
**SHEETS MADE OF ALUMINIUM AND
ALUMINIUM ALLOYS
TECHNICAL SPECIFICATIONS**

GOST 21631-76

Translated by:
M/s SWYAZ
2/453, Viram Khand,
Gomti Nagar,
Lucknow – 226010
☎ : 0522–3298139 / 2345145
Email : swyaz@sify.com
Visit us: [http\\:www.swyaz.net](http://www.swyaz.net)

STATE STANDARD OF USSR**Sheets made of aluminium and aluminium alloys****Technical specifications****ОКП 11 4100****GOST
21631-76****Introduction period 01.07.77**

This standard pertains to sheets made of aluminium and aluminium alloys, meant for domestic use and export.

(Amended edition, Amendment № 3).

1. CLASSIFICATION

1.1. Sheets are subdivided:

a) using manufacturing method:

not plated - without additional code;

plated - with technological plating - Б,

with normal plating - А, with thickened plating - Y;

б) due to state of material:

without heat treatment - without additional code.

Note. Sheets, manufactured without heat treatment, besides sheets made of alloy of grade ВД1, it is permitted to subject to annealing;

annealed - M;

Note. Annealed sheets are permitted to manufacture without heat treatments, if they satisfy requirements, presented for annealed sheets according to mechanical properties, to quality of surface and non-planarity. Such sheets are marked by letter M in brackets - (M);

semi cold-worked - H2,
 cold-worked -H,
 hardened and naturally aged - T,
 hardened and artificially aged - T1,
 cold-worked after hardening and natural aging - TH;
 в) on quality of finishing of surface:
 high finishing - B,
 increased finishing - II,
 usual finishing - without code.

Notes:

1. Sheets of high finishing are manufactured with thickness up to 4.0 mm.
2. Code - fineness of surface B and II is placed after last two numbers of year of approval of standard.
3. Sheets with high surface finishing are manufactured of aluminium of grades A7, A6, A5, A0, АД00, АД0, АД1, АД and aluminium alloys of grades АМЦ, АМг2, and sheets with increased and usual surface finishing are manufactured of all grades of aluminium and aluminium alloys;
- г) on accuracy of manufacturing:
 increased accuracy along thickness, width, length, or one or two of parameters indicated - II;
 normal accuracy along thickness, width, length - without additional code.

(Amended edition, Amendment № 1, 2, 3).

2. ASSORTMENT

- 2.1. Thickness of sheets, limit deviations in relation with thickness and widths of sheets and precision of their manufacturing should correspond to those indicated in table 1.

Notes:

1. Limit deviations of sheets of those annealed also without heat treatment with thickness 5 mm and more of alloys of grades АМг3, АМг5 and АМг6 are established ± 5 % from nominal thickness.
2. During manufacturing of sheets with intermediate dimensions on thickness, limit deviations with respect to thickness of sheet for these dimensions is used as for nearest smaller dimension.
3. Theoretical weight ($M_{\text{теор.}}$) of one linear meter of sheet, kg, is calculated from formula:

$$M_{\text{теор.}} = \frac{H_{\text{макс.}} + H_{\text{мин.}}}{2} \cdot \frac{B_{\text{макс.}} + B_{\text{мин.}}}{2} \cdot \gamma \cdot 10^{-3},$$

where $H_{\text{макс}}$ and $B_{\text{макс}}$ - large limits of size on thickness and width, mm;

$H_{\text{мин}}$, and $B_{\text{мин}}$ - minimum limits of size on thickness and width, mm;

γ - density of aluminium alloy, gm/cm³.

Theoretical weight of one linear meter of sheet, given in required annexure 2 (table 1- 3), is calculated at density of 2.85 gm/cm³, which corresponds to density of aluminium alloys of grades B96, B95 - 1, B95 - 2.

For calculating theoretical weight of sheets from another aluminium alloy, it is recommended to use conversion factors, indicated in reference annexure 3.

Table 1

Thickness of sheet	Limit deviations with respect to thickness with width of sheet											
	600		800. 900		1000		1200		1400. 1425, 1500. 1600		1800. 2000	
	Increased accuracy	Normal accuracy	Increased accuracy	Normal accuracy	Increased accuracy	Normal accuracy	Increased accuracy	Normal accuracy	Increased accuracy	Normal accuracy	Increased accuracy	Normal accuracy
0,3	-0,04	-0,05	-0,06	-0,08	-0,07	-0,10	-0,10	-0,10	-0,12	-0,12	-0,12	-0,12
0,4	-0,04	-0,05	-0,06	-0,08	-0,08	-0,10	-0,10	-0,10	-0,12	-0,12	-0,12	-0,12
0,5	-0,04	-0,05	-0,06	-0,08	-0,08	-0,10	-0,10	-0,10	-0,12	-0,12	-0,12	-0,12
0,6	-0,05	-0,06	-0,08	-0,10	-0,10	-0,12	-0,12	-0,12	-0,13	-0,13	-0,13	-0,13
0,7	-0,05	-0,06	-0,08	-0,10	-0,10	-0,12	-0,12	-0,12	-0,13	-0,13	-0,13	-0,13
0,8	-0,06	-0,08	-0,10	-0,12	-0,10	-0,12	-0,12	-0,12	-0,13	-0,13	-0,13	-0,13
0,9	-0,06	-0,08	-0,10	-0,12	-0,10	-0,12	-0,12	-0,12	-0,13	-0,13	-0,13	-0,13
1,0	-0,08	-0,10	-0,12	-0,15	-0,12	-0,15	-0,15	-0,14	-0,16	-0,16	-0,16	-0,16
1,2	-0,08	-0,10	-0,12	-0,15	-0,12	-0,15	-0,15	-0,14	-0,16	-0,16	-0,16	-0,16
1,5	-0,10	-0,15	-0,14	-0,20	-0,14	-0,20	-0,20	-0,18	-0,22	-0,22	-0,22	-0,22
1,6	-0,10	-0,15	-0,14	-0,20	-0,14	-0,20	-0,20	-0,18	-0,22	-0,22	-0,22	-0,22
1,8	-0,10	-0,15	-0,16	-0,20	-0,16	-0,20	-0,20	-0,20	-0,22	-0,22	-0,22	-0,22
1,9	-0,10	-0,15	-0,16	-0,20	-0,16	-0,20	-0,20	-0,20	-0,22	-0,22	-0,22	-0,22
2,0	-0,10	-0,15	-0,16	-0,20	-0,16	-0,20	-0,20	-0,20	-0,24	-0,24	-0,24	-0,24
2,5	-0,12	-0,20	-0,18	-0,25	-0,18	-0,25	-0,25	-0,22	-0,28	-0,28	-0,28	-0,28

Continuation of Table 1

mm

Thickness of sheet	Limit deviations with respect to thickness with width of sheet											
	600		800. 900		1000		1200		1400. 1425, 1500. 1600		1800. 2000	
	Increased accuracy	Normal accuracy	Increased accuracy	Normal accuracy	Increased accuracy	Normal accuracy	Increased accuracy	Normal accuracy	Increased accuracy	Normal accuracy	Increased accuracy	Normal accuracy
3,0	-0,14	-0,25	-0,20	-0,30	-0,20	-0,30	-0,26	-0,30	-0,28	-0,34	-0,33	-0,35
3,5	-0,16	-0,25	-0,22	-0,30	-0,22	-0,30	-0,28	-0,32	-0,30	-0,35	-0,34	-0,36
4,0	-0,18	-0,25	-0,24	-0,30	-0,24	-0,30	-0,32	-0,35	-0,34	-0,36	-0,35	-0,37
4,5	-0,20	-0,25	-0,26	-0,30	-0,26	-0,30	-0,34	-0,35	-0,34	-0,36	-0,35	-0,37
5,0	-0,24	-0,30	-0,30	-0,35	-0,30	-0,35	-0,34	-0,36	-0,35	-0,37	-0,36	-0,38
5,5	-0,24	-0,30	-0,30	-0,35	-0,32	-0,35	-0,34	-0,36	-0,35	-0,37	-0,36	-0,38
6,0	-0,28	-0,30	-0,35	-0,40	-0,38	-0,40	-0,38	-0,41	-0,40	-0,42	-0,41	-0,43
6,5	-0,28	-0,30	-0,35	-0,40	-0,38	-0,40	-0,38	-0,41	-0,40	-0,42	-0,41	-0,43
7,0	-0,28	-0,30	-0,35	-0,40	-0,38	-0,40	-0,40	-0,42	-0,41	-0,43	-0,42	-0,44
7,5	-0,28	-0,30	-0,35	-0,40	-0,38	-0,40	-0,40	-0,42	-0,41	-0,43	-0,42	-0,44
8,0	-0,33	-0,35	-0,40	-0,45	-0,42	-0,45	-0,44	-0,46	-0,45	-0,47	-0,46	-0,48
8,5	-0,33	-0,35	-0,40	-0,45	-0,42	-0,45	-0,44	-0,46	-0,45	-0,47	-0,46	-0,48
9,0	-0,33	-0,35	-0,40	-0,45	-0,42	-0,45	-0,45	-0,47	-0,46	-0,48	-0,47	-0,49
9,5	-0,33	-0,35	-0,40	-0,45	-0,42	-0,45	-0,45	-0,47	-0,46	-0,48	-0,47	-0,49
10,0	-0,38	-0,40	-0,45	-0,50	-0,48	-0,50	-0,48	-0,50	-0,48	-0,50	-0,48	-0,50
10,5	-0,38	-0,40	-0,45	-0,50	-0,48	-0,50	-0,48	-0,50	-0,48	-0,50	-0,48	-0,50

(Amended edition, Amendment № 2).

2.2. Sheets depending on grade of alloy, plating and state of material are manufactured of lowing dimensions, indicated in table 2.

