DOMEX®
DOCOL®
DOGAL®

Lighter
Stronger
Greener

Trailer

SSAB
SWEDISH STEEL

A strong green light for advanced high strength steel

All companies involved in transportation and logistics strive towards the same goals – their products and services must be cost-efficent, reliable and have a minimum of impact on the environment. To stay competitive, payloads have to be increased and fuel consumption has to be lowered; repairs have to be minimized and life cycles must be increased.

The only way to fulfill all these demands, that are equally important to manufacturers, trailer owners and hauliers, is to constantly explore the possibilities of new materials that make trucks and trailers lighter and stronger.

Advanced high strength steel is the obvious material of choice for demanding trailer applications. By using advanced high strength steel, semi-trailers and trailers can be designed as light as those made by aluminium, in addition they will have a much better total economy.

Weight savings of up to 30 percent on steel structural parts are possible when using advanced high high strength steel instead of standard grades. The saving of weight compares very favourably with what can be achieved with aluminium.

The most obvious for advanced high strength steel is the chassis and the body structure of a trailer, but great savings are also possible in other parts such as the landing gear, underrun protectors and load securing part.

The same low weight but much stronger in the long run

Aluminium has always been the material of choice for advanced lightweight appli-

High strength steel makes everybody in the trailer business a winner

Hauliers benefit from:
- Increased payload
- Lower fuel consumption
- Increased reliability
- Higher profitability

Manufacturers benefit from:
- Less steel needed
- Lower costs for stock
- Simplified production
- Higher quality
- Increased competitiveness
- Higher profitability

Owners benefit from:
- Reduced maintenance
- Increased reliability
- Higher profitability

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cations such as in the aerospace industry. Advanced high strength steel offers the same weight-saving possibilities but is much more suited to the design and production methods used for heavy transport equipment such as trailers and tippers.

The production cost with advanced high strength steel is lower right from the start and the durability of steel makes for lower maintenance costs and a long useful life.

Compared to "traditional" mild steels the weight saving with high strength steel is considerable.

Trailers can carry a considerably higher payload, which means that fewer trips have to be made to carry the same amount of goods. The greater the number of journeys, the greater the savings will be. An added advantage is that the environmental impact is less when using high strength steel. The fuel consumption for journeys when trailers are empty on return trips is reduced. In addition the amount of steel for manufacturing the trailer is reduced, which also greatly reduces CO_2 emissions. Calculations have been made that indicate that the CO_2 emissions are reduced by over 60 tonnes over the lifespan of a semi-trailer utilising high strength steel compared to one built with traditional steel.

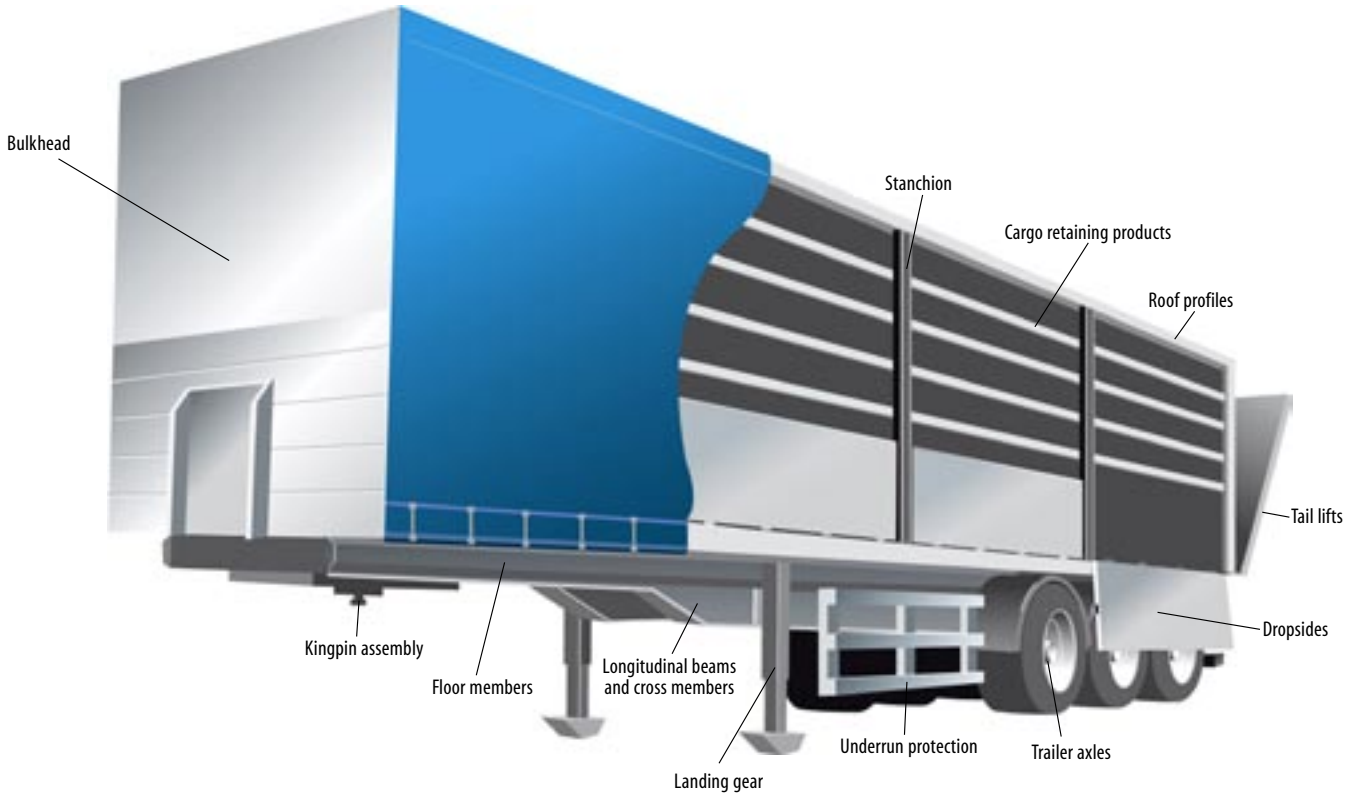
The working environment when loading and unloading can be improved when advanced high strength steel is used for dropsides and load securing systems.

