The State Standard of USSR

Castings made of metals and alloys

Dimensional tolerance, weight and allowance for machining

GOST 26645-85

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STATE STANDARD OF USSR

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Dimensional tolerance, weight and allowance for machining 26645-85

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For castings, pcoreuced and mastered by production,

Non- observance of standard is dealt according to law

This standard pertains to castings made of ferrous and non- ferrous metals and alloys and establishes the dimensional tolerance, forms, position and unevenness of surfaces, tolerance of weight and machining allowance.

(Amended edition, amendment No. 1).

1. GENERAL CONDITIONS

1.1. Nominal dimension of casting should be equal to nominal dimension of parts for non-machined surfaces and the total average dimension of part and overall allowance on machining for machined surfaces. Technological allowances should be taking into account while determining nominal dimensions of castings.

1.2. Nominal weight of casting should be equal to weight of casting with nominal dimensions. Determination procedure of nominal weight is established in the branch scientific- technical documents.

1.3. Technological requirement of surplus metal is established by manufacturer and is specified in drawings of castings or parts with specification of casting dimension.

1.4. Norms of accuracy are established for casting in total, its separate surfaces and dimensions.

1.5. Casting accuracy in total is defined by the class of dimensional accuracy of casting, degree of warping, degree of surface accuracy and class of weight accuracy.

Application of classes of dimensional accuracy and weight accuracy of casting is obligatory. Use of other indices for casting accuracy, and if necessary specific requirements for casting accuracy of parts depending on their purpose and operational conditions are noted down in the branch standard- technical documents.

1.6. Norms of casting accuracy: classes of dimensional accuracy, degree of warping, degree of surface accuracy, classes of weight accuracy, as well as allowance for machining, for different technological process and manufacturing condition and casting process are given in appendix 1-7.

It is permitted to establish the maximum rigid norms of accuracy on separate dimensions and casting surfaces and than for the entire casting.

1.7. On the drawing of casting (or part drawing with applied dimension of casting) measuring bases (marking base) and bases of initial machining surfaces should be specified.

1.8. Terms and their determinations, used in this standard are given in appendix 9.

2. DIMENSIONAL TOLERANCES, SHAPES, POSITION AND UNEVEN SURFACES OF CASTING

2.1. Tolerance of linear dimensions of casting, changeable and unchangeable by machining, should correspond to those specified in table 1.

Range of nominal dimensions in mm	Dimensional tolerance for casting in mm							
	1	2	3т	3	4	5т	5	6
Upto 4	0,06	0,08	0,10	0,12	0,16	0,20	0,24	0,32
Above 4 » 6	0,07	0,09	0,11	0,14	0,18	0,22	0,28	0,36
» 6 » 10	0,08	0,10	0,12	0,16	0,20	0,24	0,32	0,40
» 10 » 16	0,09	0,11	0,14	0,18	0,22	0,28	0,36	0,44
» 16 » 25	0,10	0,12	0,16	0,20	0,24	0,32	0,40	0,50
» 25 » 40	0,11	0,14	0,18	0,22	0,28	0,36	0,44	0,56
» 40 » 63	0,12	0,16	0,20	0,24	0,32	0,40	0,50	0,64
» 63 » 100	0,14	0,18	0,22	0,28	0,36	0,44	0,56	0,70
» 100 » 160	0,16	0,20	0,24	0,32	0,40	0,50	0,64	0,80
» 160 » 250	—	—	0,28	0,36	0,44	0,56	0,70	0,90
» 250 » 400	—	—	0,32	0,40	0,50	0,64	0,80	1,00
» 400 » 630	—	—	—	—	0,56	0,70	0,90	1,10
» 630 » 1000	—	—	—	—	—	0,80	1,00	1,20
» 1000 » 1600	—	—	—	—	—	—	—	1,40
» 1600 » 2500	—	—	—	—	—	—	—	—
» 2500 » 4000	—	—	—	—	—	—	—	—
» 4000 » 6300	—	—	—	—	—	—	—	—
» 6300 » 10000	—	—	—	—	—	—	—	—
» 10000	—	—	—	—	—	—	—	—

For inclined, conical and formed surfaces, assigned with coordinates from one base or surface, it is permitted to establish the tolerance on nominal value from maximum dimensions.

