Maritime and Coastguard Agency

MARINE GUIDANCE NOTE

MGN 418 (M)

Roll-on/Roll-off Ships: Stowage and Securing of Vehicles

Notice to all Shipbuilders, Classification Societies, Ship Owners, Ship Operators and Managers, Ship's Masters and Officers, Ship Safety Officials and Other Persons employed on Roll-on/Roll-off Ships, Securing Equipment Manufacturers, Port Authorities, Shippers, Forwarding Agents, Road Hauliers, Stevedores, Freight Vehicle Manufacturers, Insurers, Railway Operators and Packers of Containers and Vehicles at Inland Depots

This notice should be read with The Merchant Shipping (Carriage of Cargoes) Regulations 1999; MCA Roll-on/Roll-off Ships-Stowage and Securing of Vehicles Code of Practice and replaces Merchant Shipping Notice No. M.1445

Summary

The Marine Accident Investigation Branch (MAIB) report, No 21/2009, on the investigation into the shift of an articulated road tanker on board a UK flagged vessel raised the following wider concerns;

- Compliance of freight vehicles presented for shipment at UK ports with the MCA guidance on ferry securing arrangements;
- Compliance of Roll-on/Roll-off (Ro/Ro) vessels with regards to the numbers of lashing points on ship's decks as required by the UK Code of Practice;
- Compliance with the approved Cargo Securing Manual; and
- Proper use of chocks on wheels.

This MGN reminds industry of the various applicable Codes and Standards which should be followed and includes key extracts from these documents for ease of reference.

1 Introduction/ Background

1.1 In January 2009, an articulated road tanker crashed through a stern door of a high speed service (HSS) vessel shortly after the ferry had commenced a scheduled crossing. The vehicle's semi-trailer came to rest on the vessel's port water jet units; its tractor unit remained on the vehicle deck. The ferry was quickly stopped and her crew were able to make the vehicle secure before returning to port.

1.2 This MGN is a reminder of the appropriate UK regulations and guidance that address the concerns raised by the MAIB report. See Annexes 1 and 2 to this MGN.

2 MAIB – Summary of Safety Issues

2.1 Parking brakes, including the parking brakes fitted to semi-trailers, are the first line of defence to prevent a vehicle from moving. The most effective ways of ensuring that this important action has been taken is to either confirm its completion with each driver or to undertake physical checks.

2.2 Lashing points on both the deck of the vessel and the chassis of the vehicle should be in accordance with the IMO Resolution A.581(14), 'Guidelines for securing arrangements for the transport of road vehicles on ro-ro ships'. See Annex 1.

2.3 Where wheel chocks are to be used to supplement the securing of vehicles on board ro-ro ferries, they must be of suitable design, well maintained and positioned correctly against the wheels.

2.4 There should be an effective maintenance programme for all of the portable and fixed securing devices. Web lashings are to be marked and limited to a maximum working life.

3 Conclusions

3.1 Ships should ensure that cargo is stowed and secured in accordance with the approved Cargo Securing Manual (CSM).

3.2 The crew should be familiar with the requirements contained within the CSM.

3.3 Ships' officers and managers should carry out checks on lashings during audits and inspections to ensure that bad practices are not taking place, especially on ferries where operations are rapid and very repetitive.

3.4 The condition of lashing systems should be monitored closely.

3.5 Parking wheel chocks should be positioned effectively when they are required to be in place.

3.6 Loading officers/crew should ensure that, the parking brakes of each vehicle or of each element of a combination of vehicles are applied and locked. Positive checks should be made by ships staff accordingly.

3.7 Road Hauliers and Freight Vehicle Manufacturers are encouraged to fit parking brake alarms to the tractor units as appropriate. This is particularly important if regularly transporting vehicles at sea.

3.8 Where there is reason to suspect that cargo within any unit is packed or stowed in an unsatisfactory way, or that a vehicle is in a bad state of repair, or where the unit itself cannot be safely stowed and secured on the ship, and may therefore be a source of danger to ship or crew, such unit or vehicle should not be accepted for shipment.

