HX180BD+Z / (CR180BH-GI*)

Steels with high yield strength

for cold forming – bake hardening

Material no.	1.0914
according to	DIN EN 10346

* VDA 239-100

General information

Bake hardening steels feature in the condition supplied to the customer a lower yield strength and an excellent formability. This permits the production of difficult constructional elements in only a few forming steps with low forming force.

The ready and assembled construction elements receive after cold hardening during deep drawing and burning in of lacquer an increase of yield strength.At the same time the E-modul is released to the initial value. This effect is not found by conventional IF grades.

Because of higher stiffness (E-Modul) and increase of elastic range (increase of yield strength)the dent restistance is increased, which is particulary relevant for body shell parts (doors, front lid, roof, etc).

Bake hardening steels combine the forming properties of conventionel deep drawing grades with strength properties of high strength steels like microalloyed steels.

Chemical composition[1] (in percent by weight)

	min. in %	max. in %
C		0.06
Si		0.50
Mn		0.70
P		0060
S		0.025
Al	0.015	
Nb		0.09[2]
Ti		0.12[2]
Cu		0.20[3]

1) heat analysis

2) according to DIN EN 10346

3) according to VDA 239-100

Mechanical properties[4]

Yield strength R_e[5] in MPa	
transverse	180 – 240
longitudinal	180 – 240

Tensile strength R_m in MPa	
transverse	290 – 360
longitudinal	290 – 370

Total elongation A_{80}[6] in %	
transverse	≥34
longitudinal	≥34

Hardening exponent n	
transverse	≥ 0.16
longitudinal	≥ 0.17

Anisotropie r	
transverse	≥ 1.5
longitudinal	≥ 1.1

Bake Hardening BH_2
≥ 30

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

5) $R_{eL}/R_{p0,2}$

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).

Available dimensions

Thickness in mm	Width in mm
0.60 – 0.70	1,100[7] – 1,590
0.70 – 2.00	1,100[7] – 1,750
2.01 – 2.50	1,000 – 1,500[8]

7) Widths between 1.000 and 1.100 mm by agreement.

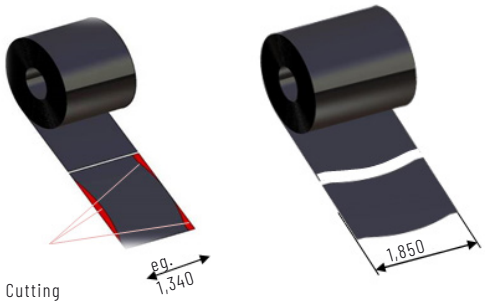
8) Thickness-width combination by agreement possible.

Surface finish

MB, MCunexposed, exposed

Usage

Large width in outer skin quality



Cutting

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