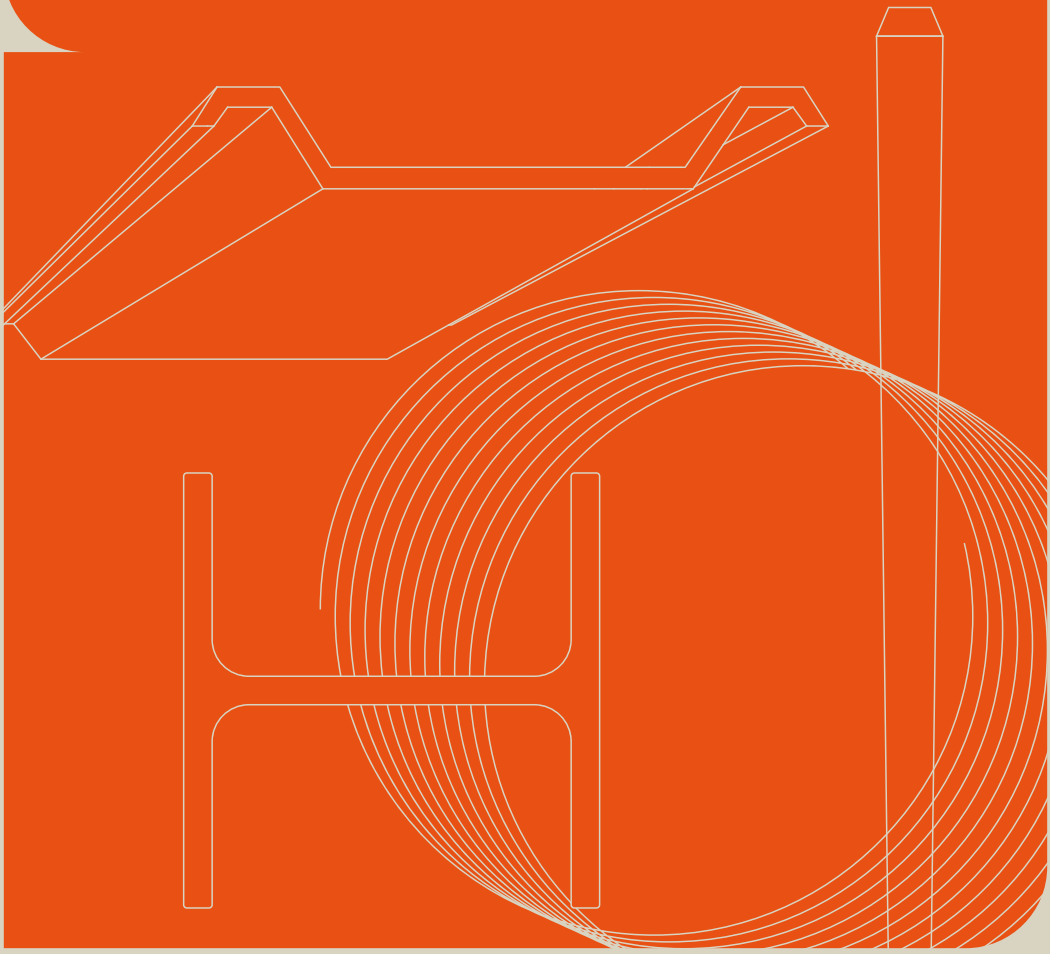
Long Carbon Europe

ArcelorMittal

Booklet - Long Carbon Products

Minimum requirement for securing of steel long products before shipment by road



Introduction

Health & Safety	Standard	Ref.: ST 020 Issue: May 2013 Vers.: 0	
Booklet - Long Carbon Products Minimum requirement for securing of steel long products before shipment by road			
Controlled Circulation	Drawn up by:	Checked by:	Approved by:
Name :	Cargo securing project working teams	Cargo securing project steering committee	F. Haers

Introduction

The UK English language version of this document shall be the official Version. This booklet is an appendix to the Health and Safety standard "Minimum Safety Instructions for Cargo securing".

