

## EN 1090 CERTIFICATION

### Technical Handbook for Structural Steel & Aluminium Manufacturers

*EN 1090-1 • EN 1090-2 • EN 1090-3 • EXC1-EXC4 • CE Marking •  
FPC • Welding • WPS/WPQR • Traceability • Inspection •  
Documentation*



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# HANDBOOK OVERVIEW

## Understanding EN 1090 Certification

EN 1090 is a European standard framework associated with the execution and conformity assessment of structural steel and aluminium components.

For manufacturers, EN 1090 is not limited to a single certificate. It involves a coordinated system covering Factory Production Control, manufacturing processes, welding, personnel competence, material identification, inspection, traceability and technical documentation. The applicable requirements depend on the product, intended use, execution class, applicable technical specifications and regulatory framework.

## Who Is This Handbook For?

- Structural steel fabricators
- Structural aluminium manufacturers
- Steel frame manufacturers
- Industrial structure manufacturers
- Engineering and fabrication companies
- EPC contractors
- Construction component manufacturers
- Export-oriented manufacturers
- Manufacturers supplying structural components to European markets

# EN 1090-1, EN 1090-2 & EN 1090-3

The EN 1090 family addresses different aspects of structural component conformity and technical execution.

## EN 1090-1

### Conformity Assessment

Focuses on conformity assessment requirements for structural components and the production controls associated with demonstrating conformity.

#### Key areas:

- Factory Production Control
- Conformity assessment
- Product characteristics
- Production controls
- Documentation
- Assessment activities
- CE-marking-related requirements where applicable

## EN 1090-2

### Steel Structures

Addresses technical execution requirements for structural steelwork.

#### Key areas:

- Materials
- Preparation
- Cutting
- Forming
- Welding

- Welding
- Mechanical fastening
- Assembly
- Inspection
- Tolerances
- Surface preparation

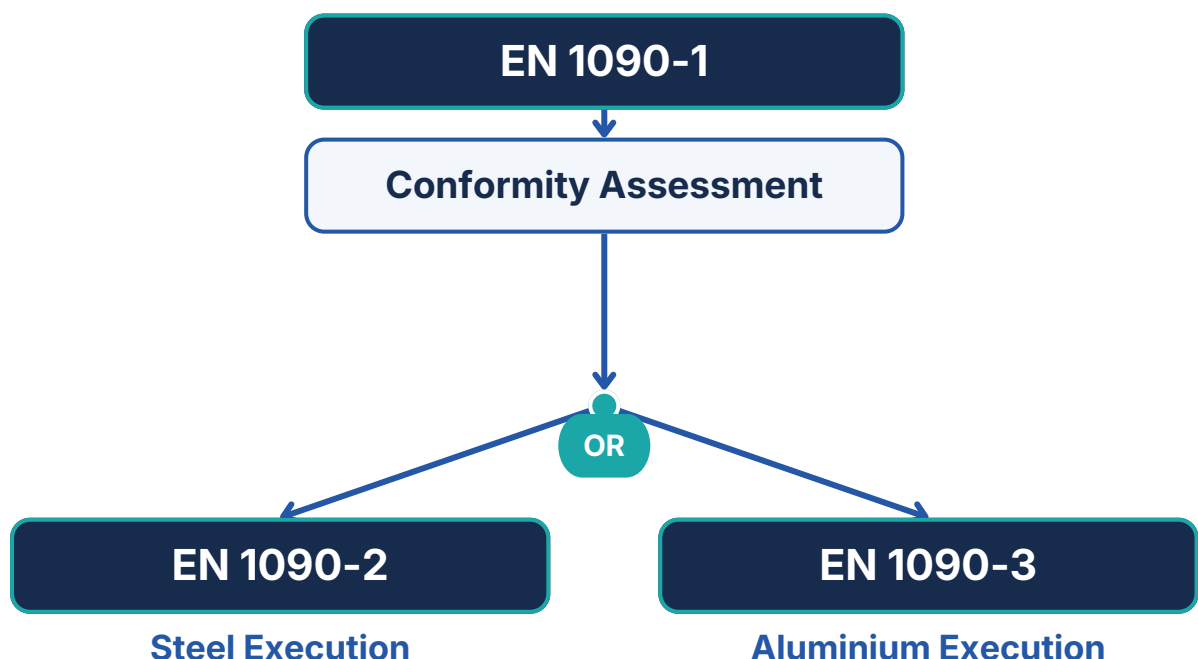
## EN 1090-3

### Aluminium Structures

Addresses technical execution requirements applicable to aluminium structures.

