



GUIDE FOR

ENHANCED CARGO TANK CLEANING

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**American Bureau of Shipping
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Foreword

This Guide sets forth requirements for the optional notation **ECTC** (Enhanced Cargo Tank Cleaning). It is applicable for vessels intended to carry oil in bulk and vessels intended to carry chemical cargo in bulk. These cargo tank cleaning systems use permanently-installed and portable tank cleaning machines to clean cargo tanks without necessitating confined space entry.

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

The applicable edition of the *ABS Rules for Building and Classing Steel Vessels (Steel Vessel Rules)* is to be used in association with this Guide.

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 Application

The requirements of this Guide apply to tank vessels (e.g., Chemical Carriers, Oil Carriers) fitted with permanently-installed cargo tank cleaning systems along with portable tank cleaning machines. Application to additional vessel types will be considered on a case-by-case basis.

3 Scope

This Guide provides criteria for the optional notation **ECTC** (Enhanced Cargo Tank Cleaning) for ABS classed vessels. The applicable sections of the *ABS Rules for Building and Classing Steel Vessels* are to be complied with in addition to the requirements contained herein.

5 Definitions

Cargo Tank Cleaning System. The entire system involved in cleaning the cargo tank including the fixed and portable tank cleaning machines, nozzles, piping, hoses, heater, cleaning medium tank, etc.

Corrugated Bulkhead. A bulkhead plate shaped into straight, parallel, regular, and equally curved ridges and hollows.

Effective Jet Length. 70% of the maximum cleaning jet length at normal operating pressure.

Shadow Area. The area of the tank's surface not directly impacted by the cleaning jet due to location, blocking structure, etc.

7 Classification and Notation

7.1 Notation

At the request of the Owner, vessels with cargo tanks that comply with Subsection 2/1 and cargo tank cleaning systems that comply with Subsection 2/3 are to be distinguished with the notation **ECTC(C)**.

In the case of vessels with slop tanks that also comply with the requirements of this Guide, the notation **ECTC(SC)**, for cargo and slop, is to be applied instead.

9 Documentation

Documents are generally submitted electronically to ABS; however, hard copies will also be accepted.

9.1 Plan Submission for Review

The following plans are to be submitted for engineering review:

- i) Cargo tank cleaning system diagram, which is to include the following:
 - Portable and fixed tank cleaning machine specifications, including nozzle diameters
 - Piping diagram including dimensions, material specifications
 - Means of connection for portable tank cleaning machines to fixed piping
 - Machine arrangement

- Foundation details
- Stripping and drainage arrangements
- Arrangements of dipping and gas sampling locations
- ii)* Cargo piping diagram, including heating system
- iii)* Shadow diagram, which is to consider the following in the shadow area calculations:
 - Shadow areas created by all structures, pipes, and pumps are to be included
 - Note that ladders, grated platforms, handrails, and heating coils are not to be included

9.3 Plan Submission for Information

The following plans are to be submitted for informational purposes:

- i)* Cargo tank arrangement:
 - Structural details
 - Material of construction
 - Coating Details
 - Access openings and closing arrangement details for the portable tank washing machines
- ii)* Operating and Equipment Manual, which is to include the following, at a minimum:
 - Procedure for operating tank cleaning machines
 - Procedure for cleaning shadow areas with portable tank cleaning machines, without personnel entering the tank



SECTION 2 General

1 Cargo Tanks

1.1 Material

Cargo tanks and cargo piping are to be stainless steel or effectively coated to resist corrosion.

Heating coils are to be stainless steel or of a material equivalently resistant to corrosion.

1.3 Structure

Tanks are to be designed in such a way to avoid the creation of large shadow areas and the accumulation of cargo to facilitate 96% coverage by tank cleaning machines. Tanks with corrugated bulkheads will be given special consideration.

Cargo tanks are to have cargo pumps with suction wells suitably located for adequate draining.

1.3.1 Corrugated Bulkheads

For bulkheads with horizontal corrugations, the corrugation angle, with respect to the vertical plane, is not to be greater than 45° to enable the cleaning jet to have sufficient impact on the tank surface. Further consideration is to be given based on the cargo tank cleaning system diagram and the shadow diagram.

1.3.2 Horizontal Surfaces

Horizontal surfaces are to be capable of draining under normal ballast conditions to avoid cargo accumulation.

1.5 Access Openings for Portable Tank Cleaning Machines

Cargo tanks are to have necessary access openings and closing arrangements for portable tank cleaning machines.

3 Cargo Tank Cleaning Systems

The permanently installed cargo tank cleaning machines and associated systems are to:

- i)* Cover at least 96% of the tank surface based on effective jet length during anticipated operating conditions
- ii)* Maintain a minimum temperature of 85°C (185°F) for hot water washing
- iii)* Have a pump of sufficient capacity to deliver required pressure and flow rate, as determined by the manufacturer, needed to clean the largest cargo tank

Additionally, portable tank cleaning machines are to be used via access openings to completely clean shadow areas, where necessary. Arrangements are to be such that personnel are not required to enter the tank to use the portable tank cleaning machines.