

Docol 420LA

General Product Description

The Docol 420LA steels are high-strength low-alloy steels, available both as hot rolled and cold rolled. Docol HR420LA-UC can after agreement be adapted and delivered as dual certified with S420MC according to EN 10149-2:2010.

Dimension Range

Cold rolled / GI, GA, ZA: thickness 0.80-2.00 mm, width up to 1500 mm.

Hot rolled / UC: thickness 2.00-6.00 mm, width up to 1600 mm.

Hot rolled / GI: thickness 2.00-2.50 mm, width up to 1120 mm.

Slit strip and cut to length sheets are available upon request.

Grade and coating specific restrictions on available dimensions may occur.

Mechanical Properties

Steel grade	Standard	Coating	Test direction	Yield strength R _{p0,2} (MPa)	Tensile strength R _m (MPa)	Elongation A ₈₀ ¹⁾ (min %)	Elongation A ₅ ²⁾ (min %)	η _{10-20/ Ag} (min)	Min. inner bending radius for 90° ³⁾
Docol CR 420LA	VDA 239-100:2016	GI, GA*, ZA*	L	420 - 520	480 - 600	17 ⁴⁾	-	0.11	1.0 x t
Docol HR 420LA	VDA 239-100:2016	UC, GI*	L	420 - 520	480 - 600	18 ⁵⁾	22 ⁵⁾	-	UC 0.5 x t GI 1.0 x t

* Available upon request.

¹⁾ A₈₀ value applies for thicknesses < 3.00 mm.

²⁾ A₅ value applies for thicknesses ≥ 3.00 mm.

³⁾ In some cases tight bending radius may cause micro-cracking of the coating in the bend area. Where design permits, users are encouraged to employ larger radius.

⁴⁾ For GA coatings the minimum elongation value is reduced by 2 units.

⁵⁾ For GI coatings the minimum elongation value is reduced by 1 unit.

Chemical Composition (Ladle analysis)

Steel grade	Coating	C (max %)	Si (max %)	Mn (max %)	P (max %)	S (max %)	Al (min %)	Ti (max %)	Nb (max %)	Cu (max %)
Docol CR 420LA	GI, GA, ZA	0.12	0.50	1.65	0.030	0.025	0.015	0.15	0.10	0.20
Docol HR 420LA	UC	0.12	0.50	1.60	0.030	0.025	0.015	0.15	0.09	0.20
Docol HR 420LA	GI	0.12	0.50	1.60	0.030	0.025	0.015	0.15	0.10	0.20

Tolerances

Hot-dip galvanized (GI, GA, ZA): Tolerances in accordance to EN10143.

Hot rolled (UC): Tolerances in accordance to EN10051.

Customized dimensional and shape tolerances are available upon request.

Coatings and Surface Treatments

Coatings

The metal coating options for Docol products include:

Hot-dip zinc coating (GI) consists almost entirely of zinc (>99%). It is lead free, resulting in a small zinc spangle size. The coating provides good corrosion protection.

Galvannealed coating (GA) is a zinc-iron alloy coating having an iron content of approximately 10%. Galvannealed is produced by post-heat treatment in continuous hot-dip coating process. Galvannealed provides excellent resistance weldability and corrosion protection of painted products.

Galfan coating (ZA) is a zinc-aluminium alloy coating having the eutectic composition approximately of 95% Zn and 5% Al. Galfan is produced in continuous hot-dip coating process. Galfan has better anticorrosive and forming properties than conventional hot-dip zinc coating (GI).

Grade specific availability of metal coatings for Docol products is given in the Mechanical properties table (Coating).

Coating type	Coating class	Standard	Closest in EN10346, informative	Coating mass per side, Single spot test (g/m ²)	Thickness per side, informative (µm)
GI	40/40	VDA239-100	Z100	40 - 60 ¹⁾	5,6 - 8,5
GI	50/50	VDA239-100		50 - 70 ¹⁾	7,0 - 9,9
GI	60/60	VDA239-100	Z140	60 - 90	8,5 - 12,7
GI	70/70	VDA239-100		70 - 100	9,9 - 14,1
GI	85/85	VDA239-100		85 - 115	12,0 - 16,2
GI	115/115	VDA239-100	Z275	115 - 155	16,2 - 21,8
GA	40/40	VDA239-100	ZF100	40 - 60 ¹⁾	5,6 - 8,5
GA	50/50	VDA239-100	ZF120	50 - 80	7,0 - 11,3
ZA	95	Upon request	ZA95		7 -
ZA	130	Upon request	ZA130		10 -

¹⁾ For hot-dip galvanized (GI, GA, ZA) hot rolled grades, the coating mass tolerance is increased to 30 g/m² by increasing the upper limit.

Docol metal coated products are available with surface quality for unexposed applications.

In addition to these coating masses, OEM specific coatings are available upon request.

Surface Treatments

Uncoated (UC): available as oiled

Hot-dip galvanized (GI, GA, ZA): available as oiled and/or chemically passivated

All surface treatments are in accordance with RoHS directive (2011/65/EU) and do not contain Chromium VI (Cr⁶⁺). Surface treatments provide only temporary surface protection during transportation and storage. In order to avoid corrosion damages, care must be taken to keep the products dry during transportation and storage. If they become wet, they must be separated and situated so that they are dried quickly.

Fabrication and Other Recommendations

For information concerning fabrication, see SSAB's brochures on www.ssab.com or consult Tech Support, techsupport@ssab.com.

Appropriate health and safety precautions must be taken when bending, welding, cutting, grinding or otherwise working on the product.

Contact Information

www.ssab.com/contact