E30 - Steels with galfan zinc-aluminium coating

The excellent corrosion resistance of this product makes it ideal for applications such as doors and garages, HVAC equipment, washing machine casings etc. One example is the structure for this greenhouse.

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Properties

Galfan is a flat carbon steel product coated on both sides with a zinc-aluminium alloy. The coating is composed of 95% zinc and 5% aluminium and is applied by means of a continuous hot dip galvanising process.
Galfan is available in a very wide range of steel grades: steels for cold forming and deep drawing applications, structural steels and High Strength Low Alloy steels.

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Advantages

Because of the nature and the particular structure of its coating, galfan is characterised by very good ductility and excellent forming performance. It is therefore recommended for parts requiring severe deep drawing.

The presence of aluminium in the coating makes the corrosion resistance of galfan significantly higher than that of standard hot dip galvanised steel of equivalent thickness. Galfan offers improved edge corrosion resistance.

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Applications

Galfan is used in numerous industrial applications, such as:

- Construction: structural or trim members, metallic ceilings, partitions and partition panels, doors, guttering, metallic door frames, swimming pools, road signs, greenhouses etc
- Domestic appliances: casings of washing machines, tumble dryers, refrigerators etc
- Miscellaneous: HVAC equipment, electrical cabinets, tanks, gas pumps, raceways, electric motor casings etc

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Recommendations for use

Storage

Galfan is supplied passivated and/or oiled to temporarily limit any risk of white rust formation. During transport and storage, all necessary precautions must be taken to keep the material dry and to prevent the formation of condensation. Improved rust prevention can be obtained by the application of Easyfilm® (please see data sheet E80 for the specific properties of Easyfilm®).

Forming and joining

The forming and joining techniques currently used for uncoated steel sheets are also suitable for galvanised steel. The coating thickness must therefore be compatible with both the desired degree of corrosion protection and the requirements of the forming and welding processes envisaged.
Forming performance will be improved if galfan is coated with an Easyfilm® thin organic coating.

Painting

The organic paintability of galfan is very good both before forming (coil coating) and after forming (post-coating). Degreasing and a suitable surface treatment are necessary before painting when the material is supplied oiled. Galfan supplied with an Easyfilm® thin organic coating can be painted directly without any surface treatment. However, the paint used must be compatible with the Easyfilm® resin.

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Weldability

In electrical resistance welding, the welding current must be suitably regulated and regularly adjusted. Electrode life can be extended by regularly stepping up the welding current and periodically dressing (machining) the electrodes.

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Coating weight and typical thickness

Galfan	Coating weight - double sided (g/m²)	Coating thickness (µm per side)
ZA95	95	7.0
ZA130	130	10.0
ZA185	185	14.0
ZA200	200	15.0
ZA255	255	20
ZA300	300	23.0

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Brand correspondence

Steels for cold forming and deep drawing applications

	EN 10214:1995	NFA 36-323	ASTM A875	JIS 3317	EN 10346:2009	EN 10346:2015	EN 10327:2004	EN 10326:2004	NFA 36-324	EN 10292:2007	Old brand names
DX51D +ZA EN 10346	DX51D+ZA	FC	CS	SZ AC C	DX51D+ZA	DX51D+ZA	DX51D+ZA				DC51D+ZA
DX52D +ZA EN 10346	DX52D+ZA	FE	FS	SZ AC D1	DX52D+ZA	DX52D+ZA	DX52D+ZA				DC52D+ZA/Solstamp® 03
DX53D +ZA EN 10346	DX53D+ZA	FES	DDS	SZ AC D2	DX53D+ZA	DX53D+ZA	DX53D+ZA				
DX54D +ZA EN 10346	DX54D+ZA	FEX	EDDS	SZ AC D3	DX54D+ZA	DX54D+ZA	DX54D+ZA				Solstamp® 04
DX56D +ZA EN 10346					DX56D+ZA	DX56D+ZA	DX56D+ZA				Solstamp® 05

