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Guidance on Practice for Offshore Cranes and Lifting Appliances

GP 38-01

BP GROUP
ENGINEERING TECHNICAL PRACTICES

Foreword

This is the first issue of Engineering Technical Practice (ETP) BP GP 38-01. This Guidance on Practice (GP) is based on parts of heritage documents from the merged BP companies as follows:

Amoco

A ST-OFS-LST-E	Structural Offshore Load-out Sea-fastening and Transportation
A-ST-OFS-LIFT-I	Structural Offshore Lifting Inspecting and Testing
A-ST-OFS-PCLA-P	Structural Offshore Pedestal Cranes and Lifting Appliances

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1. Scope

This GP provides guidance on practice for design, fabrication and testing of offshore cranes and lifting appliances for use on offshore platforms.

2. Normative references

The following normative documents contain requirements that, through reference in this text, constitute requirements of this technical practice. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this technical practice are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

American Institute of Steel Construction (AISC)

AISC	Manual of Steel Construction
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American Petroleum Institute (API)

API RP 2A	Planning, Designing and Constructing Fixed Offshore Platforms
API 2B	Specification for Fabricated Structural Steel Pipe
API 2C	Specifications for Offshore Pedestal Mounted Cranes
API 2D	Operation and Maintenance of Offshore Cranes
API 2X	Ultrasonic Examination of Offshore Structural Fabrication
API RP 2N	Designing and Constructing for Ice Conditions
API 9A	Specification for Wire Rope

American Welding Society (AWS)

AWS D1.1	Structural Welding Code - Steel
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BP Engineering Technical Practices (ETPs)

GP 6-60	Onshore and Offshore Paints and Coatings
GP 12-15	Wire and Cable
GP 12-20	Motors
GP 12-25	Earthing, Grounding
GP 12-30	Lighting and Small Power
GP 12-45	Electrical for Packaged Systems
GP 12-60	Hazardous Area Electrical Installations
GIS 12-151	IEC Low Voltage Power Cable
GIS 12-152	NEMA Low Voltage Power Cable
GIS 12-155	IEC Instrument and Control Cable
GIS 12-156	NEMA Instrument and Control Cable
GIS 12-201	IEC Low Voltage Induction Motors
GIS 12-202	NEMA Low Voltage Induction Motors
GP 14-01	Noise Control
GIS 34-305	Diesel Engines
GIS 38-201	Pedestal Cranes



GIS 38-202	Overhead Under hung Trolley Hoists
GIS 38-400	Hydraulic Power Systems

International Organization for Standardization (ISO)

ISO 15663	Life Cycle Costs Parts 1, 2 & 3
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National Electrical Manufacturers Association (NEMA)

250	Standards for Low Voltage Enclosures
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National Fire Protection Association (NFPA)

70	National Electrical Code
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Occupational Safety and Health Administration (OSHA)

1910	Subpart "D" Walking and Working Surfaces.
1910.95	Noise Exposure Safe Limits

3. Terms and definitions

For the purpose of this GP the following definitions apply:

allowable rope load:

The "nominal" breaking strength of the rope divided by a design factor.

axis of rotation:

The vertical axis around which the crane upper-structure rotates.

bearing raceway:

The surface of the bearing rings which contact the rolling element (balls or rollers) of the swing-bearing assembly.

bearing ring:

The rotating and stationary rings that house the rolling elements (balls or rollers) of the swing-bearing assembly.

boom:

Member hinged to the revolving upper structure and used for supporting the hoist tackle.

boom angle:

The angle above or below horizontal of the longitudinal axis of the base boom section.

boom angle indicator:

An accessory which measures the angle of the boom above horizontal.

boom chord:

A main corner member of a lattice type boom.

boom extension:

Intermediate section of a telescoping boom.



boom foot-pin:

The boom pivot point on the upper-structure.

boom hoist:

The hoist mechanism responsible for raising and lowering the boom.

boom hoist mechanism:

Means for supporting the boom and controlling the boom angle.

boom hoist wire rope:

Wire rope that operates on a drum controlling the angle positioning of the boom.

boom lacing:

Structural truss members at angles to and supporting the boom chords of a lattice type boom.

boom length:

The straight-line distance from the centreline of boom foot-pin to the centreline of the boom-point load hoist sheave pin, measured along the longitudinal axis of the boom.

boom lift-cylinder:

Means for supporting the boom and controlling the boom angle.

boom line:

Boom hoist rope that reels on drums or passes over sheaves.

boom-point sheave assembly:

An assembly of sheaves and a pin built as an integral part of the boom-point.

boom splices:

Splicing connections for sections of basic crane boom and additional sections usually of the splice plate type, pin type, or butt type.

boom stop:

A device used to limit the angle of the boom at the highest recommended position.

brake:

A device used for retarding or stopping motion or holding.

cab:

An enclosure for the operator and the machine operation controls.

clutch:

A means for engagement or disengagement of power.

counterweight:

Weight used to supplement the weight of the machine in providing stability for lifting working loads and usually attached to the rear of the revolving upper-structure.

critical component:

Any component of the crane assembly devoid of redundancy and/or auxiliary restraining devices whose failure would result in an uncontrolled descent of the load or uncontrolled rotation of the upper-structure.



Cv:

Vertical design coefficient that is multiplied by the Safe Working Load (SWL) to provide the vertical design load.

designated:

Selected or assigned by the employer or the employer's representative as being qualified to perform specific duties.

design load:

The vertical design load is equal to the SWL times the vertical design coefficient Cv. Other loads considered in design of the crane include offload, side-load, environmental loads, loads due to crane base motion, and other loads as defined herein.

design requirements:

The requirements set forth by the manufacturer's engineering authority for materials, manufacturing, fabrication, and inspection procedures to be employed in the production of the crane.

dynamic loading:

Loads introduced into the machine or its components due to accelerating or decelerating loads.

enclosure:

A structure that may provide environmental protection for the machine.

fitness-for-purpose:

The manufacture or fabrication of an assembly or component to the quality level required (but not necessarily the highest level attainable) to assure material properties, environmental interactions, and any imperfections present in the assembly or connection are compatible with the intended purpose. Fitness-for-purpose connotes an assembly or component may contain material or fabrication imperfections of sizeable dimensions but their presence has no influence on its performance or reliability.

fixed platform:

A bottom supported stationary structure without significant movement in response to waves and currents in operating conditions. Examples are fixed platforms with jacket and pile supports, jack-up rigs, and submersible bottom-supported rigs.

floating harness (also known as bridle):

A frame equipped with sheaves and connected to the boom by stationary ropes usually called pendants.

floating platform/vessel:

A moving structure that the crane is mounted on

foundation bolts or fasteners:

The bolts used to connect a swing bearing to the upper-structure and/or pedestal.

fracture control plan:

The consideration of material properties, environmental exposure conditions, potential material and fabrication imperfections, and methods of inspection for the purpose of eliminating conditions which could result in failure under the design requirements for the projected life of the crane.

gantry (also known as A-frame or mast):

A structural frame, extending above the upper-structure to which the boom support ropes are reeved.

