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GOST 2208-75

GENERAL PURPOSE BRASS STRIPS.

SUPERSEDES GOST 2208-70.

SHT 1 OF 1E

This standard pertains to brass strips, used in different industrial fields. This standard does not cover radiator strips of thickness upto 0.25 mm.

The requirements of SBV recommendations as per standard RS 1533-58 have been considered in this standard.

I. ASSORTMENT.

1.1. Thickness of strips and tolerances on thickness should correspond to table 1.



FOR REFERENCE ONLY

APPROVED	<i>[Signature]</i>	5/11/75	MATL/SPECN.		
ENGINEER/ GP. INCHARGE	<i>[Signature]</i>	26-7-75	HEAT TREAT		
CHECKED	<i>[Signature]</i>	25-7-75	FINISH		
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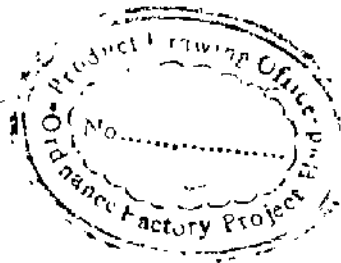
STANDARD / SPECIFICATION	NUMBER
GENERAL PURPOSE BRASS STRIPS	GOST 2208-75
	SUPERSEDES GOST 2208-70
	SHEET I OF 13

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The requirements of GOST recommendations as per standard GOST 2208-70 have been considered in this standard.

1. REQUIREMENTS

1.1. Thickness of strips and tolerances of thickness should correspond to table 1.



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APPROVED	<i>Pathan</i>	5/8/80	MATL./SPECN.			
ENGINEER / IN CHARGE	<i>naik</i>	26-7-80	HEAT TREAT			
CHECKED	<i>at</i>	25-7-80	FINISH			
DRAWN						

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Table No. 1a

mm

Tolerance on thickness and width of strip is

Thickness.	from 20 to 300.		above 300 upto 600.	
	Normal manuf-acturing accuracy.	High manuf-acturing accuracy.	Normal manuf-acturing accuracy.	High manuf-acturing accuracy.
0.06				
0.06				
0.07	-0.01			
0.08				
0.08				
0.10				
0.12	-0.02			
0.14				
0.15				
0.16				
0.17				
0.18	-0.03	-0.02		
0.20				
(0.22)				
0.25				
0.30	-0.04	+0.03	-0.05	
0.35				
0.40				
0.45	-0.05		-0.06	
0.50		-0.04		
0.55			-0.07	-0.04
0.60	-0.06			
0.65				
0.70		-0.05	-0.08	-0.07
0.75				
0.80	-0.07			
0.85				
0.90			+0.09	
1.00	-0.08	-0.06	-0.10	-0.08
1.10				
1.20			-0.11	-0.10
1.30				
(1.40)	+0.09			
1.50		-0.07	-0.12	-0.11
1.60				
1.70	-0.10			
1.80		-0.08	-0.13	-0.13
1.90				
2.00	-0.11		-0.15	-0.14
2.10				
2.20		+0.09		

NOTE : 1. By mutual approval of manufacturer and customer it is allowed to supply strips of intermediate thickness. Tolerances on thickness of such strips are set as the tolerances for the next larger dimension.

2. Strips of dimensions, given in the brackets, are not recommended for new developments.

3. By mutual agreement between manufacturer and customer, strips of thickness 0.25 mm. and above may be fabricated with tolerances on thickness 0.01 mm. lesser than the tolerances for strips of high manufacturing accuracy.

4. Theoretical weight of strips is given in appendix 1.

1-2. Width of strips and tolerances on width should correspond to those given in table 2.

Table No. 2.

Strip width.		Tolerances on width when strip thickness is	
		Upto 1 inclusively.	Above 1
From 10 to 175		-0.4	-0.7
Above 175 to 300		-0.7	-1.0
Above 300 to 600		-1.2	-1.8

NOTE : Recommended strip widths are given in appendix 2.

1.3. Strip length should correspond to the values, given in table 3.

Table No. 3.

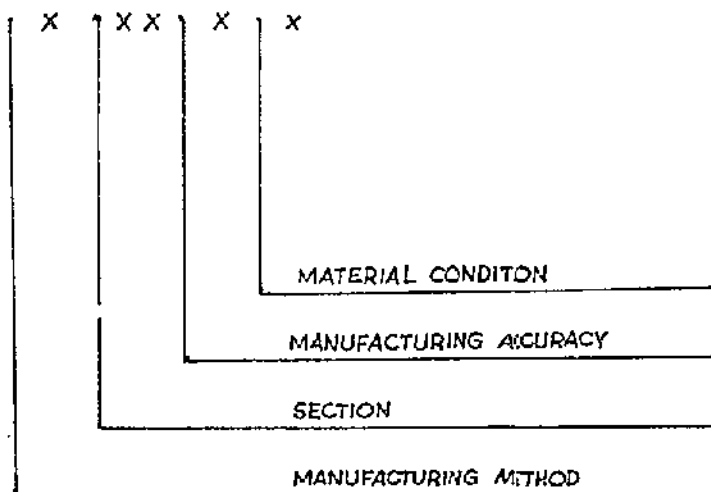
Strip thickness, in mm.	Strip length, in m, minimum.
From 0.05 up to 0.5 inclusively.	20
- " 0.65 - " 1.0 inclusively.	10
- " 1.10 - " 2.0 inclusively.	7

