INTERNATIONAL STANDARD

ISO 9364

Fourth edition
2011-12-01

Continuous hot-dip 55 % aluminium/zinc alloy-coated steel sheet of commercial, drawing and structural qualities

Tôles en acier revêtues en continu par immersion à chaud d'une couche d'alliage aluminium-zinc 55 % de qualité commerciale, pour emboutissage ou destinées à la construction

Reference number
ISO 9364:2011(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 9364 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 12, *Continuous mill flat rolled products*.

This fourth edition cancels and replaces the third edition (ISO 9364:2006), which has been technically revised.

Continuous hot-dip 55 % aluminium/zinc alloy-coated steel sheet of commercial, drawing and structural qualities

1 Scope

This International Standard applies to the characteristics of steel sheet of commercial, drawing and structural qualities coated by a continuous hot-dip 55 % aluminium/zinc alloy-coating process. The aluminium/zinc alloy composition by mass is nominally 55 % aluminium, 1,6 % silicon, and the balance zinc. The product is intended for applications where the corrosion characteristics of aluminium coupled with those of zinc are desired.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1460, *Metallic coatings — Hot dip galvanized coatings on ferrous materials — Gravimetric determination of the mass per unit area*

ISO 2178, *Non-magnetic coatings on magnetic substrates — Measurement of coating thickness — Magnetic method*

ISO 3497, *Metallic coatings — Measurement of coating thickness — X-ray spectrometric methods*

ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature*

ISO 7438, *Metallic materials — Bend test*

ISO 16160, *Continuously hot-rolled steel sheet products — Dimensional and shape tolerances*

ISO 16162, *Continuously cold-rolled steel sheet products — Dimensional and shape tolerances*

ISO 16163, *Continuously hot-dipped coated steel sheet products — Dimensional and shape tolerances*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Quality applications

3.1.1
commercial
intended for general fabricating purposes where sheet is used in the flat condition, or for bending or moderate forming

3.1.2
drawing
intended for parts where drawing or severe forming may be involved

3.1.3
deep drawing
intended for parts where severe forming or severe drawing may be involved

3.2
normal spangle
coating formed as a result of unrestricted growth of aluminium/zinc crystals during normal solidification

3.3
smooth finish
smooth coating produced by skinpassing the coated material in order to achieve an improved surface condition compared with the normal as-coated product

3.4
ageing
susceptibility to changes in properties with the passage of time

NOTE Ageing may result in a change in yield strength and a corresponding decrease in ductility during storage. Ageing always has a negative effect on formability. The redevelopment of an upper yield point as a result of ageing can result in a renewed susceptibility to surface imperfections, such as stretcher strain marks (Luder's Lines) and fluting when the steel is formed. To avoid these adverse outcomes, it is essential that the period between final processing at the producing mill and fabrication be kept to a minimum. Rotation of stock, by using the oldest material first, is important. Effective roller leveling immediately prior to fabrication can achieve reasonable freedom from stretcher strain marks.

3.5
skin pass
a light cold rolling of the coated steel sheet

NOTE The purpose of the skin pass is to produce a higher degree of surface smoothness and thereby improve the surface appearance. The skin pass also temporarily minimizes the occurrence of a surface condition known as stretcher strain (Luder's Lines) or fluting during the fabrication of finished parts. The skin pass also controls and improves flatness. Some increase in hardness and some loss in ductility will result from skin passing.

3.6
differential coating
coating having a coating mass on one surface that is significantly different from the coating mass on the other surface

4 Thickness, ordering conditions and fabrication qualities

4.1 Aluminum-zinc alloy-coated steel sheet is produced in thicknesses up to and including 5,0 mm after coating, and in widths of 600 mm and over in coils and cut lengths. Aluminium/zinc alloy-coated steel sheet less than 600 mm wide may be slit from wide sheet and will be considered as sheet.

