

GENERAL SPECIFICATION

STRUCTURAL

GS EP STR 001

Weight monitoring and weighing offshore and onshore units

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1. Scope

This document specifies requirements for controlling the weight and centre of gravity (CoG) by means of mass management during the engineering and construction of structures for the offshore and onshore environment. The provisions are applicable to structures of all types (fixed and floating) and materials. These structures can be complete new installations or the modifications to existing installations.

This general specification defines:

- The minimum "weight monitoring" requirements to be observed when estimating, recording, reporting and verifying the weight and centre of gravity for all assemblies and/or subassemblies in petroleum structures.
- Weight monitoring in every phase from engineering to the end of construction.
- The minimum "Weighing" requirements to be observed for measuring weights and centres of gravity.

Unless otherwise indicated in the Particular Project Specification, this general specification does not cover concrete structures. Special arrangements for each project are covered in job (or particular) specifications which supplement or amend this general specification.

2. Reference documents

The reference documents listed below shall be considered as an integral part of this General Specification.

External Documents

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

Where national regulations exist, their provisions and those of the standards and codes to which they refer shall apply, supplementing or amending the provisions of this document.

Reference	Title
API RP 2A-WSD	Planning, Designing, and Constructing Fixed Offshore Platforms-Working Stress Design
ISO 19901-5	Petroleum and natural gas industries - Specific requirements for offshore structures - Part 5: Weight control during engineering and construction

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Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, shall be the latest revision published in the applicable yearly collection.

The provisions of this document shall be applied in the light of the supplementary documents supplied by the Owner, including:

- Country specificity appendices
- Particular Project Specification
- Data sheets
- Articles and conditions; list of tasks
- Quality assurance provisions.

Reference	Title
GS EP STR 652	F(P)SO - Steel hull design requirements

3. Terminology

The following terms shall apply to the weights and centres of gravity.

3.1 Weight control

Organization by which weights can at any time be compared with the prescribed weights so that any deviation can be corrected to achieve the prescribed weights and the prescribed tolerances.

3.2 Weight monitoring

Obtaining, verifying, recording and processing information on the weight of each item of an assembly so that the total weight and position of the centre of gravity of that assembly is known at all times.

3.3 Target weight

The weight of an item or assembly including the associated "tolerances" and "contingencies". This weight is determined at the beginning of the engineering phase and is checked throughout the project against the not-to-exceed weight.

3.4 Estimated weight

"Bid drawing" stage according to [API RP 2A-WSD](#).

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The weight based on the estimated equipment weights, on design drawings (or 3D drawing) with approximate calculations, on information available at particular times or on experience giving an indication of the weight for an item or assembly.

3.5 Calculated weight

"Design drawing", "fabrication drawing (Approved For Construction Engineering drawing)" and "installation drawing" stages according to [API RP 2A-WSD](#).

The weight determined by calculation, bill of quantities, MTO, etc.

3.6 Weighed weight

The weight of an item or assembly as measured in the presence of a third party witness and of necessity accompanied by a certificate and accuracy of weight.

3.7 Dry weight

The weight of an item or assembly in its dry installed condition including permanent utilities such as gearbox oil, hydraulic oil, filter sand, etc. Any operating fluid content flowing through a component, weight item or an assembly is excluded.

3.8 Operating weight

The weight of an item or assembly installed and in operation including consumables, operating fluids, without floor live loads.

3.9 Lift weight

The total weight of an item ready for lifting, including all lifting devices (shackles, slings, spreaders, installation aids, etc.) including packaged items and temporary equipment.

3.10 Not-to-exceed weight

Maximum stipulated weight for one or more stages in the implementation of a project (for example: lift, operating, etc.).

3.11 Hydrotesting weight

Weight of an item in test conditions; including equipment temporarily required for the test.

3.12 Weight Contingency

A quantity that can be added to the weight of an item or assembly to reflect the level of design and/or implementation of the item concerned.

3.13 Tolerances

Positive or negative values linked to the construction tolerances of each item being used.

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3.14 Subassembly

Part of a structure consisting of items that are indivisible for weight control purposes and lifted all at once.

3.15 System

A system is defined as the combination of equipment and bulk supporting the same petroleum function. The definition and limits of the systems are defined in standard specifications.

3.16 Equipment and packages

The equipment and packages (the combination of equipment and related bulks) comprise the specific equipment responsible for or involved in a specific oil field function, such as separator, turbo-compressor, crane, etc. They are identified on drawings and documents by standardized identifiers; this identifier can be used to distinguish between bare equipment and packages. Disciplines concerned: boiler making, mechanical, electrical, instrumentation, HVAC, safety.

3.17 Bulk

Bulk or standardized equipment is defined as non-specific equipment such as piping, valves, electrical cables, etc.

3.18 Future weight

The weight of an identified item or assembly that is to be installed in the future and in operation including consumables, operating fluids, without floor live loads.

3.19 Company reserve

The provision weight for unidentified item to cover possible project development or change as defined in **GS EP STR 100** or in the Particular Project Specification.

3.20 Live load

Live loads are those that may vary over time.

3.21 Control Condition

A Control Condition is a condition of the assembly for which a not-to-exceed weight is defined, and against which the weight is monitored. Control conditions may include load-out, lift, in-service operation limits imposed by the capacity of structural support systems. Control conditions may require simultaneous monitoring and control of the weight and the centre of gravity of a component.