#### Key areas:

- Materials
- Fabrication
- Welding
- Inspection
- Tolerances
- Surface treatment
- Execution requirements



# CE Marking Is More Than a Logo

The marking should correspond with the applicable conformity documentation and declared information.

The supporting system should connect:

**Product → Production Controls → Performance → Assessment → Documentation → Declaration / CE Marking**

## **Regulatory Note — 2026**

Regulation (EU) 2024/3110 establishes a new framework for construction products and repeals Regulation (EU) No 305/2011. Manufacturers should verify the regulatory requirements, technical specifications and conformity assessment provisions applicable to their products and market at the time of assessment.

[\*\*Read: CE Marking vs EN 1090 →\*\*](#)

# EN 1090 Execution Classes: EXC1–EXC4

Execution Classes establish different levels of execution requirements for structural components.

| EXC1                         | EXC2                            | EXC3                          | EXC4                           |
|------------------------------|---------------------------------|-------------------------------|--------------------------------|
| Lower execution requirements | Standard execution requirements | Higher execution requirements | Highest execution requirements |

## What Can the Execution Class Affect?

- Welding requirements
- Inspection
- Traceability
- Personnel competence
- Production controls
- Documentation
- Quality requirements

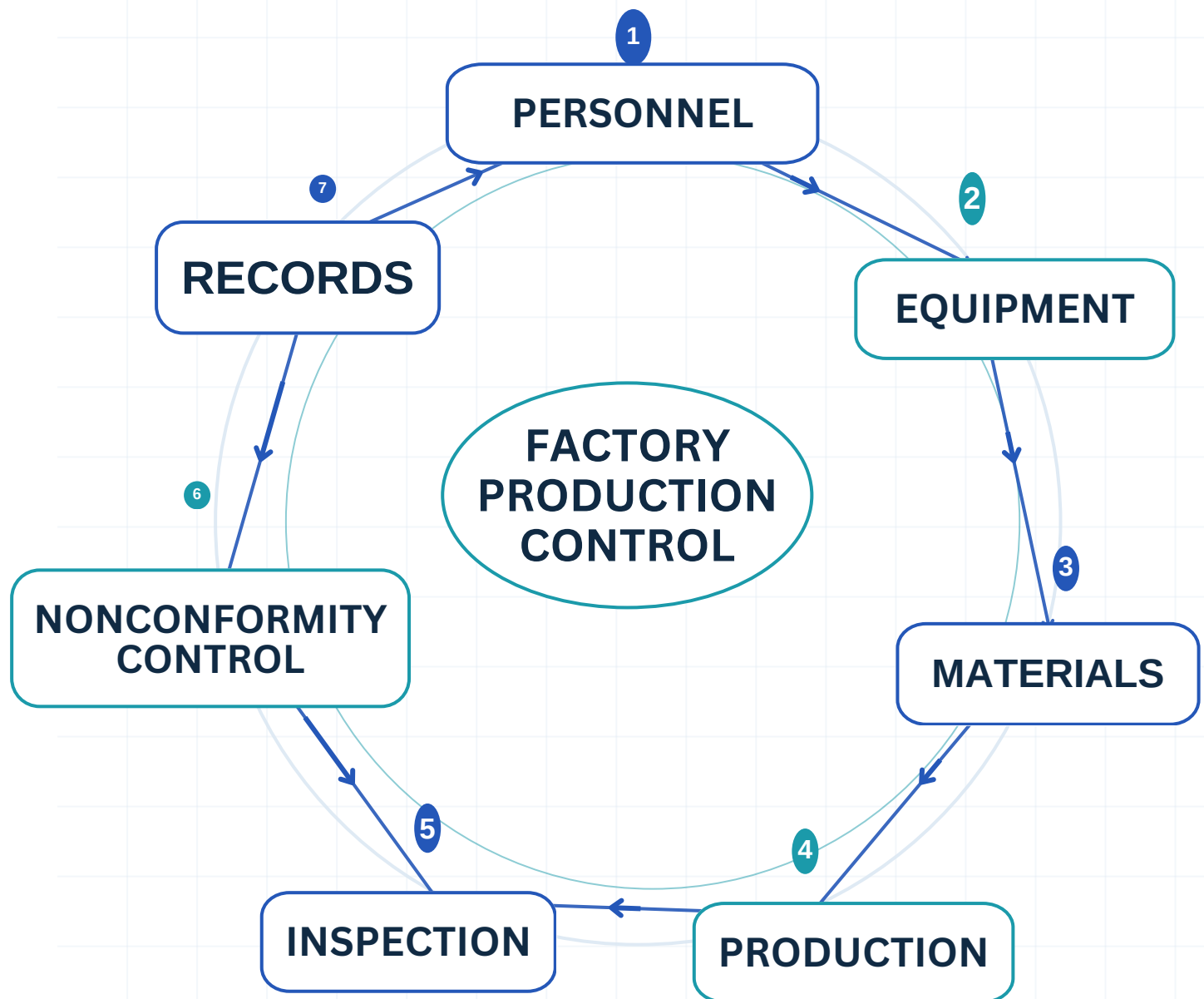
## Who Determines the Execution Class?