The local rules must be established in accordance with risk assessment and the European standard EN12195. (AM ST 018)

The only officially available version of this booklet is the one that can be found at the following web address:

http://www.arcelormittal.com/index.php?lang=en&page=263

This booklet has been created by internal and external experts and represents what ArcelorMittal believes to be the most suitable method for cargo securing. Nevertheless this does not exempt the driver, his/her supervisor or his/her company from alerting ArcelorMittal if he/she finds any possible irregularity in our requirements.

This document has been prepared by a working team:

Roger Manzoni, LCE
Clelia Dufrasne, LCE
Pascal Lamiroy, LCE
Eric Couriot, LCE

1. Legal basis[1]

Loading security is not an end in itself, but is mandatory by law to prevent damages. It is important to remark that liability in case of damages applies in case of (imprudent or reckless) action as well as in case of omission (lack of the required diligence - negligence). The main principle is that either in the usual course of business, as well as regarding the fulfilment of any contractual obligation, individuals must always act/perform their obligations according to the general legal duty of being as diligent as possible (also including checking by AM that our sub-contractor complies with regulations and has taken all measures to prevent any accident).

In case of lost loadings there exists the danger of very severe injuries to persons, even of fatalities, where not only civil liability (monetary indemnification) but also criminal liability (fines, prison, etc.) are involved. In addition, it is not only the people directly in charge of the cargo operations who can be held criminally liable. Such criminal liability can eventually also involve (and this is highly dependent on the specific national criminal law systems) those middle and top management of the ArcelorMittal legal entity who have a relevant role in such operations, and who:

1. must ensure the availability of all the security means;
2. train the relevant employees about the risks and good practices;
3. is eventually directly in charge of the surveillance of the compliance of all the security processes and of the proper performance of the works.

Necessity of loading security

The necessity of loading security is put in place by the accident prevention standards, the above mentioned general principles of liability, and many legal standard rules, which range from very detailed laws on specific cargo and loading safety procedures existing in some countries, to just general principles of due diligence and administrative regulations existing in other countries, which apply in general terms to such works.
Rules on cargo securing exist in several Member States, but often differ in content and

[1] *Insert from «ArcelorMittal Standard ST018» - Version 0 - issued 25.08.2011*

scope, making it very difficult for international transporters to know what the minimum cargo securing requirements are for a given cross-border transport operation. This is why in any event, securing of cargo on a vehicle should be ,carried out according to adequate standards to be applied in a uniform manner across Europe, and ultimately, best practice guidelines such as the "European Best Practice Guidelines on Cargo Securing for Road Transport", and the European EN 12195-1, are important backgrounds of loading security, no matter the legal specific scenario of the countries concerned.
Such guidelines are a relevant reference for all public or private parties directly or indirectly concerned by cargo securing, they represent the accumulated knowledge of European experts in this field, and are designed to lead all the parties involved to the adequate safety level required to perform international transport operations.

Important

In view of the general principles of liability mentioned above, such standards should be seen as a «MUST» and not a «CAN».

It is the job of the acting persons, the loading employees and the drivers to guarantee in which manner danger will be excluded.

Responsibility / Liability for loading security

In brief, those persons potentially responsible and liable for loading security are:

1. the loader (the person, who puts the load on the truck);
2. his / her supervisor;
3. his/her Company;
4. the driver;
5. his / her supervisor;
6. his/her Company.

Conclusion

The only way to manage criminal liability is:

1. to do what ever is possible to avoid any risks;
2. to be able to show proof of the risk analysis/measures taken.

This standard has been created by internal and external experts and represents what ArcelorMittal believes to be the most suitable method for cargo securing. Nevertheless this does not exempt the driver, his/her supervisor or his/her company from alerting ArcelorMittal if he/she finds any possible irregularity in our recommendations.

Guard/loading place

If ArcelorMittal considers it necessary, its employees will:

- inspect the condition of the vehicle, the presence of securing devices, individual protection equipment and licences and the securing of the load after the load was picked up;
- intervene in case of an accident or misbehaviour on the premises towards the haulier/driver;
- deny access to persons in case of non-conformity.

