

# Dogal 800 DPX Ultra High Strength Steels

## General

Dogal 800 DPX is an ultra high strength steel that is hot-dip galvanized for protection against corrosion.

Dogal DPX grades are dual phase steels that contain ferrite, which is soft and contributes to good formability, and martensite, which is hard and contributes to the strength of the material.

Dogal DPX grades show less spring-back after cold forming compared to HSLA steels with the same tensile strength due to a large gap between the yield strength and the tensile strength, i.e. a high work hardening exponent. Generally DPX steels are easy to cold form and excellent for stretch-forming.

Compared to normal dual phase steels the DPX steels have improved formability properties especially at bending and are superior at reverse bending operations.

## Dimensions

Dogal DPX steels are available in thicknesses between 0.5 and 2.0 mm, and in widths up to 1500 mm. Limitations may occur depending on combinations of width and thickness.

## Applications

Ultra high strength steels can be used for example in the automotive and transport industry. The improved bendability properties makes more complicated design solutions possible. Strength can be increased and weight can be saved by replacing mild steel or conventional high strength steels with extra and ultra high strength steel grades.

## Tolerances

Dogal DPX are supplied to tolerances in accordance with EN 10143.

## Zinc Coating

The various coating thicknesses are classified into weight classes which specify the minimum zinc weight in

$g/m^2$  on both sides, as determined by means of the triple-spot test in accordance with EN 10142.

Weight class	Coating thickness per side* $\mu m$	Weight determination $g/m^2$ on two sides,	
		Triple-spot test min	Single test min
Z100	(7)	100	85
Z120	(8)	120	100
Z140	(10)	140	120
Z200	(14)	200	170
Z275	(20)	275	235

\*) The values are calculated on the basis of the minimum values for the triple-spot test ( $1 \mu m = 7.14 g/m^2$ ). Specifications herein are for general reference only. They are valid at date of publication and are subject to change without notice due to ongoing product development. Specifications are binding only if confirmed in writing.

## Surface Appearance

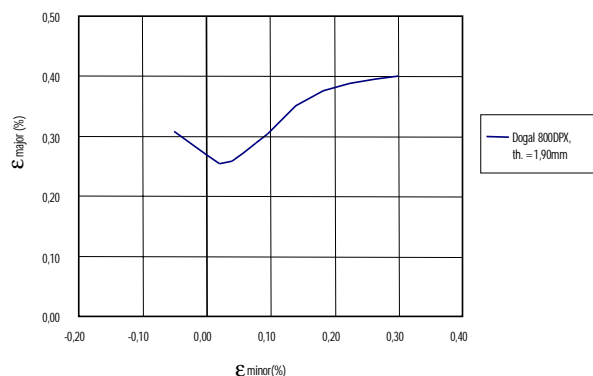
The surface is skin-passed.

## Surface Treatment

DP steels are provided with chemical and/or oiling passivation as surface protection.

## Forming Limit Diagrams

(true strain)



## Mechanical Properties

(transverse to rolling direction)

Steel grade	Yield Strength $R_{p0,2}$ or $R_{eL}$  MPa min-max	Yield strength after deformation and bake hardening 170°C / 20 min  $R_{p2,0} + BH$ MPa min	Tensile strength  $R_m$  MPa min-max	Elongation  $A_{80}$  % min
Dogal 800 DPX	620-770	720	800-950	10

## Chemical Composition

Steel grade	C % max	Si % max	Mn % max	P % max	S % max	Cr % max	Al <sub>tot</sub> % min
Dogal 800 DPX	0,16	0,25	1,90	0,020	0,0040	0,050	0,015

## Formability Properties

(thickness = 1,90mm)

Steel grade	Stretch-forming H/d	Deep drawing MDF	Inside radius for 90° bend (t=thickness)	Flanging	
				Burr in	Burr out
Dogal 800 DPX	0,33	2,05	0,7 * t	1,30	1,25

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