

## Fact Sheet - 2010 Swedish Steel Prize Nominated Entries

### Wranne/Fåhraeus Design AB - Sweden

**Application:** Bedspring with open design (see picture). The concept comes from designers associated with Chalmers University in Gothenburg.

**Material:** Docol 1200M. The spring is made of Docol with a thickness of 1.5 mm and a width of 80-140 mm. The geometry of the leaf springs and the extremely high yield point of the selected steel provide the desired elastic properties. The design can also be used for sofas, armchairs, etc., with comfort equivalent to that of a contemporary mattress.

**Customer benefits:**

- Easy to assemble
- Small volume and weight for shipment
- Hygienic (no enclosed volume)
- The spring can be customized
- Unique design

### Blupoint Pty Ltd – Pinjarra, Western Australia

**Application:** Refurbished bucket teeth for worn teeth of excavator buckets.

**Material:** Hardox 500 abrasion resistant steel, thickness 50/60 mm. The sheet, which can be shaped, allows good adaptation to different tooth geometries. Extreme strength and toughness are essential properties for the design.

**Customer benefits:** Blupoint reduces the life-cycle costs of large bucket teeth by refurbishing them with Hardox 500. Refurbished teeth last as long or longer than the original teeth. All bucket-users want to optimize the shape of the teeth to suit different applications. Trying new shapes of refurbished teeth is efficient in terms of both cost and time compared with developing new molds. The same plate can be used for a variety of tooth models or for completely different wear-plate components. The need to have spare teeth in reserve is minimal since refurbishing time and any associated downtime only involve a matter of hours.



## Ruthmann GmbH & Co KG (DE) – Germany

**Application:** Telescopic boom for aerial platform, Steiger TB 270.

**Material:** Docol 1200, 1.5/1.8 mm.

- Lift height: 27 m
- Work area laterally: 14.8 m
- Load capacity: 230 kg
- Total weight: 3.5 tons

**Customer benefits:** The design has significantly increased lift height and load capacity while maintaining the total weight for light trucks (3.5 tons). The effect of local buckling on load capacity and rigidity were taken into account by adjusting the cross-sectional shape of the boom to the half plate thickness (1.5 and 1.8 mm) and the high strength steel. Other advantages are smaller dimensions for the vehicle, greater flexibility with respect to driving license classes, and a lighter, less expensive chassis.

## Van Reenen Steel Ltd - South Africa

**Application:** Truck bodies intended to transport ore in mines.

**Material:** Hardox 400, Hardox 450, Hardox 500, Weldox 700

**Customer benefits:** The design has enabled Van Reenen to reduce the weight by 8 tons (from 43 tons to 35 tons) and to substantially increase the lifetime of the truck body. The body has a ridge down the middle of the bottom in the direction of the vehicle, which has the following function:

- Makes the body more rigid near the fittings, which reduces stress concentrations
- Reduces impact when loading
- Spreads the flow more evenly when unloading, resulting in less wear
- Strengthens cab protection

The truck body is optimized for even flow to reduce wear and allow faster unloading and thus higher productivity. The old truck body handles 700 loads (133,033 tons) per month, while this body handles 726 loads per month. The old body requires a minor maintenance break after about 6,000 hours and total renovation at 12,000 hours. So far, this body has been running for 17,000 hours without maintenance shutdowns. The manufacturer expects the first maintenance break at 25,000 hours and the total lifetime of the truck body to reach 50,000 hours.