Dimensional tolerances, given in table 1, are without considering the tolerances of shapes and position of casting surfaces, except as specified in sub points 2.6 – 2.8.

2.2. Dimensional tolerances of casting elements formed by two semi moulds or half mould and core, establishes with corresponding class of dimensional accuracy for casting. Dimensional tolerance, formed in one part of casting moulds or one core are established on 1 and 2 accuracy classes. Dimensional tolerances formed by three or more parts of casting moulds and several cores or moving elements moulds and also the tolerance of wall thickness formed by two and more parts of moulds and cores, are set for 1 and 2 rough- finished classes.

2.3. Dimensional tolerance of casting from preliminarily machined surface to cast surface should correspond to table 1. Classes of their accuracy and code on drawing are establishes by branch standard- technical documents.

2.4. Tolerance of angular dimensions in conversion on linear should not exceed the values, established in table 1 for linear dimensions to the corresponding classes of accuracy.

Table 1

maximum, for class of accuracy													
7т	7	8	9т	9	10	11т	11	12	13т	13	14	15	16
0,40	0,50	0,64	0,8	1,0	1,2	1,6	2,0	—	—	—	—	—	—
0,44	0,56	0,70	0,9	1,1	1,4	1,8	2,2	2,8	—	—	—	—	—
0,50	0,64	0,80	1,0	1,2	1,6	2,0	2,4	3,2	4,0	5,0	—	—	—
0,56	0,70	0,90	1,1	1,4	1,8	2,2	2,8	3,6	4,4	5,6	7	—	—
0,64	0,80	1,00	1,2	1,6	2,0	2,4	3,2	4,0	5,0	6,4	8	10	12
0,70	0,90	1,10	1,4	1,8	2,2	2,8	3,6	4,4	5,6	7,0	9	11	14
0,80	1,00	1,20	1,6	2,0	2,4	3,2	4,0	5,0	6,4	8,0	10	12	16
0,90	1,10	1,40	1,8	2,2	2,8	3,6	4,4	5,6	7,0	9,0	11	14	18
1,00	1,20	1,60	2,0	2,4	3,2	4,0	5,0	6,4	8,0	10,0	12	16	20
1,10	1,40	1,80	2,2	2,8	3,6	4,4	5,6	7,0	9,0	11,0	14	18	22
1,20	1,60	2,00	2,4	3,2	4,0	5,0	6,4	8,0	10,0	12,0	16	20	24
1,40	1,80	2,20	2,8	3,6	4,4	5,6	7,0	9,0	11,0	14,0	18	22	28
1,60	2,00	2,40	3,2	4,0	5,0	6,4	8,0	10,0	12,0	16,0	20	24	32
1,80	2,20	2,80	3,6	4,4	5,6	7,0	9,0	11,0	14,0	18,0	22	28	36
2,00	2,40	3,20	4,0	5,0	6,4	8,0	10,0	12,0	16,0	20,0	24	32	40
—	3,20	3,60	4,4	5,6	7,0	9,0	11,0	14,0	18,0	22,0	28	36	44
—	—	—	5,0	6,4	8,0	10,0	12,0	16,0	20,0	24,0	32	40	50
—	—	—	—	8,0	10,0	12,0	16,0	20,0	24,0	32,0	40	50	64
—	—	—	—	—	12,0	16,0	20	24	32	40	50	64	80

2.5. Tolerance of forms and position of casting surfaces (deviation from straightness, plainness, parallelism, perpendicularity and the assigned profile) expressed in diameter should correspond to those specifications of table 2.

Tolerance of forms and position, given in table 2, are without considering the moulding drafts in accordance with GOST 3212-80 and tolerance according to sub-points 2.6, 2.7.

2.6. Tolerance of roundness, coaxiality, symmetricity, cross- section of axis, positional tolerance expressed in diameter should not exceed the tolerance on dimensions, given in table 1.

2.7. Tolerance for displacement of casting on parting plane expressed in diameter is established according to table 1 on level of class of dimensional accuracy of casting according to nominal dimension of thinnest from wall of casting, projected on joints or intersecting it.

