

GENERAL SPECIFICATION

LOGISTICS AND OPERATIONAL SUPPORT

GS EP LSO 306

Selection and Operation of Dynamically Positioned Vessels
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1. Scope

This General Specification defines the types of equipment, the minimum performance levels and the procedure required to ensure the safe operations of vessels in DP mode. This General Specification shall be used for the initial selection and subsequent operations of DP vessels for activities where DP is used as a means of station keeping.

Note: A requirement to comply with this General Specification shall form part of any Charter Party where a vessel may be required to operate on DP as part of the intended operations or of any Contract involving the deployment of a vessel working on DP mode.

2. Reference documents

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

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
IMO MSC Circular 645	Guidelines for Vessel with Dynamic Positioning Systems
IMO MSC Circular 738	Guidelines for Dynamic Positioning Systems (DP) Operator Training
MTS DP Tech Comm DP Guidance, Part 1	DP Operations Guidance prepared through the Dynamic Positioning Committee of the Marine Technology Society to Aid in the Safe and Effective Management of DP Operations – Part 1
MTS DP Operations Guidance, Part 2 (Appendices 1, 2 & 3)	DP Operations Guidance prepared through the Dynamic Positioning Committee of the Marine Technology Society to aid in the Safe and Effective Management of DP Operations – Part 2 – Appendix 1 (MODUs) – Appendix 2 (DP Project/Construction Vessels) – Appendix 3 (Logistics Vessels)
The Nautical Institute Dynamic Positioning Operator's Training and Certification Scheme	Dynamic Positioning Operator's Training and Certification Scheme - Offshore Training and Certification - Shuttle Tanker Training and Certification - Revalidation for Offshore and Shuttle Tanker Certification
IMCA M 117	Guidelines for The Training and Experience of Key DP Personnel (Rev.2)
IMCA M 166	Guidance on Failure Modes and Effects Analyses (FMEAs)
IMCA M 190	Guidance for Developing and Conducting Annual DP Trials Programs for DP Vessels
IMCA M 191	Guidelines for Annual DP Trials for DP Mobile Offshore Drilling Units
IMCA M 220	Guidance on Operational Activity Planning

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Reference	Title
OCIMF DP information paper	Dynamic Positioning Assurance Framework Risk-based Guidance

Total General Specifications

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

Reference	Title
Not applicable	

3. Definitions and Abbreviations used in the document

3.1 Definitions

For the purpose of this document, the following terms and definitions apply

Term	Definition
Affiliate	A Total E&P subsidiary, Group Project or other entity carrying out oil exploration and production activities on behalf of or for E&P. It does not include non-operated assets.
Capability Plot (DP)	DP Capability Plots define by theoretical calculation the vessel's capability to maintain position in various environmental conditions, (i.e. wind, waves, current) in various thruster configurations, including all thrusters running, loss of most effective thruster and following worst case failure occurrence. Presented as a polar plot.
Close proximity	Distance equal or less than one vessel length.
Company	Any unit of the Direction Générale Exploration & Production placed under the responsibility of a Managing Director appointed by the President Exploration Production. The Direction Générale Exploration & Production itself, an affiliate, a project group are all considered as the COMPANY.
Construction	Refers to offshore operations or a vessel type. For the purpose of this General Specification, construction works include pipe lay, heavy lift, structures and platform installation, hook up, piling, decommissioning.
Contractor	Any person or an organization who is directly involved in execution of prescribed work under a contract with the reporting to COMPANY.

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Term	Definition
Critical Operation	For the purpose of this General Specification, a critical operation is to be considered an operation during which the consequences of the loss of position of the DP operating vessel would be at level 1 risk (red zone) in the initial assessment (prior to the application of any mitigation measure), using the E&P universal 6 x 6 risk matrix.
DGPS	Differential Global Positioning System is an enhancement to Global Positioning System that provides improved location accuracy, from the 15-meter nominal GPS accuracy to about 10 cm for the best performing equipments. The “differential” information can be provided by either fixed, ground-based reference stations, or “Orbit and Clock” information about each single satellite in sight at the location. This latter system of correction being also known under Precise Point Positioning (PPP) and showing tendency to replace the “ground-based” stations system.
DGNSS	Differential Global Navigation Satellite System. System similar to DGPS but capable of determining position using satellites from the GPS system (American) and from the GLONASS system (Russian). Once operational, the European GALILEO and Chinese BEIDOU will also be usable by DGNSS. The “differential” information for the DGNSS can be provided by either fixed, ground-based reference stations, or “Orbit and Clock” information about each single satellite in sight at the location. This latter system of correction being also known under Precise Point Positioning (PPP) and showing tendency to replace the “ground-based” stations system.
Diving Contact Person (DCP)	The DCP is preferably but not necessary a Diving Specialist. If not, he is recognized as having sufficient knowledge and awareness in diving operations. He has attended a formal recognized training course in Diving Regulations and Safety (4 years validity). He is “independent” from the Contractor.
Diving Specialist	A qualified professional diver and diving supervisor whose competence in a specific diving technique is recognized by Head Office Underwater Operations Specialists.
DP system	The complete installation necessary for dynamically positioning a vessel and comprising the following sub-systems as defined in IMO MSC Circular 645 : 1) power system, 2) thruster system, 3) DP control system.

