



E40

Steels with aluminium-zinc coating Aluzinc®

Properties

Aluzinc® is a steel substrate coated on both sides with an aluminium-zinc alloy. The composition of the coating is: aluminium (55%), zinc (43.4%) and silicon (1.6%). The coating is applied by means of a continuous hot dip galvanising process. Aluzinc® is available in a wide range of steel grades: steels for cold forming and deep drawing applications, and structural steels.

Advantages

The excellent corrosion resistance of Aluzinc® is a result of the properties of the two metallic substances: the barrier effect of the aluminium present on the surface of the coating, and the sacrificial protection of zinc.

The characteristic spangled silver colour of Aluzinc® gives it a very attractive appearance. Thanks to a thin transparent layer of aluminium oxides on the top surface of the coating, this appearance is preserved when aging.

Aluzinc® offers additional advantages:

- Good corrosion resistance at high temperatures
- Good abrasion resistance because of its surface hardness
- Excellent thermal and light reflectivity

Applications

The Aluzinc® coated steels are used widely in applications both indoors and outdoors:

- Construction: roofing, cladding, structural sections, composite panels, tiles etc
- Domestic appliances: washing machines, tumble dryers, refrigerators, toasters, microwave ovens etc
- Miscellaneous: boiler casings, air ducts, cabinets, lighting, computer casings etc

Aluzinc® can be supplied oiled and/or with a chemical surface conversion, or with an Easyfilm® thin organic coating. Please see data sheet E80 for the specific properties of Easyfilm®.

Recommendations for use

Storage

Aluzinc® is supplied with a chemical surface passivation or oiled to temporarily limit any risk of black 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 protection can be obtained by the application of an Easyfilm® coating.

Forming and joining

The forming and joining techniques mainly used for uncoated steel sheets are also suitable for Aluzinc®. 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 is improved if Aluzinc® is coated with an Easyfilm® thin organic coating.

Painting

Aluzinc® can be painted after degreasing and surface treatment when delivered oiled. Aluzinc® coated with an Easyfilm® thin organic coating can be painted directly without any surface treatment. However, the paint must be compatible with the Easyfilm® resin.

Weldability

In resistance welding, the welding current must be suitably adapted and adjusted regularly. Electrode life can be extended by an appropriate choice of alloy and by regular regrinding.

Brand correspondence

Steels for cold forming and deep drawing applications

	ASTM A792	EN 10215:1995	PrEN 10326	PrEN 10327	EN 10292:2000	Old brand names
DX51D+AZ	A792 CS	DX51D+AZ		DX51D+AZ		AC2
DX52D+AZ	A792 FS	DX52D+AZ		DX52D+AZ		AC3
DX53D+AZ		DX53D+AZ		DX53D+AZ		(AC4)
DX54D+AZ	A792 DS	DX54D+AZ		DX54D+AZ		AC5
DX56D+AZ						AC6

Structural steels

	ASTM A792	EN 10215:1995	PrEN 10326	PrEN 10327	EN 10292:2000	Old brand names
S220GD+AZ			S220GD+AZ			
S250GD+AZ	SS Grade 255 (37)	S250GD+AZ	S250GD+AZ			AC250
S280GD+AZ	SS Grade 275 (40)	S280GD+AZ	S280GD+AZ			AC280
S320GD+AZ		S320GD+AZ	S320GD+AZ			AC320
S350GD+AZ	SS Grade 345 (50)	S350GD+AZ	S350GD+AZ			AC350
S550GD+AZ	SS Grade 550 (80)	S550GD+AZ	S550GD+AZ			AC550

High strength low alloy steels

	ASTM A792	EN 10215:1995	PrEN 10326	PrEN 10327	EN 10292:2000	Old brand names
H260LAD+AZ					H260LAD+AZ	AC250NB
H300LAD+AZ					H300LAD+AZ	AC280NB
H340LAD+AZ					H340LAD+AZ	AC320NB
H380LAD+AZ					H380LAD+AZ	AC380
H420LAD+AZ					H420LAD+AZ	AC420

Dimensions

Steels for cold forming and deep drawing applications

Thickness (mm)	DX51D+AZ		DX52D+AZ		DX53D+AZ		DX54D+AZ, DX56D+AZ			
	Min width	Max width	Min width	Max width	Min width	Max width	Min width	Max width		
$0.20 \leq th < 0.25$	700	1000	-	-	-	-	-	-		
$0.25 \leq th < 0.30$		1100								
$0.30 \leq th < 0.36$		1350								
$0.36 \leq th < 0.46$		1500	850	1400	850	1250	1250			
$0.46 \leq th < 0.56$						1350	1350			
$0.56 \leq th < 0.70$						700	1500	1500	1500	
$0.70 \leq th < 1.46$									-	-
$1.46 \leq th < 2.00$									-	-