4.2 The thickness of hot-dip aluminum-zinc alloy-coated steel sheet may be specified as a combination of the base metal and metallic coating, or as the base metal alone. The purchaser shall indicate on the order which method of specifying thickness is required. In the event that the purchaser does not indicate any preference, the thickness as a combination of the base metal and coating will be provided. Annex B describes the requirements for specifying the thickness as base metal alone.

4.3 Aluminium/zinc alloy-coated steel sheet may be ordered in one of two ordering conditions.

— Ordering condition A): steel ordered to satisfy mechanical properties.

— Ordering condition B): steel ordered to make an identified part.

4.4 Aluminium/zinc alloy-coated steel sheet is available in several fabrication qualities.

a) Commercial: intended for general fabricating purposes, where sheet is used in the flat condition, or for bending or moderate forming.

b) Drawing: intended for applications where drawing or severe forming may be involved.

c) Deep drawing: intended for applications where severe drawing or severe forming may be involved.

d) Structural: aluminium/zinc alloy-coated steel sheet is produced in six grades as defined by minimum yield stress.

e) Interstitial free steel (IF Steel) may be applied on orders specifying 02 drawing [see item b)] or 03 deep drawing [see item c)] provided that the customer be informed of the substitution and related shipping documents that reflect the actual material shipped.

5 Conditions of manufacture

5.1 Chemical composition

The chemical composition (heat analysis) shall not exceed the values given in Tables 1 and 2.

Table 1 — Chemical composition (*heat analysis*)

Mass fractions in percent

Base-metal quality		C	Mn	P	S
Name	Designation	max.	max.	max.	max.
Commercial	01	0,10	0,60	0,030	0,035
Drawing and deep drawing[a]	02 and 03	0,06	0,50	0,020	0,025
Structural	220 to 550	0,25b	1,15	0,20c	0,040

[a] If interstitial free steel (IF Steel) is to be applied on drawing 02 or deep drawing 03 orders [see 4.4, item e)], the values of 0,15 % maximum for titanium and 0,10 % maximum for niobium and vanadium are acceptable to ensure that the carbon and nitrogen are fully stabilized.

[b] Grade 350 may exceed the limits in Table 3 or conform to all the requirements of Table 3 and have 0,40 % max. carbon.

[c] Grades 250 and 280: phosphorus − 0,10 % max. Grade 350: phosphorus − 0,20 % max.

Table 2 — Limits on additional chemical elements[a]

Elements	Heat analysis max. %	Product analysis max. %
Cu[b]	0,20	0,23
Ni[b]	0,20	0,23
Cr[b,c]	0,15	0,19
Mo[b,c]	0,06	0,07
Nb[e]	0,008	0,018
V[d,e]	0,008	0,018
Ti[e]	0,008	0,018

a Each of the elements listed in this table shall be included in the report of the heat analysis. When the amount of copper, nickel, chromium or molybdenum present is less than 0,02 %, the analysis may be reported as "< 0,02 %".

b The sum of copper, nickel, chromium and molybdenum shall not exceed 0,50 % on heat analysis. When one or more of these elements are specified, the sum does not apply; in which case, only the individual limits on the remaining elements will apply.

c The sum of chromium and molybdenum shall not exceed 0,16 % on heat analysis. When one or more of these elements are specified, the sum does not apply; in which case, only the individual limits on the remaining elements will apply.

d Heat analysis greater than 0,008 may be supplied after agreement between the producer and consumer.

e For interstitial free steel (IF Steel), only the value of 0,15 % maximum for titanium, and 0,10 % maximum for niobium and vanadium, are acceptable to ensure that the carbon and nitrogen are fully stabilized.

A verification analysis may be made by the purchaser to verify the specified analysis of the product and shall take into consideration any normal heterogeneity. Non-killed steels (such as rimmed or capped) are not technologically suited to product analysis. The product analysis tolerances are shown in Table 3.