3.9 **The master should not accept a road vehicle for transport on board his ship unless satisfied that the road vehicle is apparently suitable for the intended voyage and is provided with at least the securing points specified in section 5 of the annex to resolution A.581(14).**

More Information

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Annex 1

International Maritime Organization Resolution A.581(14) – adopted 20 November 1985 as amended by MSC/Circ. 812 of 16 June 1997

Guidelines for securing arrangements for the transport of road vehicles on Ro-Ro ships

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

RECALLING ALSO resolution A.489(XII) on safe stowage and securing of cargo units and other entities in ships other than cellular containerships and MSC/Circ .385* of 8 January 1985 containing the provisions to be included in a cargo securing manual to be carried on board ships,

BEARING IN MIND resolution A.533(13) on elements to be taken into account when considering the safe stowage and securing of cargo units and vehicles in ships,

TAKING ACCOUNT of the revised IMO/ILO Guidelines for the Packing of Cargo in Freight Containers and Vehicles,[1]

RECOGNIZING that the marine transport of road vehicles on ro-ro ships is increasing,

RECOGNIZING ALSO that a number of serious accidents have occurred because of inadequate securing arrangements on ships and road vehicles,

RECOGNIZING FURTHER the need for the Organization to establish guidelines for securing arrangements on board ro-ro ships and on road vehicles,

REALIZING that, given adequately designed ships and properly equipped road vehicles, lashings of sufficient strength will be capable of withstanding the forces imposed on them during the voyage,

REALIZING FURTHER that certain requirements for side guards, particularly those positioned very low on road vehicles, will obstruct the proper securing of the road vehicles on board ro-ro ships and that appropriate measures will have to be taken to satisfy both safety aspects,

BELIEVING that application of the guidelines will enhance safety in the transport of road vehicles on ro-ro ships and that this can be achieved on an international basis,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its fifty-first session,

1. ADOPTS the Guidelines for Securing Arrangements for the Transport of Road Vehicles on Ro-ro Ships set out in the annex to the present resolution;

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* MSC/Circ.385 has been revoked by MSC/Circ. 745 of 13 June 1996.

[1] These Guidelines have been replaced by the IMO/ILO/UN ECE Guidelines for packing of Cargo transport units.

2. URGES Member Governments to implement these Guidelines at the earliest possible opportunity in respect of new ro-ro ships and new vehicles and, as far as practicable, in respect of existing vehicles which may be transported on ro-ro ships:

3. REQUESTS the Secretary-General to bring these Guidelines to the attention of Member Governments and relevant international organizations responsible for safety in design and construction of ships and road vehicles for action as appropriate.

Preamble: -

In view of experience in the transport of road vehicles on ro-ro ships, it is recommended that these Guidelines for securing road vehicles on board such ships should be followed. Shipowners and shipyards, when designing and building ro-ro ships to which these Guidelines apply, should take sections 4 and 6 particularly into account. Manufacturers, owners and operators of road vehicles which may be transported on ro-ro ships should take sections 5 and 7 particularly into account.

01: - Scope

1.1 These Guidelines for securing and lashing road vehicles on board ro-ro ships outline in particular the securing arrangements on the ship and on the vehicles, and the securing methods to be used.

02: - Application

2.1 These Guidelines apply to ro-ro ships which regularly carry road vehicles on either long or short international voyages in unsheltered waters. They concern:

.1 road vehicles as defined in 3.2.1, 3.2.2, 3.2.3 and 3.2.5 with an authorized maximum total mass of vehicles and cargo of between 3.5 and 40 tonnes; and

.2 articulated road trains as defined in 3.2.4 with a maximum total mass of not more than 45 tonnes, which can be carried on ro-ro ships.

