jvgRASLA

Equipment for rational securing of cargo on railway wagons

Utrustning för rationell säkring av last på järnvägsvagnar

Funding: National (Sweden)
Duration: Aug 2002 - Jan 2004
Status: Complete with results

Background & policy context:

Insufficient securing of cargo during transports gives a risk for damages to cargo and railway wagons as well as persons, working in the chain of transports or are involved in any other way.

Besides that great values are at stake when cargo is damaged, cargo coming loose can hit other trains, damage tracks and electric wires and lead to severe accidents. Cargo falling out when opening the doors or sliding walls can injure the unloading personnel.

At inspections of railway wagons carried out by the Swedish Railway Inspectorate and the Swedish Coastguard many wagons with insufficiently secured cargo are often found.

At discussions with personnel involved in loading and securing of cargo the defectiveness is often explained by that it is difficult and costly to secure with the equipment present on the railway wagons today.

The regulations are rather unclear and the practical conditions to do a proper work are missing. This is a problem noted among others by representatives for the industry. When the number of cargo transports is increasing the accessibility on the roads is decreasing and the effect on the environment is increasing.

Due to this it is desirable to transfer more cargo from road to railway. One of the obstacles to do so is the damage on cargo occurring when transported on railway.

Objectives:

The aim with the project has been to simplify, improve and decrease costs by a correct securing of cargo on railway wagons.

If simplified, improved and less costly methods can be worked out, this will result in an increased number of railway wagons with an adequate cargo securing.

The consequence of this will be increased safety and less cargo damage, which will make it easier to transfer cargo to the railway.

Methodology:

Existing methods and equipment will be investigated. Weak points and costly methods to be defined. Alternative methods and equipment to be worked out and analysed from the view of safety and cost.

Parent Programmes:
Banverket 2000-2005 - Swedish National Rail Administration research and development programme 2000-2005

Institute type: Public institution
Institute name: The Swedish National Rail Administration
**Funding type:** Public (national/regional/local)

**Partners:**

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**Key Results:**
Research and results in the following areas has been produced:

- Cargo securing methods according to UIC
- Impact tests and tests with nail joints and webbing carried out in the project
- Analysis of the UIC loading guidelines
- Design criteria for wagons sides, ends, stanchions and securing fittings
- Proposed equipment in a railway wagon for flexible and efficient cargo securing
- Comparison of cargo securing cost between railway and road transport
- Loading and securing of palletised cargo
- Securing og railway wagons in ferry traffic.

**Policy implications**
Based on the results from the jvgRASLA project, the following is recommended:

1. To establish new realistic general acceleration requirements that are also allowed to be used as a base for design of cargo securing arrangements for rail transports.
2. It should be possible to perform tests of loading methods for sideways accelerations in the same way and for the same forces as for road transports. Special consideration must, however, be taken to the vibrations that occur in a railway wagon.
3. To establish harmonised realistic strength demands on sides, ends and partition walls of railway wagons enabling rational cargo stowage and securing in the wagons. The strength demands are proposed to be in line with the standard EN 283.
4. To establish guidelines for stowage and securing of palletised cargo in railway wagons.
5. To require improved strength of the shunting hooks for new railway wagons improving the possibility for safe transports in ferry traffic. Restrictions for which significant wave height train ferries may operate in should be introduced.
6. To investigate reasons for cargo damages during railway transportation and to develop means to avoid such.

**Related Projects:**
NA

Documents:
- Report_jvgRASLA.pdf (Final report)

**STRIA Roadmaps:** Transport electrification, Infrastructure
**Transport mode:** Rail transport
**Transport sectors:** Passenger transport, Freight transport
**Transport policies:** Safety/Security, Societal/Economic issues
**Geo-spatial type:** Other