Table 3 — Product analysis tolerances %

Element	Maximum of specified element	Tolerance over maximum specified
C	0,25	0,04
Mn	1,15	0,05
P	0,20	0,01
S	0,04	0,01
NOTE The above maximum tolerance is the allowable excess over the specified requirement and not the heat analysis.		

The processes used in making the steel and in manufacturing aluminium/zinc alloy-coated sheet are left to the discretion of the manufacturer. When requested, the purchaser shall be informed of the steel-making process used. On request, a report of the heat analysis shall be made to the purchaser.

5.2 Mechanical properties

5.2.1 Commercial and drawing quality

Aluminium/zinc alloy-coated sheet of designations 01, 02 and 03 are supplied under the following two ordering conditions.

Ordering condition A): Steel, when ordered according to its mechanical properties, at the time the steel is made available for shipment, shall satisfy the applicable requirements of Table 4.

Ordering condition B): Steel, when ordered to make an identified part, shall be supplied with a commitment for satisfactory manufacturing performance within a properly established breakage allowance, which shall be previously agreed upon between the interested parties. In these cases, the part name, the details of fabrication, and special requirements (such as freedom from stretcher strain or fluting) shall be specified.

Table 4 — Mechanical properties

Base metal quality		R_e max.[a]	R_m max.[b]	A min.[c] %		
Name	**Designation**	MPa[d]	MPa[d]	L_o = 50 mm	L_o = 80 mm	$L_o = 5{,}65\sqrt{S_o}$ [e]
Commercial	01	—	—	—	—	—
Drawing	02	300[f]	430	24	23	22
Deep drawing	03	260	410	26	25	24

R_e = yield stress

R_m = tensile strength

A = percentage elongation after fracture

L_o = gauge length on test piece

S_o = original cross-sectional area of gauge length

NOTE 1 Time period for which values stated in this table are applicable.

Quality	Time period
Commercial	—
Drawing	8 days
Deep drawing	1 month

NOTE 2 For products produced according to performance criteria (5.2.1) ordering condition B, the typical mechanical properties presented here are non-mandatory. They are intended solely to provide the purchaser with as much information as possible to make an intelligent ordering decision. Values outside these ranges are to be expected. The purchaser may negotiate with the supplier if a specific range, or a more restrictive range, is required for the application.

NOTE 3 These typical mechanical properties apply to the full range of steel sheet thicknesses. The yield stress tends to increase and some of the formability aspects tend to decrease as the sheet thickness decreases.

[a] The yield values apply to 0,2 % proof stress if the yield point is not pronounced, otherwise to the lower yield point (R_{eL}).

[b] The minimum tensile strength for drawing qualities would normally be expected to be 270 MPa. All tensile strength values are determined to the nearest 1 MPa.

[c] For material up to and including 0,6 mm in thickness, the elongation values in this table shall be reduced by 2.

[d] 1 MPa = 1 N/mm^2.

[e] May be used for material over 3 mm in thickness.

[f] This value applies to skin-passed products only.

5.2.2 Structural quality

The mechanical properties, at the time the steel is made available for shipment, shall satisfy the requirements of Table 5.

Table 5 — Mechanical properties of structural-quality steels and coating bend test

Grade Designation	R_e min.	R_m min.	A min.[a] %		Coated metal 180° bend mandrel diameter mm	
	MPa	MPa	L_o = 50 mm	L_o = 80 mm	e < 3	e ≥ 3
220	220	320	20	18	1a	2a
250	250	350	18	16	1a	2a
280	280	390	16	14	2a	3a
320	320	430	14	12	3a	3a
350	350	450	12	10	—	—
550[b]	550	560	—	—	—	—

R_e = yield stress — can be either R_{eL} or R_{eH}, but not both

R_{eL} = lower yield stress

R_{eH} = higher yield stress

R_m = tensile strength

A = percentage elongation after fracture

L_o = gauge length on test piece

a = thickness of bend test piece

1 MPa = 1 N/mm^2

NOTE 1 R_{eL} is measured by 0,5 % total elongation proof stress (proof stress under load) or by 0,2 % offset when a definite yield phenomenon is not present.