2. Scope and definition

This guideline concerns loading and transport of long products under the responsibility of ArcelorMittal or ordered by ArcelorMittal in Europe.
The Group Companies will follow, as a minimum, the prevailing local regulations for all work about the product handling. Where this guideline is more demanding, then it will apply.
The local rules must be established in accordance with risk assessment and the European standard EN12195.
The possible consequences, in EU, in case of non-compliance with the European standard are:

- **Penal liability** (to punish someone's misconduct);
- **Civil liability** (to repair someone's prejudice)

For the same accident, both penal liability and civil liability can be pronounced with a possible cumulative condemnation of shipper and carrier (and its subcontractors).

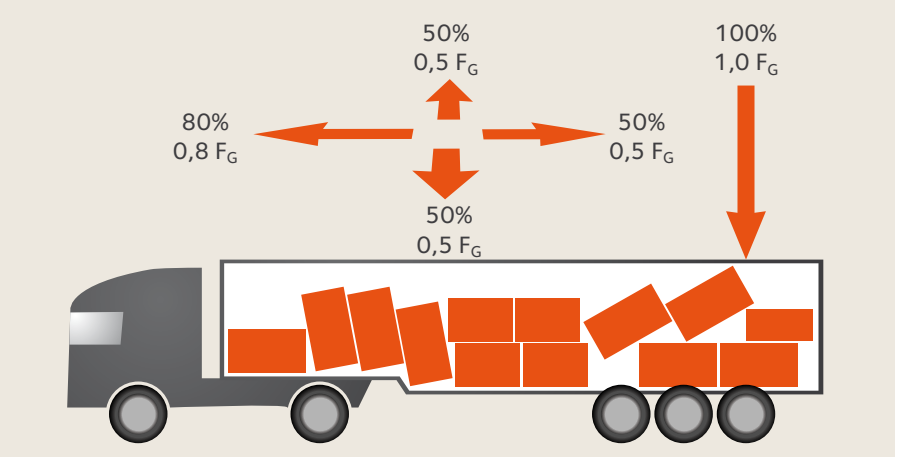
3. Some physics basics

3.1 Existing forces on a trailer...

The maximum forces that can be exerted on the load have been defined as a result of tests and are:

a) 80% of the mass towards the front during braking;
b) 50% of the mass towards back in a significant acceleration or during an impact (if a trailer, semi-trailer, lorry is attached);
c) 50% to the left and/or right during a change of direction (change of lane, highway or obstacle avoidance).

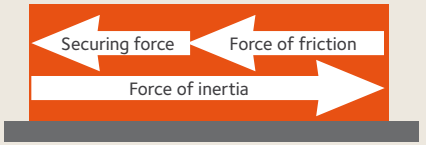
Knowing this information will already simplify the securing. For example, with a load of 10,000 kg, you only have to secure the equivalent of 8,000 kg towards the front and 5,000 kg in the other «directions» !



Force related to weight (FG = m x g)

Force related to friction (FF = µD x FG)

Force related to mass (F = m x a)



The securing force corresponds to the force that has to be absorbed by the securing devices

4. Requirements

Here are some requirements concerning the safety instructions.

4.1 General rules

Safety protocol

The truck:

- engine stopped/handbrake on;
- covers from the back removed;
- parked in a dedicated safe area.

The driver:

- the driver wears PPE (Personal Protective Equipment) and stays in a safe area during the whole operation;
- the driver hands its keys over to the logistical operator.

The operator:

- the operator blocks the wheels;
- the operator installs the stairs with handrail at the back of the truck;
- the operator wears his PPE. He will always stay away from the moving load;
- at the end of the operations, the operator unblocks the wheels;
- the operator remove the stairs;
- the operator returns the key to the driver, who can now leave safely.

The safety protocol in pictogram:

4.2 Truck driver

The truck drivers must have the following documents and information to gain entrance to the loading location of ArcelorMittal:

- identification;
- company name;
- detailed list of goods to be loaded;
- total weight of the load to be loaded;
- destination after loading;
- loading over 25 t., ADR permission...

Access will be refused when a driver:

- uses alcohol or drugs or brings them to the premises;
- takes passenger or pets. However, a second driver is allowed.