Structural steels

Thickness	Min			
		S250GD+AZ,	S320GD+AZ, S350GD+AZ,	S550GD+AZ

(mm)	width	S280GD+AZ	H380LAD+AZ	Max width
		Max width	Max width	
$0.25 \leq t_h < 0.30$	700	1100	-	1150
$0.30 \leq t_h < 0.36$		1350	1250	1250
$0.36 \leq t_h < 0.46$		1500	1350	
$0.46 \leq t_h < 0.56$			1450	
$0.56 \leq t_h < 2.00$			1500	-

Mechanical properties

Steels for cold forming and deep drawing applications

	Direction	Thickness (mm)	R _e (MPa)	R _m (MPa)	A 80 (%)	r 90	n 90
DX51D+AZ	T	0.2 - 0.7	≥ 140	270 - 500	≥ 20	-	-
		0.7 - 3			≥ 22		
DX52D+AZ	T	0.2 - 0.7	140 - 300	270 - 420	≥ 24	-	-
		0.7 - 3			≥ 26		
DX53D+AZ	T	0.2 - 0.7	140 - 260	270 - 380	≥ 28	-	-
		0.7 - 3			≥ 30		
DX54D+AZ	T	0.2 - 0.7	140 - 220	270 - 350	≥ 34	-	-
		0.7 - 3			≥ 36		
DX56D+AZ	L	0.7 - 3	-	-	≥ 39	-	-
	T	0.2 - 0.7	120 - 180	260 - 330	≥ 37	≥ 1.5	≥ 0.2
		0.7 - 3			≥ 39	≥ 1.7	

Structural steels

	Direction	Thickness (mm)	R _e (MPa)	R _m (MPa)	A 80 (%)	r 90	n 90
S250GD+AZ	L	0.2 - 0.7	≥ 250	≥ 330	≥ 17	-	-
		0.7 - 3			≥ 19		
S280GD+AZ	L	0.2 - 0.7	≥ 280	≥ 360	≥ 16	-	-
		0.7 - 3			≥ 18		
S320GD+AZ	L	0.2 - 0.7	≥ 320	≥ 390	≥ 15	-	-
		0.7 - 3			≥ 17		
S350GD+AZ	L	0.2 - 0.7	≥ 350	≥ 420	≥ 14	-	-
		0.7 - 3			≥ 16		
S550GD+AZ	L	0.2 - 3	≥ 550	≥ 560	-	-	-

High strength low alloy steels

	Direction	Thickness (mm)	R _e (MPa)	R _m (MPa)	A 80 (%)	r 90	n 90
H260LAD+AZ	L	0.3 - 3	240 - 310	340 - 420	≥ 25	-	-
	T	0.3 - 3	260 - 330	350 - 430	≥ 24	-	-
H300LAD+AZ	L	0.3 - 3	280 - 360	370 - 470	≥ 22	-	-
	T	0.3 - 3	300 - 380	380 - 480	≥ 21	-	-
H340LAD+AZ	L	0.3 - 3	320 - 400	400 - 500	≥ 20	-	-
	T	0.3 - 3	340 - 420	410 - 510	≥ 19	-	-
H380LAD+AZ	L	0.3 - 3	360 - 460	430 - 550	≥ 18	-	-
	T	0.3 - 3	380 - 480	440 - 560	≥ 17	-	-
H420LAD+AZ	L	0.3 - 3	400 - 500	460 - 580	≥ 16	-	-
	T	0.3 - 3	420 - 520	470 - 590	≥ 15	-	-

Chemical properties

High strength low alloy steels

	C (%)	Mn (%)	P (%)	S (%)	Si (%)	Al (%)	Nb (%)	Ti (%)
H260LAD+AZ	< 0.100	< 0.60	< 0.025	< 0.025	< 0.05	> 0.015	< 0.090	< 0.150
H300LAD+AZ	< 0.100	< 1.00	< 0.025	< 0.025	< 0.05	> 0.015	< 0.090	< 0.150
H340LAD+AZ	< 0.100	< 1.00	< 0.025	< 0.025	< 0.05	> 0.015	< 0.090	< 0.150
H380LAD+AZ	< 0.100	< 1.40	< 0.025	< 0.025	< 0.05	> 0.015	< 0.090	< 0.150
H420LAD+AZ	< 0.100	< 1.40	< 0.025	< 0.025	< 0.05	> 0.015	< 0.090	< 0.150

Values in bold: tighter than the norm

Coating properties

Aluzinc®	Coating weight - double-sided (g/m²)	Coating thickness (µm per side)
AZ100	100	13
AZ150	150	20
AZ165	165	23
AZ185	185	25
AZ200	200	26