NOTE 2 In determining the base-metal mechanical properties, the base-metal thickness is measured after stripping the coating from the end of the specimen contacting the grips of the tension-testing machine before testing.

[a] Use either L_o = 50 mm or L_o = 80 mm to measure elongation. For material up to and including 0,6 mm in thickness, the elongation values in this table are reduced by 2.

[b] Grade 550 is in the unannealed condition and therefore has limited ductility. If the hardness is HRB 85 or higher, no tension test is required.

5.3 Coating

5.3.1 Coating mass

The coating-mass limits shall conform to the limits for the designations shown in Table 6. The coating mass is the total amount of coating on both sides of the sheet, expressed in grams per square metre.

Table 6 — Coating-mass test limits for aluminium/zinc alloy-coated steel sheet

Coating designation	Triple-spot test, total both sides min. g/m^2	Single-spot test, total both sides min. g/m^2
AZ070[a]	070	60
AZ090	090	75
AZ100	100	85
AZ120	120	102
AZ150	150	130
AZ165	165	140
AZ185	185	160
AZ200	200	170
NOTE 1 The coating mass, in grams per square metre, refers to the total coating on both surfaces. Because of the many variables and changing conditions that are characteristic of continuous hot-dip coating, the coating mass is not always evenly divided between the two surfaces of a sheet, neither is the coating evenly distributed from edge to edge. However, it can normally be expected that no less than 40 % of the single-spot test limit will be found on either surface.		
NOTE 2 Values of total theoretical thickness for coating mass are given in Annex A.		
NOTE 3 The coating thickness can be estimated from the coating mass by using the following relationship: 100g/m^2 total both sides ≙ 0,002 6 mm total both sides.		
[a] AZ070 is available only upon agreement between the purchaser and producer.		

5.3.2 Coating adherence

For commercial and drawing qualities, the coated sheet shall be capable of being bent 180° flat on itself in any direction, without flaking of the coating on the outside of the bend. For structural-quality grades, the sheet shall be capable of being bent 180°, in accordance with the mandrel requirements of Table 5, without flaking of the coating on the outside of the bend. Flaking of the coating within 7 mm from the edge shall not be a cause for rejection.

5.4 Weldability

This product is suitable for welding if appropriate welding conditions are selected with special attention to the heavier coatings. When the carbon content increases above 0,15 %, spot welding becomes increasingly difficult. Because the heat of welding might have a significant effect on lowering the strength of grade 550, this grade is not recommended for welding.

5.5 Surface treatments

5.5.1 Mill passivation

A chemical treatment may be applied to aluminium/zinc alloy-coated steel sheet to minimize the hazard of wet storage stain during shipment and storage. However, the inhibiting characteristics of the treatment are limited and, if a shipment is received wet, the material shall be used immediately or dried.

5.5.2 Oiling

Oiling prevents marring and scratching of the soft surface during handling or shipping and helps to minimize the hazard of wet storage stains. The purchaser should consider the compatibility of the oil with his/her cleaning system.

5.6 Painting

Hot-dip aluminium/zinc alloy-coated steel sheet is a suitable base for paint, but the first treatment may be different from those used on uncoated steel. Pretreatment primers, chemical conversion coatings (chromate, phosphate or oxide type), and some paints specially formulated for direct application to coated surfaces, are all appropriate first treatments for hot-dip zinc/aluminium-coated sheet. In a painting schedule, it should be considered whether the product should be ordered with or without chemical passivation. Surfaces with certain passivation treatments (e.g. chromated) are not suitable for phosphating or the application of a pretreatment (etch) primer.

