



GUIDE FOR

FIRE-FIGHTING SYSTEMS FOR ON-DECK CARGO AREAS OF CONTAINER CARRIERS

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**American Bureau of Shipping
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Foreword (1 May 2017)

Container Carriers have grown much larger in recent years and the volume of cargo carried on deck has expanded exponentially. Fires involving the containers on deck, especially with the volume of cargo now being carried, can present a substantial risk to the safety of the crew and the vessel.

The requirements of SOLAS Chapter II-2 Regulation 10 have been revised in accordance with IMO Resolution MSC 365(93) to address the risk and came into effect for ships designed to carry containers on or above the weather deck, constructed on or after 1 January 2016. While the basic SOLAS requirements are incorporated by reference in the *ABS Rules for Building and Classing Steel Vessels (Steel Vessel Rules)*, this Guide has been developed to provide for further enhancement of the fire-fighting capabilities for on-deck cargo areas of Container Carriers beyond that required by SOLAS.

This Guide is for the use of designers, builders, owners and operators in the marine industry and specifies the ABS requirements and criteria for obtaining **one of** the optional notations **as follows**:

- **FOC** (Fire-fighting On-deck Container),
- **FOC-R** (Fire-fighting On-deck Container – Restricted),
- **FOC+** (Fire-fighting On-deck Container Plus), **or**
- **FOC-R+** (Fire-fighting On-deck Container – Restricted Plus).

The **FOC** notation is being offered primarily to recognize enhanced container deck firefighting capability onboard Container Carriers beyond that required by SOLAS Chapter II-2 Regulation 10 requirements [as amended by IMO Resolution MSC 365(93)].

The **FOC-R** notation is being offered primarily to recognize container deck firefighting capability onboard Container Carriers when full compliance with the **FOC** notation requirements is not practical. It is applicable to container carriers constructed either before 1 January 2016 (designed to carry any number of container tiers on deck) or those constructed after 1 January 2016 (designed to carry 4 or less tiers of containers on deck), but do provide on deck firefighting arrangements that exceed the SOLAS requirements applicable to those vessels.

The **FOC+** and **FOC-R+** notations invoke additional requirements addressing the protection of the hatch covers.

The requirements are based on SI units, and the values shown in US (foot-pound-second) units are derived by numerical conversion.

This Guide becomes effective on the first day of the month of publication.

Users are advised to check periodically on the ABS website www.eagle.org to verify that this version of this Guide is the most current.

We welcome your feedback. Comments or suggestions can be sent electronically by email to rsd@eagle.org.



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SECTION 1 Introduction

1 Scope (1 May 2017)

This Guide identifies the required criteria for obtaining **one of** the optional notations **for Container Carriers** **classed with ABS as follows:**

- **FOC** (Fire-fighting On-deck Container),
- **FOC-R** (Fire-fighting On-deck Container – Restricted),
- **FOC+** (Fire-fighting On-deck Container Plus), or
- **FOC-R+** (Fire-fighting On-deck Container – Restricted Plus).

3 Application (1 May 2017)

Container Carriers provided with a fire-fighting piping system and additional fire-fighting equipment in compliance with Section 2 of this Guide will be eligible for the notation **FOC**. **Container Carriers fitted with fire-fighting equipment and arrangements complying with Section 3 of this Guide will be eligible for the notation FOC-R.** A vessel also in compliance with the enhanced requirements of Section 4 of this Guide will be eligible for **either** the notation **FOC+** or **FOC-R+**, as applicable.

The **FOC** notation is being offered primarily to recognize enhanced container deck firefighting capability onboard Container Carriers beyond that required by SOLAS Chapter II-2 Regulation 10 requirements [as amended by IMO Resolution MSC 365(93)].

The **FOC-R** notation is being offered primarily to recognize container deck firefighting capability onboard Container Carriers when full compliance with the **FOC** notation requirements is not practical. It is applicable to container carriers constructed either before 1 January 2016 (designed to carry any number of container tiers on deck) or those constructed after 1 January 2016 (designed to carry 4 or less tiers of containers on deck), but do provide on deck firefighting arrangements that exceed the SOLAS requirements applicable to those vessels.

The **FOC+** and **FOC-R+** notations invoke additional requirements addressing the protection of the hatch covers.

5 Definitions

5.1 Bay

A *Bay* is an athwartship block of containers associated with a hatch or hatch cover containing multiple stacks extending longitudinally between two adjacent lashing bridges or lashing stations.

5.3 Container Carrier

A *Container Carrier* is a seagoing vessel specifically designed, constructed, and equipped with the appropriate facilities to carry cargo containers. These containers are stowed in cargo spaces (i.e., in cargo holds below deck) and on hatches and cargo areas located on the weather deck. A fully cellular type carries only containers with cell-guides under deck and the necessary fittings and equipment on deck.

5.5 Dangerous Goods

Dangerous Goods are the substances, materials, and articles covered by the International Maritime Dangerous Goods Code (IMDG Code).

5.7 Mobile Water Monitors

Mobile Water Monitors are large bore water discharge devices of portable or wheeled type, consisting of inlet fitting(s), monitor waterway, swivel fittings, and discharge nozzle.

5.9 On-deck Cargo Area

On-deck Cargo Area is the portion of the weather deck, including hatch covers, arranged with the necessary fittings and equipment to stow a number of container stacks.

5.11 Stack

Stack is a single vertical row of containers containing one or more tiers. Also referred to as a *row*.

5.13 Tier

Tier is an indication of the vertical position of a container in a stack. The first tier is the lowest or bottom-most position in the stack.

5.15 Water Mist Lance

A *Water Mist Lance* consists of a tube with a piercing nozzle which is capable of penetrating a container wall and producing a water mist inside the container when connected to the fire main.

7 Submission of Design Plans and Data

Plans should generally be submitted electronically to ABS. However, hard copies will also be accepted. For details, see 4-1-1/5.1 of the *ABS Rules for Building and Classing Steel Vessels (Steel Vessel Rules)*.

In addition to the submission of plans according to the requirements stated in 4-1-1/5.3 and 4-7-1/7 of the *Steel Vessel Rules*, the following design plans and data are to be submitted:

7.1 FOC and FOC-R Notations (1 May 2017)

- i) Diagrammatic plans of the piping system for the fire main and the fire protection of the on-deck cargo area. These plans are to be **accompanied** by lists of material denoting:
 - Size, wall thickness, maximum working pressure, material and standards of all pipes
 - Type, size, pressure rating, material and standards of any fittings, valves, and fire hydrants
 - Type, capacity, pressure rating and the performance curves of pumps
- ii) Detailed specifications including operating flow rates, pressures, spray patterns and throw distance of all types of mobile water monitors and water mist lances
- iii) Detailed specifications including operating flow rates and pressure rating of the water mist lances and analysis/testing results or other information validating that the water mist lance is of a type capable of penetrating a standard container
- iv) Flow rate and pressure analysis of the fire protection piping system during operations at the most hydraulically remote location
- v) Operating procedures for the fire protection system of the on-deck cargo area. As a minimum, these procedures are to include:
 - The storage location, handling and operation instructions of the mobile water monitors, hoses, fittings, and fixing hardware
 - Arrangements showing the locations and attachment methods of the mobile water monitors for each bay
 - Storage location, handling and operation instructions of the water mist lance
 - Storage location of fire protection equipment for the crew
 - Manufacturer's operating manual for the mobile water monitors which includes information on the safe operations of the monitors