2.2 These Guidelines do not apply to buses.

2.3 For road vehicles having characteristics outside the general parameters for road vehicles (particularly where the normal height of the centre of gravity is exceeded), the location and the number of securing points should be specially considered.

03: - Definitions

3.1 "Ro-ro ship" means a ship which has one or more decks either closed or open, not normally subdivided in any way and generally running the entire length of the ship, in which goods (packaged or in bulk, in or on road vehicles (including road tank-vehicles), trailers, containers, pallets, demountable or portable tanks or in or on similar cargo transport units or other receptacles) can be loaded or unloaded normally in a horizontal direction.

3.2 In these Guidelines the term road vehicle* includes:

.1 Commercial vehicle, which means a motor vehicle which, on account of its design and appointments, is used mainly for conveying goods. It may also be towing a trailer.

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* *Refer to ISO Standard No. 3833.*

.2 Semi-trailer, which means a trailer which is designed to be coupled to a semi-trailer towing vehicle and to impose a substantial part of its total mass on the towing vehicle.

.3 Road train, which means the combination of a motor vehicle with one or more independent trailers connected by drawbar. (For the purpose of section 5 each element of a road train is considered a separate vehicle.)

.4 Articulated road train, which means the combination of a semi-trailer towing vehicle with a semi-trailer.

.5 Combination of vehicles, which means a motor vehicle coupled with one or more towed vehicles. (For the purpose of section 5 each element of a combination of vehicles is considered a separate vehicle.)

04: - Securing points on ships' decks

4.1 The ship should carry a Cargo Securing Manual in accordance with resolution A.489(XII) containing the information listed and recommended in paragraph 10 of the Annex to that resolution.

4.2 The decks of a ship intended for road vehicles as defined in 3.2 should be provided with securing points. The arrangement of securing points should be left to the discretion of the shipowner provided that for each road vehicle or element of a combination of road vehicles, there is the following minimum arrangement of securing points:

.1 The distance between securing points in the longitudinal direction should in general not exceed 2.5 m. However, there may be a need for the securing points in the forward and after parts of the ship to be more closely spaced than they are amidships.

.2 The athwartships spacing of securing points should not be less than 2.8 m nor more than 3 m. However, there may be a need for the securing points in the forward and after parts of the ship to be more closely spaced than they are amidships.

.3 The maximum securing load (MSL) of each securing point should be not less than 100kN. If the securing point is designed to accommodate more than one lashing (y lashings), the MSL should be not less than y x100kN

4.3 In ro-ro ships which only occasionally carry road vehicles, the spacing and strength of securing points should be such that the special considerations which may be necessary to stow and secure road vehicles safely are taken into account.

05: - Securing points on road vehicles

5.1 Securing points on road vehicles should be designed for securing the road vehicles to the ship and should have an aperture capable of accepting only one lashing. The securing point and aperture should permit varying directions of the lashing to the ship's deck.[1]

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[1] *If more than one aperture is provided at a securing point, each aperture should have the strength for the securing point in the table in 5.3.*

5.2 The same number of not less than two or more than six securing points should be provided on each side of the road vehicle in accordance with the provisions of 5.3.

5.3 Subject to the provisions of notes 1, 2 and 3 hereunder, the minimum number and minimum strength of securing points should be in accordance with the following table:

Gross vehicle mass (GVM) tonnes	Minimum number of securing points on each side of the road vehicle	Minimum strength without permanent deformation of each securing point as lifted (kN)
3.5 t ≤ GVM ≤ 20 t 20 t < GVM ≤ 30 t 30 t < GVM ≤ 40 t	2 3 4	$\frac{\text{GVM} \times 10 \times 1.2}{n}$ *

** Where n is the total number of securing points on each side of the road vehicle.*

Note 1*: For road trains, the table applies to each component, i.e. to the motor vehicle and each trailer, respectively.*

Note 2*: Semi-trailer towing vehicles are excluded from the table above. They should be provided with two securing points at the front of the vehicle, the strength of which should be sufficient to prevent lateral movement of the front of the vehicle. A towing coupling at the front may replace the two securing points.*

