



Exploration & Production

GENERAL SPECIFICATION

STRUCTURAL

GS EP STR 006

**Requirements for the design, fabrication and testing
of Overhead Travelling Cranes**

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1. Scope

This general specification applies to Overhead Travelling Cranes installed on fixed or floating offshore installations and onshore plants, used either for material handling or maintenance purposes.

In addition to the specific requirements of the material requisition and datasheets, the SUPPLIER shall provide the following components and piece of equipment:

1.1 Scope of supply for mechanical equipment

SUPPLIER shall supply for each equipment the following (but not limited) accessories:

- Sheet or mesh grid metal casing to protect accessible mechanical parts and impact proof casings for over hanging elements
- Resilient bumpers and rubber buffer or hydraulic bumpers where necessary
- Inhibition of starting in high speed
- Inhibition of breaking in reverse at high speed
- Name plates, visible and permanent (with maximum load indicated)
- Direction shall be visible and indicated on the crane if radio command is use
- Crane rail. Jacking position at the end of crane path shall be engineered to adapt jacks for boogies maintenance when cranes are in park position
- Stopper at the end of crane rail
- Anti-derailment devices
- Anti-uptlifting devices (for seismic area 1)
- Lubricators
- Annunciators (visual and/or acoustic) as required in the data-sheet
- Chain guides and cable guides
- Hook with safety latch
- Oil and grease for the first filling
- Girders for crane
- Maintenance platform (if required in the data-sheet)
- Pad-eyes or lifting points for installation or removal of the crane
- Pad-eyes of davit for hoist, electric motors... maintenance or replacement
- Fittings and bolts
- Protective hood against sun for equipment located outdoor
- Special tools if necessary
- Surface finishing and painting