1. Supply of strips having length not less than 5 m. in quantity not exceeding 10% weight of a batch is allowed.

2. By mutual agreement between manufacturer and customer, minimum length of strip may be increased.

Methods of coding

The conventional designations are established as per the following diagram :



with the following abbreviations :

cold-rolled - D;

rectangular section - PR;

normal accuracy - N;

high accuracy - P;

soft - S;

"quarter" hard - Q;

semi hard - R;

hard - H;

extra hard - O;

nonstandard length - ND;

antimagnetic - A.

Cold rolled strip, of rectangular section, with normal manufacturing accuracy, soft, having thickness 0.20 mm, width 100 mm, non-standard length, made from brass of grade LMS 53-20

Strip EPDM 0.20x160 ND HHR 53-2 COST 2208-75,

- do -, high manufacturing accuracy, semi-hard, thickness 0.20 mm, width 175 mm, non-standard length, made from brass of grade L63 :

Strip EPDP 0.20x175 ND HOS COST 2208-75,

- do -, normal manufacturing accuracy, extra hard, thickness 0.20 mm, width 100 mm, non-standard length, made from brass of grade L63 :

Strip EPIN 0.20x100 ND L63 COST 2208-75,

- do -, "quarter" hard, thickness 0.25 mm, width 100 mm, non-standard length, made from brass of grade L63, antimagnetic :

Strip EPIN 0.25x100 ND L63A COST 2208-75.

2. TECHNICAL REQUIREMENTS

2.1. Strips are fabricated from brass of grades L90, L35, L30, L20, L63, L60-1 and L15-2 to GOST 15527-70.

On customer's request strips should be fabricated antimag-
netic in accordance with note No. 1 of GOST 15527-70.

2.2. Dimensions of strips, depending on material condition
and brass grade, should correspond to the values given in table 4.

Table No. 4.

Dimensions, in mm.

Brass grade	Material condition	Thickness	Width
(1)	(2)	(3)	(4)
L90	Soft and semihard.	0.22-0.22	10-200
L35		0.25-0.45	10-250
L30		0.5-2.0	20-600
L63			
L60			
L30	Hard.	0.10-0.22	10-200
L35		0.25-0.45	10-600
L30		0.5-2.0	20-600
L63	Extra hard.	0.14-0.22	10-200
L63		0.25-0.45	10-600
		0.5-2.0	20-600
		0.5-2.0	20-600
L63	Extra hard.	0.14-0.22	10-200
L63		0.25-0.45	10-600
		0.5-2.0	20-600

Contd..../-

(1)	(2)	(3)	(4)
L63	"Quarter" hard.	0.14-0.22	10-200
		0.25-0.45	10-250
		0.55-2.0	20-600
L70-1 L70-2	Soft	0.14-0.40	10-175
		0.45-1.4	20-500
		(1.5-2.0)	(20-600)
L70-1 L70-2	Hard	0.10-0.40	10-175
		0.45-1.4	20-500
		1.5-2.0	20-600
L70-2	Quarter-hard.	0.20-1.2	20-500
L70-2	Semi-hard.	0.14-0.40	10-175
		0.45-1.4	20-500

1. Strips, whose dimensions are given in the brackets, are fabricated by mutual agreement between manufacturer and customer.

2. On customer's request, strips of thickness from 0.5 to 1.2 mm. are fabricated with width from 15 mm.

2.3. Strip surfaces should be smooth and clean. Solitary fine surface defects are allowed if they do not cause the strips (after finishing) to be beyond the lower limits of tolerances on thickness.

Temper colour, partial reddening and insignificant darkened portions on strip surfaces are not causes for rejection.

3. By mutual agreement between manufacturer and customer it is allowed to check the surface quality as per the specifications in the contract.

2.4. Straps should be cut uniformly and should not have burrs and corrugations.

Irregularity and torn edge are not allowed.

Individual nicks, which do not bend the strip beyond the tolerances on width, are allowed on the side of rolls. Grooves in strips should not exceed 4 mm. per metre length.

2.5. On customer's request grooves in shape of strips, meant for operation on automatics, should not exceed 3 mm. per metre length.

