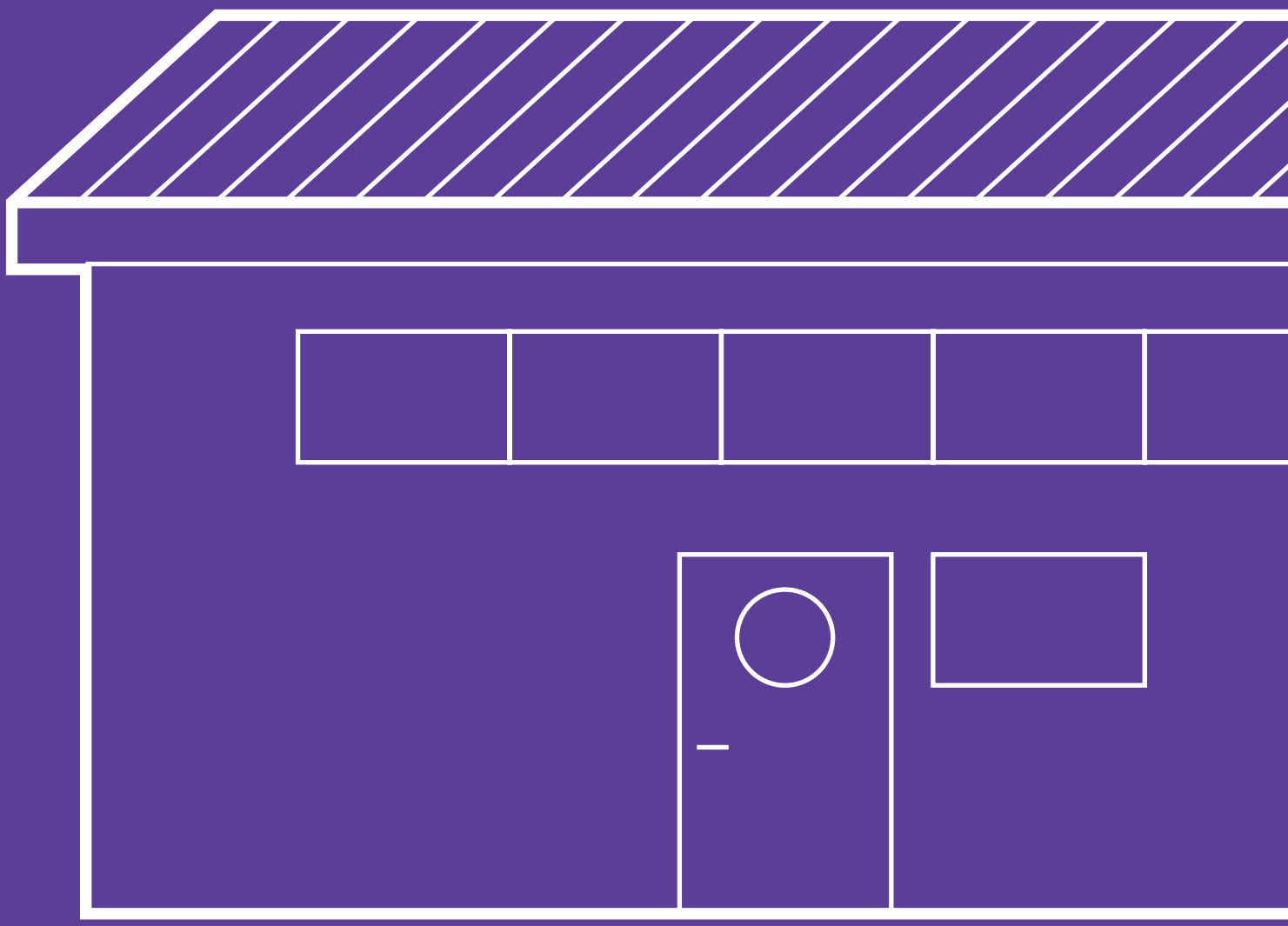
Hot-dip galvanised products



Hot-dip galvanised products

Corus manufactures Galvatite with either a pure zinc coating or an iron-zinc alloy coating, offering corrosion resistance and a variety of characteristics for fabrication and performance.

General

The hot-dip galvanised strip steel products offered in this section are listed below.

Grades

This section of the catalogue shows the standard grades of hot-dip galvanised steels offered by Corus.

Typical applications

- automotive components and body panels
- steel framing
- roof and wall cladding (when painted or pre-finished)
- components for building and construction
- rainwater goods (when painted/coated)
- tubes and sections
- engineering components
- domestic appliances
- electrical goods
- components for agricultural machinery

Zinc and iron-zinc coatings

Galvatite is available in the coating finishes shown in table 1 and with the coating masses shown in table 2, both on page 51.

Coating masses up to and including 600g/m^2 are available in the finish and quality designations NA and MA. Consult Corus about your requirements.

Overall thickness and width limits

The overall thickness and width limits for Galvatite are shown in table 3 on page 52. The limits for specific Galvatite products are shown under the individual headings for each product.

Coil diameters

The coil diameters that apply to Galvatite coils are shown in table 4 on page 52.

Coil weights

The maximum weight of Galvatite coils offered by Corus is determined by three factors:

- Manufacturing limit: Maximum 21kg/mm of width up to 34 tonnes
- Maximum safe outside diameter of coil (mm): 10/7 x coil width (limit of 2500mm)
- Maximum weight allowed by road/rail transport

Corus will discuss these factors with the customer to ensure compatibility with the quantity ordered.

Particular products may have maximum coil weights that differ from the range as a whole (see individual product sections).

If a minimum coil weight has not been specified by the customer and agreed with Corus, then it will be 50% of the agreed maximum weight.

