



Optim 700 MC Plus

High strength combined with unseen workability

Ruukki Optim 700 MC Plus takes the usability of high-strength steels to a new era. It combines excellent cold-forming properties with undisputed benefits of Ruukki's Dead Flat guaranteed cut-length products. It also has an extremely high impact strength which clearly exceeds standard requirements.

For high performance applications

The unique properties of Optim 700 MC Plus offer unrivalled possibilities for equipment manufacturers. A tight bending radius means scope for improved designs and most components can be made by bending instead of welding. High impact strength helps manufacturers to meet the requirements of the most demanding end-users.

Ruukki's unique production processes with powerful levelling capabilities ensure surface quality and flatness (Dead Flat Guarantee). These benefit end-users through the excellent quality of cut components and save money in the finishing process of the end-product.

The most suitable application segment is the manufacture of lifting, transportation and excavation equipment. Lifting booms and other crane components especially benefit from the properties of the new product. Other typical applications include frames and superstructures of rolling equipment, forestry, earth moving and mining machinery as well as load handling and recycling equipment.

The dimensional range, standards and mechanical properties are given overleaf.

Your benefits in a nutshell

Bending	$R = 1 \times \text{sheet thickness}$ for thicknesses $\leq 10 \text{ mm}$
Impact strength	$-60^\circ\text{C } 40 \text{ J}$
Flatness	3 mm/m

Contact your local sales office to find out more about how your application can benefit from Ruukki's steel.

Standard equivalency

Optim 700 MC Plus complies with the requirements of material standard EN 10149-2 and its main properties exceed the standard requirements. Dimensional and flatness tolerances meet and exceed the requirements of standard EN 10051. The inspection certificate 3.1 according to standard EN 10204 is given as a material certificate.

Flatness

The Dead Flat guarantee of cut-lengths and parts cut from these sheets is 3 mm/m.

Cold forming

Optim 700 MC Plus has excellent bending and forming properties. The minimum allowed bend-

ing radius is 1 x sheet thickness in all directions for thicknesses ≤ 10 mm.

Cutting and perforation

Optim 700 MC Plus has excellent mechanical cutting and punching properties. Other suitable cutting methods are plasma and laser cutting.

Welding and heat treatment

The welding properties are excellent with all welding methods. It is recommended to use filler materials which correspond to the strength class of the steel in order to meet the requirements set for the properties of the end-application. In order to decrease residual stresses, steel structures can be heat treated at a temperature range of 530–580°C.

See the data sheet and contact our technical customer service for more detailed technical specifications and product support.

Dimensional range: Ruukki's Dead Flat guaranteed cut-lengths

Table 1

Thickness mm	Width mm	Length m
6-12	1000-1550	2-13

Mechanical properties (Tested in the rolling direction)

Table 2

Thickness mm	Yield strength R _{el} or R _{p0.2} MPa Minimum	Tensile strength R _m MPa	Elongation A % Minimum	Impact strength ²⁾ °C	Charpy V J Minimum
6-12	700 ¹⁾	750-930	15	-60	40

¹⁾ With thicknesses (8)-12 mm, tensile strength can be 20 MPa lower.

²⁾ Impact strength is guaranteed in all directions.

Minimum bending radius, bending angle ≤ 90°. t = thickness

Table 3

Thickness (t) mm	Minimum permissible inside bending radius R
6-10	1 x t
(10)-12	1,5 x t

Carbon equivalent (CEV)

Table 4

Thickness mm	CEV average	CEV maximum
6-10	0.37	0.40
(10)-12	0.40	0.44

$$CEV = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15$$

Ruukki is a metal expert you can rely on all the way, whenever you need metal-based materials, components, systems and total solutions. We constantly develop our product range and operating models to match your needs.