2.6. Mechanical properties of strips should correspond to the requirements given in Table 5.

Table No. 5

Strip grade	Material condition	Tensile strength σ_{10} in kg/cm ²	Relative elongation δ_5 in %, minimum
(1)	(2)	(3)	(4)
L20	Soft	21-23	23
	Semihard.	20-23	10
	Hard.	Minimum 23	3
L35	Soft	25-27	23
	Semihard.	23-24	12
	Hard	Minimum 20	3
L50	Soft	27-33	40
	Semihard.	31-44	15
	Hard.	Minimum 40	3
L68	Soft	30-33	42
	Semihard	28-33	20
	Hard	33-33	10

Contd.../-

(1)	(2)	(3)	(4)
190	Soft.	30-42	33
	"Quarter" hard.	35-48	20
	Hard.	42-65	10
	Temp.	63-68	4
	Extra-hard	Minimum 60	-
200-1	Soft.	35-60	25
	Hard.	47-65	5
	Extra-hard.	Minimum 60	3
210-2	Soft	39-59	20
	Hard	43-60	15
	Hard	Minimum 53	4

1. On customer's request, tensile strength of strips from brass of grade 190 should not be less than 37 kg/cm^2 , relative elongation of soft strips from brass of grade 190 - 33% minimum.

2. Tensile strength is determined for strips of thickness 0.3 mm. and above, relative elongation - for strips of thickness 0.5 mm. and above.

3. Value of upper limit of tensile strength is effective for 1 year after introduction of this standard.

2.6. Depth of impression of spherical recess during cupping with punch radius equal to 10 mm., should correspond to the data given in table 6.

Table No. 6.

Brass Grade	Material condition	mm	
		Depth of cupping when strip thick- ness is	
		Up to 0.25	0.30-0.50
B70	Soft	Minimum 7	7.0-9.5
	Hard	2.5-5.5	4.0-7.0
B80	Soft	Minimum 8	-
B85	Soft	Minimum 8	Minimum 10
	Semihard	7-9	9-11
	Hard	5-7	7-9
B90	Soft	Minimum 7.5	Minimum 9.5
	Quarter hard	5.5-7.5	7.5-9.5
	Semihard	3.0-5.5	5.5-7.5
	Hard	2.0-4.5	-

NOTE: 1. Strips of thickness less than 0.10 mm. are not subjected to cupping tests.

2. Norms of depth of cupping of strips from brass of grades and conditions, which are not given in the table, and also in case of testing with a punch having diameters 7.4 and 1.5 mm - are established by mutual approval of customer.

3. Norms of depth of cupping for strips of thickness above 0.50 mm. are given in appendix 3.

2.7. Strips from brass of grades LM53-2 (soft and semihard) of thickness 0.5 mm. and above should withstand the bend test without forming cracks and breaks.

End test is done for metal strips - to 100° , for nonmetal strips - to 50° around a mandrel having rounding radius equal to the strip thickness.

2.3. Grain value of cost strips is set with approval of customer.

3. ACCEPTANCE

3.1. Acceptance of strips is done in batches. Strips of same brass grade, same size, same material condition and same manufacturing accuracy, furnished with a single quality certificate, is taken as a batch.

Weight of a batch is not restricted.

3.2. Appearance and dimensions are checked on each roll of a batch.

3.3. For tests as regards tensile strength, bending and cupping test of spherical recess, 3 specimens from each 1000 kg. are taken from the rolls.

3.4. In case of unsatisfactory test results even for one of the properties, repeated tests are done for it on double quantity of specimens, taken from the same batch. Results of repeated tests are final and pertain to the whole batch.

4. TESTING

4.1. Checking the appearance of strips should be done without using magnifying devices.

4.2. Strip thickness is measured at a distance of not less than 100 mm from the end and not less than 10 mm from the edge.

Thickness of strips having width of 20 mm. and below is measured at the centre of strip.

Measurement is done at both ends and at the centre in not less than 3 places.

Strip thickness should be measured with micrometer (GOST 6507-80).

Width of strip should be measured with vernier calipers (GOST 103-73).

4.3. Tensile test of strips having thickness 0.5 mm. and above should be done as per GOST 1407-73 on long specimens, and for strips having thickness less than 0.5 mm. - as per GOST 11703-83 on short specimens of types I and II having width 12.5 mm. The test specimens should be cut along the direction of rolling.

4.4. Bending test is done as per GOST 14019-61.

4.5. Chemical composition of strips should be determined as per GOST 1652.0-71 - GOST 1652.12-71 and GOST 9716.0-75 - GOST 9716.12-75.

5. PACKING, MARKING, TRANSPORTATION AND STORAGE.

5.1. Strips should be wound into rolls. Winding of rolls should be such that the roll shape should not change. The inner diameter of rolls of strips having thickness 0.05-0.25 mm. is established by mutual agreement between manufacturer and customer.