The applicable execution class should be established from the relevant design basis, project specification and applicable standard provisions.

It should not be selected simply from the material type or general building category.

# EN 1090 Factory Production Control (FPC)

Factory Production Control establishes how a manufacturer controls production from incoming materials through manufacturing, inspection and final documentation.



# EN 1090 Welding Requirements

Welding is a critical manufacturing activity for structural steel and aluminium components.

A controlled welding system should establish the relationship between:

## CONTROL FRAMEWORK

Seven controls converge into one accountable outcome

**01**  
**QUALIFIED**  
**PERSONNEL**

**02**  
**QUALIFIED WELDING**  
**PROCEDURES**

**03**  
**CONTROLLED**  
**EQUIPMENT**

**04**  
**CONTROLLED**  
**CONSUMABLES**

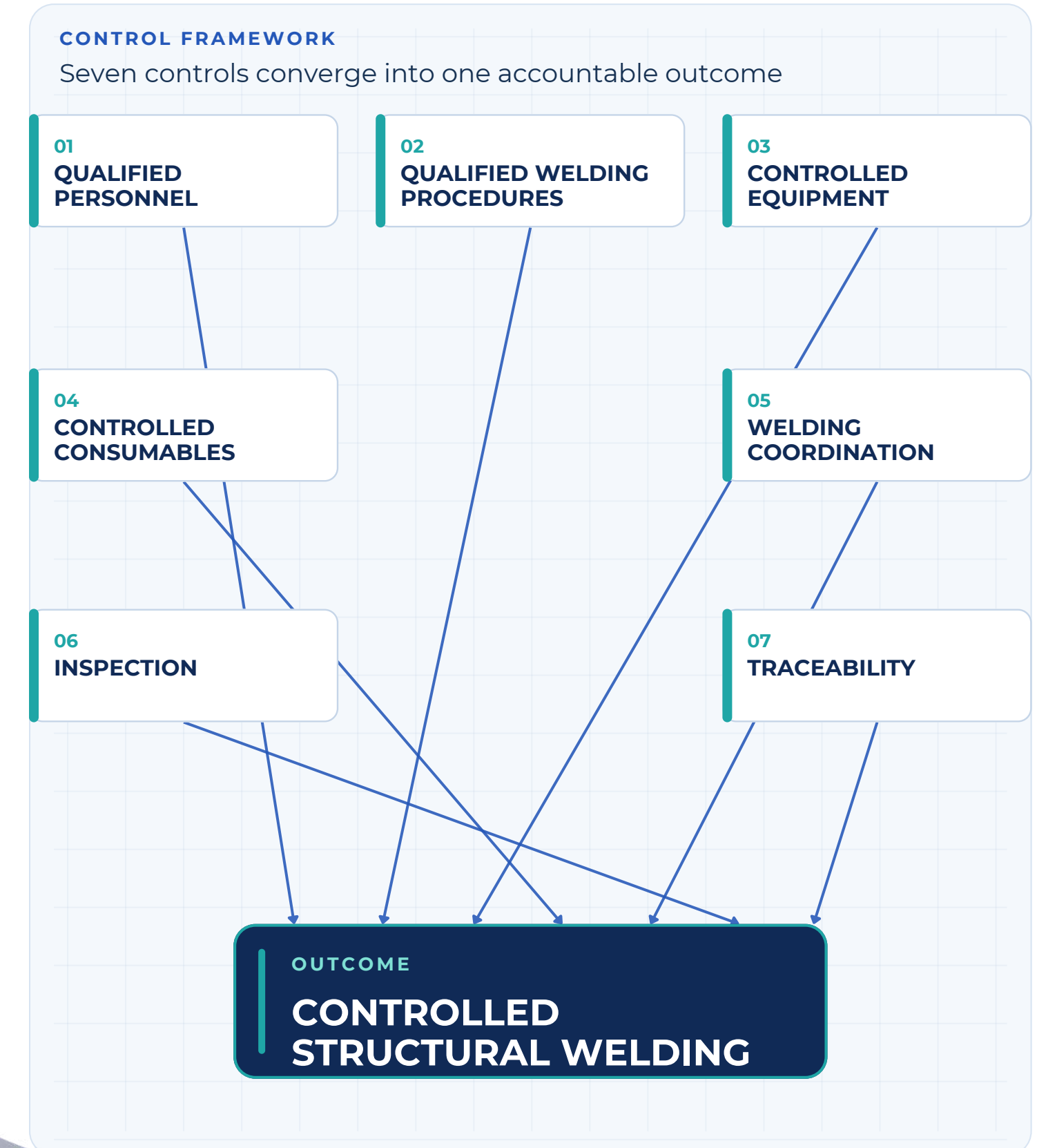
**05**  
**WELDING**  
**COORDINATION**

**06**  
**INSPECTION**

**07**  
**TRACEABILITY**

**OUTCOME**

**CONTROLLED**  
**STRUCTURAL WELDING**



# WPS, WPQR & Welder Qualification

## WPS — Welding Procedure Specification

A WPS establishes the production welding variables and instructions required to produce a weld.

Depending on the applicable process and requirements, it may address:

- Welding process
- Parent material
- Joint type
- Thickness
- Welding position
- Filler material
- Shielding gas
- Electrical parameters
- Preheat
- Interpass temperature
- Heat input
- Number of runs
- Post-weld treatment where applicable

## WPQR — Welding Procedure Qualification Record

A WPQR provides documented evidence from a procedure qualification.

Records may include:

- Test coupon
- Parent material
- Welding process
- Welding parameters
- Filler material
- Test results
- Visual examination
- NDT
- Mechanical testing
- Acceptance criteria

# EN 1090 CE Marking & Conformity Assessment

CE marking is associated with demonstrating conformity with applicable European requirements.

For construction products, the applicable regulatory framework, harmonised technical specification and conformity assessment route should be established for the specific product.

## Typical Conformity Flow

**01 — Product Scope**



**02 — Applicable Requirements**



**03 — Performance Characteristics**



**04 — Factory Production Control**



**05 — Applicable Assessment Activities**



**06 — Conformity Documentation**



**07 — CE Marking Where Applicable**

# EN 1090 Material Identification & Traceability

Material traceability creates a documented connection between the material received by the manufacturer and the structural component produced.



# Welding Coordination & Welding Quality

Welding coordination establishes responsibility for controlling welding-related technical activities.

Responsibilities should correspond with the organization's scope, welding activities, execution requirements and personnel competence.

