

CORE MODULE DP REGULATIONS & GUIDANCE

CHAPTER 1

IMO - INTRODUCTION, PURPOSE, HIGHLIGHTS INCLUDING IMO MSC/CIRC. 645 AND IMO CIRC 1580

THE IMO – INTRODUCTION AND PURPOSE



IMO– the International Maritime Organization – is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships.

As a specialized agency of the United Nations, IMO is the global standard-setting authority for the safety, security and environmental performance of international shipping. Its main role is to create a regulatory framework for the shipping industry that is fair and effective, universally adopted and universally implemented.

IMO measures cover all aspects of international shipping – including ship design, construction, equipment, manning, operation and disposal – to ensure that this vital sector for remains safe, environmentally sound, energy efficient and secure.



IMO treaties need to be implemented into national law so that they can be applied on ships flying the flag of a particular country and so that those countries can implement effective port State control and comply with other obligations under the specified IMO instruments.

IMO AND DYNAMIC POSITIONING

There are four main IMO conventions that refer to dynamic positioning:

1. STCW;
2. IMO MSC.1/Circ.738/Rev.2;
3. MSC/Circular.645 – Guidelines for Vessels with Dynamic Positioning Systems – (Adopted on 6 June 1994);
4. MSC.1/Circ.1580 16 June 2017



1. STCW International Convention on Standards of Training, Certification and Watchkeeping for Seafarers

It may surprise you to learn that the IMO’s standards for the training and experience for personnel operating dynamic positioning systems are in section B of STCW, the guidance section (see page 329 of the linked STCW document or annex 1 of this document). That is, there is no MANDATORY requirement for any flag state to implement mandatory training for personnel operating dynamic positioning systems laid out in STCW. The guidance recommends that training and experience for personnel operating dynamic positioning systems cover the following components of a DP system:

- .1 DP control station;
- .2 power generation and management;
- .3 propulsion units;
- .4 position reference systems;
- .5 heading reference systems;
- .6 environmental reference systems; and
- .7 external force reference systems, such as hawser tension gauges.

 2. IMO MSC.1/CIRC.738/REV.2 Guidelines for Dynamic Positioning System (DP) Operator Training

However the IMO released circular 738 in June 2017 that requested all Member States to bring an IMCA document, **IMCA M 117 Rev.2 "Training and Experience of Key DP Personnel"** to the attention of all parties concerned. This document identifies training programmes, levels of competency and experience for the safe operation of DP vessels and will be covered in chapter two of this module.

 3. IMO MSC/CIRC. 645 Guidelines for Vessels with Dynamic Positioning Systems – (Adopted On 6 June 1994)

This document is valid for vessels and units constructed on or after 1 July 1994 but before 9 June 2017

The purpose of this set of guidelines is to recommend **design criteria, necessary equipment, operating requirements, and a test and documentation system** for dynamic positioning systems to reduce the risk to personnel, the vessel, other vessels or structures, sub-sea installations and the environment while performing operations under dynamic positioning control.

The responsibility for ensuring that the provisions of this set of guidelines are complied with rests with the **owner** of the DP vessel.

These guidelines have a preamble and five chapters:

Preamble

1. *General*

This includes definitions that we will explore in detail in later modules.

2. *Equipment Classes*

A very important chapter that defines how components and systems should act together to achieve reliable position keeping capability. The larger the consequence, the more reliable the DP-system should be and to achieve this philosophy the requirements have been grouped into three equipment classes. We will explore the capabilities of each equipment class in later modules.

3. *Functional Requirements*

Another very important chapter that is broke down into six sub chapter. Each sub chapter contains guidelines for the design, construction, and testing of components in a DP system as follows.

3.1 General

3.2 Power system

3.3 Thruster system

3.4 DP-control system

3.5 Cables and piping systems

3.6 Requirements for essential non-DP-systems

We will explore the guidelines for the design, construction, and testing of these components in later modules.

4. *Operational Requirements*

This chapter offers guidance on checking the vessels DP set up before DP operations according to a vessel specific "location" check list to make sure that the DP-system is functioning correctly and that the system has been set up for the appropriate equipment class.

5. *Surveys, Testing and the Flat State Verification and Acceptance Document (FSVAD)*

The requirements for four separate surveys are defined in this chapter

1 Initial

2 Periodical

3 Annual survey

4 Post defect, accident, repair, alteration survey



3. IMO MSC/CIRC. 1580 Guidelines for Vessels with Dynamic Positioning (DP) Systems – (Adopted On 16 June 2017)

These guidelines apply to vessels and units constructed **on or after 9 June 2017** (vessels and units constructed on or after 1 July 1994 but before 9 June 2017 may continue to apply MSC/Circ.645, **however it is recommended that section 4 of the present Guidelines be applied to all new and existing vessels and units, as appropriate.**

As with IMO MSC/Corc. 645 the purpose of this set of guidelines is to recommend **design criteria, necessary equipment, operating requirements, and a test and documentation system** for dynamic positioning systems to reduce the risk to personnel, the vessel, other vessels or structures, sub-sea installations and the environment while performing operations under dynamic positioning control.

