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CONTAINER WEIGHING EBOOK - APRIL, 2016

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CONTAINER WEIGHING VIABILITY

A SUPPLY CHAIN PERSPECTIVE

Richard Joy, Editor, PTI, London, UK



PORT
TECHNOLOGY JOURNAL

The container weighing rule has split opinion across the industry and wrought confusion in several areas. This piece aims to address that confusion and ascertain a definitive insight into how the industry will embrace the regulation. In order to reach this aim, insight has been sought from some key figures in the industry who have offered their views on key elements of the rule. These rules will be explored in more detail throughout this e-book, yet this piece will hopefully serve as an introductory paper for readers who'd like to be further informed as to the present situation before the industry prepares for the Safety of Life at Sea (SOLAS) rule to be enforced on July 1, 2016.

TO BE, OR NOT TO BE

After the initial scramble at the beginning of 2016 when the industry rushed to inform itself of the details of the new regulation, voices from the US began to

question whether the rule was possible to implement, or even whether the rule was a significant change on the current stipulation to ensure a container is correctly weighed.

Senior Vice President of Sea Freight with major freight forwarder Kuenhe + Nagel, Juerg Bandle, believes that the rule is causing confusion around who has to bear the burden of responsibility for a container to be weighed correctly:

"We have to know how this is going to be regulated. As a freight forwarder, we can only be responsible for our own logistics centres, which is only 10-20%. After that we go back to the shipper, yet there could well be different rules in different ports and countries. We need to know who has ultimate responsibility."

Mr Bandle highlights further issues around the interpretation of a bill of lading and also raises queries surrounding ports having the infrastructure in place

to facilitate the container weighing process – something the major US ports of Long Beach and Los Angeles will suffer from, according to the West Coast Marine Terminal Operators Association. Yet, infrastructure concerns remain universal.

It is important to note however that these primary problems seem to be stemming from the US where there exists much more scepticism as to whether the rule will be adopted. US Coast Guard Rear Admiral Paul Thomas has stated how the impending SOLAS guidelines on container weight verification "are not mandatory" in his opinion.

After this, IMO Senior Deputy Director for Marine Technology and Cargoes; Maritime Safety Division, Joseph Westwood-Booth, told an audience at the 2016 ICHCA conference in Barcelona that container weighing will definitely be implemented – without equivocation.

UNPICKING THE PUZZLE

The SOLAS regulations clearly state that the shipper has final responsibility to ensure a container is weighed correctly, however it is also stipulated that this can be passed onto a third party (a freight forwarder, port or terminal), and it is the most likely case as shippers do not have the ability to ensure containers are weighed correctly. Therefore whilst the onus remains on the shipper to ensure containers have a verified gross mass (VGM), ports remain the only practical place to facilitate large-scale container weighing.

Another area of contention this has led to is the lack of homogeneity with regards to the rule around the world. There exists no unified model of weighing a container and this can be done by various methods in differing countries as long as they are IMO member states.

This rabbit hole goes deeper. With the rule now on the horizon, and the industry still grappling to get to terms with the implications of the rule, the sector has to consider what will happen if and when some countries and/or ports do not follow the rule but others do. Given the international nature of transshipment in an era when capital is highly mobile and transcends borders, the complications an unverified container can produce are manifold.

It is this situation which has led Juerg Bandle to state that: "VGM cannot be possible – it's not changing any rules. It's a redefinition of a technical rule and local authorities may not enforce it. You will not go to jail if you get it incorrect."

It seems then the key issue isn't necessarily who is responsible for the correctly weighed container, but how the rule will be uniformly enforced across borders and ports if some ports, or even countries, are not abiding with the regulation.

CARRIER PERCEPTION

Captain Gerd Rohden of German liner Hapag-Lloyd is more receptive to the upcoming rule than many voices in the US; he states that "...the rule will be implemented. There has been some confusion coming from the US, but SOLAS is the backbone of our business and we must adhere to the new rule."

However Captain Rohden does agree with Juerg Bandle with regards to container weighing being a reworking of a presently existing rule, stating: "The rule is a more explicit amendment to a rule already in place. As a carrier it is our duty to ensure shippers have ample time to provide a VGM, as this is essential for the stowage process. The VGM must

be submitted in advance for stowage planning."

With regards to how the rule will affect the market Captain Rohden believes it all depends on how the supply chain behaves, knowing that "as a carrier," Hapag-Lloyd "...must follow the regulation."

Captain Rohden continues: "SOLAS is binding, yet regulation remains an issue. Lots of national bodies are creating models to implement the rule – the UK, Germany, France and the Netherlands are examples, but the worst penalty is not shipping a container. That said, carriers are not supposed to police the weight of containers themselves."

