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EN 9100 guide for suppliers

Quality management in aerospace, explained plainly

notivia GmbH

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1 What is EN 9100?

1.1 The standard in plain words

EN 9100 is the quality management standard of the aerospace industry. The current edition **EN 9100:2018** contains ISO 9001:2015 **in full, word for word**, and adds around 100 industry-specific requirements.

Internationally the same standard is called **AS9100** (the Americas) or **JISQ 9100** (Japan). The content is harmonised through the International Aerospace Quality Group — an EN 9100 certificate is recognised worldwide.

> **The core idea:** EN 9100 does not ask "do you have processes?", it asks "if something goes wrong, can you show, without a gap, how this one part came about — from raw material to delivery?"

For suppliers, certification is in practice a **condition of market access**. Without it you will usually not be listed in the supply chains of Airbus, Boeing and their system suppliers.

1.2 The 9100 / 9110 / 9120 family

Which standard of the family applies depends on your business model:

1. **EN 9100** — for the design and manufacture of parts, assemblies and systems. The most extensive variant.
2. **EN 9110** — for maintenance, repair and overhaul organisations (MRO), with its own requirements for release authority and airworthiness.
3. **EN 9120** — for distributors, stockists and traders, focused on traceability, storage conditions and protection against counterfeits.
4. **EN 9102** — not a certificate of its own but the binding procedure for first article inspection, including the forms.

> **A way to remember it:** if you *make* things, you need 9100. If you *maintain* them, 9110. If you *trade* them, 9120. Businesses with more than one model may need more than one certificate.

1.3 What goes beyond ISO 9001

The extra effort sits almost entirely in clause 8 — that is, in manufacturing and the supply chain. These points do not exist in ISO 9001:

about 80 %	about 100	clause 8
overlap with ISO 9001	additional requirements	where almost all the extra work sits

- **Configuration management** — identify, assess, release and keep traceable every change to the product and its documentation.
- **Product safety** — deliberately identify safety-critical characteristics and watch them across the lifecycle.
- **Prevention of counterfeit parts** — a documented process against counterfeit or improperly released parts entering the chain.

- **First article inspection (FAI)** — evidence under EN 9102 that the process delivers the required result repeatably.
- **Special processes** — welding, heat treatment, surface treatment, NDT: qualified, monitored, often additionally accredited through Nadcap.
- **Operational risk management** — per project, not only at the strategic level.
- **Emergency and contingency planning** — what happens when a key machine or a sole supplier fails.

1.4 IAQG and OASIS

The **International Aerospace Quality Group (IAQG)** publishes the standard and governs the certification procedure. Only bodies recognised by the IAQG, with auditors from the AAB register, may certify.

Every valid certificate is entered in the supplier database **OASIS** and can be looked up by customers worldwide.

> **Worth knowing:** without an OASIS entry your certificate effectively does not exist for many purchasing departments. After certification, check actively that the entry has been made — it is occasionally forgotten.

2 Who needs EN 9100?

EN 9100 is aimed at every company working in the aerospace supply chain — whatever its size. Businesses with twenty employees get certified too.

A. Suppliers and manufacturing

- machining, forming, additive manufacturing
- surface treatment and heat treatment
- electronics, wiring harnesses, sensors
- composite and structural parts
- system suppliers and assembly

B. Maintenance (MRO)

Maintenance, repair and overhaul organisations certify to **EN 9110**. Here additional requirements come in for release authority, airworthiness evidence and the boundary with Part-145 approval.

C. Trade and distribution

Stockists and distributors of aviation parts certify to **EN 9120**. The emphasis is on unbroken traceability, controlled storage conditions and protection against counterfeit parts.

> **A special case:** if you both manufacture and trade, settle the scope with your certification body early. Extending it afterwards costs an additional audit.

D. When do you not need it yet?

If you supply only second- or third-tier suppliers and they do not pass the requirements down, ISO 9001 may be enough for now. But as soon as a customer asks for EN 9100, or you want to supply an OEM directly, there is no way around it.

> **A real example:** a machining shop with 35 employees supplied a system supplier for years. When that supplier was listed by Airbus, it required EN 9100 from its own suppliers as well. With an ISO 9001 system already in place the extension took five months — most of the work went into configuration management and first article inspection.