The responsibility for ensuring that the provisions of this set of guidelines are complied with rests with the **owner** of the DP vessel.

These guidelines have a preamble and **SIX** chapters:

Preamble

1 General

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2 Equipment Classes

A very important chapter that defines how components and systems should act together to achieve reliable position keeping capability. The larger the consequence, the more reliable the DP-system should be and to achieve this philosophy the requirements have been grouped into three equipment classes. We will explore the capabilities of each equipment class in later modules.

3 Functional Requirements

Another very important chapter that is broken down into six sub-chapters. Each sub-chapter contains guidelines for the design, construction, and testing of components in a DP system as follows.

3.1 General

3.2 Power system

3.3 Thruster system

3.4 DP control system

3.5 Cables and piping

3.6 Requirements for essential non-DP systems

3.7 Independent joystick system

We will explore the guidelines for the design, construction, and testing of these components in later modules.

4 Operational Requirements

This chapter ideally applies to ALL DP vessels regardless of when they were built. It goes beyond the need for DP operations set up checks and introduces decision support tools such as an Activity Specific Operation Guide (ASOG) in order to make sure that the DP system is functioning correctly and that the system has been set up for the appropriate mode of operation.

It also requires the production of DP capability polar plots to demonstrate position keeping capacity for fully operational and post worst-case single failure conditions.

We will explore ASOGs and DP capability polar plots in later modules

5 Surveys, Testing and the Flat State Verification and Acceptance Document (FSVAD)

The requirements for four separate surveys are defined in this chapter

1 Initial

2 Periodical

3 Annual survey

4 Post defect, accident, repair, alteration survey

as well as the need for an FMEA in equipment class 2 and 3 vessels

6 TRAINING

Personnel engaged in operating a DP system should have received relevant training and practical experience in accordance with the provisions of the 1978 STCW Convention, as amended, the STCW Code, as amended, and the Guidelines for Dynamic Positioning System (DP) Operator Training (MSC/Circ.738, as amended).

This is an additional chapter and is quoted above in its entirety. Note that it takes us back to STCW, and to IMO MSC/Circ. 738 that requested all Member States to regard IMCA document, IMCA M 117 Rev.2 "Training and Experience of Key DP Personnel" we will explore IMCA M 117 in chapter two of this module.

CHAPTER 2 - IMCA - INTRODUCTION, PURPOSE, HIGHLIGHTS

IMCA – INTRODUCTION AND PURPOSE



The International Marine Contractors Association (IMCA) is a trade association representing contractors and the associated supply chain in the offshore marine construction industry worldwide.

IMCA's purpose is to enable the development of the world's marine energy resources – safely and sustainably. Their Mission is to improve performance in the marine contracting industry.

To achieve they hold conferences, seminars, and a network of committees. They represent their members with other industry bodies, regulators, oil companies and renewable energy companies.

IMCA AND DYNAMIC POSITIONING

IMCA's marine DP committee co-ordinates work items relating to dynamic positioning (DP). They provide expert advice in all matters pertaining to dynamic positioning and are responsible for managing all associated guidance related documents and initiatives.

IMCA PUBLICATIONS

IMCA's technical library represents a considerable body of work and intellectual property belonging to its members. Accordingly, IMCA's Board has determined that IMCA's documents, developed by our members for our members, should no longer be available for purchase by the general public. For a list of the documents you are not allowed to see unless you are a member [click here](#).

DP EVENTS AND INCIDENTS

Regardless of their publication fire wall IMCA encourage all non-members to contribute to their DP station keeping events and incidents so that lessons learnt can be used to raise the standards of safe and efficient operations throughout the industry.

The submission process involves completing [a form](#) and providing detailed information regarding the incident and casual factors and supplementary items such as sketches and actions taken.

Information gathered through this process may periodically be used in IMCA's DP Bulletins.

A DP incident is a major system failure, environmental or human factor which has resulted in loss of DP capability.

A DP undesired event is a system failure, environmental or human factor which has caused a loss of redundancy and/or compromised DP capability.

A DP observation is an event that has not resulted in a loss of redundancy or compromised DP operational capability but is still deemed worthy of sharing.

DP EVENT BULLETINS

[DP station keeping event bulletins](#) are available online free of charge.

SUMMARY VIDEO

Now watch the summary video