Captain Rohden's fundamental attitude to work with the rule is shared by Maersk Line's VGM Programme Manager Lars W. Lorenzen; he states that: "Maersk Line supports the regulation, since knowing the actual weight of the cargo – as opposed to estimating the weight – increases safety across our industry."

"Another potential benefit of the regulation could be increased supply chain efficiency derived from utilising the precise weight when stowing the containers. We are ready to assume our

part of the requirements set out in the SOLAS Amendment as do other regulated parties. For now it is important to concentrate efforts on creating workable, sensible and simple procedures in order to implement in a manner that does not result in disruptions of the international supply chain."

With carriers eager to comply with the rule as much as possible, perhaps because the onus remains on the shipper, the focus must fall again on the burden of guidelines as Lorenzen does note: "It is crucial that local authorities and IMO member states make available timely, aligned and clear guidelines for the implementation of this regulation for the various supply chain participants across national and regional jurisdictions."

These comments from Lars W. Lorenzen again exhibit the eagerness which exists with regards to the new rule, however the same problem remains; the lack of an industry wide, international model that can serve as a global rule which has the capability to regulate and enforce a standard. Whether this is a teething problem or a design flaw we shall discover very shortly.





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THE OPTIONS

FOR PORTS OFFERING VGM COMPLIANCE

Simon Everett, Managing Director, Straininstall, Isle of Wight, UK

There are numerous candidate systems and technologies that are capable of delivering the required accuracy of measurement required under the new SOLAS regulations. Not all, however, are particularly practical in terms of their ability to operate as a part of the existing flow of cargo between consignor and recipient.

This paper reviews the options available to ports with some of the considerations that port operators may take into account when making choices about how to provide a VGM service to their customers.

WEIGHBRIDGES

Weighbridges are proven technology for the measurement of gross vehicle weight and provide this to a high degree of accuracy. However, weighbridges do not in themselves directly deliver the required gross mass of the container required by SOLAS. Instead, to arrive at this figure the tare weight of the vehicle (including both the tractor and chassis/trailer as appropriate) plus the mass of any fuel in the tank, additional items carried and the driver, must all be subtracted in order to

deliver an accurate container weight.

Some have suggested using various declared 'standard' vehicle weight figures such as mass in running order (MIRO), but there are two problems with this approach. Firstly, these standard weights are an approximation based on assumptions regarding the vehicle variables (such as quantity of fuel carried) but the regulations do not allow for the estimation of the container weight.

By subtracting an estimation of the vehicle weight to arrive at a weight for the container inevitably means that the weight of the container is also an estimate. The second problem with this approach is that even if you except the principal of estimation to arrive at a container weight, if you consider the effect of the vehicle variables on the container weight tolerance you conclude that these effects could put you beyond the enforcement threshold for container weight. For example, most trucks have a 500 litre fuel tank giving a variable of 425kg between a full and empty tank. If your container weight is 8000kgs then this variable alone could result in an error of over 5% on your container weight. If the

effect of the other variables is added to the accuracy tolerance of the weighbridge itself it is easy to see how you could end up being well over the enforcement tolerance for the container VGM.

This means that you must weigh the truck and trailer again once the container has been removed in order to subtract an accurate value for the weight of the container in isolation. To achieve this some ports are considering weighing the truck / trailer combination again with the container removed. Although this would almost certainly give an accurate VGM in compliance with the SOLAS regulations, it does add an additional weighing process giving the potential for delays with bottlenecks at the gates. Alternatively, some are considering locating a reach stacker or another container handling crane at the weighbridge in order to temporarily lift off each container as it comes over the weighbridge, but again this is going to result in delays at the gate and will require a dedicated container handler and driver giving a high cost.

For some ports who already have weighbridges, this maybe a good short

term solution, but is not a cost effective solution in the long term.

In addition, where a vehicle is used to convey more than one container, simply dividing the total mass – after subtracting the effective vehicle tare weight – is not acceptable under the new regulations as a means of calculating individual container weights. In this instance three weighing operations maybe required or each container lifted off at the weighbridge separately and then together to obtain the necessary VGM.

From the perspective of cost, weighbridges represent a reasonable capital investment in themselves, but often the civil works associated with their installation and operation can be significant. A lower cost alternative is to use weigh in motion type weighbridges, but these have been designed typically to detect overweight vehicles and are not sufficiently accurate across the weight range for SOLAS VGM purposes. Operating costs to obtain a VGM using weighbridges vary depending on how it is used to obtain a VGM as highlighted above, but are likely to be high.

For some shipping operations – particularly where vehicle weights are required for other purposes and hence access to an existing weighbridge is readily available – this may provide a pragmatic if operationally complex route to SOLAS container VGM compliance. In most cases, however, an alternative based on integration of container weighing into equipment already used for container handling within the terminal is likely to be operationally less disruptive and more cost-effective than installing weighbridges specifically for the purpose of obtaining a VGM.