5.7 Coated coil joining

Continuous coil coating lines use various methods to join coil ends. These methods include lap welding, butt welding, and stitching. The shipment of coils containing the joined coil ends may be permitted, if agreed upon between the manufacturer and purchaser.

5.8 Dimensional and shape tolerances

5.8.1 Dimensional tolerances applicable to aluminium/zinc alloy-coated steel sheet shall be as given in ISO 16163. The tolerances for thickness apply to products for which the thickness is a combination of base metal and coating.

5.8.2 When the base-metal thickness is specified, the tolerances of ISO 16163 shall apply to the average product thickness calculated in accordance with Annex B. The tolerances for the thickness of the base metal shall be as given in ISO 16160 for hot-rolled steel and ISO 16162 for cold-rolled steel.

6 Sampling

6.1 Chemical composition

Each heat of steel shall be tested by the manufacturer to determine compliance with the requirements of Tables 1 and 2.

6.2 Tensile test

One representative transverse sample shall be taken from each lot to verify conformance with the requirements of Tables 4 and 5. The sample shall be taken midway between the center and edge of the as-coated sheet. A lot consists of 50 tonnes of sheet of the same grade, rolled to the same thickness and coating condition.

6.3 Coating tests

6.3.1 Coating mass

The producer shall develop a testing plan with a frequency sufficient to adequately characterize the lot of material and ensure conformance with specification requirements.

The purchaser may conduct verification tests by securing a sample piece approximately 300 mm in length by the as-coated width and cutting three test specimens, one from the mid-width position and one from each side, not closer than 25 mm from the side edge. The minimum area of the three specimens shall be 1 200 mm^2.

6.3.2 Triple-spot test

The triple-spot test result shall be the average coating mass found on three test specimens taken in accordance with 6.3.1.

6.3.3 Single-spot test

The single-spot test result shall be the minimum coating mass found on any one of the three specimens used for the triple-spot test. Material, which has been slit from wide coil, shall be subject to a single-spot test only.

6.4 Coating adherence

One representative sample for the coating-adherence bend test shall be taken from each lot of sheet for shipment. The specimens for the coating-adherence bend test shall be taken not closer than 25 mm from the side edge. The minimum width of the test specimen shall be 50 mm.

6.5 Retest

If a test does not satisfy the specified results, two more test pieces shall be taken at random from the same lot. Both retests shall conform to the requirements of this International Standard; otherwise the lot shall be rejected.

7 Test methods

7.1 Tensile test

The tests shall be conducted in accordance with the methods specified in ISO 6892-1. The base-metal thickness shall be used to calculate the cross-sectional area needed for the tensile test; however, for orders specifying thickness “as base metal only”, there are two permissible methods for determining the base-metal thickness.

a) Option A — Determine the actual base-metal thickness, through direct measurement of the substrate of a specimen from which the coating has been removed.

b) Option B — Calculation of the base-metal thickness, through subtraction of the average coating thickness for the appropriate coating designation included in Annex A from the actual coated thickness of the test specimen.

7.2 Coating properties

7.2.1 Coating mass

The manufacturer shall conduct tests using methods deemed necessary to ensure that the material complies with the requirements shown in Table 6. Test methods to be used include ISO 1460, ISO 3497 or ISO 2178. The coating mass is determined by converting coating-thickness measurements made with magnetic gauges (ISO 2178) or by X-ray spectrometry (ISO 3497), using the relationship shown in Note 3 of Table 6. Either the test method in ISO 2178 or ISO 3497 shall be used as a basis for acceptance, but not for rejection. In cases of dispute, ISO 1460 shall be used as the referee method.

7.2.2 Coating adherence

Bend tests shall be conducted in accordance with the methods specified in ISO 7438.

8 Designation system

The designation system includes the coating name, coating-mass designation, coating surface condition, surface treatment, base-metal quality or grade of structural steel.

The letters AZ are used to indicate 55 % aluminum/zinc coating.