Table 2

mm				
Condition of material of sheet	Grade of aluminium and aluminium alloy and plating	Thickness of sheet	Width of sheet	Length of sheet
	A7, A6, A5, A0		600, 800, 900	2000
	АД0, АД1, АД00, АД		600, 800, 900	2000
Without heat treatment	A7, A6, A5, A0, АД0, АД1, АД00, АД, АМц, АМцС, АМг2, АМг3, АМг5, АМг6, АМг6Б, АВ, Д1А, Д16А, В95—1А, В95—1, В95—2А, ВД1А, ВД1Б, ВД1, АКМА	From 5,0 to 10,5	1000 1200 1400 1500 1600 1800 2000	От 2000 до 7000
	B95A		1000, 1200 1425, 1500 2000	From 2000 to 7000
	1915		1200, 1500, 2000	From 2000 to 7000
	A7, A6, A5, A0, АД0, АД1, АД00, АД	From 0,3 to 10,5	600, 800, 900, 1000	2000
		From 0,5 to 0,7	1000, 1200, 1400, 1500, 1600	From 2000 to 4000
	A7, A6, A5, A0, АД0, АД1, АД00, АД, АМц, АМцС, АВ, АМг2	Above 0,7 to 10,5	1000, 1200, 1400, 1500, 1600, 1800, 2000	From 2000 to 7000
		From 0,5 to 0,7	1000, 1200, 1400, 1500, 1600	From 2000 to 7000
	АМг3, АМг5, АМг6, АМг6Б	Above 0,7 to 10,5	1000, 1200, 1400, 1500, 1600, 1800, 2000	From 2000 to 7000
	АМг6У	Above 2,0 to 5,5	1000, 1200, 1400, 1500, 1600, 1800, 2000	From 2000 to 7000
	Д12	From 0,5 to 4,0	1200, 1500	From 3000 to 4000

Continuation of table 2

mm				
Condition of material of sheet	Grade of aluminium and aluminium alloy and plating	Thickness of sheet	Width of sheet	Length of sheet
Annealed	Д1А, Д16Б, Д16, Д16А	From 0,5 to 0,7	1000, 1200, 1400, 1500, 1600	From 2000 to 4000
		Above 0,7 to 4,0	1000 1200 1400, 1500, 1600, 1800	From 2000 to 7000
		Above 4,0 to 10,5	2000	From 2000 to 7000
	Д16У	From 0,5 to 0,7	1200, 1500	From 2000 to 4000
		Above 0,7 to 4,0		From 2000 to 7000
	В95А	From 0,5 to 0,7	1000, 1200, 1425, 1500	From 2000 to 4000
		Above 0,7 to 4,0	1000, 1200, 1425, 1500, 2000	From 2000 to 7000
		Above 4,0 to 10,5		From 2000 to 7000
	В95—2А, В95—2Б, В95—1А, АКМБ, АКМА, АКМ	From 1,0 to 10,5	1200, 1400, 1500	From 2000 to 7000
	ВД1А, ВД1, ВД1Б	Above 0,8 to 10,5	1000, 1200, 1400, 1500, 1600, 1800, 2000	From 2000 to 7000
1915	0,8	1200,	From 2000 to 5000	
Semi cold-worked	А7, А6, А5, А0, АД0, АД1, АД00, АД	From 0,8 to 4,5	1000, 1200, 1400, 1500	From 2000 to 4000
	АМц, АМцС, АМг2, АМг3	From 0,5 to 0,7	1000, 1200, 1400, 1500, 1600	From 2000 to 7000
		Above 0,7 to 4,0	1000 1200 1400 1500 1600 1800 2000	
	Д12	From 0,5 to 4,0	1200, 1500	From 3000 to 4000

Continuation of table 2

mm					
Condition of material of sheet	Grade of aluminium and aluminium alloy and plating	Thickness of sheet	Width of sheet	Length of sheet	
Cold-worked	A7, A6, A5, A0, АД0, АД1, АД00, АД	From 0,3 to 10,5	600, 800 900, 1000	2000	
	A7, A6, A5, A0, АД0, АД1, АД00, АД	From 0,5 to 0,7	1000, 1200, 1400, 1500, 1600	From 2000 to 7000	
		Above 0,7 to 4,0	1000, 1200, 1400, 1500, 1600, 1800, 2000		
	MM	From 1,0 to 4,5	1000, 1200, 1400, 1500	From 2000 to 4000	
	AMц, AMцС, AMг2	From 0,5 to 0,7	1000, 1200, 1400, 1500, 1600	From 2000 to 7000	
		Above 0,7 to 4,0	1000, 1200, 1400, 1500, 1600, 1800, 2000		
	ВД1Б, ВД1А, ВД1, АКМА	From 0,8 to 4,0	1000, 1200, 1500	From 2000 to 7000	
	Hardened and are naturally aged	AB, Д1А, Д16Б, Д16, Д16А	From 0,5 to 0,7	1000, 1200, 1400, 1500, 1600	From 2000 to 5000
			Above 0,7 to 10,5	1000, 1200, 1400, 1500, 1600, 1800, 2000	From 2000 to 7200
		Д16У	From 0,5 to 4,0	1200, 1500	From 2000 to 7200
B95—2А, ВД1А, ВД1, ВД1Б, B95—1А, АКМА		From 0,8 to 10,5	1000, 1200, 1500, 1600, 1800, 2000	From 2000 to 7000	
		1915	From 1,0 to 4,5	1200, 1500	From 2000 to 5000
Above 4,5 to 10,5			1200, 1500, 2000	From 2000 to 7000	

Continuation of table 2

mm				
Condition of material of sheet	Grade of aluminium and aluminium alloy and plating	Thickness of sheet	Width of sheet	Length of sheet
Hardened and artificially aged	AB	From 0,5 to 0,7	1000, 1200, 1400, 1500, 1600	From 2000 to 5000
		Above 0,7 to 10,5	1000, 1200, 1400, 1500, 1600, 1800, 2000	From 2000 to 7000
	B95A	From 0,5 to 0,7	1000, 1200, 1425, 1500	From 2000 to 5000
		Above 0,7 to 4,0	1000, 1200, 1425, 1500, 2000	From 2000 to 7200
		Above 4,0 to 10,5	1000, 1200, 1425, 1500, 2000	From 2000 to 7000
	Cold worked after hardening and natural aging	Д16Б, Д16, Д16А	From 1,5 to 7,5	1000, 1200, 1400, 1500

(Amended edition, Amendment № 1, 2, 3).

- 2.3. Limit deviations with respect to width of sheets in relation with their thickness should correspond to values, indicated in table 3.

Table 3

mm			
Thickness of sheet	Width of sheet	Limit deviations with respect to width, not more than	
		increased accuracy	normal accuracy
Up to 50 including.	Up to 1000 including Above 1000	+6.0	+8.0 + 10
Above 5.0	Up to 1000 including Above 1000	+ 10 -	+ 12 + 15

Note. Sheets are permitted with length of more than 4000 mm, without trimming of edges, widened in comparison with nominal sizes: with thickness up to 4.0 mm - not more than 25 mm, with thickness more than 4.5 mm - 40 mm,

made of aluminium of all grades and aluminium alloys of grades AM_Ц, AMr2 with length more than 2000 mm with thickness more than 5.0 mm - 60 mm.

(Amended edition, Amendment № 1, 3).

- 2.4. Sheets are supplied with measured length or multiple measured within limits of lengths, established in table 2, with interval of 500 mm.

Limit deviations along length of sheets, depending on their thickness, should correspond to values, indicated in table 4.

Table 4

mm			
Thickness of sheet	Length of sheet	Limit deviations with respect to length, not more than	
		increased	normal accuracy
From 0.3 to 3.5 including	From 2000 to 7200	+8.0	+20
Above 3.5 to 10.5 "		-	+25

Note. Limit deviations with respect to length on increased accuracy of sheets with thickness more than 3.5 mm is set according to agreement of manufacturer and customer.

(Amended edition, Amendment № 3).

- 2.5. 10% of sheets, having minus deviation from nominal sizes with respect to width and length not more than 10% are permitted in batch.

Manufacturing of sheets is not permitted on demand of customers with minus deviations from nominal sizes.

(Amended edition, Amendment № 1).

- 2.6. **(Deleted, Amendment № 1).**

Examples of conventional codes

Sheet made of aluminium alloy of grade AMr2 in annealed state, with thickness of 0.7 mm, with width of 1200 mm, with length of 2000 mm, increased manufacturing accuracy, high surface finishing:

Sheet AMr2.M 0.7Пx1200Пx2000П GOST 21631 -76.

In sheet made of aluminium grade АД1, without heat treatment, with thickness of 5 mm, with width of 1000 mm, with length of 2000 mm, normal manufacturing accuracy, usual surface finishing:

Sheet АД1 5x1000x2000 GOST 21631 -76

Similarly, annealed, with increased surface finishing:

Sheet АД1.M 5x1200x2000 GOST 21631 -76.

Similarly, semi cold-worked, increased manufacturing precision along thickness and width:

Sheet АД1.H2 5Пx1000Пx2000 GOST 21631 -76. П

Sheet made of aluminium alloy of grade Д16 with technological plating, cold-worked after hardening and natural aging, with thickness of 2 mm, with width of 1200 mm, with length of 2000 mm, standard precision of manufacturing, increased surface finishing:

Sheet Д16.Б.ТН 2x1200x2000 GOST 21631 -76. П

Similarly, of increased manufacturing precision on thickness:

Sheet Д16.Б.ТН 2Пx1200x2000 GOST 21631 -76. П

(Amended edition , Amendment № 1, 3).

3. TECHNICAL REQUIREMENTS

3.1. Sheets are manufactured in conformity with requirements of this standard on technological regulations, affirmed in set order.

(Amended edition, Amendment № 1).

3.1.1. Sheets are manufactured of aluminium of grades A7, A6, A5, A0 with chemical composition according to GOST 11069 -74; sheets made of aluminium of grades АД00, АД0, АД1, АД and all aluminium alloys with chemical composition according to GOST 4784 -74; sheets made of aluminium alloys of grades B95 -1, AKM, B95 -2 and ВД1 with chemical composition according to GOST 1131 -76.

3.2. For plating of sheets, depending on grade of alloy, aluminium with chemical composition, indicated in table 5, is used.

3.3. Thickness of plating layer on each side of sheet depending on thickness of sheet should correspond to values, indicated in table. 6.

3.1.1 -3.3. **(Amended edition, Amendment № 2).**

3.4. Mechanical properties of sheets should correspond to requirements, indicated in table 7.

(Amended edition, Amendment № 1, 2).

3.5. Mechanical properties of annealed sheets, subjected to hardening and aging, and also hardened and aged sheets, which passed rehardening and aging in customer, should satisfy requirements, indicated in table 8.

3.6. Sheets should be cut on end-faces at right angle. Slant of cut should not take out sheets for limit deviations with respect to width and length. On edges of cut sheets, burrs and stratifications, undercuts and cracks are not permitted. In sheets, made by those widened in conformity with note to table 3, undercuts and cracks on edges are permitted, if they do not take out sheet beyond limits of nominal width.

