

## MEDIA FACTSHEET

**EMBARGOED UNTIL 7 NOVEMBER 2019, 1345HRS**

### **Singapore Standard 648 : 2019**

### ***Code of Practice for Bunker Mass Flow Metering***

**What is SS 648 : 2019 *Code of Practice for Bunker Mass Flow Metering* and what does it cover?**

SS 648 : 2019 is a revision of TR 48 : 2015 Technical Reference for Bunker Mass Flow Metering (MFM), the world's first TR on bunker mass flow metering.

#### *Implementation of MFM and its Benefits*

MFM for bunkering, implemented since 2017, has built trust in the local bunkering sector, ensuring the right quantity of fuels are transferred between bunker suppliers and buyers. Pioneered by Singapore, the new bunker measurement method harnessed the use of technology and innovation to raise bunker measurement accuracy and transparency to a new level. This significantly improved bunkering operational efficiency, and reinforced Singapore's position as a trusted hub for quality, quantity and dispute resolution.

#### *Enhancements in SS 648*

SS 648 addresses new challenges that arose from practical usage following the implementation of TR 48. Enhancements in SS 648 include (1) an expanded scope to include distillate fuels and bunkers that meet IMO regulations; (2) the new requirements for multi meter installation which will enable bunker suppliers to better meet the needs of bunker buyers by offering the delivery of a wider range of parcel sizes and different grades of bunker fuels through a multi meter system; (3) the enhancement of zero verification procedure to provide users with better understanding on the possible causes of changes to zero offset of the meter and how to perform zero verification to ensure accurate measurement of bunker fuel using MFM system; and (4) the role of bunker surveyors in MFM bunkering regime was further strengthened, detailing the key tasks to be carried out during the bunkering operation to provide greater support and service to the bunker buyers.

#### *Scope of SS 648*

SS 648 covers the requirements of bunker quantity measurement using Coriolis mass flow meter (MFM) system<sup>1</sup>. The requirements include metering system qualification, installation,

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<sup>1</sup> Coriolis mass flow meter - Coriolis mass flow meters are composed of one or more vibrating tubes that are usually bent. The fluid to be measured passes through the vibrating tube and the fluid accelerates as it moves towards the point where the vibration is at its maximum and decelerates as it leaves this point. This results in a twisting motion in the tubes. The degree of twisting motion is directly proportional to the fluid's mass flow.

testing, procedures and documentation for bunker custody transfer<sup>2</sup>. The sampling process of bunkering is also covered in this standard.

These requirements provide transparency for bunker custody transfer between the bunker supplier and bunker buyer in Singapore, aided by the independent bunker surveyor when engaged.

Key areas of SS 648 include:

- Metrological requirements
- System integrity requirements
- Meter selection and installation requirements
- Acceptance test requirements
- Metering procedures

Figure 1 below shows the application of MFM bunkering requirements for bunker custody transfer and the corresponding clauses in SS 648 that cover these key areas.