CONTAINER HANDLING CRANE SOLUTIONS

Crane based solutions offer an attractive alternative to using weighbridges. These systems obtain VGM data during the course of the normal port container handling operations and so require no change to the current port operating procedures whatsoever. Arguably crane based solutions are the only solution to obtain the VGM without any additional time or procedural impact in the whole shipping supply chain and therefore are the most cost effective solution overall. There are different options available to retrofit to existing equipment which are discussed below, but importantly no modification work is required to the spreader or crane to install these systems, they directly replace existing elements of the system making installation quick, easy and low cost.

TWIST-LOCK BASED SOLUTIONS

Solutions integrated with spreader twist-locks offer at first sight perhaps the most attractive approach to accurate container weight measurement. The need for robustness here is, however, significant. It is widely accepted that the most abused part of a crane is the spreader mechanism, which is exposed to numerous impact loads that can be significant. Any measurement solution must be sufficiently robust to withstand these repeated loading cycles and excess loads while also maintaining its calibration accuracy.

A key consideration for such a solution is whether the measurement technology is integrated within the consumable parts – the twist-locks themselves – or instead within their associated collars or other non-consumables.

There are two reasons that favour the latter approach: firstly, twist-locks need to be replaced on a regular maintenance cycle, meaning that any measurement system integrated within them must be removed with the obsolete part and either replaced or reinstalled and recalibrated in the new replacement locks. The more complex and sophisticated the measurement equipment incorporated into the twist-lock, the more expensive and potentially disruptive to operations its replacement is likely to be. Secondly, twist-locks are not ideally designed for load measurement purposes, and due to the aggressive duty they are subjected to, they are susceptible to the type of damage which while acceptable for normal operations, may compromise the accuracy or calibration of any measurement systems integrated within them.

For ports wishing to implement a twist-lock based container VGM system, solutions based on durable and long-lasting strain gauge instrumented twist lock collars give the best option. This approach offers the best available form of twist-lock based solution in terms of cost, accuracy and long term durability.

LOAD PINS INTEGRATED INTO THE SPREADER HEADBLOCK

Load pins offer perhaps the most well-proven, robust, cost effective and accurate means of weight measurement, and can be integrated into a wide range of port and terminal equipment. This is a mature, cost-effective and highly accurate technology proven across a wide range of industries.

There are two key advantages of using pins in the headblock. Firstly, they do not need to be replaced and will last the lifetime of the crane / spreader arrangement and are essentially maintenance free with greasing achieved through automatic or manual greasing in the same way as the

pin it replaces. Secondly, the accuracy of the system will remain stable over the lifetime of the system as, unlike the twistlock solutions, the pins are remote from the possibility of damage caused by the constant connecting and disconnecting of containers.

This solution is likely to yield the lowest ongoing operating cost as the entire system lasts the lifetime of the crane, there is no service or maintenance requirements and only requires annual verification to check the system remains within accuracy tolerances.

CALIBRATION VS VERIFICATION

For systems that are fitted as part of the permanent equipment of the crane / spreader arrangement, the load cells are provided calibrated to a high accuracy and provided these load cells do not get physically damaged there is no need to ever recalibrate them. However, in order to verify that the system is undamaged and reading correctly, a simple on site verification using test weights should be conducted, usually on a frequency of every 12 months. This is a simple and quick process that can be undertaken by the ports themselves and does not need OEM service intervention enabling costs to be minimised.

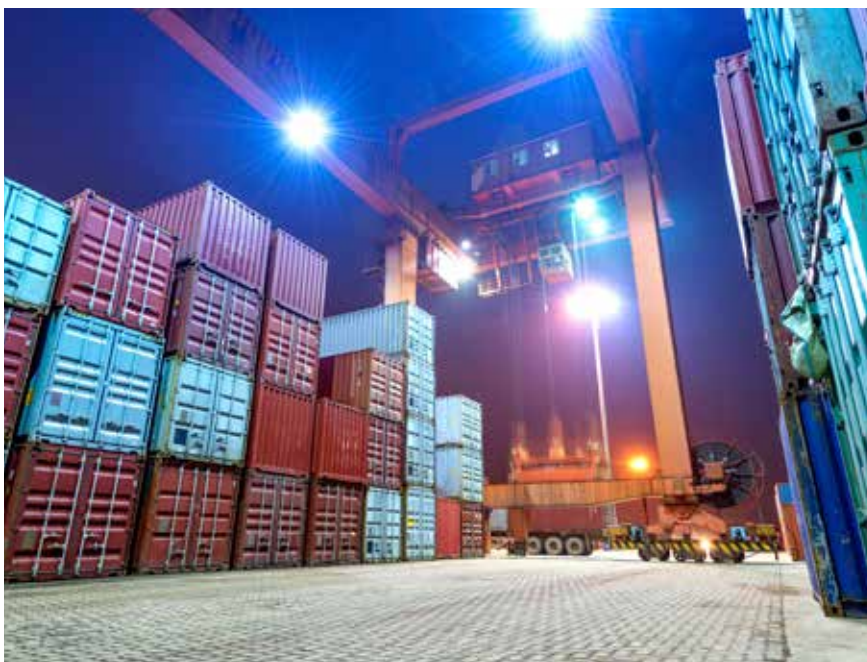
For systems where the twistlocks themselves become the load cells, each time the twistlocks are replaced as part of the regular replacement schedule they will have to be replaced with pre calibrated twistlocks or the system will have to be calibrated with the new cells on site which typically is a more onerous process than simple verification.