## Before Production

- ☐ Review drawings
- ☐ Review specifications
- ☐ Check execution requirements
- ☐ Review WPS/WPQR
- ☐ Check welder qualifications
- ☐ Review materials
- ☐ Establish inspection requirements

## During Production

- ☐ Monitor welding activities
- ☐ Verify WPS application
- ☐ Review welding parameters
- ☐ Control consumables
- ☐ Monitor deviations
- ☐ Coordinate inspection
- ☐ Maintain welding records

## After Production

- ☐ Review inspection results
- ☐ Review NDT results where applicable
- ☐ Address nonconformities
- ☐ Verify traceability
- ☐ Review documentation
- ☐ Confirm required records

# Welder Qualification

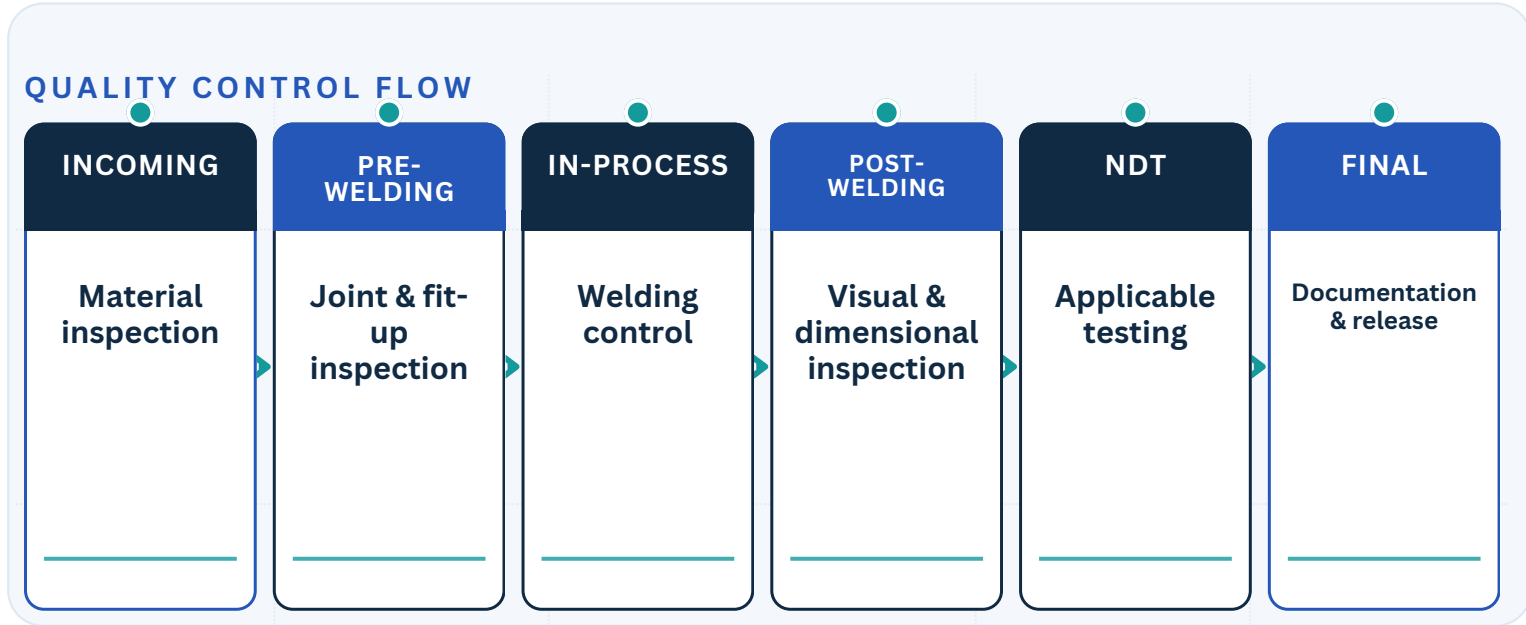
Qualification should be checked against the applicable:

- Welding process
- Material
- Joint type
- Welding position
- Thickness range
- Diameter where applicable
- Qualification range
- Continuity requirements



# EN 1090 Inspection, Testing & NDT

Inspection should be planned according to the applicable execution requirements, product characteristics, weld type, project specification and other relevant requirements.



## Common NDT Methods

**VT** Visual Testing

**MT** Magnetic Particle Testing

**PT** Penetrant Testing

**UT** Ultrasonic Testing

**RT** Radiographic Testing

## Inspection Records

- ☐ Inspection reports
- ☐ NDT reports
- ☐ Acceptance results
- ☐ Nonconformity records
- ☐ Corrective actions
- ☐ Re-inspection results

# EN 1090 Documentation Requirements

Effective documentation allows a manufacturer to demonstrate how a structural component was produced, controlled and inspected.