2.8. Tolerance for displacement, caused by the misalignment of cores, expressed in diameter is established according to table 1 on 1 and 2 more accurate class of dimensional accuracy of casting, on nominal dimension of thinnest wall of casting, formed with the uses of core.

2.9. Total tolerance of casting elements, which consider the combined influence of dimensional tolerance from surface to bases and tolerance of forms and position of surface are given in table 16 of appendix 8.

2.10. Tolerance for uneven surfaces of casting should correspond to the specifications of table 3.

2.11. Symmetrical position of tolerance ranges is established for machined surfaces of casting, symmetrical and unsymmetrical (partially or completely) position of field of dimensional tolerance, forms and positions for un-machined surfaces is permitted.

Set the symmetrical position of tolerance range for uneven surfaces of casting.

Table 2

Nominal dimension of standardized section of casting	Tolerance of forms and position of casting elements in mm, maximum for degree of warpage of casting elements										
	1	2	3	4	5	6	7	8	9	10	11
Upto 125	0,12	0,16	0,20	0,24	0,32	0,40	0,50	0,64	0,80	1,00	1,20
Above 125 » 160	0,16	0,20	0,24	0,32	0,40	0,50	0,64	0,80	1,00	1,20	1,60
» 160 » 200	0,20	0,24	0,32	0,40	0,50	0,64	0,80	1,00	1,20	1,60	2,00
» 200 » 250	0,24	0,32	0,40	0,50	0,64	0,80	1,00	1,20	1,60	2,00	2,40
» 250 » 315	0,32	0,40	0,50	0,64	0,80	1,00	1,20	1,60	2,00	2,40	3,20
» 315 » 400	0,40	0,50	0,64	0,80	1,00	1,20	1,60	2,00	2,40	3,20	4,00
» 400 » 500	0,50	0,64	0,80	1,00	1,20	1,60	2,00	2,40	3,20	4,00	5,00
» 500 » 630	0,64	0,80	1,00	1,20	1,60	2,00	2,40	3,20	4,00	5,00	6,40
» 630 » 800	0,80	1,00	1,20	1,60	2,00	2,40	3,20	4,00	5,00	6,40	8,00
» 800 » 1000	1,00	1,20	1,60	2,00	2,40	3,20	4,00	5,00	6,40	8,00	10,00
» 1000 » 1200	1,20	1,60	2,00	2,40	3,20	4,00	5,00	6,40	8,00	10,00	12,00
» 1200 » 1600	1,60	2,00	2,40	3,20	4,00	5,00	6,40	8,00	10,00	12,00	16,00
» 1600 » 2000	2,00	2,40	3,20	4,00	5,00	6,40	8,00	10,00	12,00	16,00	20,00
» 2000 » 2500	2,40	3,20	4,00	5,00	6,40	8,00	10,00	12,00	16,00	20,00	24,00
» 2500 » 3150	3,20	4,00	5,00	6,40	8,00	10,00	12,00	16,00	20,00	24,00	32,00
» 3150 » 4000	4,00	5,00	6,40	8,00	10,00	12,00	16,00	20,00	24,00	32,00	40,00
» 4000 » 5000	5,00	6,40	8,00	10,00	12,00	16,00	20,00	24,00	32,00	40,00	50,00
» 5000 » 6300	6,40	8,00	10,00	12,00	16,00	20,00	24,00	32,00	40,00	50,00	64,00
» 6300 » 8000	8,00	10,00	12,00	16,00	20,00	24,00	32,00	40,00	50,00	64,00	80,00
» 8000 » 10000	10,00	12,00	16,00	20,00	24,00	32,00	40,00	50,00	64,00	80,00	—
» 10000	12,00	16,00	20,00	24,00	32,00	40,00	50,00	64,00	80,00	—	—

Note. During determination of tolerance, forms and position for nominal dimension of standardized section, the maximum dimension of standardized section of casting elements should be assumed, for which deviation, forms and position of surfaces are regulated.