For weighbridges, on site servicing and calibration requirements are well established. However, the requirements for obtaining a VGM may require multiple weighing operations in order to obtain a VGM as highlighted above. Therefore the utilisation of existing weighbridges is going to increase significantly making any outages for calibration, maintenance or servicing work a potential cause of significant disruption to port operations.

ACCURACY CONSIDERATIONS

Traditional weighbridges themselves are typically very accurate but weigh in motion systems are significantly less accurate. As highlighted above however, when using weighbridges the accuracy of the VGM is dominated by how the vehicle weight is tared to obtain the VGM for the container rather than the accuracy of the weighbridge.

For crane based systems, the system is directly weighing the container so the accuracy of the VGM is based on the



accuracy of the weighing system. Crane based systems are typically slightly less accurate than weighbridges but their accuracy is more than sufficient for the purposes of SOLAS.

A crucial consideration regarding the accuracy claims of candidate systems and suppliers, is whether they are expressed in terms of a percentage of the maximum load (often referred to as the percentage of Full Scale or Rated Capacity) or across the full working range of the system (often expressed as percentage of Applied Load). This is important, as an accuracy of $\pm 1\%$ of Rated Capacity for a 40 tonne system, for example, will only provide an accuracy of $\pm 400\text{kg}$ across the working range giving the potential for a 10% error when lifting a 4 tonne load.

To ensure full worst case compliance with SOLAS therefore, we have ensured that our VGM solutions are highly accurate across the full range of possible container weights and not just at high loads. As such, our customers are assured that their equipment will be compliant from the very lightest to beyond the maximum allowable weight of a loaded container.

CERTIFICATION CONSIDERATIONS

The SOLAS amendment calls for systems to be certified but leaves each competent state authority to define the specific requirements, but it is likely that type approval under EU Directives will be sufficient for most if not all IMO states.

Weighbridges will usually have certification and type approval and for SOLAS many national competent authorities are suggesting using the EU Directive 2009/23/EC Class 4 for Non Automatic Weighing Instruments as the

requirement for weighbridges.

For crane based systems, these are generally considered to be automatic systems in operation and therefore certification falls under the EU Directive 2004/22/EC for Automatic Catch Weighing Instruments (replaced by Directive 2014/32/EU from 20th April 2016). Suppliers of these systems are in the process of obtaining type approval based on the requirements for SOLAS.

TOS INTEGRATION

For weighbridges the VGM will most likely be fed into the TOS manually once the VGM has been calculated by removing the tare vehicle weight. With several weighing operations needed to calculate the VGM it may be difficult to automate this procedure and care will be needed to avoid errors.

For crane based systems most are designed to provide the VGM weight data automatically in standard data formats that can be received by the TOS. The systems typically integrate with the crane PLC and provide a time stamp with each VGM to allow the TOS to automatically associate the VGM with a particular container. No driver intervention is required eliminating the possibility of human error.

CONCLUSIONS

For ports who already have existing weighbridges, if an acceptable and cost effective procedure for taring off the vehicle weight can be established then this will give a solution for obtaining a VGM in the short term. However, due to the procedural complexities associated with the use of weighbridges, there is a risk of disruption and delays to port operations.