Note 3*: If the towing coupling is used for securing vehicles other than semi-trailer towing vehicles, this should not replace or be substituted for the above-mentioned minimum number and strength of securing points on each side of the vehicle.*

5.4 Each securing point on the vehicle should be marked in a clearly visible colour.

5.5 Securing points on vehicles should be so located as to ensure effective restraint of the vehicle by the lashings.

5.6 Securing points should be capable of transferring the forces from the lashings to the chassis of the road vehicle and should never be fitted to bumpers or axles unless these are specially constructed and the forces are transmitted directly to the chassis.

5.7 Securing points should be so located that lashings can be readily and safely attached, particularly where side-guards are fitted to the vehicle.

5.8 The internal free passage of each securing point's aperture should be not less than 80 mm but the aperture need not be circular in shape.

5.9 Equivalent or superior securing arrangements may be considered for vehicles for which the provisions of table 5.3 are unsuitable.

06: - Lashings

6.1 The maximum securing load (MSL) of lashings should not be less than 100kN, and they should be made of material having suitable elongation characteristics.

6.2 Lashings should be so designed and attached that, provided there is safe access, it is possible to tighten them if they become slack. Where practicable and necessary, the lashings should be examined at regular intervals during the voyage and tightened as necessary.

6.3 Lashings should be attached to the securing points with hooks or other devices so designed that they cannot disengage from the aperture of the securing point if the lashing slackens during the voyage.

6.4 Only one lashing should be attached to any one aperture of the securing point on the vehicle.

6.5 Lashings should only be attached to the securing points provided for that purpose.

6.6 Lashings should be attached to the securing points on the vehicle in such a way that the angle between the lashing and the horizontal and vertical planes lies preferably between 30° and 60°.

6.7 Bearing in mind the characteristics of the ship and the weather conditions expected on the intended voyage, the master should decide on the number of securing points and lashings to be used for each voyage.

6.8 Where there is doubt that a road vehicle complies with the provisions of table 5.3, the master may, at his discretion, load the vehicle on board, taking into account the apparent condition of the vehicle, the weather and sea conditions expected on the intended voyage and all other circumstances.

07: - Stowage

7.1 Depending on the area of operation, the predominant weather conditions and the characteristics of the ship, road vehicles should be stowed so that the chassis are kept as static as possible by not allowing free play in the suspension of the vehicles. This can be done, for example, by compressing the springs by lightly securing the vehicle to the deck, by jacking up the chassis prior to securing the vehicle or by releasing the air pressure on compressed-air suspension systems.

7.2 Taking into account the conditions referred to in 7.1 and the fact that compressed-air suspension systems may lose air, the air pressure should be released on every vehicle fitted with such a system if the voyage is of more than 24 hours duration. If practicable, the air pressure should be released also on voyages of a shorter duration. If the air pressure is not released, the vehicle should be jacked up to prevent any slackening of the lashings resulting from any air leakage from the system during the voyage.

7.3 Where jacks are used on a vehicle, the chassis should be strengthened in way of the jacking-up points and the position of the jacking-up points should be clearly marked.

7.4 Special consideration should be given to the securing of road vehicles stowed in positions where they may be exposed to additional forces. Where vehicles are stowed athwartship, special consideration should be given to the forces which may arise from such stowage.

7.5 Wheels should be chocked to provide additional security in adverse conditions.

7.6 Vehicles with diesel engines should not be left in gear during the voyage.

7.7 Vehicles designed to transport loads likely to have an adverse effect on their stability, such as hanging meat, should have integrated in their design a means of neutralizing the suspension system.

7.8 Stowage should be arranged in accordance with the following:

.1 The parking brakes of each vehicle or of each element of a combination of vehicles should be applied and locked.

