

Steel

# perform<sup>®</sup> – strong yet formable.

High-strength cold forming steels  
as an attractive solution for the  
construction of special-purpose  
vehicles.



thyssenkrupp



Take advantage of the properties of perform<sup>®</sup> steels from thyssenkrupp today to cut costs, resource consumption and environmental impact in the manufacture of special-purpose vehicles. perform<sup>®</sup> steels combine high strength with excellent cold forming characteristics, enabling weight reductions while offering you excellent perspectives for designing components with complex geometries.

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# Strength meets formability – in perform<sup>®</sup> steel from thyssenkrupp.

Opposites attract – perform<sup>®</sup> proves it every day with widely-divergent properties that improve your processes. Its unique performance profile includes features such as:



Ideal for complex geometries



Lowest bending radii, good cutting and welding properties



High strength paired with good toughness



Outstanding surface quality

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# Systematic performance.

The high strengths and qualities of perform<sup>®</sup> steels are the product of years of systematic development work. Their low carbon content and sophisticated micro-alloying concept with a special thermomechanical rolling process provide them with excellent cold forming characteristics and welding properties. The extremely fine-grain structure makes for excellent toughness. perform<sup>®</sup> steels offer the ideal combination of strength and formability.

## Product profile



- 1 Minimum yield strength from 500 to 1,100 MPa coupled with excellent cold forming characteristics
- 2 Press-braking and bending with extremely low radii
- 3 Very good impact energy
- 4 Outstanding surface quality
- 5 Excellent welding characteristics (low CE/CET values)
- 6 Ideal for cutting, drilling or punching

## Mechanical properties – test direction parallel to rolling direction, state of delivery: thermomechanically rolled

	Plate thickness [mm]	Max. width [mm]	Min. yield strength $R_{eH}$ [MPa]	Tensile strength $R_m$ [MPa]	Min. notch impact energy at -20°C CVN [J]	at -40°C CVN [J]	Min. Elongation $A_5$ [%] <sup>2</sup>
<b>Steel grade designation</b>							
perform® 500	2.00–16.00	≤ 2,000	500	550–700	40	27	14
perform® 550	2.00–8.50	≤ 1,850	550	600–760	40	27	14
perform® 600	2.00–9.50	≤ 1,800	600	650–820	40	27	13
perform® 650	2.00–10.50	≤ 1,750	650 <sup>1</sup>	700–880	40	27	12
perform® 700	2.00–12.00	≤ 1,800	700 <sup>1</sup>	750–950	40	27	12
perform® 900	4.00–8.00	≤ 1,520	900	940–1,200	60	30	10
perform® 960	4.00–8.00	≤ 1,520	960	980–1,200	60	30	10
perform® 1100	4.00–8.00	≤ 1,520	1,100	1,200–1,550	40	30	8

Not all combinations of thickness and width are available.

<sup>1</sup>According to EN 100149-2 the yield strength may be 20MPa lower for thicknesses lower for thicknesses > 8 mm.

<sup>2</sup>For plate thicknesses ≥ 3 mm.

### Enhanced strength

perform® steels are ideal for complex component geometries in special-vehicle construction

- ⊕ Longitudinal and cross beams for trailers
- ⊕ Lifting and working platforms
- ⊕ On-board and mobile cranes and their booms
- ⊕ Dump truck side walls

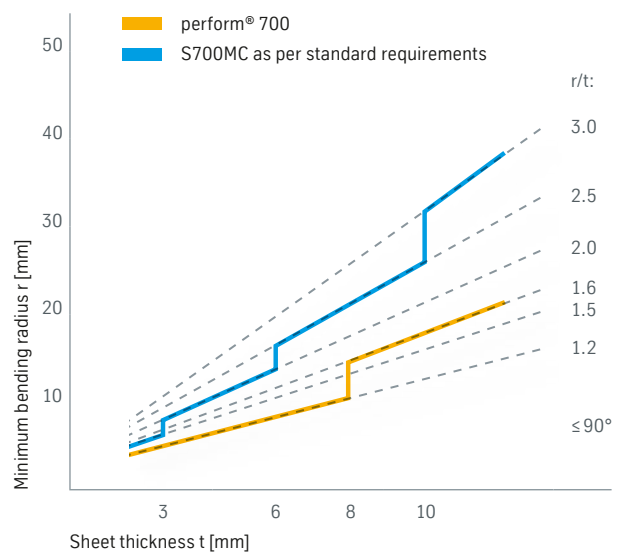
### Forming with ease.

Thanks to their particularly fine-grain structure and high degree of cleanliness, perform® steels deliver excellent forming characteristics. All grades are perfectly suitable for press-braking and bending at low radii. For extremely challenging forming characteristics, restricted bending radii as opposed to the standard can be agreed. The graph shows the significantly better press-brake radii for perform® 700 compared to standard requirements.

### Visibly superior.

In special-purpose vehicle constructions, the good surface quality of perform® is an important advantage for the painting of exposed surfaces. perform® steels are also available in pickled and oiled conditions.

### Bending radii: perform® 700 vs. S700MC



perform® 700 is significantly better suited to bending and press braking than to the comparative grade according to EN 10149-2.

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