Structural steels

	EN 10214:1995	NFA 36-323	ASTM A875	JIS 3317	EN 10346:2009	EN 10346:2015	EN 10327:2004	EN 10326:2004	NFA 36-324	EN 10292:2007	Old brand names
S220GD +ZA EN 10346	S220GD+ZA		SS Grade 33		S220GD+ZA	S220GD+ZA		S220GD+ZA	C220		SC220GD+ZA
S250GD +ZA EN 10346	S250GD+ZA		SS Grade 37	SZ AC 340	S250GD+ZA	S250GD+ZA		S250GD+ZA	C250		SC250GD+ZA
S280GD +ZA EN 10346	S280GD+ZA		SS Grade 40	SZ AC 400	S280GD+ZA	S280GD+ZA		S280GD+ZA	C280		SC280GD+ZA
S320GD +ZA EN 10346	S320GD+ZA			SZ AC 440	S320GD+ZA	S320GD+ZA		S320GD+ZA	C320		
S350GD +ZA EN 10346	S350GD+ZA		SS Grade 50	SZ AC 490	S350GD+ZA	S350GD+ZA		S350GD+ZA	C350		
S550GD +ZA EN 10346			SS Grade 80		S550GD+ZA	S550GD+ZA		S550GD+ZA			

High strength interstitial free steels

	EN 10214:1995	NFA 36-323	ASTM A875	JIS 3317	EN 10346:2009	EN 10346:2015	EN 10327:2004	EN 10326:2004	NFA 36-324	EN 10292:2007	Old brand names
HX220YD +ZA EN 10346					HX220YD+ZA	HX220YD+ZA				HX220YD+ZA	

High Strength Low Alloy steels

	EN 10214:1995	NFA 36-323	ASTM A875	JIS 3317	EN 10346:2009	EN 10346:2015	EN 10327:2004	EN 10326:2004	NFA 36-324	EN 10292:2007	Old brand names
HX260LAD +ZA EN 10346					HX260LAD+ZA	HX260LAD+ZA				HX260LAD+ZA	
HX300LAD +ZA EN 10346					HX300LAD+ZA	HX300LAD+ZA				HX300LAD+ZA	
HX340LAD +ZA EN 10346			Grade 50		HX340LAD+ZA	HX340LAD+ZA				HX340LAD+ZA	
HX380LAD +ZA EN 10346					HX380LAD+ZA	HX380LAD+ZA				HX380LAD+ZA	
HX420LAD +ZA EN 10346			Grade 60		HX420LAD+ZA	HX420LAD+ZA				HX420LAD+ZA	

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Dimensions

Steels for cold forming and deep drawing applications

Thickness (mm)	Min width	DX51D +ZA EN 10346, DX52D +ZA EN 10346	DX53D +ZA EN 10346, DX54D +ZA EN 10346, DX56D +ZA EN 10346
		Max width	Max width
0.30 ≤ th < 0.40	800	1300	-
0.40 ≤ th < 0.60			1170
0.60 ≤ th < 1.00		1500	1500
1.00 ≤ th < 1.50			
1.50 ≤ th < 2.00		1525	1450
2.00 ≤ th < 2.50		1400	1400
2.50 ≤ th < 3.00		1200	1100

Structural steels

Thickness (mm)	Min width	S220GD +ZA EN 10346, S250GD +ZA EN 10346	S280GD +ZA EN 10346	S320GD +ZA EN 10346	S350GD +ZA EN 10346	S550GD +ZA EN 10346
		Max width	Max width	Max width	Max width	Max width
0.30 ≤ th < 0.32	800	1280	1230	-	1225	-
0.32 ≤ th < 0.55		1305	1305	1250	1250	
0.55 ≤ th < 0.60			1400	1305	1305	
0.60 ≤ th < 0.80		1500	1500			
0.80 ≤ th < 1.00				1500	1500	
1.00 ≤ th < 1.40		1525	1450		1410	
1.40 ≤ th < 1.80					1305	
1.80 ≤ th < 2.00				1410	1260	
2.00 ≤ th < 2.50		1400	1280	1000	-	
2.50 ≤ th < 3.00		1200	-	-		

S550GD +ZA EN 10346: For the dimensions available, please contact us.