3.5 -3.6. **(Amended edition, Amendment № 1).**

Table 5

Grade of plating	Chemical composition of plating material, %											
	Alloying components		Admixtures, not more than									
	Aluminium	Zinc	Iron	Silicon	Copper	Manganese	Zinc	Titan	Magnesium	Other admixtures		Sum of permissible admixtures
										Each separately	Sum	
Д1А, Д16А, Д16Б, Д16У, АМг6Б АМг6У ВД1А, ВД1Б, АКМБ, АКМА	Not less than 99.30	—	0,30	0,30	0,02	0,025	0,1	0,15	0,05	0,02	—	0,70
В95А, В95—2А В95—2Б, В95—1А	Basic components	0,9—1,3	0,3	0,3	—	0,025	—	0,15	—	0,05	0,1	—

Table 6

Thickness of sheet, mm	Thickness of plating layer on each side of sheet from actual thickness of sheet in % with plating		
	technological	normal	thickened
	more than	not less than	
From 0.5 to 1.9	1.5	4.0	8.0
Above 9 to 4.0	1.5	2.0	4.0
Above 4.0 to 10.5	1.5	2.0	

Note. Thickness of thickened plating for sheets made of alloy of grade АМг6 should comprise on each side of sheet not less than 4.0% of actual thickness of sheet.

- 3.7. Surface of sheets of all groups of finishing should be glossy or lusterless, without cracks, flaws, stratifications, bubbles of overburning, film of saltpeter, spots of corrosive origin, diffusion spots (on sheets with thickness of more than 0.6 mm with normal and thickened plating), slag inclusions, exposed from plating of sections (on sheets with normal and thickened plating), and also washed away whitish spots,

Table 7

Grade of aluminium and aluminium alloy and plating	State of material of sheets	Code of alloy and state of material	State of test samples	Thickness of sheet, mm	Mechanical properties during tension		
					Ultimate stress σ_b , MPa (kgf/mm ²)	Yield point $\sigma_{0.2}$ MPa (kgf/mm ²)	Relative elongation at $l = 11.3 \sqrt{F}$ δ , %
					not less than		
A7, A6 A5, A0 AD0, AD1, AD00 AD	Annealed	A7M, A6M, A5M, A0M, AD0M, AD1M, AD00M, AD1	Annealed	From 0,3 to 0,5 Above 0,5 > > 0,9 > 10,5	60 (6,0) 60 (6,0) 60 (6,0)	— — —	20,0 25,0 30,0
	Semi cold-worked	A7H2, A6H2, A5H2, A0H2, AD0H2, AD1H2 AD00H2, ADH2	Semi cold-worked	From 0,8 to 4,5	100 (10,0)	—	6,0
	Cold-worked	A7H, A6H, A5H, A0H, AD0H, AD1H AD00H, ADH	Cold-worked	From 0,3 to 0,8 Above 0,8 > > 3,5 > 10,5	145 (15,0) 145 (15,0) 130 (13,0)	— — —	3,0 4,0 5,0
	Without heat treatment	A7, A6, A5, A0, AD0, AD1, AD00, AD	Without heat treatment	From 5,0 to 10,5	70 (7,0)	—	15,0
	Annealed	AMцM, AMцCM	Annealed	From 0,5 to 0,7 Above 0,7 > > 3,0 > 10,5	90 (9,0) 90 (9,0) 90 (9,0)	— — —	18,0 22,0 20,0
	Semi cold-worked	AMцH2, AMцCH2	Semi cold-worked	From 0,5 to 3,5 Above 3,5 > 4,0	145 (15,0) 145 (15,0)	— —	5,0 6,0
	Cold-worked	AMцH, AMцCH	Cold-worked	0,5 Above 0,5 to 0,8	185 (19,0) 185 (19,0)	— —	4,0 2,0

Grade of aluminium and aluminium alloy and plating	State of material of sheets	Code of alloy and state of material	State of test samples	Thickness of sheet, mm	Mechanical properties during tension		
					Ultimate stress σ_b , MPa (kgf/mm ²)	Yield point $\sigma_{0,2}$ MPa (kgf/mm ²)	Relative elongation at $l = 11.3 \sqrt{F}$ δ , %
					not less than		
AMц, AMцC	Cold-worked	AMцH, AMцCH	Cold-worked	Above 0,8 to 1,2 > 1,2 to 4,0	185 (19,0) 185 (19,0)	—	3,0 4,0
	Without heat treatment	AMц, AMцC	Without heat treatment	From 5,0 to 10,5	100 (10,0)	—	10,0
MM	Cold-worked	MMH	Cold-worked	From 1,0 to 4,5	Not tested		
D12	Annealed	D12M	Annealed	From 0,5 to 4,0	155 (16,0)	—	14,0
	Semi cold-worked	D12H2	Semi cold-worked	From 0,5 to 4,0	220 (22,5)	—	3,0
AMГ2	Annealed	AMГ2M	Annealed	0,5 to 1,0 Above 1,0 to 10,5	165 (17,0) 165 (17,0)	—	16,0 18,0
	Semi cold-worked	AMГ2H2	Semi cold-worked	From 0,5 to 1,0 Above 1,0 to 4,0	235—314 (24,0—32,0) 235—314 (24,0—32,0)	145 (15,0) 145 (15,0)	5,0 6,0
	Cold-worked	AMГ2H	Cold-worked	From 0,5 to 1,0 Above 1,0 > 4,0	265 (27,0) 265 (27,0)	215 (22,0) 215 (22,0)	3,0 4,0
	Without heat treatment	AMГ2	Without thermal Workings/treatments	From 5,0 to 10,5	175 (18,0)	—	7,0

Grade of aluminium and aluminium alloy and plating	State of material of sheets	Code of alloy and state of material	State of test samples	Thickness of sheet, mm	Mechanical properties during tension		
					Ultimate stress σ_B , MPa (kgf/mm ²)	Yield point $\sigma_{0.2}$, MPa (kgf/mm ²)	Relative elongation at $l = 11.3 \sqrt{F}$, %
					not less than		
AMr3	Annealed	AMr3M	Annealed	From 0,5 to 0,6 Above 0,6 > 4,5 > 4,5 > 10,5	195 (20,0) 195 (20,0) 185 (19,0)	90 (9,0) 100 (10,0) 80 (8,0)	15,0 15,0 15,0
	Semi cold-worked	AMr3H2	Semi cold-worked	From 0,5 to 1,0 Above 1,0 > 4,0	245 (25,0) 245 (25,0)	195 (20,0) 195 (20,0)	7,0 7,0
	Without heat treatment	AMr3	Without heat treatment	From 5,0 to 6,0 Above 6,0 > 10,5	185 (19,0) 185 (19,0)	80 (8,0) 80 (8,0)	12,0 15,0
	Annealed	AMr5M	Annealed	From 0,5 to 0,6 Above 0,6 > 4,5 Above 4,5 to 10,5	275 (28,0) 275 (28,0) 275 (28,0)	135 (14,0) 145 (15,0) 130 (13,0)	15,0 15,0 15,0
	Without heat treatment	AMr5	Without heat treatment	From 5,0 to 6,0 Above 6,0 > 10,5	275 (28,0) 275 (28,0)	130 (13,0) 130 (13,0)	12,0 15,0
	Annealed	AMr6B, AMr6M	Annealed	From 0,5 to 0,6 Above 0,6 > 10,5	305 (31,0) 315 (32,0)	145 (15,0) 155 (16,0)	15,0 15,0
AMr6B, AMr6	Without heat treatment	AMr6B, AMr6	Without heat treatment	From 5,0 to 10,5	315 (32,0)	155 (16,0)	15,0
	Annealed	AMr6Y	Annealed	From 2,0 to 5,5	275 (28,0)	130 (13,0)	15,0

Grade of aluminium and aluminium alloy and plating	State of material of sheets	Code of alloy and state of material	State of test samples	Thickness of sheet, mm	Mechanical properties during tension			
					Ultimate stress σ_B , MPa (kgf/mm ²)	Yield point $\sigma_{0,2}$ MPa (kgf/mm ²)	Relative elongation at $l = 11.3 \sqrt{F}$ δ , %	
AB	Annealed	ABM	Annealed	From 0,5 to 5,0 Above 5,0 > 10,5	Not more than 145 (15,0)	—	20,0	
	Hardened and naturally aged	ABT	Hardened and are naturally aged	From 0,5 to 0,6 Above 0,6 > 3,0	Not more than 145 (15,0)	—	15,0	
	Hardened and artificially aged	ABTI	Hardened and artificially aged	> 3,0 > 5,0 > 5,0 > 10,5	195 (20,0)	—	18,0	
	Without heat treatment		Hardened and are naturally aged	195 (20,0)	—	18,0		
		Annealed		Hardened and artificially aged	From 0,5 to 5,0 Above 5,0 > 10,5	175 (18,0)	—	16,0
		Annealed	AB	Annealed	From 5,0 to 10,5	295 (30,0)	—	10,0
ДИА	Hardened and naturally aged	ДИАМ	Hardened and are naturally aged	From 0,5 to 1,9 Above 1,9 > 10,5	295 (30,0)	—	8,0	
		ДИАТ		From 5,0 to 10,5	175 (18,0)	—	14,0	
				From 5,0 to 10,5	295 (30,0)	—	7,0	
				From 0,5 to 1,9 Above 1,9 > 10,5	145—225 (15,0—23,0)	—	12,0	
				From 0,5 to 1,9 Above 1,9 > 10,5	145—235 (15,0—24,0)	—	12,0	
				From 0,5 to 1,9 Above 1,9 > 10,5	365 (37,0) 375 (38,0)	185 (19,0) 195 (20,0)	15,0 15,0	

Grade of aluminium and aluminium alloy and plating	State of material of sheets	Code of alloy and state of material	State of test samples	Thickness of sheet, mm	Mechanical properties during tension		
					Ultimate stress σ_b , MPa (kgf/mm ²)	Yield point $\sigma_{0.2}$, MPa (kgf/mm ²)	Relative elongation at $l = 11.3 \sqrt{F}$, % δ , %
Д1А	Without heat treatment	Д1А	Hardened and are naturally aged	From 5,0 to 10,5	355 (36,0)	185 (19,0)	13,0
	Annealed	Д16БМ, Д16М	Annealed	From 5,0 to 10,5	145—235 (15,0—24,0)	—	10,0
	Hardened and naturally aged	Д16БТ, Д16Т	Hardened and are naturally aged	From 0,5 to 1,5 Above 1,5 > 6,0 > 6,0 > 10,5	440 (45,0) 440 (45,0) 440 (45,0)	290 (29,5) 290 (29,5) 290 (29,5)	13,0 11,0 10,0
	Cold-worked after hardening and natural aging	Д16БТН, Д16ТН	Cold-worked after hardening and natural aging	From 1,5 to 3,0 Above 3,0 > 7,5	475 (48,5) 475 (48,5)	360 (36,5) 360 (36,5)	10,0 8,0
Д16А	Annealed	Д16АМ	Annealed	From 0,5 to 1,9 Above 1,9 > 10,5	145—225 (15,0—23,0) 145—235 (15,0—24,0)	—	10,0 10,0
	Hardened n naturally aged	Д16АТ	Hardened and are naturally aged	From 0,5 to 1,9 Above 1,9 > 6,0 > 6,0 > 10,5	405 (41,5) 425 (43,5) 425 (43,5)	270 (27,5) 275 (28,0) 275 (28,0)	13,0 11,0 10,0
	Without heat treatment	Д16А	Hardened and are naturally aged	From 5,0 to 10,5	415 (42,0)	255 (26,0)	10,0
	Without heat treatment	Д16А	Д16А	Hardened and are naturally aged	From 5,0 to 10,5	415 (42,0)	255 (26,0)