.2 Semi-trailers, by the nature of their design, should not be supported on their landing legs during sea transport unless the landing legs are specially designed for that purpose and so marked. An uncoupled semi-trailer should be supported by a trestle or similar device placed in the immediate area of the drawplate so that the connection of the fifth-wheel to the kingpin is not restricted. Semi-trailer designers should consider the space and the reinforcements required and the selected areas should be clearly marked.

Annex 2

Extracts from relevant regulations and guidance

1 The Merchant Shipping (Carriage of Cargoes) Regulations 1999

1.1 Regulation 6, Stowage and Securing, states that the owner and master shall ensure that:

- Appropriate precautions are taken during loading and transport of cargo units on board ro-ro ships, especially with regard to the securing arrangements on board such ships and on the cargo units and with regard to the strength of the securing points and lashings;

- Cargo on board is stowed and secured throughout any voyage in accordance with the Cargo Securing Manual; and

- Cargo on board shall be stowed and secured in accordance with the Cargo Securing Manual before the ship leaves a berth.

2 MCA - Roll-on/Roll-off Ships – Stowage and Securing of Vehicles Code of Practice

2.1 This Code, which includes the standards developed by IMO, provides guidance and information on safe procedures to be followed during Roll-on/Roll-off operations to reduce the risks to persons and ships.

2.2 This Code covers health and safety matters in addition to guidance on the stowage and securing of vehicles and incorporates appropriate IMO resolutions.

2.3 All parties associated with the design or operation of ro/ro ships, the design of vehicles, the safety of loads on vehicles and the stowage and securing of vehicles on Ro/Ro ships should take account of the Code of Practice to enhance the health and safety of persons and the safety of ro/ro ships.

3 IMO Resolution A.714(17) - Code of Safe Practice for Cargo Stowage and Securing

3.1 This Code applies to cargoes carried on board ships (other than solid and liquid bulk cargoes and timber stowed on deck) and, in particular, to those cargoes whose stowage and securing have proved in practice to create difficulties.

3.2 Chapter 4, Semi-standardized stowage and securing, states that:

- Ships intended for the carriage of certain specific cargoes such as road vehicles, systemized cargo-carrying roll-trailers and automobiles on ro-ro ships, etc., should be provided with securing points spaced sufficiently close to each other for the intended operation of the ship and in accordance with section 4 (Securing points on ships' decks), of the guidelines for securing arrangements for the transport of road vehicles on ro-ro ships, resolution A.581(14);

- Road vehicles intended for transport by sea should be provided with arrangements for their safe stowage and securing, as detailed in section 5 (Securing points on road vehicles) of the annex to resolution A.581(14);

- Vehicles should be stowed and secured in accordance with sections 6 (Lashings) and 7 (Stowage) of the annex to resolution A.581(14). Special consideration should be given to the stowage and securing of roll-trailers carrying systemized cargo, road tank-vehicles and portable tanks on wheels, taking into account the effects of a tank's high centre of gravity and free surface; and

- The master should not accept a road vehicle for transport on board his ship unless satisfied that the road vehicle is apparently suitable for the intended voyage and is provided with at least the securing points specified in section 5 of the annex to resolution A.581(14).

3.3 Annex 4, Safe stowage and securing of wheel-based (rolling) cargoes, states that:

- Cargoes stowed on wheel-based units should be adequately secured to stowage platforms or, where provided with suitable means, to its sides. Any movable external components attached to a wheel-based unit, such as derricks, arms or turrets, should be adequately locked or secured in position.

4 IMO Resolution A.489 (XII) - Safe stowage and securing of cargo units and other entities in ships other than cellular container ships

4.1 Guidelines on the safe stowage and securing of cargo units and other entities in ships other than cellular containerships states that:

- Cargo units and other entities should be stowed in a safe manner and secured as necessary to prevent tipping and sliding. Due regard should be paid to the forces and accelerations to which the cargo units and other entities may be subjected;

- Ships should be provided with fixed cargo securing arrangements and with portable securing gear. Information regarding technical properties and practical application of the various items of securing equipment on board should be provided; and

- Where there is reason to suspect that cargo within any unit is packed or stowed in an unsatisfactory way, or that a vehicle is in a bad state of repair, or where the unit itself cannot be safely stowed and secured on the ship, and may therefore be a source of danger to ship or crew, such unit or vehicle should not be accepted for shipment.