Truck drivers are required to show their PPE (Personal Protective Equipment) when asked to do so.

Truck drivers must have and use, as a minimum, the following PPE:

Required PPE


helmet


shoes

Potentially required PPE


glasses


gloves


body protection


ear protection

4.3 Vehicles

Are in the scope of this booklet:


Truck


Tractor with semi-trailer


Lorry trailer

The vehicles must be maintained in such a way that they are safe to work with or on.

4.3.1 Caracteristics of the platform

The loading platform should be flat, solid, stable, well maintained (no missing or broken boards), clean (free of dirt and fluids), closed and dry (except for open trailers).

If the ArcelorMittal dispatcher decides that the trailer is not clean, it will not be loaded.

4.3.2 Securing equipments:

It must include:

- head wall;
- side wall and/or stanchions;
- attachment points.

Head wall

Head wall must secure the loading from slipping over the front edge of the loading area.

They must be as high as the highest loading and withstand a pressure of minimum 80% of the total load. They should resist to a pressure of 80% of the total load, on the whole size (not at one point).

Even on extendable trailers, the front wall should be divisible so that short bars can be combined and safely transported along with extra long bars.

Side wall

Side walls are the external border of the loading area. They prevent light products from falling down. The sidewall must be rigid.
For heavy steel products, plain side walls can be replaced by stanchions.

Stanchions

Stanchions must be in aluminium or steel and must belong to the original equipment provided by the certified trailer manufacturer.
They must be in good condition.

Attachment points

The cargo securing points, in sufficient number, must be integrated in the vehicle construction.
The number of load straps is sufficient to secure the cargo. These load straps are not worn or damaged.
It's only allowed to connect the straps and the securing points with hooks. Knots are forbidden.

4.4 Loading of the cargo on the truck

The loading of the cargo is managed by ArcelorMittal employees. The truck driver has the possibility to give advices on how to place the goods on the truck.

4.5 Behavior of the truck driver

The truck drivers must work in a safe way and behave according to the standard on both the loading and unloading areas.

Drivers must:

- wear the adapted PPE;
- strictly follow the safety regulations in the loading areas;
- stay outside the lorry, in an indicated safe zone, during the loading;
- secure the load as described in European standard.

Drivers must not:

- open or close the roof in an unsafe way;
- never climb on the side edge;
- jump out off the trailer;
- be on the trailer during the loading;
- operate installations belonging to ArcelorMittal (forklift, trucks, cranes, etc.);
- touch the load or the hoist or guide these by hands.

Before the loading begins the driver must uncover the lorry in safe conditions and check that the floor of the trailer is clean and dry.

Loading of trucks by crane

If there are several loaders, one chief of operation must be strictly nominated and known by the crane driver. He must have a distinctive sign (waistcoat or helmet with a different color, etc.).
The standard AM ST 007 "Cranes and lifting" must be applied.

Loading of trucks by forklift

The standard AM ST 006 "Vehicles and driving", appendix 2 "Forklift operation standard", must be applied.

If the standards AM ST006 and AM ST007 are not known, please contact the LCE purchasing team.

5. Securing of the cargo

After loading, the securing of the load is managed by the truck driver in accordance with the European standard.

5.1 Different methods of securing

We find three different forms of securing:

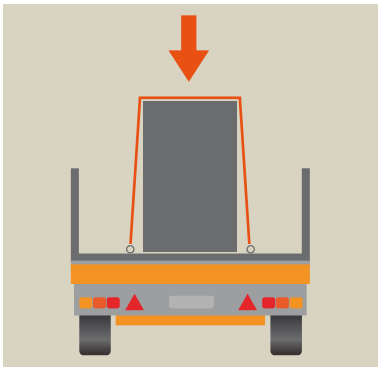
- securing by form closure;
- securing by friction;
- securing by direct fixing.