8.1 Coating mass

The coating-mass designations listed in Table 6 are 070, 090,100, 120, 150, 165, 185 and 200.

The coating mass is expressed as the total mass on both surfaces, in grams per square metre. The coating mass specified should be compatible with the desired service life, the thickness of the base metal, and with the forming requirements involved.

8.2 Coating finish type

— N normal — as-coated surface

— *S* skin passed — smooth surface

8.3 Surface treatment

— C mill passivation

— CO mill passivation and oiled

— O oiling

8.4 Base-metal designation

— 01 commercial quality

— 02 drawing quality

— 03 deep drawing quality

Structural quality grades are indicated by three digits according to Table 5.

8.5 Complete designation

An example is AZ150NC02. This designation is obtained by combining the following components:

— AZ aluminium/zinc alloy coating

— 150 coating-mass designation

— N normal as-coated coating condition

— C mill passivation

— 02 drawing quality

An example of a complete designation for one of the structural-quality products is AZ150CO350:

— AZ aluminium/zinc alloy coating

— 150 coating-mass designation

— S skin-passed smooth coating condition

— CO mill passivation plus oiling

— 350 structural quality grade

An example for differential coatings, the standard designation would give the top surface before the bottom surface; AZ165090NC01

— AZ aluminium/zinc alloy coating

— 165 coating-mass designation top surface

— 090 coating-mass designation bottom surface

— N normal as-coated coating condition

— C mill passivation

— 01 commercial quality

9 Resubmission

9.1 The manufacturer may resubmit, for acceptance, the products that were rejected during earlier inspection because of unsatisfactory properties, after he has subjected them to a suitable treatment (selection, heat treatment) which, on request, will be indicated to the purchaser. In this case, the tests should be carried out as if they applied to a new lot.

9.2 The manufacturer has the right to present the rejected products to a new examination for compliance with the requirements for another quality or grade.

10 Workmanship

The aluminium/zinc alloy-coated steel sheet in cut lengths shall be free from amounts of laminations, surface flaws and other imperfections that are detrimental to subsequent appropriate processing. Processing for shipment in coils does not afford the manufacturer the opportunity to observe readily, or to remove, defective portions, as can be carried out in the cut-length product.

11 Inspection and acceptance

11.1 While not usually required for products covered by this International Standard, the purchaser may specify that inspection and tests for acceptance be observed prior to shipment from the manufacturer's works. In these cases, the manufacturer shall afford the purchaser's inspector all reasonable facilities to determine that the steel is being furnished in accordance with this International Standard.

11.2 Steel that is reported to be defective after arrival at the user's works shall be set aside, properly and correctly identified, and adequately protected.

12 Marking

Unless otherwise stated, the following minimum requirements for identifying the steel shall be legibly stenciled on the top of each lift, or shown on a tag attached to each coil or shipping unit:

a) the manufacturer's name or identifying brand;

b) the number of this International Standard, i.e. ISO 9364:2011;

c) the designation (coating, coating mass, coating condition, surface treatment and quality or grade of the base metal);

d) the order number;

e) the product dimensions;

f) the lot number;

g) the mass.

13 Information to be supplied by the purchaser

To specify adequately the requirements of this International Standard, enquiries and orders should include the following information:

a) the number of this International Standard, i.e. ISO 9364:2011;

b) the name and designation of the material, i.e. the letters AZ, coating-mass designation, coating type, surface treatment, base-metal quality;

EXAMPLE Aluminium/zinc alloy-coated steel sheet, commercial quality, normal spangle, passivated and oiled AZ165NCO01 (Clause 8).

c) coil or cut length, and the dimensions of the product in the sequence: thickness (combination of base metal and coating or base metal alone), width, length and bundle mass (for cut lengths) and the total quantity required;

NOTE 1 When the base metal alone is specified, see Annex B.