Grade of aluminium and aluminium alloy and plating	State of material of sheets	Code of alloy and state of material	State of test samples	Thickness of sheet, mm	Mechanical properties during tension		
					Ultimate stress σ_B , MPa (kgf/mm ²)	Yield point $\sigma_{0.2}$, MPa (kgf/mm ²)	Relative elongation at $l = 11.3 \sqrt{F}$, %
D16A	Cold-worked after hardening and natural aging	D16ATH	Cold-worked after hardening and natural aging	From 1,5 to 1,9	425 (43,5)	335 (34,0)	10,0
				Above 1,9 >	455 (46,5)	345 (35,0)	8,0
D16Y	Annealed	D16YM	Annealed	From 0,5 to 1,9	130—225 (13,0—23,0)	—	10,0
				Above 1,9 >	130—235 (13,0—24,0)	—	10,0
				From 0,5 to 1,9	365 (37,0)	230(23,5)	13,0
B95A	Hardened naturally aged	D16YT	Hardened naturally aged	Above 1,9 >	405 (41,5)	270(27,5)	13,0
				From 0,5 to 1,9	Not more than 245 (25,0)	—	10,0
				Above 1,9 >	480 (49,0)	400(41,0)	7,0
B95A	Hardened artificially aged	B95AT1	Hardened artificially aged	From 0,5 to 1,9	490 (50,0)	410(42,0)	7,0
				Above 1,9 >	490 (50,0)	410(42,0)	6,0
				From 5,0 to 10,5	490 (50,0)	410(42,0)	6,0
B95A	Without heat treatment	B95A	Hardened artificially aged	From 5,0 to 10,5	490 (50,0)	410(42,0)	6,0
				4	490 (50,0)	410(42,0)	6,0

Grade of aluminium and aluminium alloy and plating	State of material of sheets	Code of alloy and state of material	State of test samples	Thickness of sheet, mm	Mechanical properties during tension		
					Ultimate stress σ_b , MPa (kgf/mm ²)	Yield point $\sigma_{0.2}$, MPa (kgf/mm ²)	Relative elongation at $l = 11.3 \sqrt{F}$, %
B95—2A, B95—2B, B95—1A, B95—1, AKMB, AKMA, AKM	Annealed	B95—2AM, B95—2BM, B95—1AM, AKMBM, AKMAM, AKMM	Annealed	From 1,0 to 10,5	Not more than 245 (25,0)	—	10,0
	Cold-worked	AKMAH	Cold-worked	From 0,8 to 4,0	Not tested		
	Hardened and are naturally aged	B95—2AT, B95—1AT, AKMAT	Hardened and are naturally aged	From 1,0 to 10,5	315 (32,0)	—	10,0
AKMB, AKMA, AKM	Without treatment	B95—2A	Without treatment	From 5,0 to 10,5	315 (32,0)	—	10,0
	Without heat treatment	B95—1A, B95—1, AKMA	Without heat treatment	From 5,0 to 10,5	Not tested		
	Annealed	1915M	Annealed	From 1,0 to 4,5	Not more than 245 (25,0)	—	10
1915	Hardened and naturally aged	1915T	Hardened naturally aged during 30 - 35 days	From 1,0 to 10,5	315 (32,0)	195 (20,0)	10

Grade of aluminium and aluminium alloy and plating	State of material of sheets	Code of alloy and state of material	State of test samples	Thickness of sheet, mm	Mechanical properties during tension		
					Ultimate stress σ_b , MPa (kgf/mm ²)	Yield point $\sigma_{0.2}$ MPa (kgf/mm ²)	Relative elongation at $l = 11.3 \sqrt{F}$, %
1915	Hardened and are naturally aged	1915T	Hardened and are naturally aged during 2-4 days	From 1,0 to 10,5	275 (28,0)	165 (17,0)	10
	Without heat treatment	1915	Hardened and naturally aged during e*0 -of 35 days	From 5,0 to 10,5	315 (32,0)	195 (20,0)	10
	Without heat treatment	1915	Hardened naturally aged during 2-4 days	From 5,0 to 10,5	265 (27,0)	165 (17,0)	10
ВД1А ВД1Б ВД1	Annealed	ВД1АМ, ВД1М, ВД1БМ	Annealed	From 0,8 to 10,5	Not more than 245 (25,0)	—	10,0
	Hardened and are naturally aged	ВД1АТ, ВД1Т, ВД1БТ	Hardened by naturally aged	From 0,8 to 10,5	335 (34,0)	—	12,0

Grade of aluminium and aluminium alloy and plating	State of material of sheets	Code of alloy and state of material	State of test samples	Thickness of sheet, mm	Mechanical properties during tension		
					Ultimate stress σ_b , MPa (kgf/mm ²)	Yield point $\sigma_{0.2}$, MPa (kgf/mm ²)	Relative elongation at $l = 11.3 \sqrt{F}$, % δ , %
ВД1А ВД1Б, ВД1	Cold-worked	ВД1Н, ВД1АН, ВД1БН	Cold-worked	From 0,8 to 4,0	Not tested		
	Without treatment		Without treatment				
	Without treatment	ВД1, ВД1А, ВД1Б	Without treatment	From 5,0 to 10,5	335 (34,0)	—	120
	Without treatment		Without treatment				

Notes:

1. On demand of customer, annealed sheets made of aluminium are manufactured with ultimate stress not more than 110 MPa (11 kgf/mm²).
2. Sheets made of alloy of grade of АМn with thickness from 1.0 to 4.0 mm in semi cold-worked state on requirement of customer are manufactured with ultimate stress of from 147 MPa (15.0 kgf/mm²) to 196 MPa (20.0 kgf/mm²).

formed during hardening, and non-metallic inclusions metallurgical origin, if are not moved away during control etching in 5 -6% solution NaOH at 50°C for 1 -3 min with subsequent bright dipping in 30% solution HNO₃. On sheets made of alloy of grade AMЦ, grain size, determined by surface finish of samples, subjected to tension, that exceeds value, indicated in required annexure 1 is not permitted.

Table 8

Grade of alloy	State of test samples	Thickness of sheets, mm	Mechanical properties during tension		
			Ultimate stress σ_B , MPa (kgf/mm ²)	Yield point $\sigma_{0.2}$ MPa (kgf/mm ²)	Relative elongation at $l = 11.3 \sqrt{F}$ δ , %
Д1А	Hardened and are naturally aged	From 0,5 to 1,9	355 (36,0)	185 (19,0)	15,0
		Above 1,9 > 10,5	355 (36,0)	195 (20,0)	15,0
Д16Б	Hardened and naturally aged	From 0,5 to 1,5	425 (43,5)	275 (28,0)	13,0
		Above 1,5 > 6,0	425 (43,5)	275 (28,0)	11,0
		> 6,0 > 10,5	425 (43,5)	275 (28,0)	10,0
Д16А	Hardened and are naturally aged	From 0,5 to 1,9	390 (40,0)	255 (26,0)	15,0
		Above 1,9 > 10,5	410 (42,0)	265 (27,0)	12,0
Д16У	Hardened and are naturally aged	From 0,5 to 1,9	350 (35,5)	220 (22,5)	13,0
		Above 1,9 > 4,0	390 (40,0)	255 (26,0)	13,0
В95А	Hardened and artificially aged	From 0,5 to 1,0	470 (48,0)	390 (40,0)	7,0
		Above 1,0 > 6,0	480 (49,0)	400 (41,0)	7,0
		> 6,0 > 10,5	480 (49,0)	400 (41,0)	6,0
АВ	Hardened and are naturally aged	From 0,5 to 0,6	175 (18,0)	—	18,0
		Above 0,6 > 3,0	175 (18,0)	—	20,0
		> 3,0 > 5,0	175 (18,0)	—	18,0
		> 5,0 > 10,5	155 (16,0)	—	16,0
		From 0,5 to 5,0	275 (28,0)	—	10,0
Above 5,0 > 10,5	275 (28,0)	—	8,0		

- 3.8. Following are not permitted on face side of sheets of high surface finishing: spot and strip made of burned lubricant, imprints from shafts in form of light and dark strips and undercuts.

Parameter of surface finish of sheet should not be more than $Ra=1.25$ mm according to GOST 2789 -73.

(Amended edition, Amendment №1.3).

- 3.8.1. Following are permitted on face side of sheets of high finishing:
- a) metallic small declines with total area not more than 20 mm^2 by 1 m^2 on surface of sheets with width up to 1200 mm inclusively and not more than 50 mm^2 by 1 m^2 on surface of sheets with width of more than 1200 mm;
 - б) sleeve from breaking-off of declines;
 - в) bubbles with total area not more than 20 mm^2 by 1 m^2 on surface of sheet with dimensions of each bubble not more than 5 mm^2 ;
 - г) single and group small scratches with depth not more than 0.02 mm on sheets with width up to 1200 mm and not more than 0.05 mm on sheets with width of more than 1200 mm. In one group not more than five scratches, which are placed in square $200 \times 200 \text{ mm}$;
 - д) incision, which has length of separate prime not more than 4mm;
 - е) imprints in form of small dents and convexities;
 - ж) single breakages from bends of annealed sheets with thickness of 0.5 -0.8 mm, with width of 1000mm and more at length more than 4000 mm and with width of 1500 mm and more at length of 4000 mm;
 - з) light worn-out condition with total area not more than 1 % surface of sheet;
 - и) imprints from shafts in form of separate "languages" (aluminium plating) with length not more than 50 mm with width not more than 5 mm, with total area not more than 1 % surface of sheet;
 - к) temper colour.