3 The path to the certificate — 7 phases

With an ISO 9001 system already in place the path is considerably shorter. This order has proved itself:

Phase 1 — Delta analysis

Compare the existing QM system against EN 9100 and establish the real additional effort. Result: a list of gaps that sits almost entirely in clause 8. *Two to four weeks.*

Phase 2 — Scope and choice of standard

9100, 9110 or 9120? Which sites, which processes? Agreed with your most important aerospace customer. *One to two weeks.*

Phase 3 — Building configuration management

Define configuration items, set change control and release routes, make traceability work. The most demanding single block. *Six to twelve weeks.*

Phase 4 — First article inspection and special processes

Introduce the FAI process under EN 9102 with the standard forms, qualify the special processes, prepare for Nadcap where needed. *Eight to fourteen weeks.*

Phase 5 — Supply chain and counterfeit protection

An approved supplier list, assessment criteria, passing customer requirements down, a process against counterfeit parts. *Four to eight weeks.*

Phase 6 — Metrics, risks, contingency planning

Make on-time delivery and quality performance measurable, operational risk management per project, contingency plans for key resources. *Three to six weeks.*

Phase 7 — Internal audit and certification

A full internal audit programme including process audits, the management review, then stages 1 and 2 with the certification body, then the OASIS entry. *Three to five months.*

> **Tip:** book the certification body early. IAQG-recognised auditors are scarce, and lead times of four to six months are normal — that is more often the bottleneck than your own preparation.

4 What does EN 9100 cost?

The decisive factor is whether a well-kept ISO 9001 system already exists. Without one, the effort roughly doubles:

Starting point	Total cost*	Timeframe	Internal effort
ISO 9001 in place, up to 50 staff	**€14,000–20,000**	5–8 months	25–40 person-days
ISO 9001 in place, 50–150 staff	**€20,000–30,000**	6–10 months	40–60 person-days
No prior system, up to 50 staff	**€26,000–38,000**	10–15 months	55–80 person-days
Several sites	**from €38,000**	12–18 months	80–130 person-days
Nadcap in addition	**plus €12,000–30,000**	+6–12 months	per process

* Covers the delta analysis, building the processes, introducing FAI, supplier control and audit preparation. Excluding the certification audit and Nadcap fees.

What drives the cost?

- **How mature the existing QM system is:** a well-kept ISO 9001 system halves the effort. A certificate alone is not enough — it has to be lived.
- **Number of special processes:** every process that needs qualifying means evidence, trained people and possibly Nadcap.
- **Depth of manufacturing:** the more you make in house, the more FAI cases and configuration items there are.
- **State of the supply chain:** suppliers without a certificate of their own have to be assessed, monitored and in part developed.

Running cost after certification

Plan for **20–30 % of the set-up cost per year**. The certificate runs for three years, with a surveillance audit each year. On top of that:

- the internal audit programme including process audits
- FAI for new parts and after process changes
- requalifying special processes and people
- supplier assessment and monitoring
- Nadcap recertification, where it applies

> **On transparency:** only compare quotes for an identical scope. A quote for “EN 9100” that does not name the sites, the variant of the standard and the special processes is not worth much — those three points are exactly what sets the price.

5 The 10 most common mistakes

From guiding a good many supplier projects, we know the usual stumbling blocks:

1. **Underestimating first article inspection**
   FAI under EN 9102 is one of the most frequent audit findings of all. Using your own forms instead of the standard ones almost always leads to questions.

2. **Reading configuration management as document control**
   It is not about file versions but about the configuration of the product. Without defined configuration items the process has no effect.

3. **Choosing the scope too narrowly**
   Customers check closely whether the work they order is covered. Extending the scope afterwards costs an additional audit and several months.

4. **Not recognising special processes as such**
   Welding, heat treatment, surface treatment and NDT cannot be verified by later inspection. Leave them unqualified and the audit has nowhere to go.

5. **Planning Nadcap too late**
   Accreditation needs considerable lead time. If a customer asks for it, that decides the schedule of the whole project.

6. **No counterfeit-parts process at all**
   The requirement is often missed because it does not exist in ISO 9001. Pointing to “we only buy from suppliers we know” is not enough.

7. **Expired qualification records**
   Welder and inspector qualifications have validity periods. A matrix without expiry dates and reminders produces a gap shortly before the audit, every time.

8. **Metrics estimated instead of measured**
   On-time delivery and quality performance have to hold up — customers read them in their own scorecards. Two real figures beat ten estimated ones.

9. **Leaving out contingency planning**
   Clause 6.1.4 calls for documented plans for the failure of critical resources. This requirement does not exist in ISO 9001 and is regularly forgotten.

