21.138, 21.305)	Supported	Accountable manager role and sign-off of each quality manual revision; the manual under document control; compliance matrix with the procedure for each element.
Facility and quality system changes (21.139, 21.150, 21.320)	Supported	Each change recorded with when and to whom it was notified, and the FAA's approval where it is needed first (a facility move).
Export airworthiness approvals (21.331 to 21.335)	Supported	The importing country and its special requirements on the release form, stated in block 12.
SMS for TC and PC holders (Part 5)	In part	SMS module with hazards, risks and safety review; quality escapes and field reports feed it.

5. AS9100 / IA9100 product realization

Most Part 21 companies and their suppliers also run an aerospace quality management system certified to AS9100D. Its clause 8 is "product realization". The IAQG is replacing AS9100D with IA9100, which puts more weight on data-driven process control. Certification is of your company, not of the software; Avistrata's job is to hold the records the auditor asks for.

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AS9100D clause	Status	How Avistrata supports it
7.2 Competence (applied in clause 8)	Supported	Training records with level, trainer, expiry and record, and email reminders before they expire; operations that name a training can only be signed by people who hold it.
8.1.1 Operational risk	Supported	A risk register for operational risks (supply, capacity, single sources) with severity and likelihood before and after mitigation, an owner and periodic reviews; program and SMS risk registers; operational risks confirmed on each contract review.
8.1.2 Configuration management	Supported	Revisions, change orders, effectivity, baselines, as-built records.
8.1.3 Product safety	Supported	Product safety risks per product with the controls and their reviews; safety-critical characteristics marked in the revision and always inspected 100%; critical parts and key characteristics; hazards sent to the SMS; training records for product safety awareness.
8.1.4 Prevention of counterfeit parts	Supported	Approved sources enforced when material is issued; suspect parts quarantined and blocked; draft of the FAA report.
8.2 Requirements for products	Supported	Contract review on each order, with special requirements, signed before the order can be released (on by default); on-time delivery measured against the agreed due date.
8.3 Design and development	Supported	Requirements with verification traces, design reviews with actions, compliance register, change control.
8.4 Externally provided processes and products	Supported	Purchasing, receiving inspection, scorecard, audits, the approved supplier list by scope, flow-down.
8.5.1 Production control, 8.5.1.2 special processes, 8.5.1.3 FAI	Supported	Orders and travelers, contract review before release, material before work, trained operators, labor hours, qualified special processes, sampling plans for lots (AS9138 style) with normal, tightened and reduced switching, AS9102 first article inspection with the first article as its own order.
8.5.2 Identification and traceability	Supported	As-built record for each order: materials, lots, operators and their stamps, inspections, sampling, deviations, nonconformances; a stamp register where a number is never reissued.
8.5.3 / 8.5.4 Customer property, preservation	Supported	Handling and preservation for each product (shelf life, cure date, ESD, storage, packaging, cleanliness) on the traveler, shipment and packing slip; an expired part can't be shipped; Stores for receiving, quarantine and locations.
8.5.5 Post-delivery activities	Supported	Shipping with certificate of conformance, field reports, quality escapes and design defects, ICA and service bulletins with holder acknowledgment.
8.5.6 Control of changes	Supported	Change orders.
8.6 Release of products	Supported	8130-3 and EASA Form 1; a certificate of conformity for domestic deliveries that don't need an airworthiness approval.
8.7 Control of nonconforming outputs	Supported	Deviation permits before production; nonconformance reports and the Material Review Board, with the FAA's approval for a major departure.
9 Performance evaluation (IA9100 process data)	Supported	SPC with Cp and Cpk on key characteristics; gauge R&R; audits; supplier and quality metrics; on-time delivery.

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6. Configuration baselines

Avistrata follows the SAE EIA-649C model:

- **Product baseline:** recorded automatically each time a revision is released, with its design data, bill of materials, routing and inspection characteristics.
- **Functional and allocated baselines:** hold the requirements, each with its ID, source and how it is verified.
- **Change orders:** carry the classification and effectivity.
- **As-built record:** for each order, shows which revision was built, the deviation permits that covered it and the MRB dispositions.

7. MBSE and PLM: connecting, not replacing

On larger programs, requirements, architecture and safety analysis live in model-based systems engineering tools (SysML v2, ARP4754B) and the design lives in PLM. Avistrata doesn't replace those tools. It connects to them and carries the digital thread into production, conformity, release and service:

- **Requirements import:** as ReqIF, SysML v2 API JSON or CSV from tools such as Cameo, Capella, DOORS, Polarion or Jama. Each requirement is traced to what verifies it: a certification requirement, test, inspection characteristic, conformity, change or FAI. The set goes back out as ReqIF with its verification status.
- **Certification compliance register:** the certification basis, means of compliance, compliance documents, delegates (DER, ODA unit member) and findings, printed as the compliance checklist.
- **Conformity:** the FAA's Request for Conformity (8120-10), the articles checked against their drawings, deviations, the statement of conformity (8130-9) and the FAA or DAR inspection record (8100-1).
- **PLM inbox:** released item revisions from Teamcenter, Windchill or 3DEXPERIENCE arrive through Avistrata's partner API. An engineer applies each one, as a new revision or a change order. Your PLM team sets up the connector on its side; smaller shops can upload a file instead.

8. On the roadmap

Item	Supports
Building shipments in the Mechanic app (prepared shipments are shipped from the phone today)	AS9100 8.5.5
Editing risks from the Mechanic app (the app shows open high risks today; the register is kept on the website)	AS9100 8.1.3

9. What stays with your organization

Software holds the records and enforces the rules you set. It does not replace these:

- your FAA- or EASA-approved quality manual and procedures. Avistrata's compliance matrix has a place for each procedure reference and for how each element is met;
- your approvals and the FAA's or EASA's findings of compliance;
- your AS9100 certification by an accredited registrar;
- the people you appoint and train as inspectors, MRB members and authorized signatories, and the training and stamp procedures behind them;

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- your judgment of each risk's severity and likelihood and of what counts as safety-critical, and your people's product safety awareness.

10. Getting started

1. Enter your organization's details, approval numbers, reporting office and supplier flow-down, and give people their production roles.
2. Add your approvals and products. For each product, enter the first revision's design data, bill of materials, routing and inspection characteristics, and release it.
3. Add your special processes with their qualified people, your approved supplier list, your sampling plans (with switching rules if you use them), and your people's training and stamps. Enter each product's safety risks and mark its safety-critical characteristics.
4. Run a first order through to the first article inspection and the 8130-3. Then fill in the compliance matrix against your quality manual.

> **Next step.** We can walk through your own part, from its approval to a signed 8130-3, using your data. Contact sales@avistrata.com or 703.520.5040. A screen-by-screen walkthrough, *Life of a part*, is available on request.

Sources

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Regulatory text is summarized for planning; check the current eCFR, FAA orders and standards before relying on it. Avistrata coverage reflects version 2.2 as of November 2026.

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