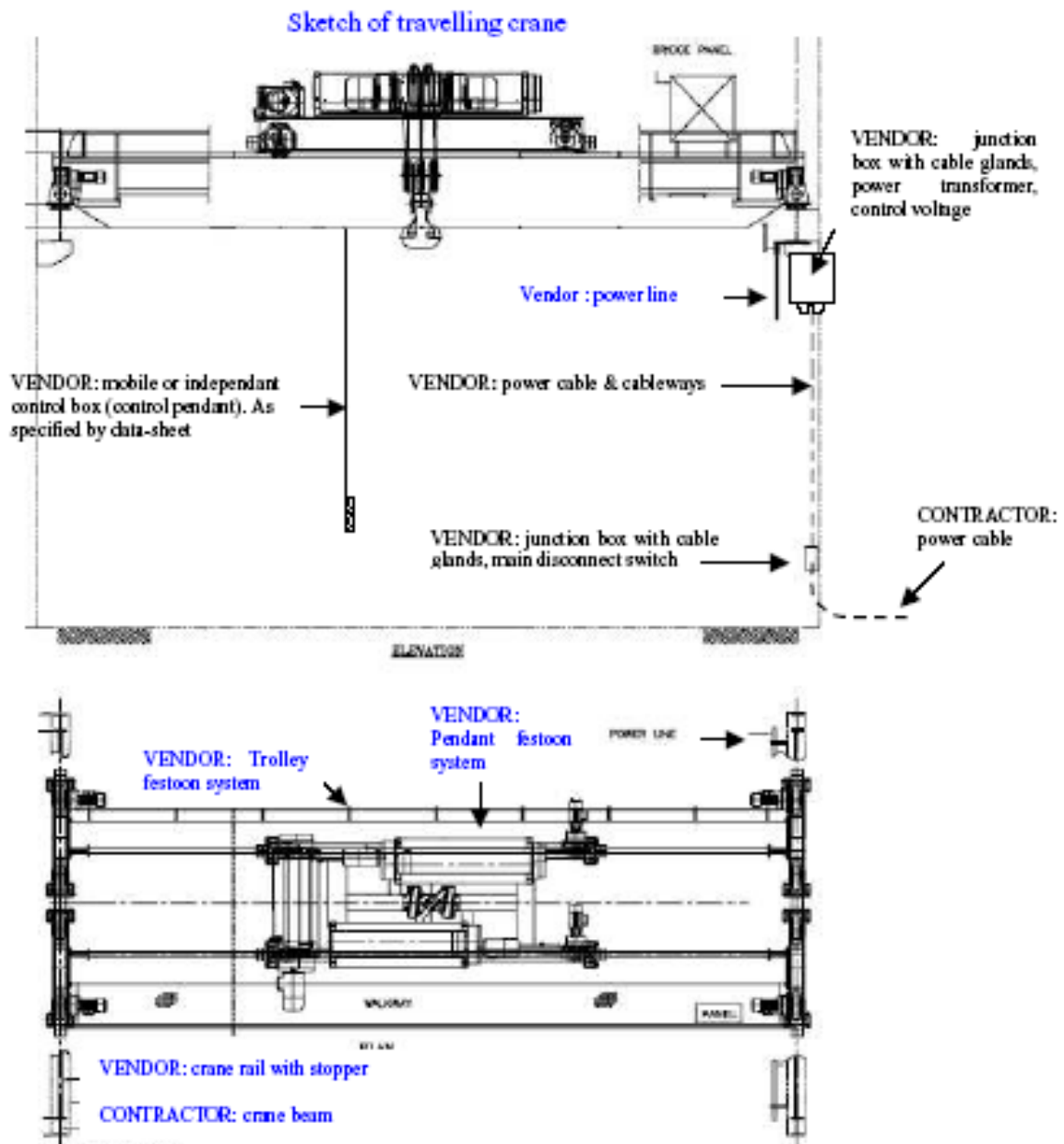


- Pre-commissioning and start up spare parts
- Lifeline along the runway in accordance with European directive 89/686 (Personal Protective Equipment).

1.2 Scope of supply for electrical equipment

The supply of electrical equipment shall include (but not limited) the following items (see also below schematics for hoist):

- Motors
- Motors protection
- Earthing: Bonding of the complete crane shall be provided by SUPPLIER
- All necessary cables, conductors, collectors, festoons, tracks, supports, hangers, fittings etc., required to extend over the full length of travel
- Disconnecting switch with lock for the main switch box
- All cable glands
- Control voltage with transformer (control voltage derivated from the main power supply)
- Limit switches on all electrical moving parts with protections (one for low speed activation and one for stopping translation)
- Load limit switch with protection (unless otherwise specified in the data-sheet)
- Push button control box with on/off position secured by key.



1.3 The following are excluded from SUPPLIER scope

- Civil works
- Connection and wiring of electrical power between site networks and main disconnect switch
- Connection of the hoist earth circuit to the building earth network
- Lighting of building
- Access to maintenance platform.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Standards

Reference	Title
ASTM B 633	Standard specification for electro deposited coatings of zinc on iron and steel
ASTM F 1941M	Standard specification for electrodeposited coatings on threaded fasteners (metric)
BS 466	Overhead Travelling Cranes
BS 3692	ISO Metric Precision Hexagon Bolts, Screws and Nuts - Specification
EN 1990	Eurocode: Basis for structural design
EN 1991-3	Actions on structures Part 3: Actions induced by cranes and machinery
EN 1993-6	Design of steel structures Part 6: Crane supporting structures
EN 10204: 2005	Metallic products - Types of inspection documents
EN 10025	Hot rolled products of structural steels
EN 13889	Forged steel shackles for general lifting purposes. Dee shackles and bow shackles.
EN 14399-1	High strength structural bolting assemblies for preloading - Part 1: General requirements
EN 14399-3	High strength structural bolting assemblies for preloading - Part 3: System HR - Hexagon bolt and nut assemblies
EN 50014	Electrical apparatus for potentially explosive atmospheres - General requirement
EN 50014/A1 and A2	
EN 50018/A1	Electrical apparatus for explosive atmospheres - Flameproof enclosures "d"
IEC 60079	Electrical apparatus for explosive gas atmospheres
EN 61000-2	Electromagnetic compatibility (EMC)
ISO 2408	Steel wire ropes for general purposes - characteristics
ISO 4042	Fasteners. Electroplated coatings
ISO 4301-5	Cranes Classification - Part 5: Overhead Travelling Cranes and Portal Bridge Cranes
ISO 4302	Cranes - Wind loads assessment

Reference	Title
ISO 7363	Cranes and Lifting Appliances - Technical characteristics and Acceptance documents
ISO 7752-5	Lifting Appliances - Controls - Layout and Characteristics - Part 5: Overhead Travelling Cranes and Portal Bridge Cranes
ISO 8306	Cranes - Overhead Travelling Cranes and Portal Bridge Cranes - Tolerances for cranes and tracks
ISO 8566-5	Cranes - Cabins - Part 5: Overhead Travelling Cranes and Portal Bridge Cranes
ISO 8686-5	Cranes - Design principles for loads and load combination - Part 5: Overhead Travelling Cranes and Portal Bridge Cranes
ISO 9001	Quality systems - Model for quality assurance in design / development production, installation and servicing
ISO 9374-1	Cranes Information to be provided - Part 1: General
ISO 9374-5	Cranes Information to be provided - Part 5: Overhead Travelling Cranes and Portal Bridge Cranes
ISO 9927-1	Cranes - Inspections - Part 1: General
ISO 10245-1	Cranes - Limiting and Indicating devices - Part 1: General
ISO 10245-5	Cranes - Limiting and Indicating devices - Part 5: Overhead Travelling Cranes and Portal Bridge Cranes
ISO 10972-5	Cranes - Requirements for mechanism - Part 5: Bridge and gantry cranes
ISO 11660-5	Cranes - Access, guards and restraints - Part 5: Bridge and gantry cranes
ISO 12210-1	Cranes - Anchoring devices for in-service and out-of-service conditions - Part 1: General
ISO 16880	Bridge and Gantry cranes - International standards for design and manufacturing requirements and recommendations

