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CONTAINER WEIGHT VERIFICATION

AN INTRODUCTION

or put more simply ..
where are we now and where do we need to go?

Why is this happening? ….

In May 2014 the 93rd session of the IMO Maritime Safety Committee (MSC) approved changes to the Safety of Life at Sea (SOLAS) Convention requiring mandatory weight verification of containers by shippers. This will come into effect on 01 July 2016.

As a signatory to SOLAS Australia is bound to apply this, but it should be noted ….

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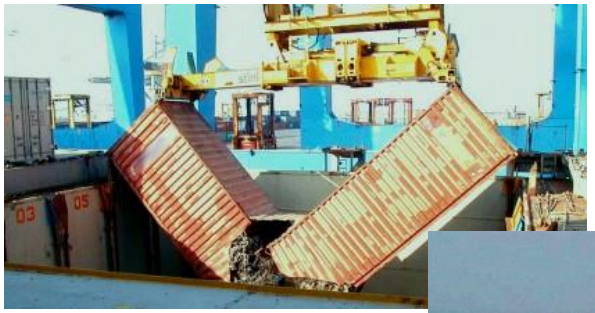
Why is this happening? ….

… irrespective of obligations; if we do not put measures in place this may impact exports as containers without weight verification should be rejected.



Why .. Because the need for accurate weight declarations is considered to be a critical safety issue

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Why is VGM necessary?...

Pictures are useful:

P&O Nedlloyd Genoa suffered a container collapse due to over-weight containers

UK- MSC Napoli aground in the English Channel

MV Deneb in 2011, rolled over after loading containers where [only] 1 in 10 varied between 1.9 to 6.7 times the declared weight

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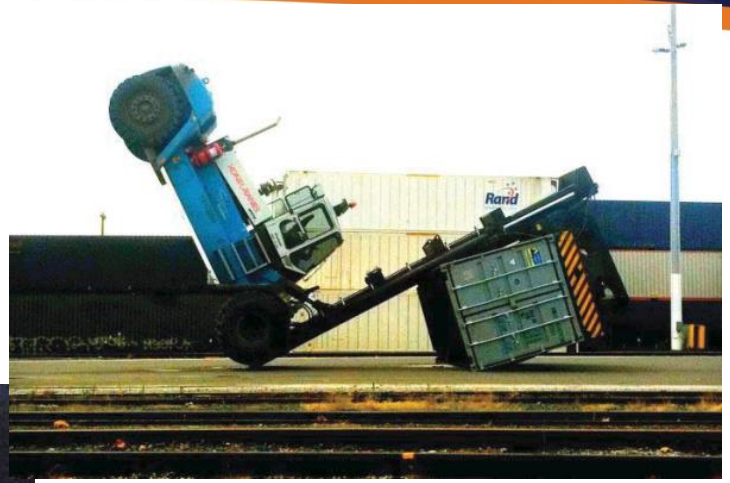
Why is this necessary?...

And it happens in Australia as well:

Sydney - Broken containers on Shelly Beach after falling from a container ship

Darwin – Misdeclared container falls (narrowly missing 2 people) after it exceeded the crane limit



Melbourne - Misdeclared container results in over balancing of a fork lift.

What are the changes in SOLAS? ….

The changes adopted by the IMO provide for two methods of weight verification:

Method 1 – Weigh the loaded container; or

Method 2 – Weigh all contents of the container and add it to the tare weight.

Estimations are not permitted with SOLAS requiring use of “calibrated and certified equipment” for this purpose.

What are the changes? ….

The shipper is required to provide a signed “verified gross mass’ of the container to the master of the vessel (or their representative) and the terminal in advance of the container being loaded.

This timing is important as it allows the load the be planned to ensure

- the ship is stable;
- hull strength and stack weighs are not exceeded; and
- lashing arrangements are effective

What are the changes? ....

Regulation 2 – Cargo information

The following new paragraphs 4 to 6 are added after existing paragraph 3:

"4 In the case of cargo carried in a container*, except for containers carried on a chassis or a trailer when such containers are driven on or off a ro-ro ship engaged in short international voyages as defined in regulation III/3, the gross mass according to paragraph 2.1 of this regulation shall be verified by the shipper, either by:

.1 weighing the packed container using calibrated and certified equipment; or

.2 weighing all packages and cargo items, including the mass of pallets, dunnage and other securing material to be packed in the container and adding the tare mass of the container to the sum of the single masses, using a certified method approved by the competent authority of the State in which packing of the container was completed.

