

## Docol 1400M

### General Product Description

Docol 1400M martensitic steel helps improve crashworthiness and ensure a lightweight design and cost-efficient production methods for the automotive industry. Docol is one of the strongest cold rolled advanced high-strength steels on the market and has become the material of choice for automotive applications such as side impact beams, bumpers and structural components.

### Dimension Range

Cold rolled / UC: thickness 0.50-2.10 mm, width up to 1527 mm.

Cold rolled / EG: thickness 0.80-1.80 mm, width up to 1200 mm.

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

Grade and coating specific restrictions on available dimensions may occur.

### Mechanical Properties

	Standard	Coating	Test direction	Yield strength R <sub>p0.2</sub> (MPa)	Tensile strength R <sub>m</sub> (MPa)	Elongation A <sub>80</sub> (min %)	Min. inner bending radius for a 90° bend
Docol CR1150Y 1400T-MS	SSAB	UC, EG	T	1150 -	1400 - 1600	3	4.0 x t

The testing of mechanical properties of electrogalvanized products is conducted without coating.

### Chemical Composition (ladle analysis)

	Coating	C (max %)	Si (max %)	Mn (max %)	P (max %)	S (max %)	Al (%)	Nb+Ti (max %)
Docol CR 1150Y1400T- MS	UC, EG	0.20	0.40	1.60	0.020	0.010	From 0.015	0.10

### Tolerances

Cold rolled (UC, EG): Tolerances in accordance to EN 10131.

Customized dimensional and shape tolerances are available upon request.

The following improved flatness tolerances are available for cold rolled products upon request.

Thickness (mm)	Max height <sup>1)</sup> (mm)
0.80 - 0.99	8
1.00 - 1.39	7
1.40 - 1.59	6
1.60 - 1.79	5
1.80 - 2.10	4

EG coated martensitic grades are supplied with improved flatness tolerances.

<sup>1)</sup> Distance from the top surface of the strip normal to flat surface. Measured with a ruler on sheets of mother coil width and minimum length 1200 mm. Cross bow and coil set excluded.

## Coatings

The metal coating options for Docol products include:

**Electrogalvanized coating (EG)** is applied continuously by electro deposition. The coating consists of zinc (>99%). Electrogalvanized steel is characterized by its excellent surface quality and uniform coating thickness.

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

Coating type	Coating class	Standard	Closest in EN standard, informative <sup>1)</sup>	Coating mass per side, single spot test (g/m <sup>2</sup> )	Thickness per side informative (µm)
EG	12/12	VDA 239-100	ZE25/25	12 - 32	1.7 - 4.5
EG	18/18	VDA 239-100	–	18 - 38	2.5 - 5.4
EG	29/29	VDA 239-100	ZE50/50	29 - 49	4.1 - 6.9
EG	47/47	VDA 239-100	ZE75/75	47 - 61	6.6 - 8.6
EG	50/50	VDA 239-100	–	50 - 70	7.0 - 9.9
EG	53/53	VDA 239-100	–	53 - 73	7.5 - 10.3
EG	60/60	VDA 239-100	–	60 - 80	8.5 - 11.3
EG	65/65	VDA 239-100	ZE100/100	65 - 85	9.2 - 12.0
EG	70/70	VDA 239-100	–	70 - 90	9.9 - 12.7

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

In addition to these coating masses, OEM specific coatings and single sided EG coatings are available upon request.

<sup>1)</sup> For GI and GA the closest informative value refers to EN 10346. For EG to EN 10152.

## Surface Treatments

Uncoated (UC): available as oiled.

Electrogalvanized (EG): available as oiled and/or chemically passivated or phosphated.

All surface treatments are in accordance with RoHS directive (2011/65/EU) and do not contain Chromium VI (Cr<sup>6+</sup>). 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](http://www.ssab.com) or consult Tech Support.

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

## Contact Information

[www.ssab.com/contact](http://www.ssab.com/contact)