Position Paper

of the Gesamtverband der Deutschen Versicherungswirtschaft (German Insurers' Association)

on the revision of Annex 13 of the Code of Safe Practice for Cargo Stowage and Securing (CSS Code) of the International Maritime Organisation (IMO)

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Abstract
The publication in 1995 of Annex 13 of the "Code of Safe Practice for Cargo Stowage and Securing" (CSS Code) by the International Maritime Organisation (IMO) provided the international shipping industry with a robust basis for good securing of non-standardized cargoes such as heavy cargoes and project cargoes. The confidence in their actions which the parties responsible take from Annex 13 represents an internationally recognized form of assistance that can only be offered by the IMO. Because the past 20 years have seen a constant increase in the size and weight of non-standardized cargoes, it has become necessary to supplement Annex 13 appropriately to bring it into line with these developments. This is the only way to provide those responsible in the shipping industry with an internationally recognized calculation method that brings with it the necessary legal certainty.

The marine insurers that have come together under the umbrella of the GDV have drafted this position paper. The eight points it contains bring together proposed solutions as to how to adapt Annex 13 of the CSS Code to meet the demands of today's non-standardized cargoes.

1. Introduction

Cargo-securing in shipping operations is closely related to technological development in the industry. In particular with "non-standardized" cargoes such as project cargoes, heavy cargoes and general cargo, as well as with "semi-standardized" cargoes, which are primarily transported on ro-ro ships, there are a large number of varying factors that have to be taken into account when such cargoes are to be effectively secured against the forces that act on them at sea. Such cargoes are extremely varied and require tailored securing measures.

Exceptional cargoes, i.e. those which are particularly high or heavy, can, under unfavorable circumstances, shift sideways or lengthwise even when subjected to normal rolling and pitching of the vessel. This can cause considerable heeling (listing), which can in turn lead to a loss of stability and ultimately to the ship sinking.

In 1995, the IMO published Annex 13 of the CSS Code as a recommendation. The reason for this was a constant rise over many years in the number of spectacular incidents at sea caused by inadequate cargo securing.

Robust calculation models that allow determination of the expected acceleration forces with ocean-going vessels, and hence the loads to which the cargo securing equipment will be subjected, form a key prerequisite for defining effective cargo securing measures on ships. These first became available globally in 1995 in the form of the IMO recommendation embodied in Annex 13. Prior to 1995, the only regulations available were those for calculating and estimating the stresses to be expected at sea in relation to containers on container vessels, and these were not applicable or were only of limited applicability to exceptional cargoes.

2. Current regulatory content of Annex 13

The announcement of the CSS Code ("Code of safe practice for cargo stowage and securing") by the IMO in MSC/Circ. 530 on 11 June 1990 represented an important milestone in improving cargo securing.
Annex 13 ("Methods to assess the efficiency of securing arrangements for non-standardized cargo") contains a broad assessment methodology to draw up a balance of forces and moments against the restraining capacity of the securing equipment.

The present version of Annex 13 was drawn up in 1995 to reflect the size and weight of the cargo units that were commonplace at that time. This impacts on certain simplifications, for instance the mathematical reduction of a mass to its center of gravity. However, since this time, sizes and weights have in some cases taken on huge dimensions. The regulations in Annex 13 are therefore no longer adequate and experts are considering adapting Annex 13 to take account of these demands. The marine insurers represented by the GDV support this initiative.
Proposed solution for exceptional cargoes
The following list of necessary additions to Annex 13 of the CSS Code was drawn up in a joint effort between Swedish and German experts:

1. Weather-based load assumptions for the purposes of cargo securing
2. Reduction of speed as a defined cargo securing measure

3. Criteria for resilience against capsize in the event that cargo shifts to a significant extent
4. Additional tipping moment due to rotational inertia
5. Balance for slipping and tipping in a fore-and-aft direction
6. Interpretation of the stowage level "on deck high"
7. Separate consideration of impact forces in tipping balances
8. Homogeneous load distribution across securing arrangements

Re. 1.: The present Annex 13 provides for the option of using lower load assumptions for calculation in protected waters. In the North Sea and the Baltic Sea, such reduced load assumptions are used with the approval of the flag states. However, they only yield realistic values up to significant wave heights of around 4 m. Up to now, there is no globally recognized, practicable implementation for higher significant wave heights. In this context, a global consensus is needed. This can only be achieved in a consultative process at the IMO, either in the form of a "unified interpretation" of the present Annex 13 or in the form of a newly formulated supplement to Annex 13.

Re. 2.: The present Annex 13 assumes the full service speed of the ship for the load assumptions. When transporting certain cargoes that are, for technical reasons, difficult to secure longitudinally, it is conceivable that the longitudinal securing could be dimensioned with the restriction of reduced speed. This would limit the outlay in securing the cargo, subject to the obligation to reduce speed in heavy seas.

Re. 3.: On ro-ro ships and ferries, cargoes are generally "parked" rather than stowed. Evidence of the resilience of ro-ro ships against capsizing should be provided in much the same way as for bulk cargo. This is because if a cargo unit breaks free on a ro-ro ship, it triggers a considerable domino effect which could ultimately cause the entire load to shift

Re. 4.: The considerable dimensions (height, width) of the exceptionally large cargoes mean that the additional tipping moments resulting from the rotational inertia must be taken into account. This can be calculated with adequate precision using approximation formulas for practical application and can consequently appear as a supplement to Annex 13.

Re. 5.: The present Annex 13 does not contain any guidance on the makeup of a tipping balance for longitudinal load securing arrangements, since this was almost never necessary in the past. This also has changed as a result of the increasing amount of exceptional heavy cargoes being transported and should therefore be covered by a supplement to Annex 13.

Re. 6.: The present Annex 13 only defines four stowage levels ("lower hold", "tween deck", "on deck low" and "on deck high") in respect of the vertical position of the cargo on board. Higher deck cargo is categorized as "on deck high". This is no longer adequate when transporting oversize units as deck cargo, since cargoes with a height of 15 m or more are sometimes being carried. But because the height of the cargo above deck has a considerable influence on the longitudinal and transverse accelerations, Annex 13 should be supplemented with a recommendation that the more exact calculation model on which the acceleration tables are based should be used in such cases.

Re. 7.: In the present Annex 13, horizontal forces comprising weight components, inertia and wind forces are combined and taken to be acting at the center of gravity of the cargo unit. This is permissible for normal cargoes. However, in the case of oversize units carried on deck, the point at which the wind forces act on the cargo can be considerably higher. In the case of such cargoes, the tipping moment should therefore be made up of the individual moments together with the individual points at which the forces act.

Re. 8.: Increasingly, it is normal practice to use a combination of different load securing measures, such as welded stoppers with wire ropes, chains and even synthetic fiber belts with relatively high elastic stretch. Although Annex 13 includes an additional safety factor to account for non-homogeneous load distributions, this is not sufficient to cover wide discrepancies in load capacity. Annex 13 should incorporate a warning to this effect and a note indicating that in such cases, the "stiffer" securing material should be able to withstand the load largely on its own.