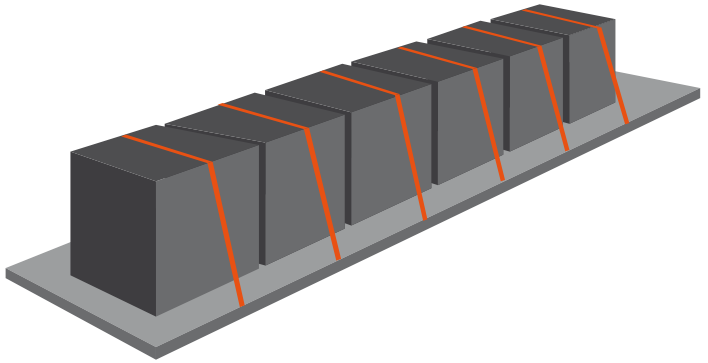
5.1.1 Securing by form closure

Securing by form closure means blocking the load. It is important to have no free spaces. This method is very effective but not always possible.

5.1.2 Securing by friction

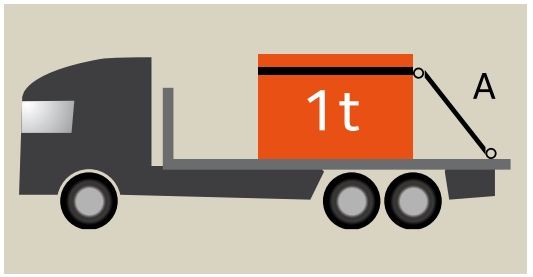
Fixing the load by enhancing the friction force is a widely used method.

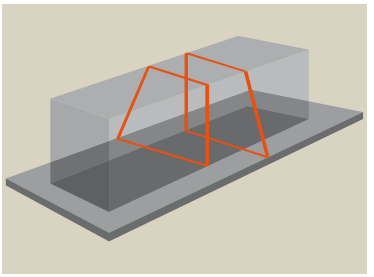




5.1.3 Securing by direct fixing

This is one of the best methods available. The second picture shows a loop lashing, this is another excellent direct fixing method.





6. Before departure of the truck

Before departure of the truck, an ArcelorMittal employee and the truck driver should perform together a quality audit on the result of loading and securing of the cargo.

At the end of the audit, they should sign a common document with, as a minimum the following information:

- the date;
- company name;
- truck driver name;
- registration number of the truck;
- pictures of the securing load (with date and driver's signature) etc.

Audit example

LCE Health & Safety	Guideline		Ref.: Issue: Vers.: Rev.:
Audit after truck loading			
Controlled Circulation	Elaborated by:	Checked by:	Approved by:
Name :	Eric Couriot	André Bock	Arnaud Poupart-Lafarge

- Date:
- Transport company name:
- Registration number of the truck:
- Registration number of the trailer:
- Truck driver last name:
- Type of goods:
- Order #:
- Destination after loading (customer):
- Total weight:

Pictures:
- general view of loading;
- general view of cargo securing;
- detailed view of cargo securing.

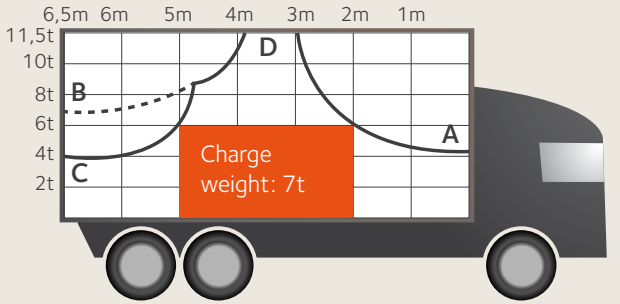
Signatures: Truck driver ArcelorMittal auditor

7. Positioning the load

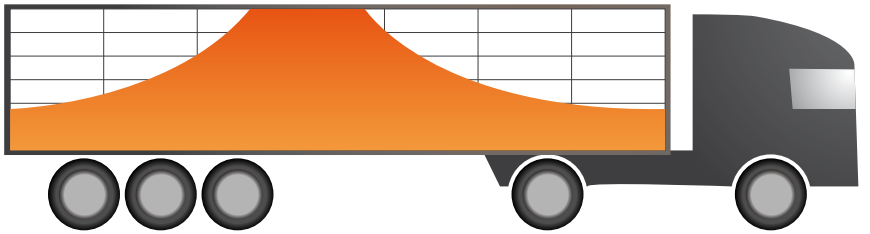
The load needs to be positioned following the adequate rules.
The truck driver has the responsability to know where to put the load to drive safely.