5 The shipper of a container shall ensure the verified gross mass** is stated in the shipping document. The shipping document shall be:

.1 signed by a person duly authorized by the shipper;

.2 submitted to the master or his representative and to the terminal representative sufficiently in advance, as required by the master or his representative, to be used in the preparation of the ship stowage plan***.

6 If the shipping document, with regard to a packed container, does not provide the verified gross mass and the master or his representative and the terminal representative have not obtained the verified gross mass of the packed container, it shall not be loaded on to the ship."

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* The term "container" should be considered as having has the same meaning as defined and applied in the International Convention for Safe Containers (CSC), 1972, as amended, taking into account the *Guidelines for the approval of offshore containers handled in open seas* (MSC/Circ.860) and the *Revised Recommendations on harmonized interpretation and implementation of the International Convention for Safe Containers, 1972, as amended* (CSC.1/Circ.138/Rev.1).

** Refer to the *Guidelines regarding the verified gross mass of a container carrying cargo* (MSC.1/Circ.1475).

*** This document may be presented by means of EDP or EDI transmission techniques. The signature may be an electronic signature or may be replaced by the name, in capitals, of the person authorized to sign."

What are the current requirements?...

Most of this is already covered in the current version of Marine Order 42 - *Marine Order 42 (Cargo, stowage and securing) 2014.*

In this and previous versions of the Order, we used the term “verification of mass before loading”. This reflects the current intent of Regulation 2.3 of SOLAS Chapter VI which has been in effect since 1 January 1994.

Australian legislation has required shippers to ‘accurately’ declare gross mass since 1994.

What are the current requirements?...

10 Information for master

Paragraphs 1 and 2.1 of regulation 2 of Chapter VI of SOLAS have effect for the loading of cargo on a vessel in a port in Australia.

Note *These provisions require a shipper to give information about cargo, including the information mentioned in chapter 1.9 of the CSS Code, to the master before loading. A suitable form for giving cargo information to the master or the master's representative (as required by regulation 2 of Chapter VI of SOLAS) is the 'Shippers Declaration' Form, available from the AMSA website at http://www.amsa.gov.au.*

11 Verification of mass before loading

Paragraph 3 of regulation 2 of Chapter VI of SOLAS has effect for the loading of cargo on a vessel in a port in Australia.

Note *This provision requires that, before loading cargo units on board a vessel, the shipper must ensure that the gross mass of the units is in accordance with the gross mass declared in the cargo information given in accordance with section 10.*

How are we implementing this?...

We are amending Marine Order 42 to implement the changes adopted in SOLAS. The aim of these changes is to:

- Ensure weighing of containers is sufficiently accurate; and
- Do this in a manner that leverages off existing land transport regulation to minimize the regulatory impact.

However, it is important to remember “we have to do this”.

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Consultation Draft

Marine Order 42

E-Mail: cargoes@amsa.gov.au

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How can I find the consultation draft?

From the AMSA home page click on ‘Consultation’ which is in the ‘Community’ tile.

https://apps.amsa.gov.au/moreview

Under “open submissions” is MO42.