Tolerances on dimensions and shape

Thickness

The thickness tolerances shown on page 52 are from EN 10143 : 1993. Table 5 shows the thickness tolerances (including coating) for steel grades with a minimum yield strength <280N/mm^2. Table 6 is for structural steel grades with a minimum yield strength ≥280N/mm^2.

For the zinc coatings Z450 and Z600, the tolerances on thickness shown in the tables should be increased by 0.02mm.

Coil width

The coil width tolerances in table 7 on page 53 are from EN 10143 :1993.

Flatness

Flatness complies with EN 10143 : 1993. Table 8 on page 53 shows the flatness tolerances for steel grades with R_{eL}<280N/mm^2. Table 9 on page 53 shows the flatness tolerances for steel grades with R_{eL}≥280N/mm^2 and <360N/mm^2.

Edge camber

The deviation over a length of 2 metres will not exceed 6mm.

Table 1: Coating finish

Coating finish	Type	Description
NA	Zinc (Z)	Normal spangle, as coated surface
MA	Zinc (Z)	Minimised spangle, as coated surface
MB	Zinc (Z)	Minimised spangle improved surface
MC	Zinc (Z)	Minimised spangle best quality surface
RA	Iron-zinc (ZF)	Regular, as coated surface
RB	Iron-zinc (ZF)	Regular improved surface
RC	Iron-zinc (ZF)	Regular best quality surface

Table 2: Coating mass

Coating designation	Coating mass (g/m^2)	
	Min	Max
Z	30	600
ZF	30	140

Note: Coating mass shown in the table includes both surfaces.

Table 3: Thickness and width limits

Thickness		Width	
Min	Max	Min	Max
0.35	2.50	900	1850

Note: Dimensions are in millimetres.

Table 4: Diameter of Galvatite coil

Inside diameter	610mm standard, 508mm on request
Outside diameter	Max 10/7 x width (limit 2500mm)

Table 5: Thickness tolerances: EN 10143 : 1993 : R_{eL}<280N/mm²

Nominal thickness		Normal tolerances for a nominal width of			Special tolerances (S) for a nominal width of		
		≤1200	>1200 ≤1500	>1500	≤1200	>1200 ≤1500	>1500
>	≤	±	±	±	±	±	±
0.35	0.40	0.05	0.06	–	0.03	0.04	–
0.40	0.60	0.06	0.07	0.08	0.04	0.05	0.06
0.60	0.80	0.07	0.08	0.09	0.05	0.06	0.06
0.80	1.00	0.08	0.09	0.10	0.06	0.07	0.07
1.00	1.20	0.09	0.10	0.11	0.07	0.08	0.08
1.20	1.60	0.11	0.12	0.12	0.08	0.09	0.09
1.60	2.00	0.13	0.14	0.14	0.09	0.10	0.10
2.00	2.50	0.15	0.16	0.16	0.11	0.12	0.12

Note: Dimensions are in millimetres.

Table 6: Thickness tolerances: EN 10143 : 1993 : R_{eL}≥280N/mm²

Nominal thickness		Normal tolerances for a nominal width of			Special tolerances (S) for a nominal width of		
		≤1200	>1200 ≤1500	>1500	≤1200	>1200 ≤1500	>1500
>	≤	±	±	±	±	±	±
0.35	0.40	0.06	0.07	–	0.04	0.05	–
0.40	0.60	0.07	0.08	0.09	0.05	0.06	0.07
0.60	0.80	0.08	0.09	0.11	0.06	0.07	0.07
0.80	1.00	0.09	0.11	0.12	0.07	0.08	0.08
1.00	1.20	0.11	0.12	0.13	0.08	0.09	0.09
1.20	1.60	0.13	0.14	0.14	0.09	0.11	0.11
1.60	2.00	0.15	0.15	0.17	0.11	0.12	0.12
2.00	2.50	0.18	0.18	0.19	0.13	0.14	0.14

Note: Dimensions are in millimetres.

Table 7: Tolerances on coil width: EN 10143 : 1993

Nominal width		Normal tolerances		Special tolerances (S)	
		lower –	upper +	lower –	upper +
≥900	≤1200	0	5	0	2
>1200	≤1500	0	6	0	2
>1500	≤1850	0	7	0	3

Note: Dimensions are in millimetres.

Table 8: Flatness tolerances R_{eL}<280N/mm²

EN 10143 : 1993

Tolerance class	Nominal width		Nominal thickness		
			<0.7	≥0.7<1.2	≥1.2
Normal	≥900	<1200	12	10	8
	≥1200	<1500	15	12	10
	≥1500	–	19	17	15
Special (FS)	≥900	<1200	5	4	3
	≥1200	<1500	6	5	4
	≥1500	–	8	7	6

Notes:

1. The tolerances in this table represent maximum deviation from flatness.
2. Dimensions are in millimetres.

Table 9: Flatness tolerances R_{eL}≥280N/mm² <360N/mm²

EN 10143 : 1993

Tolerance class	Nominal width		Nominal thickness		
			< 0.7	≥0.7<1.2	≥1.2
Normal	≥900	<1200	15	13	10
	≥1200	<1500	18	15	13
	≥1500	–	22	20	19
Special (FS)	≥900	<1200	8	6	5
	≥1200	<1500	9	8	6
	≥1500	–	12	10	9

Notes:

1. The tolerances in this table represent maximum deviation from flatness.
2. Dimensions are in millimetres.

Surface

Surface quality

Galvatite is available in surface quality A, B or C to EN 10142 : 2000 and EN 10147 : 2000.

Surface quality A: As coated surface
Imperfections such as small pits, differences in spangle size, dark spots, stripes and light passivation from the chemical treatment are permissible.

Surface quality B: Improved surface
This surface quality is obtained by temper rolling. To a small extent, imperfections are permissible, such as stretch-levelling breaks, skin-pass marks, scratches, indentations, spangle structure, zinc run-off marks and light passivation from chemical treatment. The surface has no pits.