High strength interstitial free steels

Thickness (mm)	Min width	HX220YD +ZA EN 10346
		Max width
0.50 ≤ th < 0.80	800	1200
0.80 ≤ th < 1.00		1475
1.00 ≤ th < 1.50		1410
1.50 ≤ th < 1.60		1400

High Strength Low Alloy steels

Thickness (mm)	Min width	HX260LAD +ZA EN 10346	HX300LAD +ZA EN 10346	HX340LAD +ZA EN 10346	HX380LAD +ZA EN 10346	HX420LAD +ZA EN 10346
		Max width	Max width	Max width	Max width	Max width
0.30 ≤ th < 0.32	800	1280	1230	1210	-	-
0.32 ≤ th < 0.35		1305	1260	1260		1060
0.35 ≤ th < 0.70			1305	1305	1305	1200
0.70 ≤ th < 0.80		1415				1305
0.80 ≤ th < 1.00		1525	1500	1500	1500	1500
1.00 ≤ th < 1.40					1410	1410
1.40 ≤ th < 1.80					1305	1305
1.80 ≤ th < 2.00		1500	1410	1410	1260	1260
2.00 ≤ th < 2.15		-	1305	1305	-	-
2.15 ≤ th < 2.30			1220	1220		
2.30 ≤ th < 2.50			1000	1000		

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Mechanical properties

Steels for cold forming and deep drawing applications

	Notes	Direction	Thickness (mm)	R_e (MPa)	R_m (MPa)	A_{80} (%)	r_{90}	n_{90}
DX51D +ZA EN 10346		T	0.2 - 0.35	-	270 - 500	≥ 15	-	-
			0.35 - 0.5			≥ 18		
			0.5 - 0.7			≥ 20		
			0.7 - 3			≥ 22		
DX52D +ZA EN 10346	1	T	0.2 - 0.35	140 - 300	270 - 420	≥ 19	-	-
			0.35 - 0.5			≥ 22		
			0.5 - 0.7			≥ 24		
			0.7 - 3			≥ 26		
DX53D +ZA EN 10346		T	0.3 - 0.5	140 - 260	270 - 380	≥ 26	-	-
			0.5 - 0.7			≥ 28		
			0.7 - 3			≥ 30		
DX54D +ZA EN 10346		T	0.3 - 0.5	120 - 220	260 - 350	≥ 32	≥ 1.6	≥ 0.180
			0.5 - 0.7			≥ 34		
			0.7 - 1.5			≥ 36		
			1.5 - 2				≥ 1.4	
			2 - 3				≥ 1.2	
DX56D +ZA EN 10346		T	0.3 - 0.5	120 - 180	260 - 350	≥ 35	≥ 1.9	≥ 0.210
			0.5 - 0.7			≥ 37		
			0.7 - 1.5			≥ 39		
			1.5 - 2				≥ 1.7	
			2 - 3				≥ 1.5	

1. For DX52D +ZA EN 10346 the R_e-value only applies to skin-passed products (surface qualities B and C).

Structural steels

	Direction	Thickness (mm)	R_e (MPa)	R_m (MPa)	A_{80} (%)
S220GD +ZA EN 10346	L	0.2 - 0.35	≥ 220	≥ 300	≥ 13
		0.35 - 0.5			≥ 16
		0.5 - 0.7			≥ 18
		0.7 - 3			≥ 20
S250GD +ZA EN 10346	L	0.2 - 0.35	≥ 250	≥ 330	≥ 12
		0.35 - 0.5			≥ 15
		0.5 - 0.7			≥ 17
		0.7 - 3			≥ 19
S280GD +ZA EN 10346	L	0.2 - 0.35	≥ 280	≥ 360	≥ 11
		0.35 - 0.5			≥ 14
		0.5 - 0.7			≥ 16
		0.7 - 3			≥ 18
S320GD +ZA EN 10346	L	0.3 - 0.5	≥ 320	≥ 390	≥ 13
		0.5 - 0.7			≥ 15
		0.7 - 3			≥ 17
S350GD +ZA EN 10346	L	0.3 - 0.5	≥ 350	≥ 420	≥ 12
		0.5 - 0.7			≥ 14
		0.7 - 3			≥ 16
S550GD +ZA EN 10346	L	0.2 - 3	≥ 550	≥ 560	-

High strength interstitial free steels

	Direction	Thickness (mm)	R_e (MPa)	R_m (MPa)	A_{80} (%)	r_{90}	n_{90}
HX220YD +ZA EN 10346	T	0.3 - 0.5	220 - 280	340 - 420	≥ 28	≥ 1.1	≥ 0.140
		0.5 - 0.7			≥ 30	≥ 1.3	≥ 0.160
		0.7 - 3			≥ 32	≥ 1.5	≥ 0.170