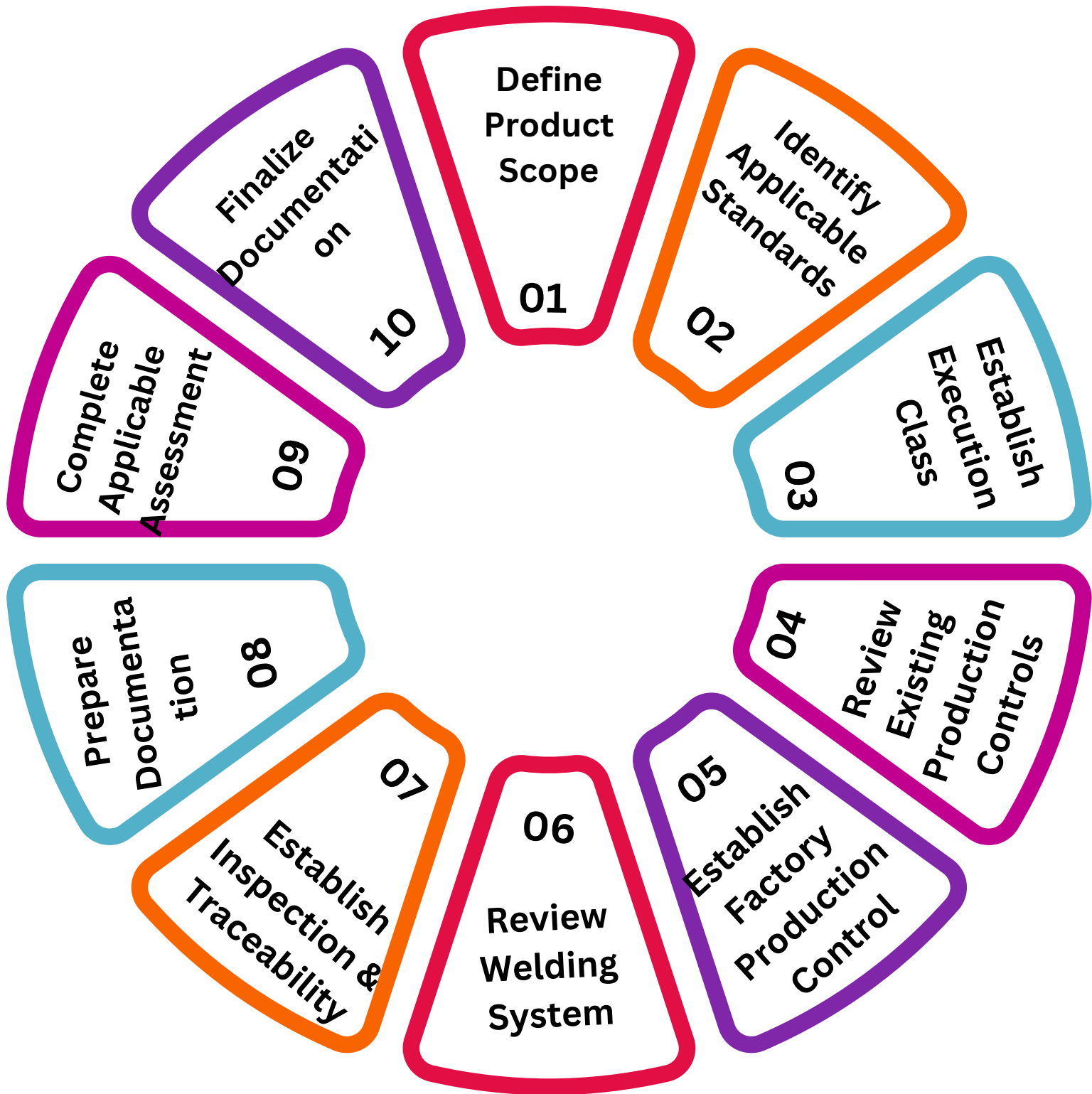
## EN 1090 Documentation Records

| Area       | Typical Records                                             |
|------------|-------------------------------------------------------------|
| Product    | Drawings, specifications, product identification            |
| Materials  | Material certificates, identification, receiving inspection |
| Welding    | WPS, WPQR, welder qualifications, welding records           |
| Production | Production instructions, cutting, fit-up, assembly records  |
| Inspection | Inspection reports, NDT reports                             |
| Equipment  | Calibration/verification, maintenance records               |
| Quality    | NCR, corrective actions                                     |
| Final      | Final inspection, applicable conformity documentation       |