Surface quality C: Best quality surface
This surface quality is obtained by temper rolling. The better side is suitable for the uniform appearance of a high-quality paint finish. The other side must at least conform to surface quality B.

Inspected side
As a rule, the upper side of the strip is inspected; on request, the strip can be turned over so that the underside is the inspected side.

Surface texture

All Galvatite products except those with a normal spangle (NA) finish are available in several surface textures. Unless the customer specifies otherwise, Corus will supply a matt surface texture.

Table 10 below shows the range of surface textures available from Corus.

Surface treatment

Galvatite is available oiled, chemically passivated, or both.

Oiling (O)
The material surface can be oiled with preservative oil. Other kinds of oil may be available, depending upon your requirement.

Table 11 below shows the levels of oiling available. If no particular level of oiling is specified by the customer, a normal level will be applied.

Chemical passivation (C)
Chemical passivation protects against the effects of humidity and thereby reduces the risk of white rust formation during shipment and storage.

Chemical passivation and oiling (CO)
This combination of surface treatments increases the degree of protection against white rust.

Untreated (U)
Corus does not recommend that Galvatite be ordered in the untreated condition owing to the risk of white rust formation during shipment and storage. However, if untreated material is specified, it is supplied on the condition that the purchaser is responsible for any corrosion arising from material ordered in the untreated condition.

Table 10: Roughness

	R_a(µm) cut off 2.5mm	R_a(µm) cut off 0.8mm
Matt	0.9-1.5	0.75-1.25
Middle rough	1.2-1.8	1.00-1.55

Table 11: Levels of oiling

Level of oiling	Approximately g/m²/side
Extra light	0.25
Light	0.5
Normal	1.0

Galvatite for cold forming

Galvatite for cold forming offers a range that extends from bending and profiling qualities to extra deep drawing qualities.

Typical applications

- automotive components and body panels
- tubes
- domestic appliances
- steel furniture
- electrical goods
- domestic heating
- drums
- building components
- components for agricultural machinery

Standards

Galvatite for cold forming complies with European standard EN 10142 : 2000 shown in table 12 below. Former national standards and nearest related grades are also shown in the table.

Mechanical Properties

The values shown for the mechanical properties in table 13 below are for test pieces taken transverse to the rolling direction.

Table 12: Standards

European	National		
EN 10142 : 2000	**UK**	**France**	**Germany**
Grade	BS2989	AFNOR 36-321	DIN17162
DX51D+Z/+ZF	Z1-Z2	GC	ST02Z
DX52D+Z/+ZF	Z3	GE	ST03Z
DX53D+Z/+ZF	Z5	GES	ST05Z
DX54D+Z/+ZF	–	–	ST06Z
DX56D+Z/+ZF	–	–	–

Table 13: Mechanical properties : EN 10142 : 2000

	R_{eL}[1] (N/mm²)	R_m (N/mm²)	A_{80}[2] (%)	r_{90}	n_{90}
Grade	Min-Max	Min-Max	Min	Min	Min
DX51D+Z/+ZF	–	270-500	22	–	–
DX52D+Z/+ZF	140-300	270-420	26	–	–
DX53D+Z/+ZF	140-260	270-380	30	–	–
DX54D+Z	140-220	270-350	36	1.6	0.18
DX54D+ZF	140-220	270-350	34	1.4	0.18
DX56D+Z[3]	120-180	270-350	39	1.9	0.21
DX56D+ZF[3,4]	120-180	270-350	37	1.7	0.20

Notes:

1. This range of values applies to skin-passed products only.
2. For thicknesses less than or equal to 0.7mm (including coating), the minimum elongation after fracture is decreased by 2 units.
3. For thicknesses greater than 1.5mm, the r_{90} value is decreased by 0.2 units.
4. For thicknesses less than or equal to 0.7mm (including coating), the r_{90} value is decreased by 0.2 units and the n_{90} value is decreased by 0.01 units.

Chemical composition

Galvatite for cold forming meets the requirements of the cast analysis shown in table 14 below.

Dimensions

The width and thickness limits are shown in tables 15-29 on this and the following pages.

The minimum width is 900mm. Widths below this may be available after consultation.

Table 14: Chemical composition: EN 10142 : 2000

Grade	C	Mn	P	S	Al	N	Ti
	Max	Max	Max	Max	Min	Max	Max
DX51D+Z/+ZF	0.100	0.600	0.030	0.035	0.025	0.010	0.005
DX52D+Z/+ZF	0.070	0.300	0.030	0.035	0.025	0.005	0.005
DX53D+Z/+ZF	0.030	0.300	0.030	0.035	0.020	0.006	0.125
DX54D+Z/+ZF	0.010	0.300	0.030	0.035	0.020	0.006	0.125
DX56D+Z/+ZF	0.005	0.200	0.020	0.020	0.020	0.005	0.085

Note: Values are in weight percentages.

Table 15: Dimensions: EN 10142 : 2000

Z100, Z140: Coating finish NA

Thickness		Width		
		Max		
>	≤	DX51D	DX52D	DX53D-56D
0.43	0.49	1420	1420	–
0.49	0.62	1420	1420	1250
0.62	0.63	1420	1420	1350
0.63	0.70	1520	1520	1350
0.70	1.00	1520	1520	1380
1.00	1.25	1520	1520	1250
1.25	2.00	1520	1520	–
2.00	2.20	1375	1370	–
2.20	2.50	1375	1220	–

Note: Dimensions are in millimetres.