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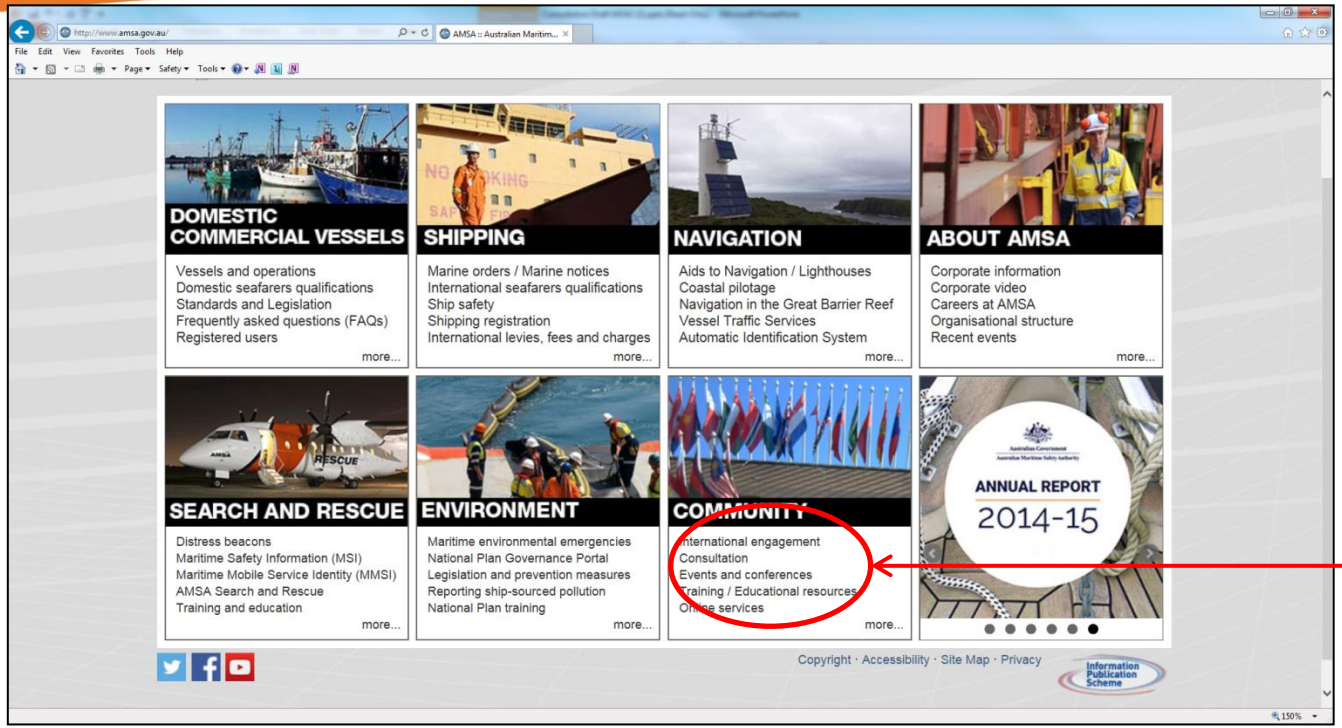
How can I find the consultation draft?



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What is on the consultation page?

In addition to the consultation draft Order there are links To:

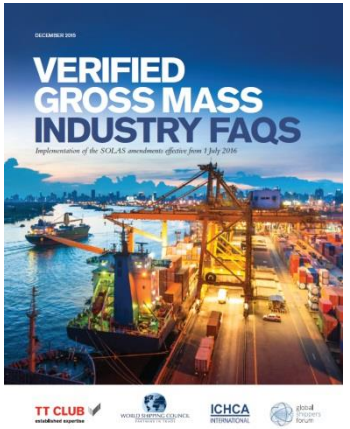
- The current MO42,
- A change summary explaining differences between the draft Order and the current Orders,
- Draft “AMSA Approved” accuracy standards for weighing equipment
- The amended text of SOLAS VI

What is on the consultation page?

And more links … To:

- The IMO guidelines regarding the verified gross mass of containers carrying cargo (MSC.1/Circ1475)
- The WSC, ICHCA, Global Shipping Forum and TT Club VGM FAQ booklet.

We have been asked … *What about empty containers?.* Well these should be declared on their marked tare weight!



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Where is VGM addressed in MO42?

Verification of the gross mass of a container to be loaded onto a ship is mostly covered in the drafted sections 10, 11 and 12.

Stakeholder consultation is a critical part of this as AMSA aims to ensure SOLAS requirements are implemented, but in a manner the minimises the regulatory burden.

This is why the changes to MO42 leverage of existing land transport requirements which apply to a large proportion of those who ship containers.

How does MO42 implement VGM?

The draft MO 42 implements SOLAS requirements as follows:

1. By use of existing Australian legislation where possible. Existing Australian and International standards of accuracy for weighing equipment are applied to both method 1 and method 2

This is essentially the NMI standards (adopted under the *National Measurement Act 1960)* and other standards accepted by AMSA

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How does MO42 implement VGM?

2. By approving Method 2 as being the summation method described in SOLAS VI, Regulation 2, paragraph 4.2, with all weights being obtained on equipment meeting the prescribed standards of accuracy.

3. By stating a container cannot be loaded onto a ship unless there is a verified gross mass on the maritime shipping document.