Professional Documents

Reference	Title
API RP 2D	Recommended practice for operation and maintenance of offshore cranes
API SPEC 9A	Specification for wire rope
ATEX European Directives 94/9/CE & 99/92/CE	Rules for the design of material in hazardous area classifications
AWS D1.1	Structural welding code
EEMUA Publication 140	Noise procedure specification

Reference	Title
ICAO FEM Section 9 ...	International Civil Aviation Organization Fédération Européenne de la Manutention (Section 9 : Appareils de levage de série) "LEBUS" littérature: Drum grooving

Regulations

Reference	Title
Not applicable	

National regulations are not listed in this document due to their high specificity and variability.

However, where national regulations exist, their provisions and those of the standards and codes to which they refer shall apply to the works done in the State, and supplementing or amending the provisions of this document.

Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Not applicable	

Total General Specifications

Reference	Title
GS EP COR 350	External protection of offshore and coastal structures and equipment by painting
GS EP ELE 001	Electrical design criteria
GS EP ELE 031	Design of earthing and bonding systems
GS EP ELE 079	Electric apparatus for explosive gas atmosphere
GS EP ELE 081	Lighting
GS EP ELE 111	Induction motors
GS EP ELE 141	Power transformers
GS EP ELE 161	Electrical cables
GS EP EXP 105	Precommissioning execution



Reference	Title
GS EP INS 101	Instrumentation engineering, supply and construction general requirements
GS EP PJC 401	Health, Safety and Environment on construction and installation sites
GS EP STR 201	Materials for offshore steel structures
GS EP STR 901	Design rules and construction standards for ancillary structures of offshore installations

3. Purpose

This specification gives the minimum requirements for electrical overhead travelling cranes on onshore plants, fixed offshore platforms or floating offshore installations.

Additional or variable requirements specific to each device shall be dealt with in the Project particular specification.

4. Regulation and safety requirements

4.1 Legislation

The country having authority over the installation is designated in the particular specification, as a basic data.

The handling device must comply with the legislation of this country, and be such that it can be accepted in accordance with the conditions imposed or recommended by this legislation. If the country has no specific legislation or less stringent legislation than in Europe, it is European legislation that should be taken into account.

Any certificates of compliance with legislation required by the country having authority shall be supplied with the device.

4.2 Safety

The devices shall be equipped with all components necessary:

- For the safety of the personnel
- For the safety of equipment
- For operating safety
- For easy and safe access for maintenance

in accordance with the requirements stated in this document.

If the legislation, which prevails over this document, imposes more stringent requirements, the constructive arrangements shall be altered accordingly.

The crane shall incorporate all guards, where reasonably practicable to protect personnel against hazards which cannot be eliminated by design. Where it is not practicable to fit guards

around any hazardous area, then clear, unambiguous and relevant warning notices should be posted at suitable positions on the crane.

5. General data and requirements

5.1 General Data: site and environment

5.1.1 The site, the zone in the site

The site is the geographical location of the installation on which the handling device in question is installed. It is defined in the basic data by:

- Its name
- Its location (latitude, longitude, distance from the coast)
- The jurisdiction having authority over it.

The zone in the site is the portion of the installation within the handling device operates; it is defined in the particular specification, which includes in particular:

- A descriptive text
- A drawing showing the location and characteristics of the device
- The classification based on the probability of the existence of an explosive gas/air mixture.

5.1.2 Hazardous area

All equipment shall be designed and supplied in accordance with the hazardous area classification as specified in the Project Particular Specification and Data Sheets.

Unless otherwise specified the complete equipment will be installed in a hazardous area: Zone 2 Group II A Temperature class T3, IP part 15: [IEC 60079](#).

5.1.3 Environmental conditions

As a general rule, the handling devices shall be designed for outdoor use in an offshore atmosphere (i.e. humid, salt laden and eventually corrosive and subject to equatorial rains). Attention of SUPPLIER shall be drawn on tightness or full protection of all bearings, sliding or movable parts of the equipment that shall be protected from any ingress as sea water, salt spray, sand or dust.

All handling devices must be useable with a maximum service wind of 20 m/sec.

The other specifications to be taken into account are those specified in the basic data, namely:

- Design temperature (average of the coldest month minus 5°C) and corresponding humidity of the air
- The maximum temperature (average of the hottest month) and corresponding humidity of the air
- Ambient temperature
- The extreme wind with the device not in operation: the maximum wind to be expected in a 100-year period, lasting 3 seconds, acting in any direction
- Snow surcharge load (device not in operation)