Table 16: Dimensions: EN 10142 : 2000

Z100, Z140: Coating finish MA

Thickness		Width		
		Max		
>	≤	DX51D	DX52D	DX53D-56D
0.35	0.38	1270	–	–
0.38	0.40	1370	970	1200
0.40	0.43	1370	1220	1250
0.43	0.48	1520	1220	1250
0.48	0.61	1520	1520	1350
0.61	0.63	1525	1525	1350
0.63	0.66	1550	1525	1550
0.66	0.68	1650	1650	1550
0.68	0.70	1650	1650	1650
0.70	0.78	1780	1780	1750
0.78	0.80	1790	1790	1850
0.80	1.32	1820	1820	1850
1.32	1.40	1770	1770	1810
1.40	1.50	1700	1700	1730
1.50	1.60	1620	1620	1650
1.60	2.00	1470	1470	–
2.00	2.20	1375	1370	–
2.20	2.50	1375	1220	–

Note: Dimensions are in millimetres.

Table 17: Dimensions: EN 10142 : 2000

Z100, Z140: Coating finish MB

Thickness		Width		
		Max		
>	≤	DX51D	DX52D	DX53D-56D
0.50	0.55	1375	1400	1400
0.55	0.61	1520	1520	1400
0.61	0.66	1525	1600	1600
0.66	0.70	1650	1650	1600
0.70	0.79	1700	1750	1750
0.79	1.50	1800	1800	1800
1.50	1.61	1750	1750	1750
1.61	1.71	1650	1650	1650
1.71	1.81	1550	1550	1550
1.81	1.91	1450	1450	1450
1.91	2.00	1400	1400	1400

Note: Dimensions are in millimetres.

Table 18: Dimensions: EN 10142 : 2000

Z100, Z140: Coating finish MC

Thickness		Width		
		Max		
>	≤	DX51D	DX52D	DX53D-56D
0.50	0.55	1350	1350	1400
0.55	0.60	1520	1520	1400
0.60	0.61	1520	1600	1600
0.61	0.66	1525	1600	1600
0.66	0.70	1650	1650	1600
0.70	0.79	1700	1750	1750
0.79	1.00	1800	1800	1800
1.00	1.20	1800	1650	1550
1.20	1.25	1650	1650	1550
1.25	2.00	1375	1375	–

Note: Dimensions are in millimetres.

Table 19: Dimensions: EN 10142 : 2000

Z200, Z225, Z275: Coating finish NA

Thickness		Width		
		Max		
>	≤	DX51D	DX52D	DX53D-56D
0.43	0.49	1420	1420	–
0.49	0.62	1420	1420	1250
0.62	0.63	1420	1420	1350
0.63	0.70	1520	1520	1350
0.70	1.00	1520	1520	1380
1.00	1.25	1520	1520	1250
1.25	2.00	1520	1520	–
2.00	2.20	1375	1370	–
2.20	2.50	1375	1220	–

Note: Dimensions are in millimetres.

Table 20: Dimensions: EN 10142 : 2000

Z200, Z225, Z275: Coating finish MA

Thickness		Width		
		Max		
>	≤	DX51D	DX52D	DX53D-56D
0.40	0.50	1375	1375	–
0.50	0.55	1375	1375	1250
0.55	0.61	1520	1520	1250
0.61	0.62	1525	1525	1250
0.62	0.66	1525	1525	1350
0.66	0.70	1650	1650	1350
0.70	1.25	1650	1650	1550
1.25	2.00	1375	1375	–
2.00	2.50	1375	–	–

Note: Dimensions are in millimetres.

Table 21: Dimensions: EN 10142 : 2000

Z200, Z225, Z275: Coating finish MB

Thickness		Width		
		Max		
>	≤	DX51D	DX52D	DX53D-56D
0.40	0.50	1350	1350	–
0.50	0.55	1375	1400	1400
0.55	0.61	1520	1520	1400
0.61	0.66	1525	1600	1600
0.66	0.70	1650	1650	1600
0.70	0.79	1700	1750	1750
0.79	1.50	1800	1800	1800
1.50	1.61	1750	1750	1750
1.61	1.71	1650	1650	1650
1.71	1.81	1550	1550	1550
1.81	1.91	1450	1450	1450
1.91	2.00	1400	1400	1400

Note: Dimensions are in millimetres.

Table 22: Dimensions: EN 10142 : 2000

Z200, Z225, Z275: Coating finish MC

Thickness		Width		
		Max		
>	≤	DX51D	DX52D	DX53D-56D
0.40	0.50	1350	1350	–
0.50	0.55	1350	1400	1400
0.55	0.60	1520	1520	1400
0.60	0.61	1520	1600	1600
0.61	0.66	1525	1600	1600
0.66	0.70	1650	1650	1600
0.70	0.79	1700	1750	1750
0.79	1.00	1800	1800	1800
1.00	1.20	1800	1650	1550
1.20	1.25	1650	1650	1550
1.25	2.00	1375	1375	–

Note: Dimensions are in millimetres.

Table 23: Dimensions: EN 10142 : 2000

Z350: Coating finish NA

Thickness		Width	
		Max	
>	≤	DX51D	DX52D
0.43	0.63	1420	1420
0.63	2.00	1520	1520
2.00	2.20	1375	1370
2.20	2.50	1375	1220

Note: Dimensions are in millimetres.

Table 24: Dimensions: EN 10142 : 2000

Z350: Coating finish MA

Thickness		Width		
		Max		
>	≤	DX51D	DX52D	DX53D-56D
0.35	0.38	1270	–	–
0.38	0.40	1370	970	1200
0.40	0.43	1375	1220	1250
0.43	0.48	1520	1220	1250
0.48	0.61	1520	1520	1350
0.61	0.63	1525	1520	1350
0.63	0.66	1550	1550	1550
0.66	0.68	1650	1550	1550
0.68	0.70	1650	1605	1650
0.70	0.78	1780	1780	1750
0.78	0.80	1790	1790	1850
0.80	1.32	1820	1820	1850
1.32	1.40	1770	1770	1810
1.40	1.50	1700	1700	1730
1.50	1.60	1620	1620	1650
1.60	2.00	1520	1470	–
2.00	2.20	1375	1370	–
2.20	2.50	1375	1220	–

Note: Dimensions are in millimetres.