- 3.8.2. Surface, opposite to face side of sheets of high finishing, should correspond to requirements for face side of sheets of increased finishing.

3.8.1; 3.8.2. **(Amended edition, Amendment № 1).**

- 3.9. On face and opposite face side of sheets of increased finishing in all states, except those annealed and semi cold-worked, spots and strips from burned lubricant are not permitted. Parameter of surface finish of sheet should not be more than $Ra=2.5$ mkm according to GOST 2789 -73.

(Amended edition, Amendment № 1, 3).

- 3.9.1. Following are permitted on face side of sheets of increased finishing:
- a) metallic small declines with total area not more than 50 mm^2 by 1 m^2 on surface of sheet for aluminium and aluminium alloys of all grades, with exception of aluminium alloys of grades

AMr3, AMr5, AMr6, where declines are permitted with total area not more than 80 mm² by 1 m² on surface of sheet;

б) sleeve from breaking-off of declines;

в) bubbles with total area not more than 40 mm² by 1 m² on surface of sheet with dimension of each bubble not more than 10 mm²;

г) flat bubbles, diffusion spots and exposed from plating sections without cracks on sheets with technological plating;

д) single and group small scratches with depth not more than 0.05 mm. In one group, not more than 8 scratches, which are placed in square 200x200 mm;

е) incision and aluminium plating in form of primes, which have length not more than 5 mm;

ж) imprints in form of small dents and convexities;

з) single breakages from bends in annealed and hardened sheets with thickness of 0.5 -0.8 mm, with width of 1000 mm and more at length more than 4000mm and with width of 1500mm and more at length up to 4000mm;

и) transverse undulation with depth up to 0.2 mm, that is obtained from vibration on sheets of those cold-worked and on sheets made of alloys of grades Amr5 and AMr6, manufactured without plating;

к) light worn-out condition with total area not more than 2 % surface of sheet;

л) imprints from shafts in form of separate "languages" (aluminium plating) with length not more than 50 mm, with width not more than 5mm, with total area not more than 3% surface of sheet;

м) light traces of warping sheets from hardening (mastication), not perceived by hand in hardened sheets with thickness of 0.5 -0.8 mm;

н) temper colour;

о) imprints from shafts "fir tree" on sheets of aluminium and aluminium alloy of grade AMu with total area not more than 5% surface of sheet;

п) imprints from shafts in form of light and dark strips (without undercuts), which go along rolling;

р) spots and strips from emulsion with total area not more than 3% surface of sheet;

с) transverse banding in hardened sheets, which is obtained during hardening of sheets in furnace with air circulation, and weakly expressed divorces.

(Amendment edition, Amendment № 1).

3.9.2. Surface, opposite to face side of sheets of increased finishing, should correspond to requirements of point 3.9.1, in this case following are permitted:

metallic small declines with total area not more than 100 mm² by 1 m² on surface of sheet;
single and group small scratches with depth not more than 0.05 mm (without limitation of groups);

light worn-out condition with total area not more than 5% surface of sheet;

spots and strips from emulsion with total area not more than 5% surface of sheet.

(Amended edition, Amendment № 2).

- 3.10. On face and opposite face side of sheets of usual finishing in all states of material, except annealed and semi cold-worked, spots and strips from burned lubricant are not permitted.

Parameter of surface finish of sheet should not be more than Ra = 2.5 mkm according to GOST 2789 -73.

(Amended edition, Amendment № 3).

- 3.10.1. On face and opposite face side of sheets of usual surface finishing, following are permitted: declines, sleeve from breaking-off of declines, bubbles, single and group scratches, smooth cut and aluminium plating and other defects, caused by manufacturing method, with total area not more than 5% surface of sheet.

- 3.11. Depth of overlap of all of those enumerated in sub-point 3.8.1; 3.9.1; 3.10.1 of permissible defects should not exceed half of limit deviations of thickness of sheet and should not disrupt plating layer on sheets with thickened and normal plating.

- 3.10.1; 3.11. **(Amended edition, Amendment № 1, 2).**

- 3.11.1. On sheets made of aluminium and aluminium alloys of grades AMц, AMцС, Д1, Д16, B95, 1915, AB, AMr2, AMr3, AMr5, AMr6 of high and increased surface finishing permissible defects, enumerated in sub-point 3.8.1 and 3.9.1, should not take out sheet for limit deviations with respect to thickness of sheets.

(Amended edition, Amendment № 1).

- 3.12. On sheets of high and increased surface finishing, separate cleaned sections are permitted with total area not more than 0.5% surface of sheet, and on sheets of usual finishing with 1% of surfaces of sheet, cleaned by abrasive paper on paper base with granularity not are larger than 6 according to GOST 6456 -82 or by abrasive paper on woven base with granularity not larger than 6 according to GOST 5009 -82 at depth not more than half of thickness of plating layer, but for nonplated sheets - at depth not more than half of limit deviation of thickness of sheet.

(Amended edition, Amendment № 1, 2).

3.13. Sheets without heat treatment are manufactured, on quality of surface of increased finishing and usual surface finishing.

3.14. It is permitted to establish norms of quality of surface of sheets, according to agrwwmwnt between manufacturer and by customer.

(Amended edition, Amendment № 1).

3.15. Deviation from planeness of sheets made of aluminium alloys of grades AB, Д1, B95, Д16, 1915, B95 -1, B95 -2, AKM, ВД1, manufactured in annealed, hardened and aged states, should correspond to requirements, indicated in table 9.

Table 9

Thickness of sheet	Width of sheet	Length of sheet	mm	
			Deviation from planeness with free placing of sheets (by each side) on plane of plate, not more than	
			along entire surface and (including long side)	on short sides (including long sides up to 300 mm form angles of sheet)
From 0.5 to 1.5	Up to 1200	Up to 7200	14	20
	Above 1200 to 1600		16	20
Above 1.5 to 4.0	Up to 1200	Up to 7200	18	30
	Above 1200 to 1600		18	30
Above 4.0 to 10.5	Up to 1200	Up to 7200	20	40
	Above 1200 to 1600		22	40
From 0.8 to 2.0	Above 1600 to 2000	Up to 4000	20	40
		Above 4000 to 7200	23	45
Above 2.0 to 10.5	Above 1600 to 2000	To 4000	24	50
		Above 4000 to 7200	25	50

3.15.1. Deviation from planeness of sheets made of aluminium of all grades and aluminium alloys in semi cold-worked and cold-worked states, and also sheets in annealed state made of aluminium of all grades and aluminium alloys (except those enumerated in point 3.15) should correspond to requirements of table 10.

Table 10

mm				
Thickness of sheet	Width of sheet	Length of sheet	Deviations from planeness during free packing of sheet (by each of sides) of plane of plate, not more than	
			on entire surfaces of sheet (including long sides)	along short sides (including long sides up to 300 mm from angles of sheet)
From 0,3 to 3,0 Above 3,0 > 6,0 > 6,0 > 10,5	Up to 1000	Up to 2000	14 18 23	14 18 23
	Above 1000 to 1200 > 1200 > 1600	Up to 4000	15 16	20 25
From 0,5 to 1,0	Up to 1200 Above 1200 to 1600	Above 4000 to 7000	20 35	25 45
	From 1000 to 1200 Above 1200 > 1600	Up to 4000	20 25	25 30
Above 1,0 > 1,5	Up to 1200 Above 1200 to 1600	Above 4000 to 7000	25 30	30 45
	From 1000 to 1200 Above 1200 > 1600	Up to 4000	25 25	30 35
Above 1,5 > 3,0	Up to 1200 Above 1200 to 1600	Above 4000 to 7000	25 25	30 40
	From 1000 to 1200 Above 1200 > 1600	Up to 4000	25 25	40 40
Above 3,0 > 4,0	Up to 1200 Above 1200 to 1600	Above 4000 to 7000	25 30	40 45
	From 1000 to 1200 Above 1200 > 1600	Up to 4000	25 30	40 40
Above 4,0 > 6,0	Up to 1200 Above 1200 to 1600	Above 4000 to 7000	25 30	40 45
	1000 1200 1200 > 1600	Up to 4000	25 30	40 40
Above 6,0 > 10,5	Up to 1200 Above 1200 to 1600	Above 4000 to 7000	25 30	40 45
	From 0,8 to 10,5	Above 1600 to 2000	Up to 4000 Above 4000 to 7000	35 50 55

3.15; 3.15.1. (Amended edition, Amendment № 1, 2, 3).

3.15.2. Deviation from planeness of sheets of aluminium and aluminium alloys in annealed state with thickness more than 4.0 mm, manufactured with method of hot rolling, and also without heat treatment, should correspond indicated in table 1.

Table 11

Thickness of sheet	Width of sheet	Length of sheet	mm	
			Deviation from planeness during free piling of sheet (each side) of plane of plate, not more than	
From 5.0 to 10.5	Up to 1200	Up To 7000	along entire surface of sheet, including long sides	on short sides, including long sides up to 300 mm from angles of sheet
	Above 1200 to 1600		25	45
	Above 1600 to 2000		30	45
			40	55

Note. Deviation from planeness of sheets made of aluminium alloys of grades AМr3, AМr5, AМr6, AМr6Б, supplied without heat treatment, should satisfy following requirements: deviation from planeness during free piling of sheet - by each side to plane of plate can be on 20 mm more than norms, indicated in table 11.

(Amended edition, Amendment № 1, 2).

3.16. Microstructure of sheets, which passed hardening, should not have overburning.

(Introduced additionally, Amendment № 2).

4. ACCEPTANCE RULES

4.1. Sheets are presented for acceptance in batches. Batch should consist of sheets of one grade of aluminium or aluminium alloy, one state of material and one dimension and be accompanied by document about quality, which contains:

trade mark or trade mark and name of manufacturing plant;

name of customer enterprise;

conventional code;

batch number;

net weight of batch;

results of tests (for mechanical properties, indicate only maximum and minimum values);

date of dispatch;

code of this standard.

On demand of customer, copy of protocols of chemical analysis is sent.

Weight of batch is not limited.

Note. If batch consists of sheets of different charge of heat treatment, then each charge should be inspected for correspondence to requirements of this standard.

- 4.2. Chemical composition is determined on two sheets from batch. Other admixtures are not monitored.

Manufacturer is permitted to determine alloying ingredient and basic admixtures during each melting.

- 4.3. Each tenth sheet is subject to inspection of dimensions.

4.1 -4.3. (Amended edition, Amendment № 1)

- 4.4. Quality of surface and deviation from planeness of sheets are checked on each sheet.

