

INTERNATIONAL
STANDARD

ISO
6361-2

Fourth edition
2014-09-15

**Wrought aluminium and aluminium
alloys — Sheets, strips and plates —**

**Part 2:
Mechanical properties**

*Aluminium et alliages d'aluminium corroyés — Tôles, bandes et tôles
épaisses —*

Partie 2: Propriétés mécaniques



Reference number
ISO 6361-2:2014(E)

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Wrought aluminium and aluminium alloys — Sheets, strips and plates —

Part 2: Mechanical properties

1 Scope

In conjunction with ISO 6361-1, this part of ISO 6361 specifies the mechanical properties of wrought aluminium and aluminium alloy sheets, strips, and plates for general engineering applications.

It applies to flat-rolled products.

The chemical composition of these materials is given in ISO 6361-5.

The designations of aluminium and aluminium alloys and the temper designations used in this part of ISO 6361 are in accordance with ISO 2107.

NOTE In certain countries, for purposes of mechanical properties, the thickness limit can be lowered to 0,15 mm by agreement between the purchaser and the supplier, in the case of sheets and strips.

2 Normative references

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

ISO 6361-1, *Wrought aluminium and aluminium alloys — Sheets, strips and plates — Part 1: Technical conditions for inspection and delivery*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6361-1 apply.

4 Tensile testing

For the selection of the specimens and tensile testing, see ISO 6361-1.

5 Bend testing

For the selection of the specimens and bend testing, see ISO 6361-1.

6 Mechanical properties

6.1 Tensile test

Values for mechanical properties of aluminium and aluminium alloys are given in [Tables 1 to 63](#). For elongation, two different gauge lengths are used. The choice of the gauge length for elongation measurements (A or $A_{50\text{mm}}$) is at the discretion of the producer, unless otherwise agreed.

NOTE A is the percentage elongation on a gauge length of $5,65 \sqrt{S_0}$. $A_{50\text{mm}}$ is the percentage elongation on a gauge length of 50 mm.

Test results shall be rounded in accordance with the rules given in [Annex A](#).

6.2 Bend test

Sheet, strip, and plate shall be capable of being bent cold through an angle of 180°, as applicable, around a pin having a radius equal to k times the thickness, t , of the sheet, strip, or plate (for example $0,5t$) without cracking. The values of the minimum bend radii for different alloys, tempers, and thicknesses are given in [Tables 1 to 63](#).

NOTE The explanations of the numbered notes in [Tables 1 to 63](#) are given after [Table 63](#).

Table 1 — Aluminium 1050

Temper	Tensile test								Bend test ²⁾		
	Specified thickness mm		Tensile strength MPa		0,2 % proof stress MPa		Elongation ¹⁾ min. %		Specified thickness mm		Radius
	over	up to	min.	max.	min.	max.	$A_{50\text{mm}}$	A	over	up to	
H112	≥4,0	6,5	85		45		10				
	6,5	13,0	80		45		10				
	13,0	25,0	70		35		16				
	25,0	50,0	65		30		22				
	50,0	75,0	65		20		22				
O	≥0,2	0,5	60	100			15		≥0,2	6,0	0t
	0,5	0,8	60	100			20				
	0,8	1,3	60	100	20		25				
	1,3	6,5	60	100	20		30				
	6,5	50,0	60	100	20		28				
H12 or H22 ³⁾	≥0,2	0,3	80	120			2		≥0,2	0,8	0t
	0,3	0,5	80	120			3		0,8	6,0	0,5t
	0,5	0,8	80	120			4				
	0,8	1,3	80	120	65		6				
	1,3	2,9	80	120	65		8				
	2,9	12,0	80	120	65		9				
1050 H14 or H24 ³⁾	≥0,2	0,3	95	125			1		≥0,2	0,8	0,5t
	0,3	0,5	95	125			2		0,8	6,0	1t
	0,5	0,8	95	125			3				
	0,8	1,3	95	125	75		4				
	1,3	2,9	95	125	75		5				
	2,9	12,0	95	125	75		6				