Table 25: Dimensions: EN 10142 : 2000

Z350: Coating finish MB

Thickness		Width
		Max
>	≤	DX51D
0.40	0.50	1350
0.50	0.69	1375
0.69	0.79	1700
0.79	1.51	1800
1.51	1.61	1750
1.61	1.71	1650
1.71	1.81	1550
1.81	1.91	1450
1.91	2.00	1400

Note: Dimensions are in millimetres.

Table 26: Dimensions: EN 10142 : 2000

Z450, Z600: Coating finish NA

Thickness		Width
		Max
>	≤	DX51D
0.40	2.50	1375

Notes: Dimensions are in millimetres.

Table 27: Dimensions: EN 10142 : 2000

ZF100, ZF120: Coating finish RA, RB

Thickness		Width			
		Max			
>	≤	DX51D	DX52D	DX53D	DX54D, DX56D
0.38	0.40	1270	970	970	–
0.40	0.43	1370	1070	1070	1170
0.43	0.48	1520	1220	1220	1220
0.48	0.53	1520	1520	1520	1220
0.53	0.58	1520	1520	1520	1335
0.58	0.63	1520	1620	1550	1450
0.63	0.66	1520	1620	1600	1600
0.66	0.69	1550	1620	1600	1600
0.69	0.70	1605	1605	1605	1605
0.70	0.78	1780	1780	1780	1780
0.78	0.80	1790	1790	1790	1790
0.80	1.35	1820	1820	1820	1820
1.35	1.40	1800	1770	1770	1770
1.40	1.50	1800	1750	1750	1750
1.50	1.60	1750	1750	1750	1750
1.60	1.71	1650	1470	1400	1400
1.71	1.80	1550	1470	1400	1400
1.80	1.91	1450	–	–	–
1.91	2.00	1400	–	–	–

Note: Dimensions are in millimetres.

Table 28: Dimensions: EN 10142 : 2000

ZF100, ZF120: Coating finish RC

Thickness		Width			
		Max			
>	≤	DX51D	DX52D	DX53D	DX54D, DX56D
0.38	0.40	1270	970	970	–
0.40	0.43	1370	1070	1070	1170
0.43	0.48	1520	1220	1220	1220
0.48	0.53	1520	1520	1520	1220
0.53	0.63	1520	1520	1520	1335
0.63	0.68	1520	1550	1550	1570
0.68	0.70	1605	1605	1605	1605
0.70	0.78	1780	1780	1780	1780
0.78	0.80	1790	1790	1790	1790
0.80	1.20	1820	1820	1820	1820

Note: Dimensions are in millimetres.

Table 29: Dimensions: EN 10142 : 2000

ZF140: Coating finish RA, RB

Thickness		Width	
		Max	
>	≤	DX51D	DX52D-56D
0.50	0.55	1200	–
0.55	0.62	1200	1450
0.62	0.66	1300	1600
0.66	0.70	1550	1600
0.70	0.79	1700	1750
0.79	1.50	1800	1750
1.50	1.60	1750	1750
1.60	1.71	1650	–
1.71	1.81	1550	–
1.81	1.91	1450	–
1.91	2.00	1400	–

Note: Dimensions are in millimetres.

Galvatite structural steel

Galvatite structural steel has guaranteed minimum strength.

Typical applications

- Roof decking
- Domestic appliances
- Steel furniture
- Building components

Standards

Galvatite structural steel complies with European standard EN 10147 : 2000 shown in table 30 below.

Former national standards and nearest related grades are also shown in the table.

Mechanical properties

The values shown for the mechanical properties in table 31 below are for test pieces taken in the rolling direction.

Chemical composition

Galvatite structural steel meets the requirements of the cast analysis shown in table 32 below.

Table 30: Standards

European	National			
EN 10147 : 2000	**UK**	**France**	**Germany**	**Italy**
Grade	BS 2982	NFA 36-322	DIN 17162-2	UNI 5753
S220GD+Z/+ZF	Z22	C 230	–	–
S250GD+Z/+ZF	Z25	C 250	St E250-2Z	FeE250G
S280GD+Z/+ZF	Z28	C 280	St E280-2Z	FeE280G
S320GD+Z/+ZF	–	C 320	St E320-3Z	FeE320G
S350GD+Z/+ZF	Z35	C 350	St E350-3Z	FeE350G
S550GD+Z/+ZF	Z55	C 550	–	FeE550G

Table 31: Mechanical properties: EN 10147 : 2000

	R_p (N/mm^2)	R_m (N/mm^2)	A_{80} (%)
Grade	Min	Min	Min
S220GD+Z/+ZF	220	300	20
S250GD+Z/+ZF	250	330	19
S280GD+Z/+ZF	280	360	18
S320GD+Z/+ZF	320	390	17
S350GD+Z/+ZF	350	420	16
S550GD+Z/+ZF	550	560	–

Note: For thicknesses less than or equal to 0.7mm (including coating), the minimum elongation after fracture is decreased by 2 units.

Table 32: Chemical composition: EN 10147 : 2000

Grade	C	Mn	P	S	Al	N
	Max	Max	Max	Max	Min	Max
S220GD+Z/+ZF	0.100	0.550	0.030	0.035	0.025	0.005
S250GD+Z/+ZF	0.110	0.600	0.030	0.020	0.025	0.005
S280GD+Z/+ZF	0.165	1.000	0.100	0.020	0.020	0.005
S320GD+Z/+ZF	0.165	1.000	0.100	0.020	0.020	0.005
S350GD+Z/+ZF	0.165	1.300	0.100	0.020	0.020	0.020
S550GD+Z/+ZF	0.200	1.500	0.100	0.035	0.020	0.020

Note: Values are in weight percentages.

