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.