Strenx® 700MC Plus

A BIG PLUS FOR YOU AND YOUR CUSTOMERS
Strenx® 700MC Plus is a high-strength structural steel that allows you to fast-forward the development of new high-performance equipment. All of the steel’s relevant performance indicators outperform those of traditional steel, making upgrading a straightforward process.

**Extreme toughness**
- Impact toughness of 40 J at -60°C in both directions
- High impact toughness also after cold forming
- Ensures structural reliability and safety

**Superior bending capability**
- Minimum inner bending radius $R_i/t = 1$ up to 10 mm thickness
- $R_i/t = 1.5$ above 10 mm thickness
- Same bending tools as for S355 steel

**Up to 12 mm thickness**
- Wide dimensional range
- 3 to 12 mm thickness
- Easy to replace ASTM A514/S690QL steel
- Width up to 1525 mm
- Length up to 12,300 mm

**High punching and shearing performance**
- Excellent hole expansion performance
- High edge quality in mechanical cutting
- Less sensitive to cutting clearance
- High edge quality improves fatigue resistance
UNIQUE BENDABILITY
Strenx® 700MC Plus has a bendability of R/t (min) equal to 1 for thicknesses up to 10 mm. At a thickness above 10 mm the minimum R/t value is still as low as 1.5. Bending instead of welding profiles and hollow sections saves production costs and makes the product stronger. Bending an open profile eliminates the need for welding and improves the fatigue resistance. When making a closed beam by bending, for example a crane boom, the weld can be placed in the low stressed area for increased structural strength and safety.

UP TO 12 MM THICKNESS
Strenx® 700MC Plus is available in thicknesses of up to 12 mm. This gives good opportunities for replacing a S690QL steel.

IMPROVING YOUR BOOMS
The high bendability of Strenx® 700MC Plus allows for more high performing booms. Thanks to the tight bending radius, sliding pads can be wider for reduced contact pressure on the pads. The small radius also makes it possible to place the support rolls closer to the corner, improving fatigue lifetime.

PONSSE SCORPION
Designers were given a free hand to create a new generation of forest harvester. Scan the QR code to find out what they came up with.
INNOVATIVE CRANE DESIGN FOR EXTREME DURABILITY
Creating a crane that is both strong, light and durable requires an optimal structural steel. Strenx® 700MC Plus meets the requirements and made it possible for Kesla to design a lighter crane without compromising its strength. Strenx® 700MC Plus has a high toughness at temperatures as low as -60°C, making the crane reliable and safe even in harsh locations like Siberia.

ABOUT KESLA
With its roots in agricultural equipment manufacturing, Kesla has been a family-run business for 60 years. The Finnish company manufactures integrated material handling equipment, including mobile and stationary cranes, tractor loaders, forestry cranes, chippers, grapples and harvester heads. The company exports its products to more than 30 countries.

A BIG PLUS FOR KESLA AND ITS CUSTOMERS

BENEFITS IN ACTION
+ Increased lifting capacity
+ Reliable performance also in extremely low temperatures
+ Made for high productivity and 24-hour operation
+ Certified My Inner Strenx® product
+ High resale value

BENEFITS IN PRODUCTION
+ High yield strength for lighter designs
+ Excellent bending properties
+ Suitable steel properties for easy cutting and welding
+ Smooth surface quality
+ Tight dimensional tolerances for predictable production
+ Most crane parts made of Strenx® 700MC Plus
+ Higher yield in production by using a single steel grade
+ Simplified logistics and reduced stock

“The quality of the steel is a key factor for our clients, who expect our products to withstand significant loads, constant use and extreme weather conditions.”
— Miia Tirkkonen, marketing specialist at Kesla.

KESLA IN ACTION
Watch Kesla in action by scanning the QR code.
A BIG PLUS FOR PRODUCTION

PERFECT FOR PUNCHING AND CUTTING

The ductility of Strenx® 700MC Plus is clearly demonstrated by its excellent hole expansion performance.