Table 3

Tolerance of uneven surface of casting, in mm, maximum, for degree of accuracy of casting surfaces																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.24	0.32	0.40	0.50	0.64	0.80	1.0	1.2	1.6	2.0	2.4	3.2	4.0	5.0	6.4

3. TOLERANCE FOR WEIGHT OF CASTING

3.1. Tolerance for weight of casting should correspond to the specifications given in table 4.

3.2. Symmetrical position to tolerance range of weight in relation to nominal weight is determined.

4. ALLOWANCE FOR PROCESSING OF CASTING

4.1. Machining allowances (on sides) are prescribed differentially on each surface of casting to be machined.

4.1.1. Minimum casting allowance for machining of surface of casting is prescribed in accordance with table 5 for elimination of unevenness and defects of casting surfaces and decreasing of surface roughness in the absence of required higher accuracy of dimensions, forms and position of surface to be machined.

4.1.2. Total allowance is prescribed in accordance with table 6 for elimination of errors in dimensions, forms and positions, unevenness and defects of surfaces to be machined, which are formed during making of casting and subsequent steps of their machining, for the purpose to increase the accuracy of elements of casting to be machined.

4.2. Total allowances are prescribed on total values of Total tolerance in all cases, except specially specified in points 4.2.1 and 4.2.2.

4.2.1. Total allowance on rotating surface and opposite surface, which is used as base during machining, are taken as half value of Total tolerance of casting on corresponding diameters or distance between the opposite surfaces of casting.

4.2.2. During separate machining of casting with their installation with the alignment of surface in relation to nominal surface, allowances are taken as half tolerance values of forms and position of surface to be machined at one – sided deviation of forms and position of surface in relation to the nominal and complete tolerance of forms and position of surface to be machined in relation to nominal surface of casting.

4.3. Total tolerance with the purpose of allowance is determined for dimensions from surface to be machined to machining base, in this case the dimensional tolerance of casting, changed by machining, is determined according to nominal dimensions of part.

Nominal weight of casting in kg				Tolerance of weight of casting in %, maximum,							
				1	2	3т	3	4	5т	5	6
	Upto		0,1	1,6	2,0	2,4	3,2	4,0	5,0	6,4	8,0
Above	0,1	»	0,4	1,2	1,6	2,0	2,4	3,2	4,0	5,0	6,4
»	0,4	»	1,0	1,0	1,2	1,6	2,0	2,4	3,2	4,0	5,0
»	1,0	»	4,0	—	1,0	1,2	1,6	2,0	2,4	3,2	4,0
»	4,0	»	10,0	—	—	1,0	1,2	1,6	2,0	2,4	3,2
»	10,0	»	40,0	—	—	—	1,0	1,2	1,6	2,0	2,4
»	40,0	»	100,0	—	—	—	—	1,0	1,2	1,6	2,0
»	100,0	»	400,0	—	—	—	—	—	1,0	1,2	1,6
»	400,0	»	1000,0	—	—	—	—	—	—	1,0	1,2
»	1000,0	»	4000,0	—	—	—	—	—	—	—	1,0
»	4000,0	»	10000,0	—	—	—	—	—	—	—	—
»	10000,0	»	40000,0	—	—	—	—	—	—	—	—
»	40000,0	»	100000,0	—	—	—	—	—	—	—	—
»	100000,0			—	—	—	—	—	—	—	—

Note. Tolerance of weight of casting is given in percentage of nominal weight of casting.

Row of allowance of casting	1	2	3	4	5	6	7	8
Minimum casting allowance on sides in mm, maximum	0.1	0.2	0.3	0.4	0.5	0.6	0.8	1.0

4.4. For non- standard requirement to accuracy of forms and position of surfaces of casting to be machined, total allowance is determined according to points 4.2, 4.2.1 and 4.2.2 on dimensional tolerance of casting from machined surface to machining base.

