

# Advisory Circular

ISSUE NO. 24B-4, 9 JUNE 2016

## Part 24B: Carriage of Cargoes – Stowage and Securing

### 1. General

#### 1.1 Purpose of advisory circulars

Maritime New Zealand (Maritime NZ) advisory circulars are designed to give assistance and explanations about the standards and requirements set out in the maritime rules. However, the notes in advisory circulars should not be treated as a substitute for the rules themselves, which are the law.

If an advisory circular sets out how a rule can be satisfied, then compliance with that advice ensures compliance with the rule. Other methods of complying with the rule may be possible; however Maritime NZ would first need to be satisfied that those alternative methods were of an equivalent standard to the advice in the advisory circular. The advisory circular would then be amended to include those equivalents.

This advisory circular 24B-4 supports Maritime Rules Part 24B and when a number reference such as 24B.4 is used it relates to a specific rule within Part 24B.

This advisory circular supersedes issue no 24B-3, 25 June 2012. The advisory circular was amended on 10 April 2019, to alter the scale interval for approved class Y(b) equipment.

**Part 1** of this advisory circular outlines methods of compliance with respect to obtaining a verified gross mass as required in Rule 24B.4(4)(b) and the maximum scale intervals in respect of Rule 24B.4(4)(a). This does not preclude the Director from finding additional or alternative methods or scale intervals acceptable, in which case this Advisory Circular will be amended to reflect the additional or alternative methods or scale intervals.

**Part 2** of this advisory circular supports rule 24B.10, which is concerned with roll on/roll off (ro-ro) ships, and explains the amendments made to the rules in 2012 to require securing points on semi-trailers. (Part 2 text is unchanged from that issued as Advisory Circular No; 24B-3).

### 2. Part 1

#### 2.1 Accepted scale intervals for weighing instruments used for Method One (rule 24B.4(4)(a))

For the purpose of Rule 24B.4(4)(a), the maximum scale interval of a Class III or Class IIII weighing instrument will be a scale interval not greater than 50 kg. For a Class Y(b) instrument, the maximum scale interval will be not greater than 200 kg.

The scale interval is defined in the Weights and Measures Regulations 1999.

It is not envisaged that Class I or Class II weighing instruments will be relevant to Rule 24B.4(4)(a).

## 2.2 Means of obtaining a verified gross mass using Method Two (rule 24B.4(4)(b))

**Method Two** allows alternative procedures to be used to establish a verified gross mass (VGM) by weighing the contents of the container and adding the tare weight of the container, using a method acceptable to the Director. This provides shippers with a degree of flexibility to account for different cargoes, including those that are not commonly shipped or sold on a weight basis. The method used must provide an accurate and reliable VGM (comparable to that achieved using Method One).

The procedures followed should be based on methods of known accuracy, supported by a quality management system to ensure a consistent process and verifiable weights, and adequately documented.

The following methods will be considered to comply with the requirements of Rule 24B.4(4)(b), other methods may also be proposed to the Director of Maritime New Zealand for consideration for acceptance:

### Step One – Determining the weight of the cargo items

Either:

- a) Weigh each individual cargo item using trade approved equipment; or
- b) Add together the weight of individual sealed packages and cargo items using a weight that is clearly and permanently marked on the surface for the purposes of 'trade'; or
- c) Calculate the weight of each cargo item using a system based on predetermined quantities, (such as an Enterprise Resource Planning system), the weights for which are obtained using trade approved equipment; or
- d) Determine the volume of cargo items and multiply by the cargo density (conversion factor). The cargo density should be derived from relevant standards and/or from a rigorous process of sampling and weighing using trade approved equipment.

*Trade approved equipment* required to be used as above should be verified and marked in accordance with the existing New Zealand weights and measures legislation and have a current 'certificate of accuracy'.

Whatever option is used - a) to d) or any other - the onus remains on the shipper to demonstrate that their process can produce a reliable and accurate VGM.

### Step Two – Determining the weight of the packaging

The weight of the packaging may be determined based on the weight printed on the packaging.

Where it is not, the packaging can be weighed on trade approved equipment by a shipper or a third party. This can include using a system based on known predetermined quantities (such as an Enterprise Resource Planning system).

### Step Three – Determining the weight of pallets, securing materials and dunnage

The weights of pallets, dunnage and securing materials may be determined using the weights provided by the manufacturer of those items.

Where the weights are not provided, the pallets, dunnage and securing materials can be weighed on trade approved equipment by the shipper or a third party. This can include using a system based on predetermined quantities (such as an Enterprise Resource Planning system).

#### **Step Four – Determining the tare weight of the container**

The shipper is to use the tare weight of the container marked on the exterior.

#### **Step Five – Providing the gross weight of the packed container**

The combined weight of the cargo, packaging, pallets, securing material and dunnage is to be added to the tare weight of the container to arrive at a verified gross mass.

### **2.3 Ensuring the ongoing accuracy of the system**

Where **Method Two** is used to calculate the VGM, this should be subject to regular audits by internal or external parties as part of a documented quality management system. Audits will be conducted to the following standards:

- The ISO 9001 standard<sup>1</sup>; or
- A documented quality management system of an equivalent standard.

The quality management system should include procedures for monitoring, including sampling and test weighing to confirm the accuracy of the methods and equipment used. For example, loaded containers might be sampled periodically and weighed using Method One as an independent check.