For those ports without existing weighbridges, this option is unlikely to be cost effective and a crane based system is likely to be lower cost in terms of both capital and operating costs giving the most cost effective route to obtain a VGM. With these systems having no impact on port operations these solutions are likely to minimise disruption and delays associated with obtaining a VGM for the new SOLAS amendment

ABOUT THE AUTHOR

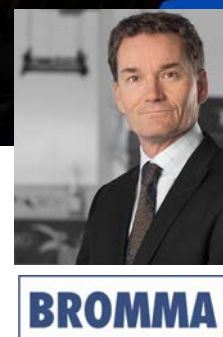
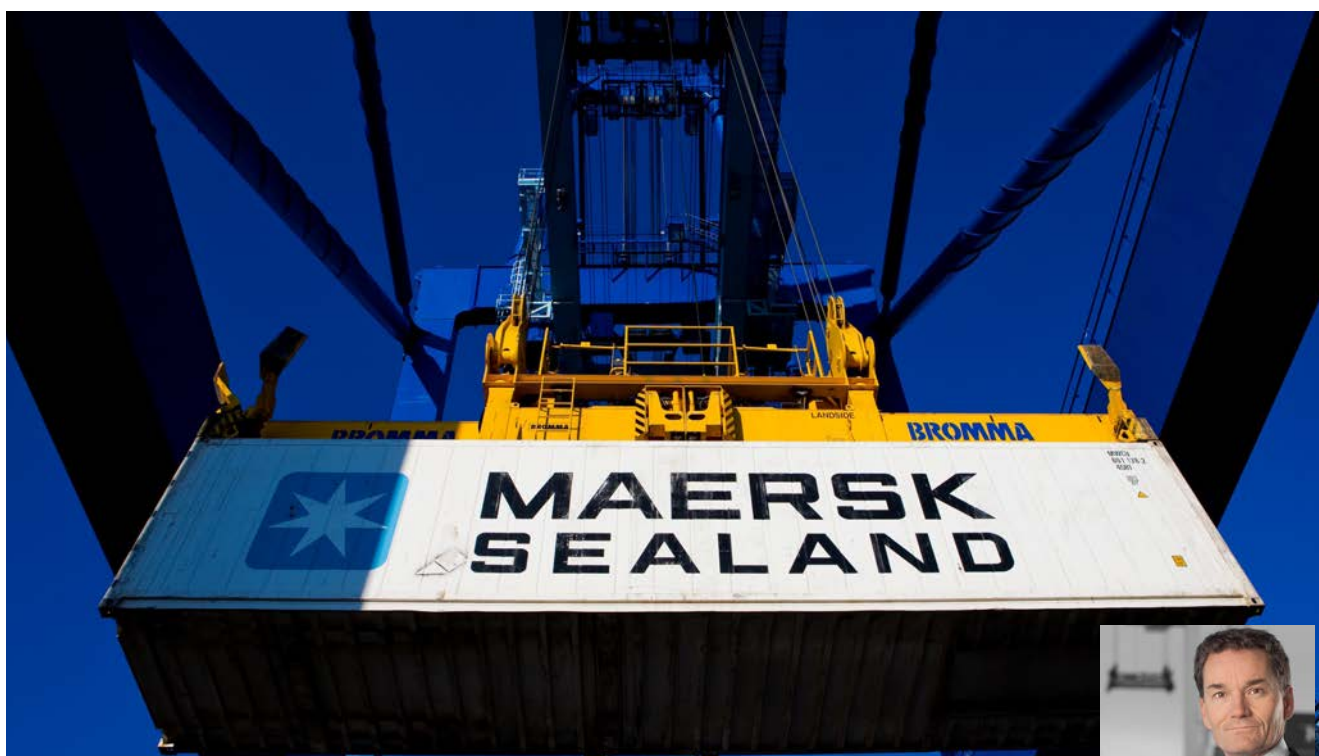
Simon graduated with a degree in mechanical engineering from Cambridge University in 2001 and after a short spell at Ineos Chlor joined James Fisher and Sons plc in 2004 where he became Managing Director of one of their subsidiary companies, RMS Ltd, supplying specialist downhole equipment for the oil industry. After the successful acquisition and merger of Pumptools Ltd to form RMSpumptools Simon moved to the Isle of Wight to run Straininstall Ltd, another James Fisher group company in 2011. Straininstall supplies load monitoring products and solutions into many industries all over the world, in recent years expanding with new products and targeting new markets. In the last two years Straininstall has developed, and is now supplying it's Container Weight System (CWSTM) specifically designed to retrofit to existing ports container handling equipment to meet the upcoming requirements of the SOLAS amendment.

ABOUT THE ORGANISATION

Straininstall is a member of the James Fisher & Sons plc group. The company is a broad-based engineering business, specializing in load measurement and sensor based safety technology. Based in Cowes, Isle of Wight, it has long been associated with the manufacture of standard and bespoke load cells, and has over 50 years' experience in assisting industries to operate safely by ensuring that structures, equipment and infrastructure are safe to use. Through continuous innovation and development, Straininstall has a range of world-class monitoring technologies that continuously monitor physical and performance parameters such as load, stress, temperature, acceleration, pressure and displacement for industries ranging from the global shipping and marine engineering sector to construction and renewable energy.

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www.straininstall.com.



