



Technical Briefing Note

**Opportunity for Manufacturers of weighing equipment
Verified Gross Mass of containers (SOLAS)**

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1 Background

Until recently it has not been a legal requirement for containers to have their weight verified before being loaded onto cargo ships. There were many risks associated with this. Most critically, an unbalanced or top heavy load could cause containers to be lost or the ship to capsize in rough conditions, in both cases presenting a serious threat to human life at sea.

To address this problem the International Maritime Organization (IMO) recently amended the SOLAS (Safety Of Life At Sea) regulation VI/2. The amendments to SOLAS regulation VI/2 were accepted on 1 January 2016 and came into force on 1 July 2016.

The SOLAS amendments introduce two main new requirements:

1. the shipper is responsible for providing the verified weight by stating it in the shipping document and submitting it to the master or his representative and to the terminal representative sufficiently in advance to be used in the preparation of the ship stowage plan; and
2. the verified gross mass is a condition for loading a packed container onto a ship.

The verification of the gross mass can be achieved by either of two methods:

1. weighing the packed container; 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.

2 Opportunity

The facilities and weighing infrastructure within ports and shipyards (or other directly related areas) have, in a lot of cases, not been set up to allow for such weight verification to take place easily or speedily. There is therefore opportunity for manufacturers of weighing equipment to provide innovative solutions to the shipping industry to allow these regulations to be met and by doing so contribute to the safety of human life at sea.

NMO will work with and advise any manufacturers that are considering placing onto the market certified weighing equipment for this purpose.

3 Guidance

The following guidance is available:

International Maritime Organization:

MSC.1/Circ. 1475 gives IMO guidelines on the verification process:
<http://www.imo.org/en/OurWork/Safety/Cargoes/Containers/Documents/MSC.1%20Circ.1475.pdf>

Maritime and Coastguard Agency (UK):

MGN 534 gives guidance on the implementation within the UK:
<https://www.gov.uk/government/publications/verification-of-the-gross-mass-of-packed-containers-by-sea>

4 Types of weighing instruments used for SOLAS purposes

A number of non-automatic and automatic weighing instruments can be used, for instance:

- Road weighbridge
- Rail weighbridge
- Catchweigher fitted on straddle carrier
- Catchweigher fitted on reach stacker
- Dynamic axle weigher

An already certified weighing instrument may be modified to be used for container weighing purposes. Already certified components (indicator, load cell...) may also be combined to form a complete instrument meeting the SOLAS requirements.

5 Certification of weighing instruments for SOLAS purposes

The type of certification required will depend on national legislation; however it is expected that most countries will consider using existing certification systems such as EU-type examination certificates or OIML certificates.

The situation in the UK is as follows:

- Non-automatic weighing instruments must comply with Directive 2014/31/EU: the instruments must have an EU-type examination certificate (Module B) and be initially verified (Module D or F). A unit verification (Module G) is also possible.
- Automatic weighing instruments do not require compliance to 2014/32/EU (EU-type examination certificate and initial verification under the Directive are not required).
- In all cases the instruments must comply with the requirements specified in the MCA Guidance.

NMO can issue EU-type examination certificates and OIML certificates for weighing instruments (modules or complete instruments) intended for SOLAS purposes.

Transducers (load pins etc, analogue or digital)

- OIML R60 (2000) MAA certificate

Non-automatic weighing instruments:

- EU-type examination certificate (Directive 2014/31/EU – Module B)
- OIML R76 (2006) MAA certificate

Automatic weighing instruments:

- EU-type examination certificate (Directive 2014/32/EU – Module B)
- OIML R51 (2006) certificate (automatic catchweigher)
- OIML R106 (2006) certificate (rail weighbridge)
- OIML R134 (2006) certificate (dynamic axle weigher)

NMO can certify new instruments designed for container weighing purposes, or revise an existing certificate to allow variants intended for this purpose.

NMO can also provide Module D (“self-verification” of installed instruments by the manufacturer) or Module G (unit verification) certification under Directives 2014/31/EU and 2014/32/EU, which may be accepted by some EU countries.

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