How does MO42 implement VGM?

4. With notes to provide guidance ….

These notes point to parts of the *IMO guidelines regarding the verified gross mass of containers carrying cargo.* These can assist with implementation of the SOLAS amendments. The notes only identify the circular contents in general and specific sections of the circular, that may assist parties involved to review their current arrangements.

The guidelines also provide advice about contractual/commercial arrangements that may require review by the parties involved.

Note – even where we do not specifically point to these guidelines they may be useful

MO42 Development

The draft Order that is out for public consultation was developed using:

- Comment and feedback from our stakeholders; &
- Information from other IMO Members, NGOs and peak industry bodies

All comments and information received have helped us to develop the draft Order

MO42 Development

As part of development AMSA also examined how others countries are implementing VGM:

- Some will use a ‘registered/approved’ shipper (or weighing service provider) regime (this has a significant administrative burden attached to it).
- Some intend using only existing ‘measurement for trade’ legislation and not other standards (meaning additional cost as machines cannot be calibrated using other equivalent standards).

MO42 Development

- Some (not many) have indicated they will implement a ‘fixed percentage’ of the gross mass as a permissible error. The percentage chosen reportedly varies between ±2% and ±5% (noting a 5% variation has significant implications for stress and stability calculations for ships masters. For example a 5% variation over 1000x17 tonne containers is ± 850 tonnes)

MO42 Development

To avoid such issues AMSA has adopted a flexible system based on existing requirements and the use of ‘approved’ alternative standards. See section 10(3) of draft MO42 which says …..

For subsection (2), equipment is to be taken to be calibrated and certified equipment for paragraph 4.1 of regulation 2 of Chapter VI of SOLAS if the equipment complies with:

(a) the requirements of the national measurement legislation for the kind of equipment; or

(b) a standard of accuracy for weighing equipment that:

(i) applies to the kind of weighing equipment; and

(ii) is approved in writing by AMSA

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MO42 Consultation Period

The draft MO42 was made available for public comment on 10 March 2016 for a period of seven weeks.

Public comment will close on 30 April 2016 and comments can be provided up until that time on line.

What accuracy is required?

What is wrong with linear accuracy (a fixed percentage of error)?

A 30,000kg (30 tonne) container weighed using a fixed permitted percentage of error:

- At ±2% would result in an error of ±600 kg, an error range of 1,200 kg,
- At ±5% would result in an error of ±1500 kg, an error range of 3,000 kg.

Errors of this magnitude, multiplied by the number of containers loaded onto a single ship, are unacceptable for use in ship stability calculations.

What accuracy is required?

A 7,000 kg (7 tonne) container weighed using the same fixed permitted percentage of error:

- At ±2% would result in an error of ±140 kg, an error range of 280 kg
- At ±5% would result in an error of ±350 kg, an error range of 700 kg.

It can be seen that with smaller container weights and percentages, the actual error is smaller and possibly acceptable. However the same percentage of error is not acceptable when applied to greater container weights.

What accuracy is required?

An ideal maximum permissible error would be one that varies in proportion to the weight of the container…….

In international standards and Australian legislation, weighing equipment accuracy is already expressed in terms of the maximum number of (equipment scale) increments of error permitted. More increments of error are permitted at smaller weights and less increments are permitted at greater weights.

This approach would appear to be ‘ideal’.

Accuracy Standards – an example

An example using the number of increments as the permitted maximum error may help …..

A forklift with on board weighing capability is in the scope of OIML/NMI R51. Using the lower 'in service' standard of accuracy of Y(b) in that document, the maximum permissible errors (MPE) expressed as a number of scale increments (e) are;

- When weighing a mass of up to 50 verification scale intervals, the *Maximum Permissible Error* (MPE) is ±2 e
- When weighing a mass over 50 and up to 200 verification scale intervals, the MPE is ±3 e
- When weighing a mass over 200 and up to 1000 verification scale intervals the MPE is ±4 e

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Accuracy Standards .. An example

Using that same in service Y(b) standard of accuracy to calibrate a forklift with a capacity of 20,000 kg and a scale interval (e) of 20 kg, (maximum of 1,000 scale increments) the maximum permissible errors are;