For Further Details

[Explore First Welding Certification Pvt Ltd EN 1090 Certification](#)

# EN 1090 Certification Process



## What Should Be Ready?

- FPC
- WPS/WPQR
- Welder Qualifications
- NDT
- Welder Coordination
- Material Traceability
- Inspection
- Equipment Records
- Technical Documentation

# What May Be Reviewed During an EN 1090 Assessment?

An assessment can involve reviewing whether the manufacturer's documented and implemented production controls are appropriate for the applicable scope.

## 6 PILLARS OF EN 1090 ASSESSMENT

**01**

### MANAGEMENT

Responsibilities  
Competence  
Organization

**02**

### FPC

Production controls  
Procedures  
Records

**03**

### WELDING

WPS & WPQR  
Welder qualifications  
Welding coordination

**04**

### MATERIALS

Certificates  
Identification  
Traceability

**05**

### PRODUCTION

Drawings  
Processes & Equipment  
Inspection

**06**

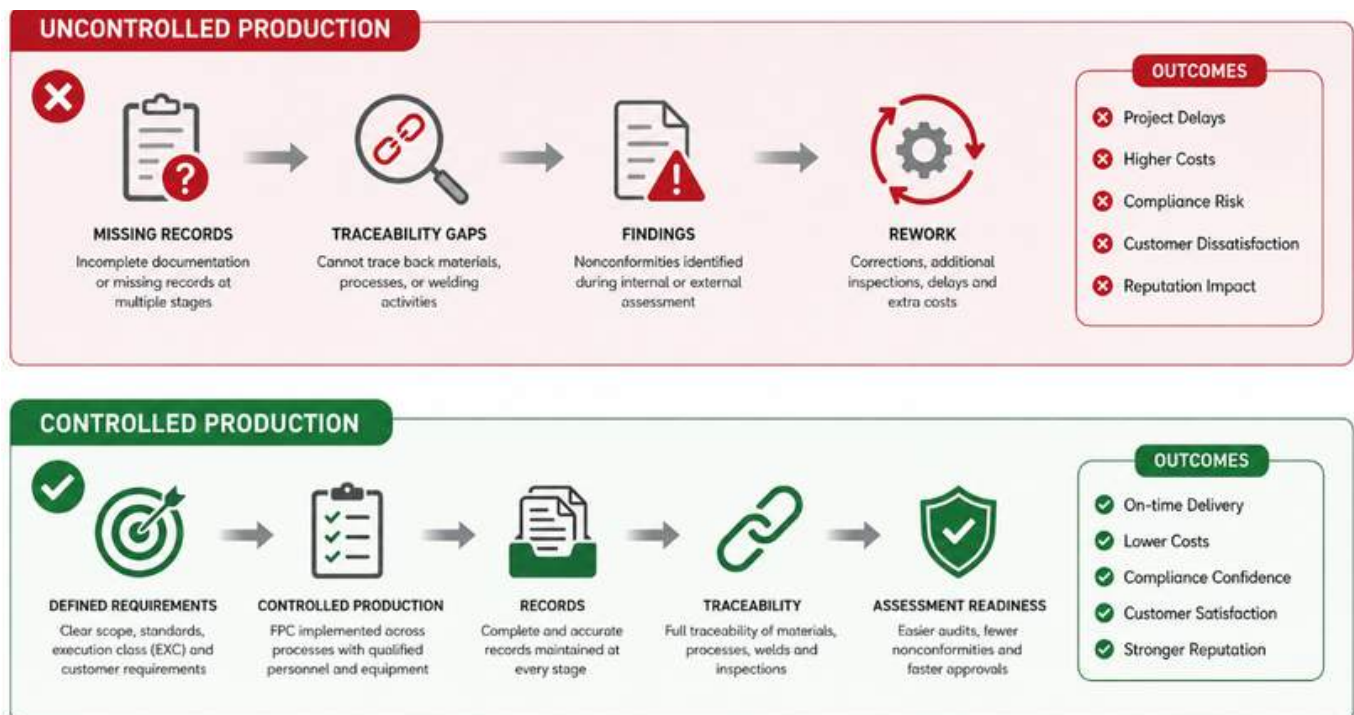
### DOCUMENTATION

Records & NCRs  
Corrective actions  
Final documentation

An organization should be able to demonstrate not only that a procedure exists, but also that the procedure is implemented and supported by appropriate records.

# 10 Common EN 1090 Preparation Mistakes

- 01.** Selecting an execution class without reviewing the applicable design and project requirements.
- 02.** Treating EN 1090-1 as the complete technical execution standard.
- 03.** Using a WPS without confirming its qualification basis and applicable range.
- 04.** Missing the connection between WPS, WPQR and production welding.
- 05.** Incomplete welder qualification or continuity records.
- 06.** Weak material identification and traceability.
- 07.** Incomplete Factory Production Control records.
- 08.** Missing inspection or NDT evidence.
- 09.** Uncontrolled drawings, revisions or production instructions.
- 10.** Preparing certification documentation only after manufacturing has started.



## KEY MESSAGE

A controlled system ensures quality, compliance, and confidence – from requirements to certification.

# EN 1090 Documentation Readiness Checklist

## PRODUCT

- ☐ Product scope established
- ☐ Intended use identified
- ☐ Applicable standards identified
- ☐ Project requirements reviewed
- ☐ Execution class established

## FPC

- ☐ FPC documented
- ☐ Responsibilities assigned
- ☐ Production controls implemented
- ☐ Nonconforming product process established