METHOD, RISK AND REGULATION

AN INSIGHT

Lars Meurling, Senior Vice President, Bromma, Kista, Sweden

The date for when the Verified Gross Mass (VGM) of an export container has to be available before the container is loaded on a vessel is just weeks away, and we know that a container without VGM will not be loaded onto a vessel.

The challenges for the actors in the supply chain to comply with the requirement are several. One of the biggest is how to establish the VGM. Where to weigh the container another; and what equipment to be used with what requirements on equipment yet another one.

The formal requirements related to accuracy and certification are defined by the local authorities of each country, but it seems like some of the administrations have been caught off-guard and the requirements are set with very little time left for the operators to implement weighing equipment.

This article will elaborate on one of the things that risks being unforeseen by the regulatory authorities when defining the

accuracy requirements: the difference between “equipment accuracy” and accuracy of the actual container weight. It will also look at some of the characteristics of the two main equipment options available to weigh the container in the terminal to establish the VGM. What are the benefits and what are the negatives related to them.

TWO CHOICES

A review of the various technologies available for weighing in a terminal quickly boils down to two main alternatives: weighbridges and load sensing devices fitted to, or integrated into, spreader twistlocks. When reviewing these two technologies, there are a number of characteristics which distinguish them. Different characteristics do not mean that one technology is better or more suitable than the other, but the characteristics will influence the logistical flows and procedures in terminals in different ways.

A weighbridge is the long since established technology which has been used to measure the weight of vehicles. This is the technology that offers the highest ‘equipment accuracy’. But how is the container weight derived, and how does this affect container weight accuracy?

The debate in the industry and the discussions between and within the national regulatory bodies has been focused on the equipment measuring accuracy. However, the aim of the new SOLAS requirement is to measure the container weight accurately enough.

I will for the sake of this article be assuming that no operator will lift the container off the truck and measure the container weight. This means that what will be measured is the weight of the truck, trailer and container combined. In such an instance two options exist to derive the container weight: weigh the empty truck and trailer after the container have been unloaded and then deduct the weight

of the vehicle from the total weight. The other option is to deduct the kerb weight from the total weight to determine the container weight.

If the typical situation in a container terminal is that trucks leave the terminal empty after delivering the container, weighing the empty vehicle on the way out might not be such a big additional step but in many terminals that is not the case. In fact, some countries have programs and directives established to encourage the trucks not to leave the terminal empty. It is therefore assumed that weighing the empty truck will impose an additional step in the logistics flow that many want to avoid. The accuracy of the container weight will however be almost in line with the system accuracy.

When kerb weight is used to calculate the container weight, additional factors will influence the container weight accuracy. Let's for the time being call this the "process inaccuracies". The definition of kerb weight is "the total weight of a vehicle with standard equipment, all necessary operating consumables such as motor oil, transmission oil, coolant, air conditioning refrigerant, and a full tank of fuel, while not loaded with either passengers or cargo".

The definition may differ slightly between nations, and as an example, some European countries include the driver weight of 75kg.

KERB WEIGHT

Let us now look at three factors in the kerb weight and how it will affect the container weight accuracy. The volume of a typical fuel tank is 500 litres (l). The density of diesel is 0.8kg/l which means that the weight of the fuel in a full tank is 400kg. Since the truck will in some cases arrive in the terminal with a low fuel level the inaccuracy added to the container weight from this factor is actually up to 400kg based on the definition of kerb weight above.

Similarly the weight of the driver will vary. Let's for the sake of this article assume that there is at least one truck driver in a given country who weighs 125kg. Compared to the 75kg European standard driver, this adds another 50kg to the inaccuracy. Lastly, I will assume that some drivers bring extra 'stuff' in their driver cabin (a cooler with some drinks and food, a portable television, etc). These extra things quickly add up and I think that adding 30kg to the inaccuracy is not overstated.

Keep in mind that the definition of accuracy is the worst case scenario, not the average or something else. All measurements made (including process inaccuracies) must be within the stated accuracy.



Summing these factors up we find that the inaccuracy when kerb weight is used to derive the container weight is +480 kg in addition to the inaccuracy from the weigh bridge itself.

LOAD SENSORS

Load sensors installed in or on twistlocks have the advantage that they measure only the weight of a container. The measure that is obtained is the gross mass of the container without the need to subtract tare weight. The inaccuracy specification for twistlock based systems is typically $\pm 1\%FS$ (Full Scale) meaning that the measurements are typically within ± 400 kg, i.e. lower than the process inaccuracies in the discussion above.

When two 20 foot containers are loaded on a truck, the weighbridge cannot distinguish between the individual weights of the two containers. A possible procedure for obtaining the individual weight is to unload one of the containers, weigh the vehicle again and then apply the math to achieve the individual weights.

When spreader twistlock based systems are employed, individual TEUs can be weighed as there are sensors in each of the eight twistlocks on a spreader for twin-lifting.