Manufacturer conduct inspection of surface finish periodically according to demand of customer.

Note. Manufacturing plant is permitted not to carry out per sheet inspection of sheets of increased finishing and usual finishing.

(Amended edition, Amendment № 1, 3).

- 4.5. Quantity of sheets, indicated in table 12, are subject to inspection of mechanical properties during tension (ultimate stress, yield point and relative elongation) depending on grade of aluminium alloy and state of material, but not less than according to one sheet from each batch presented to delivery.

- 4.6. Mechanical properties of sheets without heat treatment, annealed (besides sheets made of aluminium alloys of grades AМr3, AМr5, AМr6), cold-worked made of aluminium of all grades and aluminium alloys (except sheets made of alloy of grade Д16 in state cold-worked after quenching and natural aging), and also hardened and naturally aged sheets made of aluminium alloys of grades Д1, ВД1, В95 -2, В95 -1, АКМ by manufacturing plant are not monitored, but are ensured by manufacturing technology.

Manufacturer conducts testing of mechanical properties of sheets made of alloy of grade 1915 in hardened and aged state after 2 -4 days natural aging, and customer - after 30- 35 days natural aging.

- 4.7. Testing for mechanical properties of sheets is permitted, which passed heat treatment in tape, conduct in three samples from each roll (in the beginning, middle and end of roll).

Table 12

Grade of aluminium and aluminium alloy and plating	State of material	Quantity of experienced/tested fins from batch, %, not more than	
		Ultimate stress and relative tensile elongation	Tensile yield point
AМг3, АМг5, АМг6, АМг6У, АМг6Б	Annealed	10	5
A7, A6, A5, A0 АД0, АД1, АД, АД00, АМц, АМцС, Д12	Semi cold-worked	5	—
АМг2, АМг3	Cold-worked	5	2
АМц, АМцС		5	—
АМг2		5	5
АВ	Hardened and aged under conditions T and T1	5	—
Д16А, Д16Б, Д16У, Д16, 1915, В95А		10	5
Д16А, Д16Б, Д16	Cold-worked after hardening and natural aging.	10	5

4.5 -4.7. (Amended edition, Amendment № 2)

4.8. For checking sheets to absence of overburning, manufacturing plant selects one sheet from each charge of heat treatment.

Checking to absence of overburning of sheets, which passed hardening in tape, is conducted in two samples from each roll (beginning and end of roll).

Checking to absence of overburning of sheets, which passed hardening per sheet, is subjected each hundredth sheet, but not less than one sheet from batch.

(Introduced additionally, Amendment № 2).

4.9. **(Deleted, Amendment № 1).**

4.10. Sheets, whose heat treatment was conducted in niter baths, are checked for presence of saltpeter on surface.

For inspection, selected by 1% of sheets from batch, but not less than one sheet.

4.11. In obtaining of unsatisfactory results of testing mechanical properties at least on one of the characteristics,

repeated tests on doubled quantity of samples, cut out from same sheets, are conducted. During unsatisfactory results of repeated tests, piece test is permitted, whose result is final.

(Amended edition, Amendment № 1, 3).

5. METHODS FOR TESTING

- 5.1. Inspection of surface of sheets and detection of stratifications is conducted without application of magnifying tools.
- Depth of overlap of defects is measured with profilometer according to GOST 19300 -86 or with depth indicator (special) on technical-normative documentation.
- Inspection of surface finish is conducted by profilometer - profilograph according to GOST 19300 -86.
- (Amended edition, Amendment № 1, 3).**
- 5.2. Measurement of dimension is carried out with measuring tool, which ensures necessary accuracy of measurement.
- Measurement of thickness of sheets is produced at distance not less than 115 mm from angles and not less than 25 mm from edges of sheet.
- Measurement of thickness of sheets is conducted by micrometer according to GOST 6507 - 90. Measurement of width and length of sheets is conducted by metallic gauge tape according to GOST 7502 -89.
- Slant of cut are measured in conformity with GOST 26877 -91 by measuring rod according to GOST 427 -75 and square according to GOST 3749 -77 or by goniometer according to GOST 5378 -88.
- (Amended edition, Amendment № 2, 3).**
- 5.3. Selection and preparation of samples for determination of chemical composition of sheets is conducted according to GOST 24231 -80. Determination of chemical composition of aluminium are carried out according to GOST 25086 -87, GOST 12697.1-77 -GOST 12697.12-77 or by spectral method according to GOST 3221 -85, aluminium alloys - according to GOST 11739.1 -90, GOST 11739.2 -90, GOST 11739.3 -82, GOST 11739.4 - 90, GOST 11739.5 -90, GOST 11739.6 -82, GOST 11739.7 -82, GOST 11739.8-90 -GOST: 11739.10-90, GOST 11739.1682 - GOST 11739.15-82, GOST 11739.16-90 -GOST 11739.19-90, GOST 11739.20 -82, GOST 11739.21 -90, GOST 11739.22 -90, GOST 11739.23 -82 GOST 11739.24 -82 or by spectral method - according to GOST 7727 -81.
- 5.4. Sampling for mechanical tests is conducted according to GOST 24047 -80.
- Testing for tension of sheets with thickness of more than 0.8 to 2.5 mm is conducted according to GOST 11701 -84 on proportional flat samples

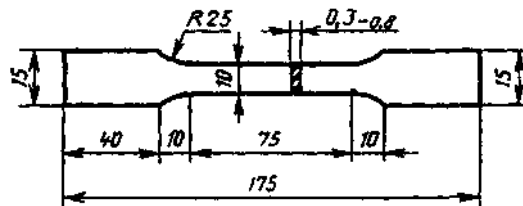
of types I or II with $b_0 = 20$ mm, and sheets with thickness from 3.0 to 10.5 mm are carried out according to GOST 1497 -84 in proportional flat samples of types I or II.

Calculated length of sample (l_0) in millimeters is calculated according to formula

$$l_0 = 11.3 \sqrt{F_0},$$

where F_0 - calculated area of sample, mm^2 .

Form and dimensions of samples, cut out for tensile test from sheets with thickness from 0.3 to 0.8 mm, should correspond to those indicated on drawing.



One sample across direction of rolling is cut out for tensile test from each inspected sheet.

5.3; 5.4. (Amended edition, Amendment № 2)

5.4.1. Determination of macro-crystalline structure (grain size) on sheets made of alloy of grade of АМЦ is conducted in one sample, which is tested for tension, selected from each roll.

During tension of sample on its surface, surface finish appears, whose permissibility is determined by standard, given in annexure 1 or that agreed between customer and manufacturer.

(Introduced additionally, Amendment № 1).

5.5. Measurement of deviation from planeness of sheets is conducted on inspection plate as per НТД.

Deviation from planeness (undulation and deflection) is determined by maximum distance between plane of arrangement of sheet and inspection plate being adjacent on plane. Measurements is conducted by one of methods, indicated in GOST 26877 -91 with help of metallic scales according to GOST 8026 -92 and GOST 427 -75.

Convexity of sheet (height and length of snap) is determined using procedure of manufacturing plant.

(Amended edition, Amendment № 2).

5.6. For checking of presence of saltpeter, drop of solution of 0.5 % diphenylamines is brought to surface of sheet in concentrated

of sulphuric acid (10 cm³ of distilled water and 25 cm³ of sulphuric acid, density 1.84 gm/cm³ is poured to suspension 0.5 g of diphenylamine).

After dissolution of diphenylamine, volume of solution is led up to 100 cm³ by addition of sulphuric acid.

Intensive turning blue of drop of solution after 10 -15 s indicates presence of saltpeter in this place.

After testing drop is moved away by filter paper, and tested section is thoroughly washed in water and wiped dry.

During detection of traces of saltpeter, batch of sheets are subject to repeated washing and repeated inspection to presence of saltpeter on surface of sheets.

- 5.7. Microstructure of sheets is checked by metallographic method in one sample or by eddy-current method using procedure of manufacturing plant.

In arbitration cases, testing is conducted by metallographic method.

(Introduced additionally, Amendment № 2).

6. MARKING, PACKING, TRANSPORTATION AND STORAGE

- 6.1. On one of sides at distance not more than 30 mm from edge on width or from edge of short side, sheet should be knocked out or substituted by paint: grade of aluminium or aluminium alloy, plating, state of material, thickness of sheet, batch number and stamp of quality control. Delivery of sheets without marking is permitted on demand of customer.

It is permitted to mark only upper sheet of pile or bundle during transportation of sheets with thickness of less than 1.0 mm.

(Amended edition, Amendment № 1, 3).

- 6.1.1. Marking of sheet is conducted in conformity with order-schedule of foreign trade association, meant for export.

(Introduced additionally, Amendment № 3).

- 6.2. According to agreement between manufacturer and customer on one side of surface of sheets, line marking with indication of grade of aluminium or aluminium alloy, platings, states of material and thickness of sheet with intervals between lines not more than 1500 mm is brought instead of marking. For marking of sheets, quick-drying paints are used as per HTД.

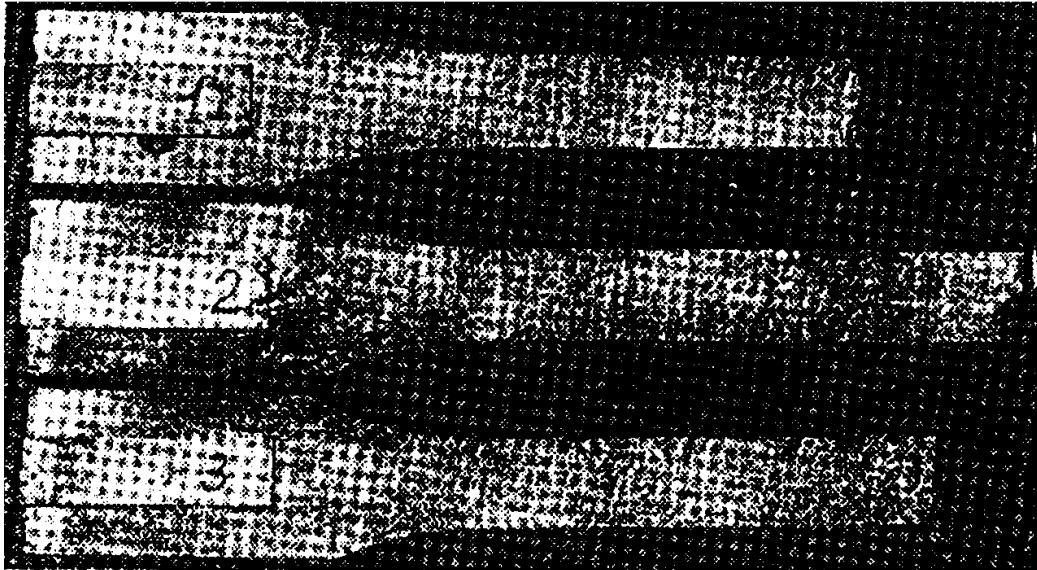
- 6.3. Temporary corrosion protection, packing, transportation and storage - according to GOST 9.011 -79.