- ☐ Records controlled

## WELDING

- ☐ Welding processes identified
- ☐ WPS available
- ☐ WPQR available where required
- ☐ Welder qualifications available
- ☐ Welding coordination established
- ☐ Consumables controlled
- ☐ Welding equipment controlled

## MATERIALS

- ☐ Material specifications defined
- ☐ Material certificates available
- ☐ Material identification implemented
- ☐ Traceability maintained

## **INSPECTION**

- ☐ Inspection plan established
- ☐ Visual inspection defined
- ☐ NDT requirements identified
- ☐ Inspection personnel competence established
- ☐ Inspection records maintained

## **EQUIPMENT**

- ☐ Welding equipment maintained
- ☐ Measuring equipment controlled
- ☐ Calibration/verification records available
- ☐ Maintenance records available

## **EN 1090 Certification Readiness Checklist**

### **DOCUMENTATION**

- ☐ Drawings controlled
- ☐ WPS/WPQR controlled
- ☐ Welder qualification records controlled
- ☐ Material certificates retained
- ☐ Inspection records retained
- ☐ NDT reports retained
- ☐ Nonconformity records retained
- ☐ Corrective actions documented
- ☐ Final documentation controlled

## **Frequently Asked Questions**

### **What is EN 1090 certification?**

EN 1090 certification relates to demonstrating conformity of applicable structural components through the relevant production controls and conformity assessment framework.

### **What is EN 1090-1, EN 1090-2, EN 1090-3?**

EN 1090-1 addresses conformity assessment of structural components.

EN 1090-2 addresses technical execution requirements for structural steelwork.

EN 1090-3 addresses technical execution requirements for aluminium structures.

### **What are EXC1, EXC2, EXC3 and EXC4?**

They are four execution classes representing different levels of execution requirements.

### **What is Factory Production Control?**

FPC is the manufacturer's system for controlling production processes and maintaining appropriate production evidence.

### **Does EN 1090 involve welding qualification?**

Where welding is applicable, appropriate welding procedures, qualified personnel and welding controls need to be established according to the applicable requirements.

### **What is EN 1090 CE marking?**

CE marking is associated with demonstrating conformity with applicable European requirements and should be based on the applicable regulatory and conformity assessment framework.