Table 6 — Aluminium 1100, 1100A, 1200, and 1230A

Temper	Tensile test								Bend test ²⁾		
	Specified thickness mm		Tensile strength MPa		0,2 % proof stress MPa		Elongation ¹⁾ min. %		Specified thickness mm		Radius
	over	up to	min.	max.	min.	max.	A _{50mm}	A	over	up to	
H112	≥4,0	6,5	95		50		9				
	6,5	13,0	90		50		9				
	13,0	50,0	85		35		14				
	50,0	75,0	80		25		20				
O	≥0,2	0,5	75	105	25		17		≥0,2	6,0	0t
	0,5	0,8	75	105	25		22				
	0,8	1,3	75	105	25		22				
	1,3	6,5	75	105	25		30				
	6,5	75,0	75	105	25		28	25			
H12 or H22 ³⁾	≥0,2	0,3	95	125	75		2		≥0,2	6,0	0,5t
	0,3	0,5	95	125	75		3				
	0,5	0,8	95	125	75		4				
	0,8	1,3	95	125	75		6				
	1,3	2,9	95	125	75		8				
	2,9	12,0	95	125	75		9				
1100 H14 or H24 ³⁾	≥0,2	0,3	120	145	95		1		≥0,2	6,0	1t
	0,3	0,5	120	145	95		2				
	0,5	0,8	120	145	95		3				
	0,8	1,3	120	145	95		4				
	1,3	2,9	120	145	95		5				
	2,9	12,0	120	145	95		6				
H16 or H26 ³⁾	≥0,2	0,5	135	165	115		1		≥0,2	4,0	2t
	0,5	0,8	135	165	115		2				
	0,8	1,3	135	165	115		3				
	1,3	4,0	135	165	115		4				
H18	≥0,2	0,5	150		130		1				
	0,5	0,8	150		130		2				
	0,8	1,3	150		130		3				
	1,3	3,0	150		130		4				

Table 7 — Alloy 2014

Temper	Tensile test								Bend test ²⁾		
	Specified thickness mm		Tensile strength MPa		0,2 % proof stress MPa		Elongation ¹⁾ min. %		Specified thickness mm		Radius
	over	up to	min.	max.	min.	max.	A _{50mm}	A	over	up to	
O ⁴⁾	≥0,4	0,5		220		140	16		≥0,4	1,6	0,5t
	0,5	13,0		220		140	16		1,6	2,9	1t
	13,0	25,0		220		140	10	9	2,9	6,0	1,5t

Table 14 — Alloy 2124

Temper	Tensile test								Bend test ²⁾		
	Specified thickness mm		Tensile strength MPa		0,2 % proof stress MPa		Elongation ¹⁾ min. %		Specified thickness mm		Radius
	over	up to	min.	max.	min.	max.	A _{50mm}	A	over	up to	
T851	≥38,0	51,0	455		393			5			
	51,0	76,0	448		393			4			
	76,0	102,0	448		386			4			
	102,0	127,0	441		379			4			
	127,0	152,0	434		372			4			

Table 15 — Alloys 3003 and 3203

Temper	Tensile test								Bend test ²⁾		
	Specified thickness mm		Tensile strength MPa		0,2 % proof stress MPa		Elongation ¹⁾ min. %		Specified thickness mm		Radius
	over	up to	min.	max.	min.	max.	A _{50mm}	A	over	up to	
H112	≥4,0	13,0	120		70		8				
	13,0	50,0	110		40		12				
	50,0	75,0	100		40		18				
O	≥0,2	0,3	95	135			18		≥0,2	6,0	0t
	0,3	0,8	95	135	35		20				
	0,8	1,3	95	135	35		22				
	1,3	6,5	95	135	35		25				
	6,5	75,0	95	135	35		23				
H12 or H22 ³⁾	≥0,2	0,3	120	155			2		≥0,2	6,0	0,5t
	0,3	0,5	120	155			3				
	0,5	0,8	120	155			4				
	0,8	1,3	120	155	85		5				
	1,3	2,9	120	155	85		6				
	2,9	4,0	120	155	85		7				
	4,0	6,5	120	155	85		8				
6,5	12,0	120	155	85		9					
3003 H14 or H24 ³⁾	≥0,2	0,3	140	180			1		≥0,2	2,9	1t
	0,3	0,5	140	180	115		2		2,9	6,0	1,5t
	0,5	0,8	140	180	115		3				
	0,8	1,3	140	180	115		3				
	1,3	2,9	140	180	115		5				
	2,9	4,0	140	180	115		5				
	4,0	6,5	140	180	115		5				
	6,5	12,0	140	180	115		8				