WHAT WILL HAPPEN ON JULY 1?

We have seen different reactions from terminal operators in different countries. Operators in UK are establishing facilities to offer weighing services while, for instance, operators in Los Angeles and Long Beach have jointly stated that they are not capable of providing services meeting the requirement of SOLAS.

The UK and US are two of the countries that have progressed relatively far. I believe there are nations which have still not even defined the requirements for accuracy and certification yet. It is hard to see how those countries can make sure to be fully SOLAS compliant on July 1, 2016. So what will happen when export containers arrive in a port somewhere in the world without a

VGM compliant with the new requirements and without weighing equipment in the terminal? The problem with this situation is that SOLAS is a global legal requirement but implementation and enforcement is national. I think we will face a situation in which countries will load containers without a VGM, simply because if they are not loaded the logistics chain will capsize and I do not think the industry and IMO will take it to that level.

ABOUT THE AUTHOR

Lars Meurling is vice-president and marketing director at Bromma, Stockholm, Sweden. He previously served as Bromma's market area manager for Europe, and acting director of Bromma after-sales and services. Prior to joining Bromma, Mr Meurling worked for nearly 20 years in business unit management and sales management in the biotechnology industry. Mr Meurling is a graduate (MSc) in Engineering Physics from Uppsala University in Uppsala, Sweden.

ABOUT THE ORGANISATION

Headquartered in Stockholm, Sweden, Bromma is a world leader in providing crane spreaders. In more than 50 years of continuous operations, Bromma has delivered crane spreaders to 500 terminals in 90 nations on 6 continents. Bromma spreaders are in service today at 97 out of 100 of the world's largest container ports. Bromma is part of the Cargotec organisation.

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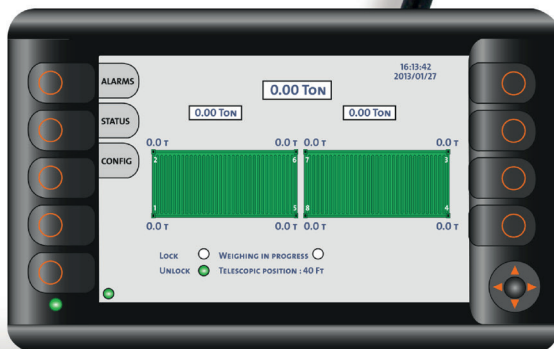
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A PATCHY IMPLEMENTATION

A GLOBAL PERSPECTIVE

holman fenwick willan **hfw**

Matthew Gore, Partner, Holman Fenwick Willan, London, UK

With less than seventy five days left (at the time of writing) before the SOLAS amendments become effective on July 1, 2016, it is taking competent authorities a lot longer than anticipated to come forward with guidance on implementation, enforcement and tolerances.

It is expected that many Competent Authorities will be publishing their requirements shortly for implementation and enforcement in their jurisdictions, leaving very little time for the industry to act on these and be ready for July 1. It is clear that different approaches and timetables are being followed in different jurisdictions. This has been clearly reflected when we canvassed some of our other offices which have also been actively working in this area with clients such as terminals, carriers, forwarders, shippers and others in the container supply chain.

UNITED KINGDOM

Whilst lots of contracting states are clearly working on it, the Maritime & Coastguard Agency (MCA) in the UK is one of the few which has confirmed its requirements and is leading the way by working with European

partners to try and provide a harmonised approach. The MCA recently updated its webpage with further details on its approach.

Guidance has been given on what the MCA will expect from those using both Method 1 and Method 2, particularly in terms of record keeping. The UK enforcement tolerance has also been refined is now as $\pm 5\%$ or $\pm 500\text{kg}$ whichever is greater. Lower tolerances have been set for modified lifting equipment to be used to establish verified gross mass (VGM).

The Method 2 application process has been formally launched with effect from April 6 and details of application methods and fees clarified. The MCA has undertaken to process all applications received before June 15 in time for the July 1 implementation.

The MCA is working on a set of UK specific responses to Industry FAQs – published in December, 2015 – and the bodies behind that publication are also working towards a revised international version.

PEOPLE'S REPUBLIC OF CHINA

The Ministry of Transport (MOT) of the People's Republic of China is the authority responsible for implementing the SOLAS

requirement in China. The MOT gave the Maritime Safety Administration of Shenzhen (MSA Shenzhen or MSA) the task of carrying out the trials and to make recommendations to the MOT. The trials cover the busiest container ports on the Chinese mainland (Ningbo, Qingdao, Shanghai and Shenzhen Yantian) and started in early 2015, concluding in February, 2016.