When Strenx® 700MC Plus was tested against a standard 700 steel, Strenx® 700MC Plus had up to a 40% higher hole expansion (HE) ratio. Also, the quality of the cutting edge and the expanded hole was much better.

Mechanical cutting gives a high edge quality, even if the cutting clearance is not optimal. A high edge quality results in a higher fatigue resistance.

Grainking’s new Nyrex Chaser Bin with a subframe and side and floor panels in Strenx® 700MC Plus has a capacity of up to 62,000 liters with a bin weight 700 kg lighter than the previous solution. This new flexible and lightweight chaser bin requires almost no welding for reduced production costs as well as longer service life and increased efficiency for Grainking’s customers.

READY FOR THE WORKSHOP

Trouble-free production is key to keeping production costs down and quality up. Strenx® 700MC Plus has all the properties you need for fast and reliable performance in the workshop. It allows for high productivity when bending, machining, cutting and welding, thanks to its special microstructure, tight dimensional tolerances, superior flatness and surface quality, and low residual stresses.

Original Design – S355

- 12 mm thick
- 3 parts welded

Upgrade Design – Strenx® 700MC Plus

- 10 mm thick
- 1 bent part
A BIG PLUS
FOR PERFORMANCE

BENEFITS IN LIFTING
Cranes will become more competitive through increased reach while still keeping the weight of the entire vehicle down.

TYPICAL APPLICATIONS:
+ mobile crane structures
+ loader crane structures
+ offshore crane structures
+ aerial platforms

BENEFITS IN TRANSPORTATION
Trucks, trailers, trains and buses become lighter without compromising on performance, safety and service life.

TYPICAL APPLICATIONS:
+ chassis longitudinal beams
+ cross beams
+ floor side and cross beams
+ truck subframes
+ kingpin assembly
+ drawbar couplings

BENEFITS IN AGRICULTURE AND FORESTRY
Lighter agriculture equipment such as harvesters can be made wider and use less fuel to bring in more crops per hour.

TYPICAL APPLICATIONS:
+ chassis
+ boom structures
+ harvester heads
+ grapples

The process of cold forming can decrease the impact toughness. The high impact toughness of Strenx® 700MC Plus gives a safety margin after cold forming.

THE FULL POTENTIAL
When building the new innovative Variable Forward Reach (VFR) hedge cutter, McConnel decided to start from scratch and use Strenx® performance steel.

By choosing Strenx® 700MC Plus for the boom and auxiliary structures, the forward reach was extended by 0.5 m and the weight was reduced from 530 kg to 450 kg for the new solution.

Ready for a performance upgrade

<table>
<thead>
<tr>
<th>Product</th>
<th>Thickness range [mm]</th>
<th>Yield strength Rp0.2 [MPa]</th>
<th>Tensile strength Rm [MPa]</th>
<th>Elongation At min [%]</th>
<th>Min. inner bending radius for a 90° bend, R/t</th>
<th>Carbon-equivalent CET/CEV, typical [%]</th>
<th>Impact toughness Charpy V min [J/°C]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strenx® 700MC Plus hot rolled strip</td>
<td>3.0-8.0</td>
<td>700</td>
<td>750-950</td>
<td>13</td>
<td>1.0</td>
<td>0.24/0.38 (3.0-11.4 mm)</td>
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<td></td>
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</table>

STRONG AND TOUGH IN ALL CLIMATES
Strenx® 700MC Plus has excellent impact toughness, with a minimum Charpy test value of 40 J at -60°C, while a steel according to S700MC in EN 10149-2 has a minimum of 40 J at -20°C. The high impact toughness is a vital safety factor at all temperatures.

Product Thickness range [mm] Yield strength Rp0.2 [MPa] Tensile strength Rm [MPa] Elongation At min [%] Min. inner bending radius for a 90° bend, R/t Carbon-equivalent CET/CEV, typical [%] Impact toughness Charpy V min [J/°C]
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