4.2 The information contained in the Cargo Securing Manual should include the following items as appropriate:

- Details of fixed securing arrangements and their locations (padeye, eyebolts, elephant- feet, etc.);

- Locations and stowage of portable securing gear;

- Details of portable securing gear including an inventory of items provided and their strengths;

- Examples of correct application of portable securing gear on various cargo units, vehicles and other entities carried on the ship; and

- Indication of the variation of transverse, longitudinal and vertical accelerations to be expected in various positions on board the ship.

5 IMO MSC/Circ.745 - Guidelines for the preparation of the Cargo Securing Manual (CSM)

5.1 Guidelines for the preparation of the Cargo Securing Manual states that:

- The Cargo Securing Manual is required on all types of ships engaged in the carriage of all cargoes other than solid and liquid bulk cargoes;
- It is important that securing devices meet acceptable functional and strength criteria applicable to the ship and its cargo;
- It is also important that the officers on board are aware of the magnitude and direction of the forces involved and the correct application and limitations of the cargo securing devices; and
- The crew and other persons employed for the securing of cargoes should be instructed in the correct application and use of the cargo-securing devices on board the ship.

6 IMO Resolution A.533(13) - Elements to be taken into account when considering the safe stowage and securing of cargo units and vehicles in ships

6.1 General elements – It is of utmost importance to ensure that:

- Cargo units including vehicles intended for the carriage of cargo in sea transport are in sound structural condition and have an adequate number of securing points of sufficient strength so that they can be satisfactorily secured to the ship. Vehicles should, in addition, be provided with an effective braking system; and
- Cargo units and vehicles are provided with an adequate number of securing points to enable the cargo to be adequately secured to the cargo unit or vehicle so as to withstand the forces, in particular the transverse forces, which may arise during the sea transport.

6.2 “Elements to be considered by the shipowner and shipbuilder” states that:

- The ship should be provided with an adequate number of securing points of sufficient strength, a sufficient number of items of cargo securing gear of sufficient strength and a Cargo Securing Manual.

7 IMO Resolution A.581(14) - Guidelines for securing arrangements for the transport of road vehicles on ro-ro ships

7.1 Shipowners and shipyards, when designing and building ro-ro ships to which these Guidelines apply, should take sections 4 (Securing points on ships’ decks) and 6 (Lashings) particularly into account.

7.2 Manufacturers, owners and operators of road vehicles which may be transported on ro-ro ships should take sections 5 (Securing points on road vehicles) and 7 (Stowage) particularly into account.

7.3 Lashings should be attached to the securing points on the vehicle in such a way that the angle between the lashing and the horizontal and vertical planes lies preferably between 30° and 60°.

7.4 Wheels should be chocked to provide additional security in adverse conditions.

7.5 Vehicles with diesel engines should not be left in gear during the voyage.

7.6 The parking brakes of each vehicle or of each element of a combination of vehicles should be applied and locked.

7.7 Semi-trailers, by the nature of their design, should not be supported on their landing legs during sea transport unless the landing legs are specially designed for that purpose and so marked. An uncoupled semi-trailer should be supported by a trestle or similar device placed in the immediate area of the drawplate so that the connection of the fifth wheel to the kingpin is not restricted. Semi-trailer designers should consider the space and the reinforcements required and the selected areas should be clearly marked.

8 Department for Transport Code of Practice – Safety of Loads on Vehicles

8.1 When a vehicle is carried on a ship, as in roll-on, roll-off ferry operations, the vehicle and its load will be subject to forces due to the rolling and pitching motions of the vessel. A restraint system that is suitable for road use will not necessary be adequate at sea.