MSA Shenzhen submitted their detailed report as to their findings, together with their recommendations, to the MOT for approval. On April 6, 2016, the MOT published their Notice on Implementation of the Amended Convention (the Notice) and Recommended Guidelines on Weight Verification of Loaded Containers by Accumulative Calculation Method (the draft Guidelines) on their website for comments. Written comments were to be sent by email to the MOT by 15 April 2016. The MOT will now review the comments and issue the formal guidelines shortly.

The Notice introduced some amendments to SOLAS and set out requirements for shippers, ship owners, carriers and wharf operators. The MSA will carry out random inspections on loaded containers carried

by vessels. A vessel will not be permitted to sail if it is found that no VGM is obtained until the error is rectified and any potential risk of safety is eliminated. Under the draft Guidelines, a shipper adopting Method 2 shall establish an internal control system to ensure that the maximum allowable error between shipper's VGM, and that obtained by MSA / ship owner/ carrier / terminal operator, is $\pm 5\%$ or 1 tonne (whichever is less). Furthermore, the draft Guidelines do not require extra approval to be obtained by shippers using Method 2, unlike in neighbouring Hong Kong SAR.

HONG KONG

The Marine Department (MD) is the competent authority that will regulate container mass verification in Hong Kong. MD intends to amend subsidiary legislation and has already published two guidelines:

- Merchant Shipping (Safety) (Carriage of Cargoes) Regulation (Cap 369 VA) (Regulation) to be amended
- Guidelines on the Verification of Gross Mass of a Container with Cargo Packed in Hong Kong
- Guidelines specific to Method 2 under which shippers must have their procedure approved and are given a registration number by MD².

The MD will hold briefing sessions on April 27, 2016 and will then hold a trial run (to end May) involving shippers registering with the MD, calculating weights using Method 2, submitting these to participating shipping lines and then to terminals. After the trial run (likely end May), the MD intends to submit the draft Regulation to the Legislative Council.

The MD is close to finalising arrangements. No further consultation is envisaged. However, the Hong Kong Shipper's Council is concerned that the MD's current proposals exceed those of other authorities and put Hong Kong shippers at a disadvantage (e.g. the requirements of Method 2 require training and registration).

AUSTRALIA

The Australian Maritime Safety Authority (AMSA) has recently published a consultation draft of its proposed Marine Order 42, which will be the legislative instrument incorporating the new SOLAS provisions relating to the requirements for declaration of the VGM of containers.

The consultation draft of Marine Order 42 gives force to the SOLAS requirements for weighing containers in accordance with Method 1 and prescribes certain accuracy standards for weighing equipment for Method 2.

Some of the Method 2 options include 'on-board' automatic weighing on a vehicle and 'weighing in motion' systems on vehicles and trains provided those

instruments and systems comply with the prescribed accuracy standards set by the International Organisation of Legal Metrology and the Australian National Measurement Institute.

The consultation draft proposes to impose a civil penalty (on a strict liability basis) on shippers to ensure the VGM is correctly stated in the shipping documents. Shipowners and terminal operators amongst others will have to be vigilant, however, as the consultation draft also imposes a civil penalty (again on a strict liability basis) on any person who loads a container onto the vessel if the relevant shipping document does not state the container's VGM.

AMSA is still considering options for enforcement of the SOLAS regime and it is unclear at this stage as to whether a system of spot checks or some other mechanism will be used for compliance purposes.

FRANCE

The draft amendment to the French order no: 66-1078 on contracts for the transport of goods by sea, which was expected in its final form within April, provides some guidance on the French position.

First, under Method 2, the container weight to be declared will be the sum of the tare weight of the container, the weight of the goods transported in that container, their packaging, any pallets as well as any fixing, partitioning or other materials used in the container.

The container weight is to be declared, under either method, at the latest when the container reaches the loading port terminal. The enforcement tolerance limit in France is likely to be $\pm 5\%$. As regards to the scope of the definition of a "shipper" in France, this is limited to the shipper as named on the relevant bill of lading.

As it stands, there will be no official sanctions for non-compliance with the new SOLAS regulation, but the shipper may be exposed to dead-freight and / or demurrage should the carrier refuse to load the container(s).

²http://www.mardep.gov.hk/en/pub_services/ocean/pdf/miss_vgm_method2.pdf

ABOUT THE AUTHOR

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ABOUT THE ORGANISATION

Holman Fenwick Willan (HFW) is a global law firm advising on all aspects of international commerce. With over 450 lawyers operating across Asia, Australia, Europe, the Middle East, and South America, we provide a global and seamless service 24 hours a day. HFW has worked on over 100 port projects internationally and our experience has been gained not only from our involvement with the world's leading port operators and users, but also through the employment of lawyers and industry experts from terminal operating companies and shipping lines. We have one of the largest groups of transactional and dispute resolution lawyers specialising in legal matters relating to the development and operation of national and international ports and terminals.

ENQUIRIES

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