Table 4

for class of accuracy of weight of casting													
7т	7	8	9т	9	10	11т	11	12	13т	13	14	15	16
10,0	12,0	16,0	20,0	24,0	32,0	—	—	—	—	—	—	—	—
8,0	10,0	12,0	16,0	20,0	24,0	32,0	—	—	—	—	—	—	—
6,4	8,0	10,0	12,0	16,0	20.0	24,0	32,0	—	—	—	—	—	—
5,0	6,4	8,0	10,0	12,0	16,0	20,0	24,0	32,0	—	—	—	—	—
4,0	5,0	6,4	8,0	10,0	12,0	16,0	20,0	24,0	32,0	—	—	—	—
3,2	4,0	5,0	6,4	8,0	10,0	12,0	16,0	20,0	24,0	32,0	—	—	—
2,4	3,2	4,0	5,0	6,4	8,0	10,0	12,0	16,0	20,0	24,0	32,0	—	—
2,0	2,4	3,2	4,0	5,0	6,4	8,0	10,0	12,0	16,0	20,0	24,0	32,0	—
1,6	2,0	2,4	3,2	4,0	5,0	6,4	8,0	10,0	12,0	16,0	20,0	24,0	32,0
1,2	1,6	2,0	2,4	3,2	4,0	5,0	6,4	8,0	10,0	12,0	16,0	20,0	24,0
1,0	1,2	1,6	2,0	2,4	3,2	4,0	5,0	6,4	8,0	10,0	12,0	16,0	20,0
—	1,0	1,2	1,6	2,0	2,4	3,2	4,0	5,0	6,4	8,0	10,0	12,0	16,0
—	—	1,0	1,2	1,6	2,0	2,4	3,2	4,0	5,0	6,4	8,0	10,0	12,0
—	—	—	1,0	1,2	1,6	2,0	2,4	3,2	4,0	5,0	6,4	8,0	10,0

Table 5

9	10	11	12	13	14	15	16	17	18
1.2	1.6	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0

4.5. Value of total allowance for each range of Total tolerance, written in different lines in table 6 and corresponding to rough, semi- finished, finished and fine machining, is selected depending on ratios between required accuracy of machined surface of part and initial accuracy of casting surfaces, given in table 7 for errors of dimensions and in table 8 for errors of forms and position of surfaces of part and casting; finally take the value of allowance, which corresponds to more accurate machining.

4.6. Total allowance for casting is given in table 6, which is machined at average level of machining accuracy.

Depending on the technical level of machining technology, values of allowances should be increased or reduced according to table 15 of appendix 7.

Table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		1	2	3	4	5	6	7	8	9
Upto 0,10	Rough	0,2	0,3	0,4	0,5	0,6	0,7	0,9	—	—
	Finished	0,2	0,3	0,4	0,5	0,6	0,7	0,9	—	—
	Fine	0,2	0,3	0,4	0,5	0,6	0,7	1,0	—	—
Above 0,10 to 0,11	Rough	0,2	0,3	0,4	0,5	0,6	0,7	0,9	—	—
	Semi-finished	0,2	0,3	0,4	0,5	0,6	0,7	0,9	—	—
	Finished	0,2	0,3	0,4	0,5	0,6	0,7	1,0	—	—
	Fine	0,3	0,4	0,4	0,6	0,6	0,8	0,9	—	—
Above 0,11 to 0,12	Rough	0,2	0,3	0,4	0,5	0,6	0,7	0,9	1,1	—
	Semi-finished	0,2	0,3	0,4	0,5	0,6	0,7	0,9	1,3	—
	Finished	0,3	0,3	0,5	0,5	0,7	0,8	1,0	1,3	—
	Fine	0,3	0,4	0,5	0,6	0,7	0,8	1,0	1,3	—
Above 0,12 to 0,14	Rough	0,2	0,3	0,4	0,5	0,6	0,7	0,9	1,1	—
	Semi-finished	0,3	0,3	0,5	0,5	0,7	0,8	1,0	1,3	—
	Finished	0,3	0,4	0,5	0,6	0,7	0,8	1,0	1,3	—
	Fine	0,3	0,4	0,5	0,6	0,7	0,8	1,0	1,3	—
Above 0,14 to 0,16	Rough	0,2	0,3	0,4	0,5	0,6	0,7	0,9	1,1	1,3
	Semi-finished	0,3	0,4	0,5	0,6	0,7	0,8	1,0	1,3	1,4
	Finished	0,3	0,4	0,5	0,6	0,7	0,8	1,0	1,3	1,5
	Fine	0,3	0,4	0,5	0,6	0,7	0,8	1,0	1,3	1,5
Above 0,16 to 0,18	Rough	0,2	0,3	0,4	0,5	0,6	0,7	0,9	1,2	1,4
	Semi-finished	0,3	0,4	0,5	0,6	0,7	0,8	1,0	1,3	1,5
	Finished	0,3	0,4	0,5	0,6	0,7	0,8	1,0	1,3	1,5
	Fine	0,3	0,5	0,5	0,7	0,8	0,9	1,1	1,4	1,6
Above 0,18 to 0,20	Rough	0,2	0,3	0,4	0,5	0,6	0,7	1,0	1,2	1,4
	Semi-finished	0,3	0,4	0,5	0,6	0,7	0,8	1,0	1,3	1,5
	Finished	0,3	0,5	0,5	0,7	0,8	0,9	1,1	1,4	1,6
	Fine	0,4	0,5	0,6	0,7	0,8	0,9	1,1	1,4	1,6