Rolls of strips of thickness upto 0.80 mm. inclusively are tied with tape or with wire, interfolded with wood shavings or with any other material which protects the strips from damages, and then they are packed in wooden boxes.

Rolls of strips having thickness more than 0.80 mm. and width upto 300 mm. inclusively should be bound with tape or wire and wrapped in packing cloth (GOST 10150-72) or burlap (GOST 10133-72) or with any other material which does not lower the quality of packing.

By mutual agreement between customer and manufacturer it is allowed to have other type of packing.

5.8. It is allowed to transport the strips in tank-cars, closed automobiles and wagons to a single address without reloading on the way, without packing in boxes and cloth.

The strips should be laid and fastened such that they do not move inside the transport during transit.

5.9. Weight of a packing item should not exceed 2000 kg.

5.10. A tag, containing the following details, should be fixed to each roll :

- a) name of manufacturing plant or its trade mark;
- b) brass grade;
- c) dimensions of strips;
- d) manufacturing accuracy (except normal accuracy);
- e) material condition;
- f) Batch No.;
- g) GOST standard No.

Besides this, the step of quality control department should be applied on the roll or tag.

5.5. In each box or container a packing list should be enclosed, in which all the data given in point 5.4 should be indicated. Besides this, batch weight should also be indicated.

5.6. Marking of boxes is done as per GOST 14192-71 with the following additional data :

- a) brass grade;
- b) batch No.;
- c) this standard No.

5.7. Each batch of strips should be furnished with a quality certificate. It should contain :

- a) name of manufacturing plant or its trade mark;
- b) brass grade;
- c) strip dimensions;
- d) manufacturing accuracy (except normal accuracy);
- e) material condition;
- f) test results (as per customer's requirements);
- g) batch No. and weight;
- h) quantity of packing items;
- i) this standard No.

5.8. During transportation and storage the strips should be protected from moisture, mechanical damages and active chemicals.

Appendix 1 to COST 2208-75

Continued.

Theoretical weight of 1 m² brass strip.

Strip thickness in mm.	Theoretical weight of 1 m ² strip, in kg, for brass of grades:	
	200, 215, 230	205, 165, 1050-1 and M15 50-2
	(2)	(3)
0.05	0.61	0.63
0.06	0.62	0.61
0.07	0.63	0.60
0.08	0.70	0.63
0.10	0.73	0.77
0.12	0.87	0.85
0.14	1.01	1.02
0.17	1.22	1.19
0.20	1.31	1.23
0.22	1.57	1.53
0.25	1.74	1.70
0.28	1.91	1.87
0.33	2.18	2.13
0.40	2.61	2.55
0.45	3.05	2.98
0.50	3.43	3.40
0.55	3.92	3.83
0.60	4.35	4.25
0.65	4.73	4.63
0.70	5.22	5.10
0.75	5.63	5.53

Appendix I Contd...../-

(1)	(2)	(3)
0.70	6.69	5.95
0.75	6.83	6.13
0.80	6.93	6.30
0.85	7.10	7.13
0.90	7.33	7.65
1.00	8.70	8.60
1.10	9.57	9.33
1.20	10.44	10.20
1.30	11.31	11.05
1.35	11.75	11.40
1.40	12.19	11.90
1.50	13.05	12.70
1.60	13.92	13.00
1.70	14.79	14.45
1.80	15.66	15.30
1.90	16.53	16.15
2.00	17.40	17.00

NOTE: In the calculations of theoretical weight, density of brass of grades L90, L86 and L80 is taken as 8.7 gm/cm^3 , and for brass of grades L63, L63, L659-1 and LNTs 53-2 it is taken as 8.5 gm/cm^3 .

GENERAL PURPOSE SERIAL GENERAL

Serials

Recommended width of strips in 1/4 :

- 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25,
- 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41,
- 42, 43, 44, 45, 46, 47, 48, 49, 50, 51,
- 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68,
- 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84,
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Appendix 3 to GOST 8203-73

Dimensions

Depth of impression during cupping test of spherical recess
With punch having radius 10 mm.

mm

Material condition	Brass grade	Depth of cupping, minimum, if strip thickness is			
		0.55	0.60-1.20	1.20-1.60	1.70-2.0
1000	LC3	11.4	11.5	12.0	12.5
	LC2	9.4	10.0	10.5	11.0
Standard.	LC3	9-11	9.5-11.5	10-12	10.5-12.5
	LC2	7.5-9.5	8-10	8.5-10.5	9-11

Other standards referred to in this standard:

GOST 16327-73

GOST 6807-60

GOST 166-73

GOST 1497-73.

GOST 11701-63

GOST 24710-63.

GOST 1632.0-71

GOST 1632.12-71

GOST 9716.0-73

GOST 9716.4-73

GOST 16402-73.

GOST 19233-73

GOST 14192-71.