Maritime NZ does not intend to operate any formal approval scheme for acceptable methods in relation to Method Two. If the accuracy of the declared VGM is ever called into question, the responsibility is on the shipper to be able to demonstrate the process that was used to determine it was a reliable and robust one, and provide the necessary documentation to support it.

Typically this documentation might include some, all or variances of the following:

1. Description of the weighing method used
2. Description and specification of the weighing equipment used (should be trade-approved)
3. Equipment maintenance procedures
4. Equipment approvals, verification and certificates of accuracy
5. Discrepancy procedure
6. Reporting and quarantining of faulty equipment
7. Retention of records
8. Training
9. Details of audit processes and accreditation e.g. under a recognised quality management system such as ISO 9001.

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<sup>1</sup> ISO 9001:2015 Quality Management Systems - Requirements

## 2.4 Products or material not sold by weight

For products or materials that are usually sold by volume rather than weight, the procedures referred to above should also cover:

1. The methods, equipment and procedures for measuring volume, and how the accuracy and reliability is maintained e.g. testing, calibration, records etc.
2. The test methods used to determine the applicable densities or conversion factors (with reference to any relevant international or national standards as applicable), processes to ensure that the figures used for any specific product or load are representative, the level of variation allowed, how the density conversions are applied.

## 3. PART 2

### 3.1 Background

The securing of heavy items of cargo on a ship is essential. If cargo moves when the ship rolls or pitches, the cargo can be a significant hazard to people, other cargo and the ship itself.

Vehicles of 3.5 tonnes or more in weight which are carrying cargo on board a ro-ro ship need to be secured to the deck of the ship to prevent the motion of the ship causing the vehicle to bounce, roll, slide or topple. These securing devices need to attach to points on the vehicle that are the right dimension and are strong enough to take the forces involved.

If the cargo on a ship is not properly secured it can break loose, cause significant damage to other cargo, be a significant danger to passengers and crew and cause significant structural damage to the ship. The shifting cargo can cause significant stability problems that can lead to capsizing of the ship. Unsecured cargo can also cause damage to the hull of the ship, or, if the cargo is dangerous, can result in fires, explosions or the leaking of toxic substances.

For these reasons, the master of a ship is responsible for assessing the suitability of securing points on heavy vehicles. The master is also responsible for rejecting vehicles with inadequate or damaged securing points where that cargo unit cannot be safely secured for the voyage.

Part 24B prescribes requirements for the stowage and securing of cargoes. The Part, which implements Regulation 5, Chapter VI of the International Convention for the Safety of Life at Sea (SOLAS) 1974, came into force on 30 June 2005, except for rules 24B.10 (2) and (3), concerned with securing points on heavy vehicles, which came into force on 30 June 2007. This amendment did not include a requirement for semi-trailers to have securing points.

### 3.2 Rule 24.10 amendments 2012

The 2012 amendment to rule 24B.10:

- incorporates Part 2 of New Zealand Standard NZS 5444:2005 - Load Anchorage Points for Vehicles for the specification of securing points and marking arrangements (the New Zealand standard applies in place of the previously referenced International Organization for Standardization Standard ISO 9367-1 Lashing and securing arrangements on road vehicles for sea transportation on Ro/Ro ships – General requirements)

- includes semi-trailers (a vehicle designed to be coupled to a semi-trailer towing vehicle and to impose a substantial part of its total weight on the towing vehicle) among the class of heavy transport units required to have securing points
- limits the requirement for vehicles to have securing points to units transported on ro-ro ships engaged in coastal and international voyages.

The amendment is effective from 17 May 2012.

Vehicles fitted with securing points and information plates complying with ISO 9367-1 meet the requirements of amended rule 24.10 as the ISO and New Zealand standards are equivalent.

In summary, securing points are required to be fitted on the following vehicles, including semi-trailers, with a gross mass of 3.5 tonnes or more in weight before they may be carried on ro-ro ships on coastal and international voyages:

- road freight vehicles
- road tank vehicles
- road livestock vehicles.

As previously, rule 24B.10 does not apply to caravans, motor homes or other similar types of passenger vehicle such as coaches or buses. It also does not apply to vehicles of less than 3.5 tonnes in weight.

Vehicles not required to have securing points complying with Part 2 of New Zealand Standard NZS 5444:2005 must still be capable of being adequately secured. Masters have the duty to ensure vehicles are adequately secured having regard to the conditions expected on the intended voyage. The master of a ship may refuse carriage of a vehicle if the means available to secure it are considered inadequate.

### 3.3 More information

Detailed information for masters of ro-ro ships in coastal and international trades and operators of commercial vehicles using ro-ro shipping services is available from MNZ marine guidance notices issue 21 – May 2012, and issue 02 – 2007.

Where an existing heavy vehicle is being considered for fitting securing points, advice should be sought from a road transport engineering organisation. Information about road transport certifying engineers may be obtained from <http://www.rtce.org.nz/search.cfm>

Copies of NZS 5444:2005: Load Anchorage Points for Vehicles is available from the New Zealand Standards website [www.standards.co.nz](http://www.standards.co.nz).

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ISBN 978-0-478-44795-8

Published by

Maritime New Zealand, PO Box 25620 Wellington 6146, New Zealand

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