Dimensions

The width and thickness limits are shown in tables 33-48 on this and the following pages.

The minimum width is 900mm. Widths below this may be available after consultation.

Table 33: Dimensions: EN 10147 : 2000

Z100, Z140: Coating finish NA

Thickness		Width			
		Max			
>	≤	S220GD S250GD	S280GD S320GD	S350GD	S550GD
0.40	0.43	–	–	–	1070
0.43	0.45	1420	1420	–	1070
0.45	0.60	1420	1420	1400	1220
0.60	1.00	1520	1520	1520	1220
1.00	2.00	1520	1520	1520	–
2.00	2.50	1375	1375	1375	–

Note: Dimensions are in millimetres.

Table 34: Dimensions: EN 10147 : 2000

Z100, Z140: Coating finish MA

Thickness		Width		
		Max		
>	≤	S220GD S250GD	S280GD S320GD	S350GD
0.38	0.43	1420	1420	–
0.43	0.45	1520	1520	–
0.45	0.55	1520	1520	1400
0.55	0.61	1520	1520	1520
0.61	0.66	1525	1525	1525
0.66	1.25	1650	1650	1650
1.25	1.40	1620	1620	1520
1.40	1.60	1570	1570	1520
1.60	2.00	1520	1520	1520
2.00	2.50	1375	1375	1375

Note: Dimensions are in millimetres.

Table 35: Dimensions: EN 10147 : 2000

Z100, Z140: Coating finish MB

Thickness		Width		
		Max		
>	≤	S220GD S250GD	S280GD S320GD	S350GD
0.38	0.43	1420	1420	–
0.43	0.45	1520	1520	–
0.50	0.55	1520	1520	1375
0.55	0.61	1520	1520	1520
0.61	0.66	1525	1525	1525
0.66	0.74	1650	1650	1650
0.74	0.79	1780	1650	1650
0.79	1.25	1820	1650	1650
1.25	1.40	1820	1620	1620
1.40	1.51	1820	1570	1570
1.51	1.60	1750	1570	1570
1.60	1.61	1750	1520	1520
1.61	1.71	1640	1520	1520
1.71	1.81	1550	1520	1520
1.81	1.91	1470	1520	1520
1.91	2.00	1400	1520	1520
2.00	2.50	1375	1375	1375

Note: Dimensions are in millimetres.

Table 36: Dimensions: EN 10147 : 2000

Z100, Z140: Coating finish MC

Thickness		Width		
		Max		
>	≤	S220GD S250GD	S280GD S320GD	S350GD
0.38	0.43	1420	1420	–
0.43	0.50	1520	1520	–
0.50	0.55	1520	1520	1350
0.55	0.61	1520	1520	1520
0.61	0.66	1525	1525	1525
0.66	0.70	1650	1650	1650
0.70	0.79	1700	1650	1650
0.79	1.20	1800	1650	1650
1.20	1.40	1620	1620	1620
1.40	1.60	1570	1570	1570
1.60	2.00	1520	1520	1520
2.00	2.20	1370	1370	1370
2.20	2.50	1220	1220	1220

Note: Dimensions are in millimetres.

Table 37: Dimensions: EN 10147 : 2000

Z200, Z225, Z275: Coating finish NA

Thickness		Width			
		Max			
>	≤	S220GD S250GD	S280GD S320GD	S350GD	S550GD
0.40	0.43	1375	1375	1375	1070
0.43	0.45	1420	1420	1375	1070
0.45	0.60	1420	1420	1400	1220
0.60	1.00	1520	1520	1520	1220
1.00	2.00	1520	1520	1520	–
2.00	2.50	1375	1375	1375	–

Note: Dimensions are in millimetres.

Table 38: Dimensions: EN 10147 : 2000

Z200, Z225, Z275: Coating finish MA

Thickness		Width			
		Max			
>	≤	S220GD S250GD	S280GD S320GD	S350GD	S550GD
0.38	0.40	1420	1420	–	–
0.40	0.43	1420	1420	1375	1070
0.43	0.45	1520	1520	1375	1070
0.45	0.55	1520	1520	1375	1220
0.55	0.61	1520	1520	1520	1220
0.61	0.66	1525	1525	1525	1220
0.66	1.00	1650	1650	1650	1220
1.00	1.25	1650	1650	1650	–
1.25	1.40	1620	1620	1520	–
1.40	1.60	1570	1570	1520	–
1.60	2.00	1520	1520	1520	–
2.00	2.50	1375	1375	1375	–

Note: Dimensions are in millimetres.

Table 39: Dimensions: EN 10147 : 2000

Z200, Z225, Z275: Coating finish MB

Thickness		Width		
		Max		
>	≤	S220GD S250GD	S280GD S320GD	S350GD
0.38	0.40	1420	1420	–
0.40	0.43	1420	1420	1350
0.43	0.50	1520	1520	1350
0.50	0.55	1520	1520	1375
0.55	0.61	1520	1520	1520
0.61	0.66	1525	1525	1525
0.66	0.74	1650	1650	1650
0.74	0.79	1780	1650	1650
0.79	1.25	1820	1650	1650
1.25	1.40	1820	1620	1620
1.40	1.51	1820	1570	1570
1.51	1.60	1750	1570	1570
1.60	1.61	1750	1520	1520
1.61	1.71	1640	1520	1520
1.71	1.81	1550	1520	1520
1.81	1.91	1470	1520	1520
1.91	2.00	1400	1520	1520
2.00	2.50	1375	1375	1375

Note: Dimensions are in millimetres.