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		10	11	12	13	14	15	16	17	18
Upto 0.10	Rough	-	-	-	-	-	-	-	-	-
	Finished	-	-	-	-	-	-	-	-	-
	Fine	-	-	-	-	-	-	-	-	-
Above 0.10 to 0.11	Rough	-	-	-	-	-	-	-	-	-
	Semi-finished	-	-	-	-	-	-	-	-	-
	Finished	-	-	-	-	-	-	-	-	-
	Fine	-	-	-	-	-	-	-	-	-
Above 0.11 to 0.12	Rough	-	-	-	-	-	-	-	-	-
	Semi-finished	-	-	-	-	-	-	-	-	-
	Finished	-	-	-	-	-	-	-	-	-
	Fine	-	-	-	-	-	-	-	-	-
Above 0.12 to 0.14	Rough	-	-	-	-	-	-	-	-	-
	Semi-finished	-	-	-	-	-	-	-	-	-
	Finished	-	-	-	-	-	-	-	-	-
	Fine	-	-	-	-	-	-	-	-	-
Above 0.14 to 0.16	Rough	-	-	-	-	-	-	-	-	-
	Semi-finished	-	-	-	-	-	-	-	-	-
	Finished	-	-	-	-	-	-	-	-	-
	Fine	-	-	-	-	-	-	-	-	-
Above 0.16 to 0.18	Rough	-	-	-	-	-	-	-	-	-
	Semi-finished	-	-	-	-	-	-	-	-	-
	Finished	-	-	-	-	-	-	-	-	-
	Fine	-	-	-	-	-	-	-	-	-
Above 0.18 to 0.20	Rough	1.8	-	-	-	-	-	-	-	-
	Semi-finished	1.9	-	-	-	-	-	-	-	-
	Finished	2.1	-	-	-	-	-	-	-	-
	Fine	2.1	-	-	-	-	-	-	-	-

