DOCOL®
THE AUTOMOTIVE STEEL

Docol 780DP

General Product Description

Steels that can contribute to car weight reduction. Our production-friendly Docol 780DP steels have good formability and weldability. These steels undergoes special heat treatment in a continuous annealing line, producing a two-phase structure. Ferrite that imparts unique forming properties represents one phase, and martensite that accounts for the strength represents the other phase.

Dimension range

Docol CR440Y780T-DP / UC: thickness 0.50-2.10 mm, width up to 1527 mm, length up to 8500 mm.

Docol CR440Y780T-DP / GI&GA: thickness 0.80-2.00 mm, width up to 1445 mm, length up to 6000 mm.

Docol CR440Y780T-DP / ZA: thickness 0.80-2.00 mm, width up to 1445 mm, length up to 6000 mm. (upon request)

Slitting to narrow coils and cutting to sheets are available upon request.

Mechanical Properties

Steelgrade	Thickness (mm)	Standards	Coating	Yield strength $R_{p0,2}$ (MPa)	Tensile strength R_m (MPa)	Elongation A_{80} (min %)	n_5 (min)	$n_{10\text{-}20/\,Ag}$ (min)	BH_2 (min MPa)	Min. inner bending radius for 90 °
Docol CR 420Y780T -DP	0.5- 0.7	-	UC	420- 550	780- 950	13	0.15	-	-	1.0xt
Docol CR 420Y780T -DP	0.71- 2.1	-	UC	420- 550	780- 950	15	0.15	-	-	1.0xt
Docol CR 440Y780T -DP	0.80- 2.00	VDA 239-100:2016	UC	440- 550	780- 900	14	-	-	-	1.0xt
Docol CR 440Y780T -DP	0.8- 2.0	VDA 239-100:2016	GI, GA, ZA	440- 550	780- 900	14	0.15	0.11	30	1.8xt [1)]
Docol CR 450Y780T -DP	0.80- 2.0	-	UC	450- 550	780- 900	15	-	-	-	1.0xt

The mechanical properties are tested longitudinal to the rolling direction.

1) The value apply to steel when bending angle is 90°. 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.

Chemical Composition

Steel-grade	Product Type	C (max %)	Si (max %)	Mn (max %)	P (max %)	S (max %)	Al (%)	Nb+Ti (max %)	Cr+Mo (max %)	B (max %)	Cu (max %)
Docol CR420Y 780T-DP	Uncoated	0.16	0.40	1.80	0.020	0.010	0.015-	-	-	0.005	0.20
Docol CR440Y 780T-DP	Uncoated	0.16	0.40	1.80	0.020	0.010	0.015-1.00	0.10	1.40	0.005	0.20
Docol CR440Y 780T-DP	Metal coated	0.18	0.80	2.50	0.050	0.010	0.015-1.00	0.15	1.40	0.005	0.20
Docol CR450Y 780T-DP	Uncoated	0.16	0.40	1.80	0.020	0.010	0.015-	0.10	-	-	-

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Tolerances

Cold-rolled (UC): Tolerances in accordance to EN10131.

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

Customized dimensional and shape tolerances are available on request.

Coatings and surface treatments

Coatings

The metal coatings 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 coated Docol products are given in the Mechanical properties table, coating column.

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

(1) For hot-dipped (GI, ZA, GA) hot rolled (HR) grades, the coating mass tolerance is increased to 30 g/m^2 by increasing the upper limit.

In addition to these coating masses, asymmetric coatings and OEM coating specifications are available upon request.

Surface treatments

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.

Surface coating	Available surface treatment
GI, ZA, GA	Chemically passivated (C)
GI, ZA, GA	Oiled (O)
GI, ZA, GA	Chemically passivated and oiled (CO)
GI, ZA, GA	Unprotected (U)
UC (Cold-rolled)	Oiled
UC (Cold-rolled)	Unprotected

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