Table 40: Dimensions: EN 10147 : 2000

Z200, Z225, Z275: Coating finish MC

Thickness		Width		
		Max		
>	≤	S220GD S250GD	S280GD S320GD	S350GD
0.38	0.40	1420	1420	–
0.40	0.43	1420	1420	1350
0.43	0.55	1520	1520	1350
0.55	0.61	1520	1520	1520
0.61	0.66	1525	1525	1525
0.66	0.70	1650	1650	1650
0.70	0.79	1700	1650	1650
0.79	1.20	1800	1650	1650
1.20	1.40	1620	1620	1620
1.40	1.60	1570	1570	1570
1.60	2.00	1520	1520	1520
2.00	2.20	1370	1370	1370
2.20	2.50	1220	1220	1220

Note: Dimensions are in millimetres.

Table 41: Dimensions: EN 10147 : 2000

Z350: Coating finish NA

Thickness		Width			
		Max			
>	≤	S220GD S250GD	S280GD S320GD	S350GD	S550GD
0.40	0.43	1375	1375	1375	–
0.43	0.45	1420	1420	1375	–
0.45	0.60	1420	1420	1400	1220
0.60	1.00	1520	1520	1520	1220
1.00	2.00	1520	1520	1520	–
2.00	2.50	1375	1375	1375	–

Note: Dimensions are in millimetres.

Table 42: Dimensions: EN 10147 : 2000

Z350: Coating finish MA

Thickness		Width		
		Max		
>	≤	S220GD S250GD	S280GD S320GD	S350GD
0.38	0.40	1420	1420	–
0.40	0.43	1420	1420	1375
0.43	0.55	1520	1520	1375
0.55	0.61	1520	1520	1520
0.61	0.66	1525	1525	1525
0.66	1.25	1650	1650	1650
1.25	1.40	1620	1620	1620
1.40	1.60	1570	1570	1570
1.60	2.00	1520	1520	1520
2.00	2.50	1375	1375	1375

Note: Dimensions are in millimetres.

Table 43: Dimensions: EN 10147 : 2000

Z350: Coating finish MB

Thickness		Width		
		Max		
>	≤	S220GD S250GD	S280GD S320GD	S350GD
0.38	0.40	1420	1420	–
0.40	0.43	1420	1420	1350
0.43	0.50	1520	1520	1350
0.50	0.60	1520	1520	1375
0.60	0.69	1520	1520	1520
0.69	0.78	1650	1520	1520
0.78	0.79	1780	1620	1620
0.79	1.40	1820	1620	1620
1.40	1.51	1820	1570	1570
1.51	1.60	1750	1570	1570
1.60	1.61	1750	1520	1520
1.61	1.71	1640	1520	1520
1.71	1.81	1550	1520	1520
1.81	2.00	1520	1520	1520
2.00	2.50	1375	1375	1375

Note: Dimensions are in millimetres.

Table 44: Dimensions: EN 10147 : 2000

Z350: Coating finish MC

Thickness		Width		
		Max		
>	≤	S220GD S250GD	S280GD S320GD	S350GD
0.38	0.43	1420	1420	–
0.43	0.60	1520	1520	–
0.60	0.69	1520	1520	1520
0.69	0.74	1650	1520	1520
0.74	0.78	1780	1520	1520
0.78	0.79	1780	1620	1620
0.79	1.40	1820	1620	1620
1.40	1.51	1820	1570	1570
1.51	1.60	1750	1570	1570
1.60	1.61	1750	1520	1520
1.61	1.71	1640	1520	1520
1.71	1.81	1550	1520	1520
1.81	2.00	1520	1520	1520
2.00	2.20	1370	1370	1370
2.20	2.50	1220	1220	1220

Note: Dimensions are in millimetres.

Table 46: Dimensions: EN 10147 : 2000

Z450, Z600: Coating finish MA

Thickness		Width		
		Max		
>	≤	S220GD S250GD	S280GD S320GD	S350GD
0.40	2.50	1375	1375	1375

Note: Dimensions are in millimetres.

Table 45: Dimensions: EN 10147 : 2000

Z450, Z600: Coating finish NA

Thickness		Width		
		Max		
>	≤	S220GD S250GD	S280GD S320GD	S350GD
0.40	2.50	1375	1375	1375

Note: Dimensions are in millimetres.

Table 47: Dimensions: EN 10147 : 2000

ZF100, ZF140: Coating finish RA

Thickness		Width		
		Max		
>	≤	S220GD S250GD	S280GD S320GD	S350GD
0.550	0.565	1490	1250	1250
0.565	0.590	1490	1300	1300
0.590	0.615	1490	1325	1325
0.615	0.640	1500	1350	1350
0.640	0.660	1500	1400	1400
0.660	0.665	1550	1400	1400
0.665	0.690	1550	1425	1425
0.690	0.700	1630	1450	1450
0.700	0.740	1630	1475	1475
0.740	0.790	1760	1475	1475
0.790	1.090	1800	1475	1475
1.090	1.500	1800	1500	1500
1.500	1.610	1730	1500	1500
1.610	1.710	1620	1500	1500
1.710	1.810	1530	1500	1500
1.810	1.830	1450	1500	1500
1.830	1.910	1450	1445	1445
1.910	2.000	1380	1375	1375

Note: Dimensions are in millimetres.