Transport marking of containers - according to GOST 14192 -77 with putting of additional inscriptions: name of semi-finished products, grade of alloy, state of material, dimensions of sheets, batch number.

(Amended edition, Amendment № 2).

- 6.4. **(Deleted, Amendment № 1).**

Macro-crystalline structure of sheets made of aluminium alloy of grade Am π (type 1, 2, 3) is permitted



ANNEXURE 2

Required

Table 1

Thickness of sheet, mm	Theoretical weight of 1 m sheet, kg, with normal manufacturing precision on thickness and width										
	Width of sheet, mm										
	600	800	900	1000	1200	1400	1425	1500	1600	1800	2000
0,3	0,473	0,596	0,670	0,715	1,168	—	—	—	—	—	—
0,4	0,646	0,825	0,928	1,001	1,511	1,762	1,793	1,887	2,013	—	—
0,5	0,818	1,054	1,185	1,288	1,854	2,142	2,180	2,295	2,447	—	—
0,6	0,981	1,260	1,417	1,545	2,198	2,543	2,588	2,724	2,905	—	—
0,7	1,153	1,489	1,675	1,831	2,524	2,929	2,975	3,131	3,339	3,704	4,114
0,8	1,308	1,696	1,907	2,117	2,868	3,324	3,383	3,560	3,797	4,218	4,686
0,9	1,480	1,925	2,164	2,404	3,160	3,664	3,729	3,925	4,185	4,681	5,200
1,0	1,635	2,120	2,383	2,647	3,446	4,065	4,144	4,383	4,700	5,259	5,886
1,2	1,980	2,578	2,989	3,219	4,174	4,906	5,004	5,298	5,720	6,448	7,229
1,5	2,453	3,208	3,607	4,006	4,774	5,506	5,604	5,898	6,327	7,148	8,000
1,6	2,625	3,437	3,865	4,292	5,117	5,906	6,011	6,327	6,747	7,562	8,400
1,8	2,969	3,895	4,380	4,864	5,804	6,707	6,826	7,184	7,662	8,591	9,543
1,9	3,142	4,125	4,638	5,151	6,147	7,108	7,234	7,613	8,119	9,105	10,114
2,0	3,314	4,354	4,895	5,437	6,456	7,488	7,621	8,021	8,554	9,594	10,657
2,5	4,131	5,442	6,119	6,796	8,105	9,430	9,598	10,101	10,772	12,089	13,428
3,0	4,949	6,530	7,343	8,155	9,788	11,332	11,534	12,139	12,945	14,533	16,143
3,5	5,810	7,676	8,631	9,586	11,470	13,314	13,551	14,262	15,209	17,079	18,971
4,0	6,670	8,822	9,919	11,016	13,136	15,296	15,568	16,385	17,474	19,625	21,800
4,5	7,531	9,968	11,207	12,447	14,853	17,298	17,606	18,530	19,761	22,197	24,657
5,0	8,349	11,056	12,431	13,806	16,553	19,280	19,624	20,653	22,025	24,744	27,486
5,5	9,240	12,232	13,750	15,267	18,308	21,320	21,699	22,835	24,350	27,354	30,381
6,0	10,104	13,323	14,976	16,629	19,943	23,226	23,638	24,876	26,526	29,801	33,098
6,5	10,967	14,472	16,267	18,063	21,663	25,232	25,680	27,024	28,817	32,376	35,959
7,0	11,831	15,610	17,558	19,496	23,367	27,217	27,701	29,151	31,085	34,926	38,791

Continuation of Table 1

Thickness of sheet, mm	Theoretical weight of 1 m sheet, kg, with normal manufacturing precision on thickness and width										
	Width of sheet, mm										
	600	800	900	1000	1200	1400	1425	1500	1600	1800	2000
7,5	12,694	16,769	18,849	20,930	25,088	29,223	29,742	31,299	33,375	37,502	41,652
8,0	13,515	17,860	20,076	22,292	26,739	31,148	31,702	33,361	35,574	39,975	44,398
8,5	14,378	19,009	21,367	23,725	28,460	33,154	33,743	35,510	37,865	42,550	47,259
9,0	15,242	10,157	22,658	25,159	30,164	35,140	35,764	37,636	40,133	45,100	50,091
9,5	16,105	21,306	23,949	26,592	31,884	37,145	37,805	39,784	42,424	47,676	52,951
10,0	16,926	22,397	25,175	27,954	33,553	39,111	39,806	41,890	44,668	50,226	55,783
10,5	17,789	23,545	26,467	29,388	35,274	41,117	41,847	44,038	46,959	52,802	58,644

(Amended edition, Amendment № 3).

Continuation of Table 1

Thickness of sheet, mm	Theoretical weight of 1 m sheet, kg, with normal manufacturing precision on thickness and width										
	Width of sheet, mm										
	600	800	900	1000	1200	1400	1425	1500	1600	1800	2000
0,3	0,482	0,619	0,696	0,758	—	—	—	—	—	—	—
0,4	0,654	0,848	0,953	1,030	1,202	—	—	—	—	—	—
0,5	0,826	1,077	1,211	1,316	1,545	1,802	1,834	1,930	2,058	—	—
0,6	0,990	1,283	1,433	1,574	1,889	2,182	2,221	2,338	2,493	—	—
0,7	1,162	1,512	1,700	1,860	2,232	2,583	2,629	2,767	2,950	—	—
0,8	1,325	1,719	1,932	2,146	2,541	2,963	3,016	3,174	3,385	3,755	4,171
0,9	1,498	1,948	2,190	2,432	2,885	3,364	3,423	3,603	3,842	4,270	4,743
1,0	1,653	2,154	2,422	2,690	3,194	3,704	3,770	3,968	4,231	4,733	5,257
1,2	1,997	2,612	2,937	3,262	3,881	4,505	4,585	4,825	5,146	5,710	6,343
1,5	2,496	3,277	3,684	4,092	4,842	5,606	5,706	6,005	6,404	7,099	7,886
1,6	2,668	3,506	3,942	4,378	5,186	5,966	6,072	6,391	6,816	7,613	8,457
1,8	3,012	3,941	4,431	4,922	5,838	6,767	6,888	7,249	7,730	8,642	9,600
1,9	3,185	4,170	4,689	5,208	6,182	7,168	7,295	7,678	8,188	9,157	10,171
2,0	3,357	4,399	4,947	5,494	6,525	7,528	7,662	8,064	8,600	9,645	10,714
2,5	4,200	5,522	6,209	6,896	8,208	9,490	9,659	10,166	10,841	12,140	13,486
3,0	5,044	6,645	7,472	8,298	9,856	11,452	11,656	12,267	13,082	14,584	16,200
3,5	5,887	7,768	8,734	9,700	11,539	13,414	13,653	14,369	15,324	17,130	19,028
4,0	6,731	8,891	9,996	11,102	13,188	15,336	15,609	16,428	17,519	19,677	21,857
4,5	7,574	10,013	11,259	12,504	14,870	17,338	17,647	18,572	19,807	22,249	24,714
5,0	8,400	11,113	12,496	13,878	16,587	19,321	19,664	20,636	22,071	24,795	27,543
5,5	9,292	12,289	13,814	15,310	18,343	21,361	21,740	22,878	24,396	27,405	30,438
6,0	10,121	13,381	15,041	16,658	19,994	23,266	23,679	24,919	26,572	29,852	33,155
6,5	10,984	14,529	16,332	18,091	21,715	25,272	25,721	27,067	28,863	32,428	36,016
7,0	11,848	15,678	17,623	19,525	23,401	27,257	27,741	29,194	31,130	34,978	38,848
7,5	12,711	16,826	18,914	20,959	25,122	29,263	29,783	31,342	33,421	37,554	41,709
8,0	13,532	17,917	20,140	22,335	26,744	31,188	31,742	33,404	35,620	40,026	44,455
8,5	14,395	19,066	21,431	23,768	28,495	33,194	33,784	35,553	37,911	42,602	47,316
9,0	15,259	20,214	22,722	25,202	30,198	35,180	35,805	37,679	40,179	45,152	50,148
9,5	16,122	21,363	24,014	26,635	31,919	37,185	37,846	39,827	42,469	47,727	53,009
10,0	16,943	22,454	25,240	27,983	33,588	39,151	39,846	41,933	44,714	50,277	55,841
10,5	17,806	23,603	26,531	29,416	35,309	41,157	41,898	44,081	47,005	52,853	58,701

(Amended edition, Amendment № 2, 3).

Table 2a

Thickness of sheet, mm	Theoretical weight of 1 m sheet, kg, with increased manufacturing precision on thickness and width										
	Width of sheet, mm										
	600	800	900	1000	1200	1400	1425	1500	1600	1800	2000
0,3	0,481	0,618	0,695	0,758	—	—	—	—	—	—	—
0,4	0,653	0,847	0,952	1,029	1,200	—	—	—	—	—	—
0,5	0,825	1,076	1,210	1,315	1,543	1,799	1,831	1,928	2,056	—	—
0,6	0,988	1,282	1,441	1,572	1,886	2,179	2,218	2,335	2,490	—	—
0,7	1,160	1,510	1,699	1,858	2,229	2,579	2,625	2,763	2,947	—	—
0,8	1,323	1,716	1,930	2,144	2,537	2,959	3,012	3,170	3,381	3,751	4,167
0,9	1,495	1,945	2,188	2,430	2,880	3,359	3,419	3,598	3,838	4,265	4,738
1,0	1,650	2,151	2,419	2,687	3,189	3,699	3,765	3,962	4,226	4,727	5,252
1,2	1,994	2,609	2,934	3,259	3,874	4,498	4,579	4,819	5,140	5,704	6,336
1,5	2,492	3,273	3,680	4,088	4,834	5,598	5,698	5,997	6,396	7,091	7,878
1,6	2,664	3,501	3,938	4,374	5,177	5,958	6,064	6,382	6,807	7,605	8,449
1,8	3,007	3,936	4,427	4,917	5,829	6,758	6,878	7,239	7,721	8,639	9,590
1,9	3,179	4,165	4,684	5,203	6,171	7,157	7,285	7,668	8,178	9,147	10,161
2,0	3,351	4,394	4,941	5,488	6,514	7,517	7,651	8,053	8,589	9,635	10,704
2,5	4,193	5,515	6,202	6,889	8,194	9,477	9,645	10,152	10,827	12,127	13,472
3,0	5,035	6,637	7,463	8,290	9,840	11,436	11,640	12,251	13,066	14,568	16,184
3,5	5,877	7,758	8,724	9,690	11,520	13,395	13,634	14,350	15,305	17,111	19,009
4,0	6,720	8,880	9,985	11,091	13,166	15,314	15,587	16,406	17,498	19,655	21,835
4,5	7,562	10,001	11,246	12,492	14,846	17,314	17,622	18,548	19,782	22,224	24,689
5,0	8,387	11,099	12,482	13,864	16,560	19,293	19,637	20,668	22,043	24,768	27,515
5,5	9,276	12,274	13,799	15,295	—	—	—	—	—	—	—
6,0	10,104	13,364	15,024	16,641	—	—	—	—	—	—	—
6,5	10,966	14,511	16,314	18,073	—	—	—	—	—	—	—
7,0	11,828	15,658	17,603	19,506	—	—	—	—	—	—	—
7,5	12,690	16,805	18,893	20,938	—	—	—	—	—	—	—