Less maintenance

Trailers are used around the clock and often subject to rough handling, resulting in damage that makes the trailer unusable without repairs. Many of these problems are eliminated when using high strength steel. It withstands wear and tear very well, and if needed repairs can be made with standard equipment and the knowledge and competence found in most repair shops. High strength steel is welded and joined in much the same way as standard steel grades.

Efficient production

No special machinery or processes have to be used – investments when switching to high strength steel from mild steel are kept to a minimum. Existing workshop equipment can be used. For trailer producers that are beginning to explore the possibilities brought by advanced high strength steel, SSAB is a knowledgeable partner. SSAB Swedish Steel is a pioneer in advanced high strength steels, with all the experience gained from years of being the world's foremost producer of advanced high strength steel.



Domex, Docol and Dogal – the right choice of steel

DOMEX hot-rolled steel and DOCOL cold-reduced steel have set the standard for the use of advanced high strength steels in the automotive industry and for trucks and trailers. Dogal is an ultra high strength steel that is hot-dip galvanized for protection against corrosion.

Domex, Docol and Dogal are used where there is a need of stronger steel to reduce weight and increase the payload for the vehicles. Dent and wear resistance are significantly increased with the strength of the material and reduces the maintenance cost and increaces the product life.

Domex, Docol and Dogal have consistent mechanical properties and dimension tolerances, offering a mimimum of adjustments in the productions flow.

These steels have excellent formability and good weldability. Lean analysis renders the steels resistant to heat embrittlement and hot cracking. Welding without preheating may be carried out using all standard methods and filler materials.

Laser- and plasma cutting, shearing and punching, often together with roll-forming are preferable methods to achieve optimised structures out of the advanced high strength steels.

High strength steel saves tonnes on a semi-trailer

By using the right type of steel and clever engineering, it is possible to reduce the total weight of semi-trailer up to 2500 kg. These examples give an indication of the weight savings for different parts:

- 13.6 m chassis – 700 kg
  - longitudinal beams
  - chassis cross members
  - floor members
- Front wall – 100 kg
- Rear door – 100 kg
- 600 mm dropsides – 250 kg
- Underrun protection and bumpers – 100 kg
- High strength steel wheels – 380 kg

Save money by using advanced high strength steel

Income increase

Example	Traditional curtainsider	Advanced high strength steel curtainsider
Weight	6 500 kg	4 200 kg
Freight income per tonne	20 €	20 €
Number of shipments per year	250	250
Ratio fully loaded	70 %	70 %
Income increase per trailer	-	**8 050 €/year**

Fuel savings

Example	Traditional curtainsider	Advanced high strength steel curtainsider
Fuel savings (0.6l/100km/saved tonne)	-	1.38l/100 km
Distance travelled per year	150 000 km	150 000 km
Annual fuel saving	-	2 070 l
Fuel cut cost per year	-	**2 070 €/year***

**Based on diesel oil price of 1€/l*

Total added value

Annual gain per trailer from increased payload	8 050 €
Annual gain per trailer from fuel cost savings	2 070 €
Total annual gain per trailer	**10 120 €**

Questions about advanced high strength steels?

Our Knowledge Service Center has all the answers.

Our Knowledge Service Center and the web-based information service www.ssabdirect.com have been developed to meet the needs of companies who specify high strength steels to make their products lighter, stronger and safer.

Instant information

The Knowledge Service Center provides in-depth knowledge and facts concerning high strength steels through personal contact with our application engineers and materials experts.

Through our helpdesk or e-mail, you can get assistance and technical support with all types of machining, working and design matters. Instant support around the clock is available on the web at www.ssabdirect.com. This is a very comprehensive information database containing detailed product facts, downloadable auxiliary programs, material graphs and other information that simplifies analysis and design work.

Our Knowledge Service has all the answers

For those who want printed matter and manuals, these can be ordered from the Knowledge Service Center or directly via www.ssabdirect.com.

Our manuals – the Sheet Steel Handbook, the Sheet Steel Forming Handbook and the Sheet Steel Joining Handbook – contain a wealth of information on all aspects of design and manufacture with advanced high strength steels.

Contact us at www.ssabdirect.com or by phone +46 243 729 29

SSAB Tunnplåt AB is the largest Scandinavian sheet steel manufacturer and a leader in Europe in the development of high strength, extra-high strength and ultra-high strength steels.

SSAB Tunnplåt is a member of the SSAB Swedish Steel Group, has a turnover of SEK 12 billion, and has around 4200 employees in Sweden. The company produces about 2.6 million tonnes of sheet steel annually.

Our environmental policy involves continual improvements to the efficiency of production processes and environmental care plants, and development of the environmental properties of our products from the life cycle perspective.

We produce the following steels in our modern, high-efficiency production lines and rolling mills for strip products:

DOMEX®
hot-rolled steel sheet

DOCOL®
cold-reduced steel sheet

DOGAL®
metal-coated steel sheet

PRELAQ®
prepainted steel sheet

Registered trademarks of
SSAB Tunnplåt AB

We assist our customers in selecting the steels that are best suited for improving their competitiveness. Our strength lies in the quality of our products, our reliability of supply, and our flexible technical customer service.

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