

GENERAL SPECIFICATION

STRUCTURAL

GS EP STR 520

Onshore Steel Structure - Material and Fabrication

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1. Scope

This General Specification defines the minimum requirements for the supply and the fabrication of onshore steel structures designed according to **GS EP STR 510**.

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

Where there are national regulations, their particular requirements, and those of the standards or codes to which they refer, shall be applied, supplementing or amending the provisions of this document.

If there are no mandatory national regulations, international regulations, standards and codes shall be applied.

If there are no applicable international standards and codes, the national standards and codes shall be chosen from those listed below according to the projects in hand and shall be defined in the job specification.

In the absence of a specific exemption, duly justified by the Contractor and agreed by the Company, codes and standards of different origins may not be used in whole or in part.

If certain points in these regulations need to be clarified, the Contractor shall describe and justify the changes and/or additions to be made so that they can be adapted to the nature and environment of the structure. Such proposals shall be considered acceptable only when they have been examined and approved by the Company.

A definitive list of regulations, standards and codes proposed by the Contractor shall be taken from the reference documents defined in this specification and the project's job specification.

Only the main standards are mentioned; the Contractor shall be responsible for compliance with any secondary standards. The list provided in this document should not be regarded as exhaustive.

The Contractor shall also comply with the site's General Regulations and Procedures.

The Contractor shall be thoroughly familiar with the applicable regulations and codes as well as local regulations specific to the site concerned by the works.

The structures and the construction work shall also conform to health and safety at work regulations and take account of all the directives specific to the installations concerned.

In this document, Euronorms and Eurocodes are the basement but Contractor may propose other corpus of Codes and Standards and will be note as "relevant codes" in this text.

Important: *The works shall be designed, dimensioned and justified by means of a whole of assumptions and rules constituting a coherent corpus of texts (for example: Eurocodes): any mixing of texts resulting from different corpora may have serious consequences. Thus, the use of codes or standards from different origins is forbidden (unless particular case and if precisely justified). For example, if some Eurocodes are not applicable on a project, the Engineering Company shall propose to Company, for approval, a coherent alternative for the whole of the applicable rules on the whole project.*

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External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published at the effective date of this document.

Reference	Title
EN 10025 (All Parts)	Hot rolled products of structural steels - All Parts
EN 1011 (All Parts)	Welding - Recommendations for welding of metallic materials - All Parts
EN 10160	Ultrasonic testing of steel flat product of thickness equal or greater than 6 mm (reflection method)
EN 10163-3	Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections - Part 3: Sections
EN 10164	Steel products with improved deformation properties perpendicular to the surface of the product - Technical delivery conditions
EN 10204	Metallic product - Type of inspection document
EN 1090 (Parts 1; 2)	Execution of steel structures and aluminium structures - Parts 1; 2
EN 14399-1	High-strength structural bolting assemblies for preloading - Part 1: general requirements
EN 15048-1	Non-preloaded structural bolting assemblies - Part 1: General requirements
EN 1993 (Parts 1-8; 1-10)	Eurocode 3: design of steel structures - Parts 1-8; 1-10
European Directive 93/68/EEC	Council Directive 93/68/EEC of 22 July 1993 amending Directives 87/404/EEC (simple pressure vessels), 88/378/EEC (safety of toys), 89/106/EEC (construction products), 89/336/EEC (electromagnetic compatibility), 89/392/EEC (machinery), 89/686/EEC (personal protective equipment), 90/384/EEC (non-automatic weighing instruments), 90/385/EEC (active implantable medicinal devices), 90/396/EEC (appliances burning gaseous fuels), 91/263/EEC (telecommunications terminal equipment), 92/42/EEC (new hot-water boilers fired with liquid or gaseous fuels) and 73/23/EEC (electrical equipment designed for use within certain voltage limits)
ISO 10675-1	Non-destructive testing of welds - Acceptance levels for radiographic testing - Part 1: Steel, nickel, titanium and their alloys
ISO 11666	Non-destructive testing of welds - Ultrasonic testing - Acceptance levels
ISO 1461	Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods

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ISO 14713 (All parts)	Zinc coatings - Guidelines and recommendations for the protection against corrosion of iron and steel in structures - All parts
ISO 14732	Welding personnel - Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials
ISO 148-1	Metallic materials - Charpy pendulum impact test - Part 1: Test method
ISO 15611	Specification and qualification of welding procedures for metallic materials - Qualification based on previous welding experience
ISO 15612	Specification and qualification of welding procedures for metallic materials - Qualification by adoption of a standard welding procedure
ISO 15613	Specification and qualification of welding procedure for metallic materials - Qualification based on pre-production welding test
ISO 15614-1	Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc gas welding of steels and arc welding of nickel and nickel alloys
ISO 17635	Non-destructive testing of welds - General rules for metallic materials
ISO 17636 (All Parts)	Non-destructive testing of welds - Radiographic testing - All Parts
ISO 17637	Non-destructive testing of welds - Visual testing of fusion-welded joints
ISO 17638	Non-destructive testing of welds - Magnetic particle testing
ISO 17640	Non-destructive testing of welds - Ultrasonic testing - Techniques, testing levels, and assessment
ISO 23277	Non-destructive testing of welds - Penetrant testing - Acceptance levels
ISO 23278	Non-destructive testing of welds - Magnetic particle testing - Acceptance levels
ISO 23279	Non-destructive testing of welds - Ultrasonic testing - Characterization of indications in welds
ISO 3452-1	Non-destructive testing - Penetrant testing - Part 1: General principles
ISO 3834 (All Parts)	Quality requirements for fusion welding of metallic materials - All Parts
ISO 4014	Hexagon head bolts - Product grades A and B
ISO 4032	Hexagon regular nuts (style 1) - Product grades A and B

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Reference	Title
ISO 4063	Welding and allied processes - Nomenclature of processes and reference numbers
ISO 5817	Welding - Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) - Quality levels for imperfections
ISO 8501-1	Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings
ISO 898 (Parts 1; 2)	Mechanical properties of fasteners made of carbon steel and alloy steel - Parts 1; 2
ISO 9001	Quality management systems - Requirements
ISO 9606-1	Qualification testing of welders - Fusion welding - Part 1: Steels

Total General Specifications

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published.

Reference	Title
GS EP COR 353	Design and application of passive fire protection coatings
GS EP COR 354	External protection of onshore structures and equipment by painting
GS EP COR 356	Corrosion Protection of Fasteners
GS EP STR 500	Onshore Structure - General
GS EP STR 510	Onshore Structure - Design

3. Applicability

This specification is applicable to the following engineering tasks:

- Preliminary and basic design
- Development of Project Particular Specifications
- Detailed design
- Expertise.

This specification applies to plants operated by Company.