- At 1,000 kg (50 increments), MPE is ± 2e = +/-40 kg = ± 4%
- At 4,000 kg (200 increments), MPE is ± 3e = +/-60 kg = ± 1.5%,
- At 10,000 kg (500 increments), MPE is ± 4e = +/-80 kg = ± 0.8%
- At 20,000 kg (1,000 increments), MPE is ± 4e = +/-80 kg = ± 0.4%,

This provides the ‘ideal’ maximum permissible error - one that varies in proportion to the weight of the container

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Accuracy Standards

Shippers need to ensure that the VGM is determined:

- Using method 1 or 2; and
- Is measured as required by the *National Measurement Act 1960* or using equipment certified and calibrated against other standards accepted by AMSA

What are the standards accepted by AMSA?

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Accuracy Standards

DRAFT

Accuracy standards for weighing equipment approved by AMSA

For the purposes of Section 10(3)(ii) of *Marine Order 42 (Carriage, stowage and securing of cargoes and containers) 2016,* the following accuracy standards are approved by AMSA

1. Static, Non-automatic weighing instruments	OIML/NMI R76
2. Non-automatic weighing instruments mounted on or incorporated in a vehicle,	OIML/NMI R76
3. 'On-board' automatic weighing instruments mounted on or incorporated in a vehicle, intended for weighing whilst the vehicle is stationary, but which weigh automatically	OIML/NMI R51
4. Automatic weighing instruments ('catchweighers') for weighing items prior to their being loaded into a container.	OIML/NMI R51
5. Train weighing in motion (Automatic Rail Weighbridge) systems.	OIML/NMI R106
6. Road vehicle weighing in motion systems.	OIML R134
7. 7.On-board' automatic weighing instruments mounted on or incorporated in a vehicle	OIML/NMI R51

OIML: International Organisation of Legal Metrology. OIML International Recommendations are available free to download from the OIML website www.oiml.org/

NMI: National Measurement Institute. NMI adopts OIML standards and modifies them for Australia. NMI Recommendation are available free to download from the NMI website www.measurement.gov.au/

The alternative standards that AMSA plan to accept so far were arrived at after extensive consultation with industry.

Additional standards may be added where there is evidence these will provide the same utility.

What should shippers be doing?

The shipper responsible for providing an accurate gross mass on the maritime shipping documents is the person or entity identified on the maritime shipping documents. This is true currently and in the draft Order.

This aligns with SOLAS and the definition of shipper provided in the IMO Guidelines MSC.1/Circ.1475:

> *2.1.12* Shipper *means a legal entity or person named on the bill of lading or sea waybill or equivalent multimodal transport document (e.g. "through" bill of lading) as shipper and/or who (or in whose name or on whose behalf) a contract of carriage has been concluded with a shipping company.*

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What should shippers be doing?

The important initial question for those in the transport chain is:

Are you the shipper of a loaded container as specified in MO42?

If yes – what is the accuracy of the equipment you use, or intend to use, for obtaining and declaring the VGM.

If no - do you currently provide a gross mass to the a container consolidator (directly or indirectly, by way of contractual or other agreements/documentation)? If you do, what is the accuracy of the equipment you use, or intend to use, for obtaining and providing the VGM.

What should shippers be doing?

Note:

You may already comply …..

You just need to check

Also again noting that current SOLAS and MO42 reflect that an **accurate** gross mass must already be provided on the maritime shipping documents. The only difference is the 'prescribed' standards of accuracy.

Many will already be compliant if they comply with the National Measurement – for trade – requirements)

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What is the simple message in all this?

1. You need to ascertain if you are obtaining the VGM as, or on behalf of , the MO42 shipper.
2. If you are, you need to know to what standard of accuracy the weighing device(s) you use is certified and calibrated to.
3. You have to declare/provide a VGM on or for the maritime shipping documents (noting you have to declare an accurate weight currently)
4. If you weigh a whole container in accordance with the National *Measurement Act 1960* … that is a VGM.
5. If you weigh a whole container using equipment certified and calibrated to an AMSA accepted standard … that is a VGM.
6. If you weigh all the contents of a container using equipment calibrated in accordance with the National *Measurement Act 1960* or an AMSA accepted standard … and add the marked tare weight of the container… that is a VGM.

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You can still comment on MO43

Any comments you have can be submitted via our online Marine order consultation pages

https://apps.amsa.gov.au/moreview

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Thank You – any questions?