High Strength Low Alloy steels

	Direction	Thickness (mm)	R_e (MPa)	R_m (MPa)	A_{80} (%)
HX260LAD +ZA EN 10346	T	0.2 - 0.35	260 - 330	350 - 430	≥ 19
		0.35 - 0.5			≥ 22
		0.5 - 0.7			≥ 24
		0.7 - 3			≥ 26
HX300LAD +ZA EN 10346	T	0.2 - 0.35	300 - 380	380 - 480	≥ 16
		0.35 - 0.5			≥ 19
		0.5 - 0.7			≥ 21
		0.7 - 3			≥ 23
HX340LAD +ZA EN 10346	T	0.3 - 0.5	340 - 420	410 - 510	≥ 17
		0.5 - 0.7			≥ 19
		0.7 - 3			≥ 21
HX380LAD +ZA EN 10346	T	0.3 - 0.5	380 - 480	440 - 560	≥ 15
		0.5 - 0.7			≥ 17
		0.7 - 3			≥ 19
HX420LAD +ZA EN 10346	T	0.3 - 0.5	420 - 520	470 - 590	≥ 13
		0.5 - 0.7			≥ 15
		0.7 - 3			≥ 17

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Chemical composition

Steels for cold forming and deep drawing applications

	C (%)	Mn (%)	P (%)	S (%)	Si (%)	Ti (%)
DX51D +ZA EN 10346	≤ 0.180	≤ 1.20	≤ 0.120	≤ 0.045	≤ 0.50	≤ 0.300
DX52D +ZA EN 10346	≤ 0.120	≤ 0.60	≤ 0.100	≤ 0.045	≤ 0.50	≤ 0.300
DX53D +ZA EN 10346	≤ 0.120	≤ 0.60	≤ 0.100	≤ 0.045	≤ 0.50	≤ 0.300
DX54D +ZA EN 10346	≤ 0.120	≤ 0.60	≤ 0.100	≤ 0.045	≤ 0.50	≤ 0.300
DX56D +ZA EN 10346	≤ 0.120	≤ 0.60	≤ 0.100	≤ 0.045	≤ 0.50	≤ 0.300

Structural steels

	C (%)	Mn (%)	P (%)	S (%)	Si (%)
S220GD +ZA EN 10346	≤ 0.200	≤ 1.70	≤ 0.100	≤ 0.045	≤ 0.60
S250GD +ZA EN 10346	≤ 0.200	≤ 1.70	≤ 0.100	≤ 0.045	≤ 0.60
S280GD +ZA EN 10346	≤ 0.200	≤ 1.70	≤ 0.100	≤ 0.045	≤ 0.60
S320GD +ZA EN 10346	≤ 0.200	≤ 1.70	≤ 0.100	≤ 0.045	≤ 0.60
S350GD +ZA EN 10346	≤ 0.200	≤ 1.70	≤ 0.100	≤ 0.045	≤ 0.60
S550GD +ZA EN 10346	≤ 0.200	≤ 1.70	≤ 0.100	≤ 0.045	≤ 0.60

High strength interstitial free steels

	C (%)	Mn (%)	P (%)	S (%)	Si (%)	Al (%)	Nb (%)	Ti (%)
HX220YD +ZA EN 10346	≤ 0.010	≤ 0.90	≤ 0.080	≤ 0.025	≤ 0.30	≥ 0.100	≤ 0.090	≤ 0.120

High Strength Low Alloy steels

	C (%)	Mn (%)	P (%)	S (%)	Si (%)	Al (%)	Nb (%)	Ti (%)
HX260LAD +ZA EN 10346	≤ 0.110	≤ 1.00	≤ 0.030	≤ 0.025	≤ 0.50	≥ 0.015	≤ 0.090	≤ 0.150
HX300LAD +ZA EN 10346	≤ 0.120	≤ 1.40	≤ 0.030	≤ 0.025	≤ 0.50	≥ 0.015	≤ 0.090	≤ 0.150
HX340LAD +ZA EN 10346	≤ 0.120	≤ 1.40	≤ 0.030	≤ 0.025	≤ 0.50	≥ 0.015	≤ 0.100	≤ 0.150
HX380LAD +ZA EN 10346	≤ 0.120	≤ 1.50	≤ 0.030	≤ 0.025	≤ 0.50	≥ 0.015	≤ 0.100	≤ 0.150
HX420LAD +ZA EN 10346	≤ 0.120	≤ 1.60	≤ 0.030	≤ 0.025	≤ 0.50	≥ 0.015	≤ 0.100	≤ 0.150

Any questions?
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