



HX220YD (CR210IF*)

Steels with high yield strength
for cold forming - ultra high strength IF

Material no.	1.0923
according to	DIN EN 10346/ DIN EN 10143
	* VDA 239-100

Surface finish

Thickness ranges

MB	0.50 - 3.00
MC ¹⁾	0.50 - 2.00

¹⁾ By agreement

Chemical composition²⁾

(in percent by weight)

	min.	max.
C		0.01
Si		0.30
Mn		0.90
P		0.080
S		0.025
Ti		0.12
Al	0.010	
Nb		0.09
Cu ³⁾		0.20

²⁾ Ti + Nb + V ≤ 0.22%. The addition of Boron is permitted.

³⁾ Cu according to VDA 239-100

Mechanical properties⁴⁾

Yield strength $R_e^{5)}$ in MPa	
transverse	220 - 280
longitudinal	210 - 270

Tensile strength R_m in MPa	
transverse	340 - 420
longitudinal	340 - 420

Total elongation $A_{80}^{6)}$ in MPa	
transverse	≥ 32
longitudinal	≥ 33

Hardening exponent n	
transverse	≥ 0.17
longitudinal	≥ 0.18

Anisotropy $r^{7)}$	
transverse	≥ 1.5
longitudinal	≥ 1.1

⁴⁾ Test direction is according to DIN EN in transverse and according to VDA in longitudinal rolling direction.

⁵⁾ $R_{p0.2}/R_{eL}$

⁶⁾ Reduced minimum values of elongation are valid for thicknesses ≤ 0.5 mm (minus 4 units) and for thicknesses > 0.5 mm and ≤ 0.7 mm (minus 2 units).

⁷⁾ A thickness > 1.5 mm reduces the values of r_{90} about 0.2.

Available dimensions

Thickness in mm	Width in mm
0.50 - 0.68	900 - 1,590
0.69 - 0.86	900 - 1,750
0.87 - 2.00	900 - 1,850
2.01 - 3.00	900 - 1,600

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