10. **Appointing the certification body too late**

IAQG-recognised auditors are scarce. Lead times of four to six months are normal — ask only after your internal preparation and you lose half a year.

6 Readiness check: are you ready?

Answer the following ten questions honestly with yes or no. The result shows your EN 9100 maturity.

1. **Do you run a QM system to ISO 9001 that is actually lived?**
   Not merely certified, but used day to day.
2. **Is the scope agreed with your aerospace customer?**
   Sites, products and processes named.
3. **Is product safety anchored as a topic in its own right?**
   Cl. 5.1.1 and 8.1.3 — a named owner, critical characteristics defined.
4. **Do you operate configuration management?**
   Cl. 8.1.2 — configuration items defined, changes released and traceable.
5. **Do you carry out first article inspections under EN 9102?**
   For new parts, after process changes and after production breaks.
6. **Are special processes qualified and monitored?**
   Cl. 8.5.1.2 — process, people and equipment, with Nadcap where needed.
7. **Is there a process to prevent counterfeit parts?**
   Cl. 8.1.4 — buying only from approved sources, a defined route for suspected cases.
8. **Do you keep an approved supplier list with assessments?**
   Cl. 8.4.1 — criteria and assessment intervals set out in writing.
9. **Do you measure on-time delivery and quality performance?**
   Cl. 9.1.1 — figures that hold up, reported regularly.
10. **Are there contingency plans for the failure of critical resources?**
    Cl. 6.1.4 — key machines, sole suppliers, sites.

Your yes answers	Where you stand	What to do
0–3 × yes	**At the beginning**	First make the ISO 9001 system solid, then extend it for the industry. 12–18 months.
4–6 × yes	**Halfway there**	Usually what is missing is configuration management, FAI or counterfeit protection. 6–10 months.
7–10 × yes	**Close to certification**	Complete the audit programme and book the certification body. 4–6 months.

EN 9100 is straightforward to plan once an ISO 9001 system is in place — the extra work sits almost entirely in manufacturing. If you have questions about the scope, a free first conversation helps.

7 Glossary

The key terms around EN 9100, explained plainly:

EN 9100

The quality management standard of the aerospace industry. Contains ISO 9001:2015 in full and adds around 100 industry-specific requirements.

AS9100 / JISQ 9100

The American and Japanese editions of the same standard — harmonised in content through the IAQG.

IAQG

International Aerospace Quality Group — publisher of the standard and rule-setter for the certification procedure.

OASIS

Online Aerospace Supplier Information System — the IAQG supplier database in which every valid certificate is entered.

FAI

First article inspection under EN 9102 — evidence that the manufacturing process delivers the required result repeatably.

Configuration management

Systematic control of product and documentation across the lifecycle: identify, assess, release, trace.

Special process

A process whose result cannot be fully verified by later inspection — welding, heat treatment, surface treatment, NDT.

Nadcap

National Aerospace and Defense Contractors Accreditation Program — the industry-wide accreditation programme for special processes.

Counterfeit parts

Counterfeit or improperly released parts. EN 9100 calls for a documented process to prevent them (cl. 8.1.4).

Product safety

Identifying and monitoring safety-critical characteristics across the whole product lifecycle (cl. 8.1.3).

Contingency planning

Documented plans for the failure of critical resources — machines, suppliers, sites (cl. 6.1.4).

NDT

Non-destructive testing — ultrasound, radiography, penetrant testing and other methods that count as special processes.

AAB

Aerospace Auditor Body — the register of auditors recognised by the IAQG.

Stage 1 / Stage 2

The two steps of the certification audit: the document review and readiness assessment, then the check of the implementation on site.

8 Your next step

You have read this guide — that is the first step already. Implementing EN 9100 in a structured way secures your place in aerospace supply chains and builds manufacturing records that hold up when something goes wrong.

A free first conversation

In a 30-minute call, with no obligation, we work out together:

- ✓ Which variant applies to you — 9100, 9110 or 9120?
- ✓ How large is the delta to your existing QM system?
- ✓ Which of your processes count as special processes?
- ✓ What timeframe and what budget are realistic?

No sales pitch, no pressure — just an honest assessment.

The EN 9100 quick check
On **iso-easy.de** you can test your maturity in 3 minutes and get a first assessment — without leaving any contact details.

Contact

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iso-easy is part of notivia GmbH.

With more than 30 years in process and quality consulting we support aerospace suppliers in implementing EN 9100, ISO 9001, ISO 27001 and neighbouring standards — practical, transparent and as equals.

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