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Term	Definition
DP	Dynamic Positioning: automatic control by means of a computer of a vessel's position and/or heading or track by the use of thrusters with respect to one or more position references. Position reference sensors, combined with wind sensors, motion sensors and gyro compasses, provide information to the computer pertaining to the vessel's position and the magnitude and direction of environmental forces affecting its position. Dynamic positioning may either be absolute, the position being referenced to a fixed point over the sea bed, or relative to a moving object (i.e. another watercraft or an underwater vehicle).
DPO	For the purpose of this General Specification, a Dynamic Positioning Operator is a person holding a DP certificate and a STCW Certificate of Competency (CoC) of officer level, who after completion of training and competence checks is allowed to operate a Dynamic Positioning control system. A DPO works under responsibility of a SDPO.
DP Competent Person	Company personnel having in-depth knowledge and recognized competencies in DP and contributing to the development and transfer of marine and DP knowledge in both Headquarters and in the affiliates.
Drift off	Failures onboard of a DP vessel resulting in deficiency of thruster capability in relation to the environmental forces, e.g. partial or total blackout. The vessel drifts off position due to insufficient thruster capability.
Drive off	Failures onboard of a DP vessel resulting in active thruster forces driving the vessel away from its target position. The drive-off may involve false position information, DP control failures and operator errors as primary or secondary causes.
Force off	No failures onboard of a DP vessel, but due to sudden increase in environmental conditions, the vessel is operating outside its capability envelope and is forced off position not having any additional thruster capability reserve left over.
Flag State	Flag State refers to the authority under which a country exercises regulatory control over a commercial vessel which is registered under its flag. This involves the inspection, certification, and issuance of safety and pollution prevention documents.
FMEA	Failure Modes and Effects Analysis is a systematic, proactive method for evaluating a process to identify where and how it might fail and to assess the relative impact of different failures with the intent to eliminate them or minimize the risk associated.

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Term	Definition
IMR	Inspection, Maintenance and Repair refers to offshore operations or a vessel type. IMR operations include structure inspection, remotely operated tool operations, maintenance or repair of subsea systems, pipeline and cable inspection, module replacement, Work Remote Operating Vessel (Wrov) operations, heavy lift.
Junior DPO	A Junior DPO, also sometimes called Trainee DPO, is a person participating in an industry recognized DPO training scheme and not in possession of a valid DP operator certificate.
Normally Open	Refers to a normally open communication link allowing talkback combined output from multiple units.
POSMOOR	DP- Anchored units fitted with software integrated into the DP control system, allowing the use of both DP and mooring systems for position keeping. Modes of operation may vary from automatic to manual thrust assistance.
Redundancy	Duplication or repetition of equipment elements to provide alternative functional channels in case of a single failure.
Safety Zone (500m)	Represents an area extending 500m from any part of an offshore oil & gas installation. It is an offence to enter a safety zone except under special circumstances and after being granted entry authorization.
SDPO	For the purpose of this General Specification, a Senior DPO is an unlimited certified DPO holding a STCW Certificate of Competency (CoC) of (deck) Officer of the Watch (OOW) level and who accumulated job + specific DP equipment + specific vessel experience – responsible for the navigational safety and control of the DP system to achieve the effective and efficient operational progression of the industrial mission of the vessel whilst on watch – capable to competently handle a DP emergency – will supervise the DPO under his responsibility during his watch.
Surface Installation	For the purpose of this General Specification, a surface installation is any offshore unit rising above the sea surface and with a 500m safety zone established around it.
Trainee DPO	See Junior DPO.
Vessel	A watercraft used in navigation and capable of being used as a means of transportation on water.
Well Intervention	Refers to offshore operations or a vessel type. For the purpose of this General Specification, Well Intervention means invasive techniques such as pumping, scale squeeze, wireline, coiled tubing or snubbing.

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Term	Definition
Workover	Refers to offshore operations or a vessel type. For the purpose of this General Specification, Workover means the process of pulling and replacing an existing well completion or casing string.
Worst Case Failure (WCF)	The identified single failure mode in the DP system resulting in maximum effect on DP capability as determined through FMEA study.

3.2 Abbreviations

AHTS	Anchor Handling Tug & Supply
ASOG	Activity Specific Operating Guidelines
AUV	Autonomous Underwater Vehicle
CAMO	Critical Activity Mode of Operation
CFT	Call For Tender
CoC	Certificate of Competency
COLREGS	international REGulationS for preventing COLLisions at Sea
CPY	Company
CTR	ConTRactor
DARPS	Differential Absolute & Relative Positioning Sensor
DCP	Diving Contact Person
DGNSS	Differential Global Navigation Satellite System
DGPS	Differential Global Positioning System
DP	Dynamic Positioning
DPO	Dynamic Positioning Operator
DSO	Development and Support to Operations
E&P	Exploration and Production
ECR	Engine Control Room
FMEA	Failure Mode and Effects Analysis
GS	General Specification
HPR	Hydroacoustic Positioning Reference
IMCA	International Marine Contractors Association
IMO	International Maritime Organization
IMR	Inspection, Maintenance and Repair
IP	Installations Pétrolières