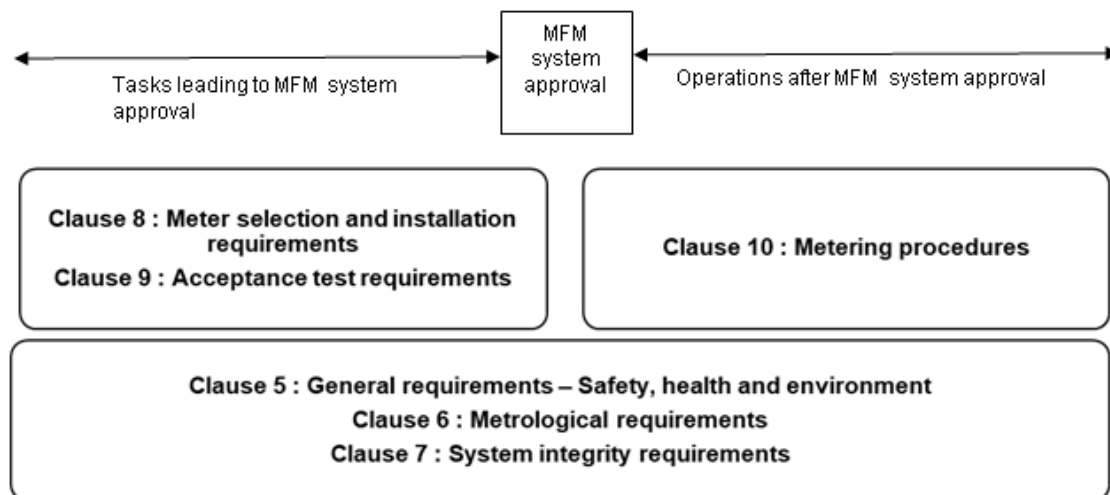


Figure 1: MFM bunkering requirements for bunker custody transfer

### How does SS 648 help and benefit the shipping and bunkering industry?

1. *Ensures quality and quantity bunkering service*

The mandatory use of MFM system for marine fuel oil (since 1 January 2017) and distillates (since 1 July 2019) provides better assurance to both the bunker buyers and suppliers on the quantity of bunker delivered. This has greatly enhanced integrity, transparency and efficiency of the bunker industry. Through updates in SS 648, the standard has further ensured quality of bunker fuels is maintained during delivery through the provision of multi-meters system amongst other improvements.

<sup>2</sup> Custody transfer - Custody transfer takes place at the point where the bunker fuel passes the rail of the receiving vessel when the bunker is considered transferred from the buyer to the seller. Custody transfer in fluid measurement is defined as a metering point where the fluid is being measured for sale from one party to another.

## 2. *Enhances Singapore's bunkering hub status*

The use of Coriolis mass flow meters as prescribed in SS 648 will continue to help maintain Singapore's position as the world's top bunkering port through improvements in operational efficiency and productivity.

## 3. *Enhances business opportunities on other related sectors*

Best bunkering practices will encourage more ship owners to have their vessels call at Singapore to take bunkers. This will have considerable positive impact on related sectors like oil trading and storage. The growth of bunkering industry and related sectors will contribute to the growth of Singapore as an international maritime hub.

## 4. *Serves as reference for best practices in global shipping and bunkering community*

SS 648 and its precursor standard, TR 48, are used as base standards for international standards that are under development by International Organization for Standardization (ISO). ISO 22192 *Bunkering of marine fuel using the Coriolis mass flow meter system* and ISO 21562 *Bunker fuel mass flow meters on receiving vessel – Requirements* are the two ISO projects driven by Singapore for MFM installed on supplier's bunker tanker and receiving ships respectively. The internationalisation of SS 648 helps to encourage the harmonisation of best practices and increase operational efficiency of shipping industry.

### **Who would use SS 648?**

Users of SS 648 include stakeholders of the bunker supply chain, including ship owners/charterers, bunker tanker owners and operators, bunker suppliers, bunker surveyors, maritime arbitrators, vendors of Coriolis mass flow meters and MPA.

### **Who developed SS 648?**

The Working Group (WG) on Mass Flow Metering consists of expert members from the oil majors, bunker suppliers, shipowners, Singapore Shipping Association (SSA), International Bunker Industry Association (IBIA), testing laboratories, bunker surveying companies, meter vendors and supporting vendors, National Metrology Centre (NMC), Enterprise Singapore's Weights and Measures Office, and Maritime and Port Authority of Singapore (MPA).

The Working Group is appointed by the national Technical Committee (TC) on Bunkering under the Singapore Standardisation Programme administered by Enterprise Singapore (ESG) and is supported by the Standards Development Organisation at Singapore Chemical Industry Council (SDO@SCIC).

### **What is the process of developing SS 648?**

The WG on Mass Flow Metering prepared the draft SS with inputs from the industry gathered from three feedback sessions with key stakeholder groups (bunker surveyors, bunker suppliers/bunker craft operators, bunker buyers) that were organised in late 2017. The draft SS also incorporated inputs consolidated from public consultation.

The broad representation from public, private sector and other stakeholders as well as robust stakeholder engagement through the national standardisation platform enable the stakeholders to collectively shape the development and implementation of the standard in line with national needs and international developments. The requirements are reviewed in the

updates of the standard and the decision by consensus based processes help the industry to upgrade and adopt the latest industry practices.

### **Implementation of the SS 648**

Starting from 1 May 2020, SS 648 will be used by MPA to support its initiative for all bunker tankers fitted with approved mass flow meter systems for marine fuel oil and distillates delivery in the Port of Singapore.

### **Purchase of SS 648**

SS 648 can be purchased at Toppan Leefung:

#### **Toppan Leefung Pte Ltd**

1 Kim Seng Promenade #18-01  
Great World City East Tower  
Singapore 237994

Tel: (65) 6826 9691

Email: [singaporestandardseshop@toppanleefung.com](mailto:singaporestandardseshop@toppanleefung.com)

Website: [www.singaporestandardseshop.sg](http://www.singaporestandardseshop.sg)

Price of SS 648 is \$91.75 (before of GST)