NOTE 2 When the method of specifying thickness is not indicated, the combination of base metal and coating will be provided.

d) ordering condition A or B (see 4.3);

e) the application (name of part), if possible;

f) whether or not mill passivation is required (5.5.1);

g) whether or not oiling is required (5.5.2);

h) report of heat analysis and/or mechanical properties, if required (see 5.1 and 5.7);

i) details of fabrication, special requirements or application (i.e. coating performance, non-fluting, paintability, weldability, exposure environment, etc.);

j) inspection and tests for acceptance prior to shipment from the producer's works, if required (Clause 11).

NOTE 3 A typical ordering description is as follows:

International Standard ISO 9364:2011, aluminium/zinc alloy-coated steel sheet, commercial quality, designation AZ165NC01, 1,0 mm × 1 200 mm × coil, base-metal thickness, ordering condition A, 20 000 kg, exhaust pipe tubing, #6201.

Annex A
(normative)

Total theoretical thickness for coating mass

Table A.1 — Values of total theoretical thickness for coating mass

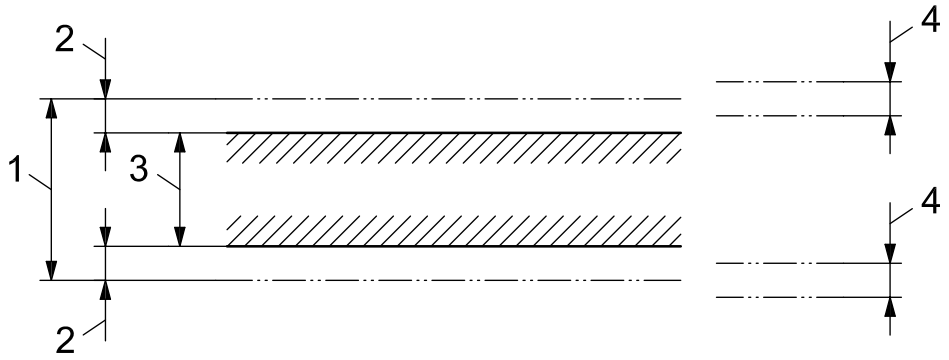
Coating designation	Coating-mass limits and equivalent thickness[a] single spot	
	g/m^2	mm
AZ070	60	0,016
AZ090	75	0,020
AZ100	85	0,023
AZ120	102	0,028
AZ150	130	0,035
AZ165	140	0,038
AZ185	160	0,043
AZ200	170	0,046

[a] The equivalent thickness values in this table are for information only.

Annex B
(normative)

Orders requiring base-metal thickness

B.1 When specified by the purchaser, the ordered thickness shall be the base-metal thickness. In these cases, the average coated-product thickness shall be calculated as the base-metal thickness + average thickness for each surface (see Table B.1) of the coating mass as indicated in Figure B. 1. Thickness tolerance tables apply to the average coated-product thickness.



Key

1 average coated-product thickness
2 average coating thickness
3 base-metal thickness
4 thickness tolerances

Figure B.1 — Calculation of the average coated-product thickness

Table B.1 — Average thickness for coating mass — total both sides

Coating designation	Average coating thickness[a] For calculation, mm
AZ070	0,026
AZ090	0,033
AZ100	0,037
AZ120	0,044
AZ150	0,054
AZ165	0,062
AZ185	0,069
AZ200	0,074

[a] Coating mass data derived from actual production results.

Bibliography

[1] ASTM A792/A792M, *Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process*[1)]

[2] JIS G 3321, *Hot-dip 55 % aluminum-zinc alloy-coated steel sheet and strip*[1]

[3] EN 10346, *Continuously hot-dip coated steel flat products — Technical delivery conditions*[1]

1) This document is recognized by ISO/TC17/SC12 to cover a subject similar to that of this International Standard. This information is given for the convenience of users of this International Standard and constitutes neither an endorsement of the document by TC17/SC12 or ISO, nor a statement regarding its degree of equivalence with this International Standard.

ICS 77.140.50

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