

GENERAL SPECIFICATION

STRUCTURAL

GS EP STR 404

Marine aspects for load-out, transportation and installation of offshore and onshore structures

Rev.	Date	Purpose of the revision
04	11/2015	General revision
03	10/2005	§ 2, 3.1.1 revised - Addition of "EP" root to GS identification
02	10/2003	Change of Group name and logo
01	10/2002	Added reference to GS EP STR 101 section 1.3, revised section 3.1.1
00	02/2001	First issue
Rev.	Date	Purpose of the revision

Owning entity: DSO/TEC

Managing entity: DSO/TEC/STR

General Specification		GS EP STR 404
Marine aspects for load-out, transportation and installation of offshore and onshore structures		
Rev.: 04	Effective date: 11/2015	Page: 2 of 15

Contents

1. Scope	3
1.1 Purposes.....	3
1.2 Scope of application.....	3
1.3 Marine Warranty surveyor	3
1.4 Studies (refer to GS EP STR 401).....	3
2. Reference documents.....	4
3. Cargo barge or dry tow vessel.....	5
3.1 Cargo barge and/or dry tow vessel selection.....	5
3.2 Requirements for load-out operations	6
3.3 Requirements for transportation and sea fastening manual.....	8
3.4 Requirements for installation operations	8
4. Tug.....	9
4.1 Tug selection	9
4.2 Requirements for towing operations.....	10
5. Towing equipment.....	11
5.1 Tug equipment.....	11
5.2 Wire pennant cable	12
5.3 Cargo barge equipment	13
6. Particular towing	14
6.1 Tandem/double tows.....	14
6.2 Manning requirements	14

General Specification		GS EP STR 404
Marine aspects for load-out, transportation and installation of offshore and onshore structures		
Rev.: 04	Effective date: 11/2015	Page: 3 of 15

1. Scope

1.1 Purposes

This General Specification defines minimum Company requirements with respect to marine aspects for load-out, towing, sea transportation and installation of offshore and onshore structures and cargos.

1.2 Scope of application

This specification shall apply to vessels and cargo barges used to transport steel structures and/or loose items. The cargo barge is towed by tugs in case of wet tow. The vessel will carry the cargo on the deck (dry tow)

The specification states Company' requirements through three different chapters as follows:

- The tow (cargo barge) (chapter 3)
- Wet tow or dry tow: the tug or transportation vessel (chapter 4)
- The towing gears (chapter 5)

Defined as the vessel performing the towage.

Incorporating all equipment and materials between tow and tug allowing the towage.

The present General Specification shall be supplemented by a Particular Specification to cover the particular circumstances and requirements for a given Project.

1.3 Marine Warranty surveyor

When use of a Marine Warranty Surveyor is elected by Company, the Particular Specification will stipulate:

- Type and number of interventions to be carried out by the Marine Warranty Surveyor
- Split of responsibilities between Company, Contractors, Certification Authorities and Marine Warranty Surveyor, if any.

1.4 Studies (refer to **GS EP STR 401**)

A feasibility study shall be carried out by Contractor at an early stage based on known characteristics of the cargo/structure and assumed characteristics of cargo barge/transportation vessel (basic engineering).

A final study shall then be carried out in due time before load-out by Contractor using the actual conditions of the operations, namely:

- Characteristics of the structure and equipment to be transported
- Sea fastening design attached to the barge
- Characteristics of the loading/off loading site
- Means planned to be used for the loading/off loading operations

General Specification		GS EP STR 404
Marine aspects for load-out, transportation and installation of offshore and onshore structures		
Rev.: 04	Effective date: 11/2015	Page: 4 of 15

- Towing routes and distances
- Metocean conditions at the scheduled period of transport.

The final study shall indicate:

- The actual size of the cargo barge or vessel
- The requirements for barge or vessel deck reinforcements under transportation and installation loads
- Requirements for sea fastening structure (and cribbing if needed)
- The minimum Bollard Pull required for wet tow (tug size and power) (Certified Bollard Pull)
- The requirements for towing equipment
- The route and estimated towage duration.

Both studies shall be submitted to Company for comments and approval.

2. Reference documents

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

The documents to be used by the Contractor are listed below in order of priority:

- The Particular Specification of the project
- This specification used in conjunction with Company General Specifications **GS EP STR 401**, **GS EP STR 101** and **GS EP STR 102**
- **BV NR 183** or **DNV-GL VMO standard**
- **Resolution A.469(XII)** - International Maritime Organisation
- GL Noble Denton Guidelines for marine transportation – **DNV GL 0030/ND**
- GL Noble Denton Guidelines for the approval of towing vessels - **DNV GL 0021/ND**
- Local legislation relating to marine operations.

External Documents

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

Reference	Title
BV NR 183	Towage at sea of vessels or floating units
DNV GL 0021/ND	Guidelines for the Approval of Towing Vessels
DNV GL 0030/ND	Guidelines for Marine Transportations
DNV GL VMO Standard	The VMO Standard supersedes and replaces "DNV Rules for Planning and Execution of Marine Operations"
IMO MSC/Cir.884	Guidelines For Safe Ocean Towing
Resolution A.469(XII)	Guidelines for the Design and Construction of Offshore Supply Vessels

Total General Specifications

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

Reference	Title
GS EP LSO 201	Towing of Watercraft
GS EP STR 101	Design of offshore jacket and subsea structures
GS EP STR 102	Design of offshore topside structure
GS EP STR 401	Loadout, seafastening, transportation and installation of offshore structures

3. Cargo barge or dry tow vessel

3.1 Cargo barge and/or dry tow vessel selection

3.1.1 Size

Cargo barge and/or dry tow vessel selection shall be made by Contractor taking into account:

- Overall size of the barge or vessel - to accommodate the cargoes, and in view of transportation and related expected motions and accelerations
- Size and arrangements in view of load-on/load out or float on/float off operations