8.2 Vehicle operators intending to use ferries should ensure that their load restraint systems are capable of withstanding forces likely to be encountered at sea.

8.3 The securing of the vehicle to the ship is important and the vehicles should be fitted with lashing points that are of adequate strength to withstand the forces likely to be encountered at sea. The lashing points should be easily accessible to deck crew and not obstructed by fuel tanks, batteries etc. If necessary, advice on this latter point should be sought from the ferry operators.

8.4 The maritime rules also apply to domestic open water crossings such as the UK mainland to the various islands around it.

9 British Standard BS EN 29367 – Lashing and securing arrangements on road vehicles for sea transportation on Ro/Ro ships – General requirements

9.1 Part 1: Commercial vehicles and combinations of vehicles, semi-trailers excluded:-

This part of the standard specifies the minimum requirements to allow efficient lashing and securing of road vehicles on board Ro/Ro ships, indicating in particular the lashing arrangements on the vehicle and the securing methods to be used. It also gives, in Annex A of the standard, for information to vehicle designers, the securing point arrangements generally used on Ro/Ro ships as laid down by IMO recommendations.

9.2 Part 2: Semi-trailers:-

This part of the standard specifies the minimum requirements to allow efficient lashing and securing of semi-trailers on board Ro/Ro ships, indicating in particular the lashing arrangements on the semi-trailer and the securing method to be used. It also gives, in Annex A of the standard, for information to semi-trailer designers, the securing point arrangements generally used on Ro/Ro ships as laid down by IMO recommendations. In the Annex B of the standard, it gives for information some design indications to decrease damage during handling.

10 British Standard BS EN 12195 – Load restraint assemblies on road vehicles

10.1 Part 1: Calculation of lashing forces:-

This part of EN 12195 specifies acceleration coefficients for surface transport. It also gives methods of calculation of lashing forces acting on load carriers, Lorries, trailers and swap bodies, either on road, on vessels or by rail and /or combinations thereof for different types of load and different types of lashing.

10.2 Part 2: Web lashing made from man-made fibres:-

This part of EN 12195:

- specifies safety requirements for web lashing made from man-made fibres with flat woven webbings for multiple uses and of lashing combinations with woven webbings for the safe surface transport of goods on road vehicles, e.g. trucks and trailers which are used on roads or located on vessels or on rail wagons and/ or combinations thereof;

- includes only tensioning devices to be hand driven with a maximum hand force of 500 N;

- specifies methods for testing of web lashing for securing of loads;

- deals with the significant hazards which could occur when web lashings are in use as intended and under conditions foreseen by the manufacturer; and

- includes composite load restraint assemblies also for the same purpose as above.

10.3 Part 3: Lashing chains:-

This part of EN 12195 specifies safety requirements for lashing chains and lashing combinations with chain for the safe surface transport of goods on load carriers, e.g. trucks and trailers which are used on roads or located on vessels or on rail wagons and/or combinations thereof. The standard includes only tensioning devices to be hand driven with a maximum hand force of 500 N. It does not give requirements for multi-purpose lever blocks other than to the type of fine tolerance chain and the additional marking of the maximum hand-operating force.

This part of EN 12195 deals with hazards which could occur when lashing chains are in use as intended and under conditions foreseen by the manufacturer.

10.4 Part 4: Lashing steel wire ropes:-

This part of EN 12195:

- specifies requirements for lashing steel wire ropes and flat lashing steel wire ropes and lashing combinations with lashing steel wire ropes for the safe surface transport of loads on load carriers, e.g. trucks and trailers which are used on roads or located on vessels or on rail wagons and/or combinations thereof;

- stipulates procedures for testing lashing steel wire ropes and flat lashing steel wire ropes; and

- deals with hazards which could occur when lashing steel wire ropes and flat lashing steel wire ropes are in use as intended and under conditions foreseen by the manufacturer.