The plan of the load division must be in the hands of the driver.

Examples:



A = Limit authorized on front axle
B = Limit authorized on back axle
C = Limit to guarantee maneuverability
D = Limit due to total authorized weight



8. Technical equipments for loading

All securing devices as chains, belts,etc. must be labelled according to the European Standard EN12195, and used according to this label.
Aids for loading safety must fulfill their necessities (enough and correct equipment in good condition).
Any misusage is strictly forbidden!

8.1 Strip aids

The use of securing devices is compulsory. Depending of the mill and products these can be:

- steel chains;
- synthetic fiber straps;
- cables;
- ratchets.

When the device is damaged (cuts, knots, etc.), it cannot be used and must be destroyed.

8.1.1 Steel chains

The steel chains are equipped with a ratchet and must have a label.



8.1.2 Synthetic fiber straps

A lashing strip is a tool for loading safety, which can be fixed with a lashing point, to secure the loading on street vehicles. A lashing strip is made by a belt, a tensing element (ratchet) and fasteners (hooks).



8.1.3 Cables

Cables are necessary to fix the load. They are made of steel and can be used together with cable winches and lashing points.
The cable winches are often fixed on the trucks.


8.1.4 Ratchets

A ratchet is a mechanical implement used to introduce traction into an element under tension.


8.1.5 Lashings

Lashing is fixing the load with lashing strips, lashing cables or lashing chains.
Top lashing is not the main loading security, but an additive to the form closure securing method.
To fix the load with only lashing strips, the steel packet must be covered completely with lashing strips.



8.2 Edge and corner protections

Synthetic or similar covered side corner protections must be available in the vehicle if there use is mandatory.

The edge protectors must not be made by anti-sliding materials (anti-slide mats, old gloves, etc.) because the power of the strip must be turned around as equal as possible. Anti-slide materials reduce the lashing power.



9. Examples

9.1 Packaging of bended rebars

Rebars are often delivered in small bended pieces, even in big numbers. They must be fixed in a bundle, so they cannot fall of the crane or the truck. This can be done by wires, cables, boxes or big packs.

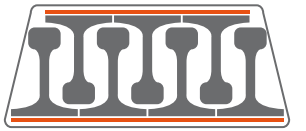


9.2 Rails

There are different possibilities for loading.


free bars


“head up” bundles


“married” bundles

9.3 Wire

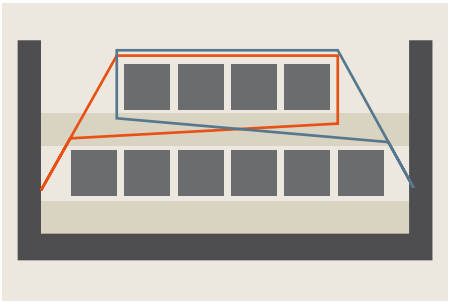
For this product, we must use an anti-slide mat and lashing.


9.4 Beams and sections



9.5 Billets

The raws of billets can be separated by solid bar and must be secured by lashing.




9.6 Sheet piles



9.7 Beam blank


10. Good practices

10.1 Housekeeping

Before starting the loading, the platform must be cleaned. Wood and strips make people fall. Sand and water makes it slippery.


10.2 Adapted platforms to prepare the truck

The platforms are equipped with ladders and safety ropes.


10.3 Removable platforms

These platforms are one of the tools used to load.


10.4 Stairs

Stairs are compulsory. Stairs with handrail helps for easy and safe access to load.


10.5 Anti-slide mat

Anti-slide mats increase the friction between wood and steel. They must be laid between every layer. Each loading - layers must be completely divided by anti-slip-mats, but it should not be laid on the whole loading area (no carpeting). In the steel distribution, stripes of anti-slide mats are useful.



10.6 Sliding roof


ArcelorMittal

Long Carbon Europe
66, rue de Luxembourg
L-4221 Esch-sur-Alzette
G. D. of Luxembourg

www.arcelormittal.com