Continuation

Thickness of sheet, mm	Theoretical weight of 1 m sheet, kg, with increased manufacturing precision on thickness and width										
	Width of sheet, mm										
	600	800	900	1000	1200	1400	1425	1500	1600	1800	2000
8.0	13,509	17,895	20 118	22,313	—	—	—	—	—	—	—
8.5	14,372	19,042	21 408	23,745	—	—	—	—	—	—	—
9.0	15,234	20,189	22 697	25,177	—	—	—	—	—	—	—
9.5	16,096	21,337	23 987	26,609	—	—	—	—	—	—	—
10.0	16,915	22,426	25 212	27,955	—	—	—	—	—	—	—
10.5	17,777	23,573	26 502	29,387	—	—	—	—	—	—	—

Table 26

Thickness of sheet, mm	Theoretical weight of 1 m sheet, kg, with normal manufacturing precision on thickness and increased accuracy on width										
	Width of sheet, mm										
	600	800	900	1000	1200	1400	1425	1500	1600	1800	2000
0.3	0,473	0,595	0,669	0,715	—	—	—	—	—	—	—
0.4	0,644	0,824	0,926	1,000	1,166	—	—	—	—	—	—
0.5	0,816	1,053	1,184	1,286	1,509	1,759	1,885	2,010	—	—	—
0.6	0,980	1,259	1,415	1,544	1,851	2,139	2,292	2,444	—	—	—
0.7	1,151	1,488	1,673	1,829	2,194	2,539	2,720	2,901	—	—	—
0.8	1,306	1,694	1,904	2,115	2,520	2,919	3,127	3,335	3,700	—	4,110

Continuation

Thickness of sheet, mm	Theoretical weight of 1 m sheet, kg, with normal manufacturing precision on thickness and increased accuracy on width										
	Width of sheet, mm										
	600	800	900	1000	1200	1400	1425	1500	1600	1800	2000
0,9	1 478	1,922	2,162	2,401	2,863	3,319	3,378	3,555	3,792	4,214	4,681
1,0	1,633	2,117	2,381	2,644	3,154	3,659	3,724	3,919	4,180	4,676	5,195
1,2	1,976	2,575	2,895	3,216	3,840	4,458	4,538	4,776	5,094	5,652	6,279
1,5	2,449	3,204	3,603	4,002	4,766	5,498	5,596	5,890	6,282	7,040	7,821
1,6	2,621	3,433	3,860	4,288	5,109	5,898	6,003	6,318	6,739	7,554	8,392
1,8	2,964	3,891	4,375	4,860	5,794	6,698	6,817	7,175	7,652	8,581	9,533
1,9	3,136	4,119	4,632	5,145	6,137	7,097	7,224	7,603	8,109	9,095	10,104
2,0	3,308	4,348	4,890	5,431	6,446	7,477	7,611	8,010	8,543	9,583	10,646
2,5	4 125	5,435	6,112	6,789	8,091	9,417	9,584	10,088	10,759	12,076	13,415
3,0	4,941	6,522	7,335	8,147	9,771	11,316	11,518	12,122	12,929	14,516	16,127
3,5	5 800	7,667	8,621	9,576	11,451	13,295	13,532	14,243	15,190	17,060	18,952
4,0	6 659	8,811	9,908	11,005	13,114	15,274	15,547	16,363	17,452	19,604	21,778
4,5	7,919	9,955	11,195	12,435	14,828	17,274	17,582	18,505	19,736	22,173	24,632
5,0	8 335	11,042	12,417	13,793	16,526	19,253	19,596	20,625	21,998	24,716	27,458
5,5	9 225	12,217	13,735	15,252	—	—	—	—	—	—	—
6,0	10 087	13,307	14 960	16,613	—	—	—	—	—	—	—
6,5	10 949	14,454	16,249	18,045	—	—	—	—	—	—	—
7,0	11,811	15,601	17 539	19,477	—	—	—	—	—	—	—
7,5	12,673	16,748	18 829	20,909	—	—	—	—	—	—	—
8,0	13 492	17,838	20 054	22,270	—	—	—	—	—	—	—
8,5	14 354	18,985	21 343	23,702	—	—	—	—	—	—	—
9,0	15 217	20,132	22,633	25,134	—	—	—	—	—	—	—
9,5	16 079	21,279	23,923	26,566	—	—	—	—	—	—	—
10,0	16 898	22,369	25 148	27,926	—	—	—	—	—	—	—
10,5	17 760	23,516	26,437	29,359	—	—	—	—	—	—	—

Table 2a, 26 (Introduced additionally, Amendment № 3).

Table 3

Thickness of sheet, mm	Theoretical weight of 1 mm sheet, into kg, annealed also without heat treatment made of alloy of grades of AMr3, Amr5, AMr6												
	Width of sheet, mm												
	600	800	900	1000	1200	1400	1425	1500	1600	1800	2000		
5,0	8,605	11 457	12,882	14,307	17,171	20,021	20,378	21 446	22 871	27,721	28,571		
5,5	9,499	12 634	14,202	15,769	18,928	22,063	22 454	23,630	25 198	28,333	31,468		
6,0	10,363	13 783	15,493	17,203	20,648	24,068	24 496	25,778	27 488	30,908	34,328		
6,5	11,226	14 931	16,784	18,636	22,369	26,074	26,537	27 926	29,779	33,484	37,189		
7,0	12,090	16 080	18,075	20,070	24,090	28,080	28 578	30 075	32,070	36,060	40,050		
7,5	12,953	17 228	19,366	21,503	25,810	30,085	30 620	32 223	34,360	38,636	42,910		
8,0	13,817	18 377	20,657	22,937	27,531	32,091	32 661	34 371	36,651	41,211	45,771		
8,5	14,680	19 525	21,948	24,370	29,252	34,097	34 702	36,519	38,942	43,787	48,632		
9,0	15,544	20 674	23,239	25,804	30,972	36,102	36 744	38 667	41,232	46,362	51,492		
9,5	16 407	21 822	24,530	27,237	32,693	38,108	38 785	40 816	43,523	48,938	54,353		
10,0	17 271	22 971	25,821	28,671	34,414	40,114	40 826	42 964	45,814	51,514	57,214		
10,5	18 135	24 120	27,112	30,105	36,134	42,119	42 868	45 112	48,104	54,089	60 074		

**Conversion factors for enumerating theoretical weight of 1 m sheet made of
aluminium and aluminium alloys**

Grade of alloy	Conversion factor	Grade of alloy	By shift coefficient
Aluminium of all grades	0.950	Aluminium alloys of grades:	
		Д12	0,954
Aluminium alloys of grades:		АМц, АМцС, ММ	0,958
АМг6	0,926	АКМ	0,970
АМг5	0,930	1915	0,972
АМг3	0,937	Д16	0,976
АМг2	0,940	Д1, ВД1	0,982
АВ	0,947		

(Introduced Additionally, Amendment № 2).

INFORMATION DATA

1. APPROVED AND PUT INTO OPERATION by decision of State Committee of norms of Council of Ministers USSR dated 12.03.76 № 607
2. SUPERSEDES GOST 12592 - 67, besides sub-point 5.3 -6.9; GOST 13722 - 68, besides sub-points 5.3 -5.11
3. REFERENCE TECHNICAL-NORMATIVE DOCUMENTS

Code of HTД, reference of which is given	Point number
GOST 9.011—79	6.3
GOST 427—75	5.2; 5.5
GOST 1131—76	3.1.1
GOST 1497—84	5.4
GOST 2789—73	3.8; 3.9; 3.10
GOST 3221—85	5.3
GOST 3749—77	5.2
GOST 4784—74	3.1.1
GOST 5009—82	3.12
GOST 5378—88	5.2
GOST 6456—82	3.12
GOST 6507—90	5.2
GOST 7502—89	5.2
GOST 7727—81	5.3
GOST 8026—92	5.5
GOST 11069—74	3.1.1
GOST 11701—84	5.4
GOST 11739.1—90	5.3
GOST 11739.2—90	5.3
GOST 11739.3—82	5.3
GOST 11739.4—90	5.3
GOST 11739.5—90	5.3
GOST 11739.6—82	5.3
GOST 11739.7—82	5.3
GOST 11739.8-90 — GOST 11739.10-90	5.3
GOST 11739.11-82 — GOST 11739.15-82	5.3
GOST 11739.16-90 — GOST 11739.19-90	5.3
GOST 11739.20—82	5.3
GOST 11739.21—90	5.3
GOST 11739.22—90	5.3
GOST 11739.23—82	5.3
GOST 11739.24—82	5.3

Continuation

Code of HTД, reference of which is given	Point number
GOST 12697.1-77- GOST 12697.12-77	5.3
GOST 14192 -77	6.3
GOST 19900 -86	5.1
GOST 24047-80	5.4
GOST 24231-80	5.3
GOST 25686- 87	5.3
GOST 26877 -91	5.27, 5.5

4. **Limitation of period of effect is taken on resolution of Intergovernmental council for standardization, metrology and certification (protocol 3 -93 dated 17.02.93)**
5. **REPRINTED (April 1993) with Amendments № 1, 2, 3, approved in May 1982, January 1987, June 1988 (ИУС9 - 82, 4 - 87, 11 -88).**