Table 48: Dimensions: EN 10147 : 2000

ZF100, ZF140: Coating finish RB

Thickness		Width		
		Max		
>	≤	S220GD S250GD	S280GD S320GD	S350GD
0.550	0.565	1490	1250	1250
0.565	0.590	1490	1300	1300
0.590	0.615	1490	1325	1325
0.615	0.640	1500	1350	1350
0.640	0.660	1500	1400	1400
0.660	0.665	1550	1400	1400
0.665	0.690	1550	1425	1425
0.690	0.765	1630	1450	1450
0.765	0.790	1760	1475	1475
0.790	1.090	1800	1475	1475
1.090	1.510	1800	1500	1500
1.510	1.610	1730	1500	1500
1.610	1.710	1620	1500	1500
1.710	1.810	1530	1500	1500
1.810	1.830	1450	1500	1500
1.830	1.910	1450	1445	1445
1.910	2.000	1380	1375	1375

Note: Dimensions are in millimetres.

Galvatite high-strength steel

Galvatite high-strength steel allows the user to increase the strength of the finished component or reduce the steel thickness, or both. It also offers corrosion resistance and good forming properties.

Typical applications

- automotive components
- cold-formed tubes
- building frames
- floor decking
- racking and shelving
- building components

Standard

Galvatite high-strength steel complies with EN 10292 : 2000 and is available in the grades and coatings shown in table 49 (right).

Mechanical properties

The values shown for the mechanical properties in table 50 below are for temper-rolled material and are for test pieces taken either transverse to or in the rolling direction (see test direction in table).

Chemical composition

Galvatite high-strength steel meets the requirements of the cast analysis in the standard, as shown in table 51 on page 68.

Dimensions

The width and thickness limits are shown in table 52 on page 68. The minimum width for all products is 900mm. Widths below this may be available after consultation.

Table 49: Standard: EN 10292 : 2000

Grade	Symbol for coating type
H180BD	Z, ZF
H220BD	Z, ZF
H220PD	Z, ZF
H300PD	Z
H220YD	Z
H260YD	Z
H260LAD	Z, ZF
H300LAD	Z, ZF
H340LAD	Z
H380LAD	Z
H420LAD	Z

Table 50: Mechanical properties: EN 10292 : 2000

		$R_{p0.2}$ (N/mm²)	BH_2 (N/mm²)	R_m (N/mm²)	A_{80} (%)	r_{90}	n_{90}
Grade	Test	Min-Max	Min	Min-Max	Min	Min	Min
H180BD	t	180-240	35	300-360	34	1.5	0.16
H220BD	t	220-280	35	340-400	32	1.2	0.15
H220PD	t	220-280	–	340-400	32	1.3	0.15
H300PD	t	300-360	–	400-480	26	–	–
H220YD	t	220-280	–	340-410	32	1.5	0.17
H260YD	t	260-320	–	380-440	30	1.4	0.16
H260LAD	t	260-330	–	350-430	26	–	–
H300LAD	t	300-380	–	380-480	23	–	–
H340LAD	t	340-420	–	410-510	21	–	–
H380LAD	t	380-480	–	440-560	19	–	–
H420LAD	t	420-520	–	470-590	17	–	–
H260LAD	l	240-310	–	340-420	27	–	–
H300LAD	l	280-360	–	370-470	24	–	–
H340LAD	l	320-400	–	400-500	22	–	–
H380LAD	l	360-460	–	430-550	20	–	–
H420LAD	l	400-500	–	460-580	18	–	–

Note: The letters in the test column indicate test direction. The letter t indicates transverse to the rolling direction and the letter l indicates longitudinal, i.e. in the rolling direction.

Table 51: Chemical composition: EN 10292 : 2000

Grade	C	Mn	Si	Al	P	S	Ti[1]	Nb[1]
	Max	Max	Max	Min	Max	Max	Max	Max
H180BD	0.04	0.70	0.50	0.020	0.060	0.025	–	–
H220BD	0.06	0.70	0.50	0.020	0.080	0.025	–	–
H220PD	0.08	0.70	0.50	0.020	0.080	0.025	–	–
H300PD	0.10	0.70	0.50	0.020	0.080	0.025	–	–
H220YD	0.01	0.90	0.10	0.020	0.080	0.025	0.120	–
H260YD	0.01	1.60	0.10	0.020	0.100	0.025	0.120	–
H260LAD	0.10	0.60	0.50	0.015	0.025	0.025	0.150	0.090
H300LAD	0.10	1.00	0.50	0.015	0.025	0.025	0.150	0.090
H340LAD	0.10	1.00	0.50	0.015	0.025	0.025	0.150	0.090
H380LAD	0.10	1.40	0.50	0.015	0.025	0.025	0.150	0.090
H420LAD	0.10	1.40	0.50	0.015	0.025	0.025	0.150	0.090

Notes:

1. The sum of the contents of these elements should not exceed 0.22%.
2. Values are in weight percentages.

Table 52: Dimensions: EN 10292 : 2000

Thickness		Width							
		Max							
>	≤	H180BD	H220BD	H220YD	H260YD	H220PD H260LAD	H300PD H300LAD	H340LAD	H380LAD H420LAD
0.38	0.40	–	–	–	–	970	–	–	–
0.40	0.43	–	–	–	–	1220	–	–	–
0.43	0.45	1070	–	–	–	1220	–	–	–
0.45	0.50	1250	–	–	–	1520	–	–	–
0.50	0.56	1520	–	–	–	1520	1300	–	–
0.56	0.60	1520	1520	1320	1320	1520	1300	–	–
0.60	0.63	1520	1520	1580	1580	1520	1500	1450	–
0.63	0.68	1520	1520	1605	1605	1520	1500	1450	–
0.68	0.70	1605	1605	1605	1605	1605	1500	1450	–
0.70	0.75	1605	1605	1620	1620	1605	1500	1450	1500
0.75	0.90	1620	1620	1620	1620	1620	1600	1550	1500
0.90	0.98	1620	1620	1620	1620	1620	1600	1600	1500
0.98	1.10	1620	1620	1620	1620	1620	1600	1600	1550
1.10	1.20	1620	1620	1620	1620	1620	1620	1620	1550

Note: Dimensions are in millimetres.