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		1	2	3	4	5	6	7	8	9
Above 0,20 to 0,22	Rough	0,3	0,4	0,4	0,6	0,6	0,8	0,9	1,1	1,4
	Semi-finished	0,3	0,4	0,5	0,6	0,7	0,8	1,1	1,4	1,6
	Finished	0,4	0,5	0,6	0,7	0,8	0,9	1,1	1,4	1,6
	Fine	0,4	0,5	0,6	0,7	0,8	0,9	1,1	1,4	1,6
Above 0,22 to 0,24	Rough	0,3	0,4	0,5	0,6	0,7	0,8	1,0	1,1	1,4
	Semi-finished	0,4	0,4	0,6	0,6	0,8	0,8	1,1	1,4	1,6
	Finished	0,4	0,5	0,6	0,7	0,8	0,9	1,1	1,4	1,6
	Fine	0,4	0,5	0,6	0,7	0,8	0,9	1,2	1,5	1,7
Above 0,24 to 0,28	Rough	0,3	0,4	0,5	0,6	0,7	0,8	1,0	1,2	1,4
	Semi-finished	0,4	0,5	0,6	0,7	0,8	0,9	1,1	1,4	1,6
	Finished	0,5	0,5	0,7	0,8	0,9	1,0	1,2	1,5	1,7
	Fine	0,5	0,6	0,7	0,8	0,9	1,0	1,2	1,5	1,7
Above 0,28 to 0,32	Rough	0,3	0,4	0,5	0,6	0,7	0,8	1,0	1,2	1,4
	Semi-finished	0,4	0,5	0,6	0,7	0,8	0,9	1,2	1,5	1,7
	Finished	0,5	0,6	0,7	0,8	0,9	1,0	1,2	1,5	1,7
	Fine	0,5	0,7	0,8	0,9	1,0	1,1	1,3	1,6	1,8
Above 0,32 to 0,36	Rough	0,3	0,5	0,5	0,7	0,8	0,9	1,1	1,3	1,5
	Semi-finished	0,5	0,6	0,7	0,8	0,9	1,0	1,2	1,5	1,7
	Finished	0,5	0,7	0,8	0,9	1,0	1,1	1,3	1,6	1,8
	Fine	0,6	0,7	0,8	0,9	1,0	1,1	1,3	1,6	1,8
Above 0,36 to 0,40	Rough	0,4	0,5	0,6	0,7	0,8	0,9	1,1	1,3	1,5
	Semi-finished	0,5	0,6	0,7	0,8	0,9	1,0	1,2	1,5	1,7
	Finished	0,6	0,7	0,8	0,9	1,0	1,1	1,3	1,6	1,8
	Fine	0,6	0,8	0,8	0,9	1,1	1,1	1,4	1,6	1,9
Above 0,40 to 0,44	Rough	0,4	0,5	0,6	0,7	0,8	0,9	1,1	1,3	1,5
	Semi-finished	0,6	0,7	0,8	0,9	1,0	1,1	1,3	1,6	1,8
	Finished	0,6	0,7	0,9	1,0	1,1	1,2	1,4	1,7	1,9
	Fine	0,7	0,8	0,9	1,0	1,1	1,2	1,4	1,7	1,9

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		10	11	12	13	14	15	16	17	18
Above 0,20 to 0,22	Rough	1,8	—	—	—	—	—	—	—	—
	Semi-finished	2,0	—	—	—	—	—	—	—	—
	Finished	2,1	—	—	—	—	—	—	—	—
	Fine	2,1	—	—	—	—	—	—	—	—
Above 0,22 to 0,24	Rough	1,8	2,2	2,6	—	—	—	—	—	—
	Semi-finished	1,9	2,4	3,0	—	—	—	—	—	—
	Finished	2,1	2,5	3,1	—	—	—	—	—	—
	Fine	2,1	2,5	3,3	—	—	—	—	—	—
Above 0,24 to 0,28	Rough	1,8	2,2	2,7	—	—	—	—	—	—
	Semi-finished	2,0	2,4	3,0	—	—	—	—	—	—
	Finished	2,1	2,5	3,2	—	—	—	—	—	—
	Fine	2,2	2,6	3,3	—	—	—	—	—	—
Above 0,28 to 0,32	Rough	1,8	2,2	2,7	3,3	—	—	—	—	—
	Semi-finished	2,1	2,4	3,1	3,6	—	—	—	—	—
	Finished	2,2	2,6	3,1	3,6	—	—	—	—	—
	Fine	2,3	2,7	3,4	3,9	—	—	—	—	—
Above 0,32 to 0,36	Rough	1,9	2,3	2,7	3,3	—	—	—	—	—
	Semi-finished	2,1	2,5	3,1	3,6	—	—	—	—	—
	Finished	2,3	2,7	3,3	3,8	—	—	—	—	—
	Fine	2,3	2,7	3,4	3,9	—	—	—	—	—
Above 0,36 to 0,40	Rough	1,9	2,3	2,8	3,3	4,3	—	—	—	—
	Semi-finished	2,1	2,5	3,2	3,7	4,8	—	—	—	—
	Finished	2,3	2,7	3,3	3,8	5,0	—	—	—	—
	Fine	2,4	2,8	3,4	4,0	5,1	—	—	—	—
Above 0,40 to 0,44	Rough	1,9	2,3	2,8	3,4	4,3	—	—	—	—
	Semi-finished	2,2	2,6	3,1	3,6	4,8	—	—	—	—
	Finished	2,4	2,7	3,4	3,9	5,0	—	—	—	—
	Fine	2,4	2,8	3,4	4,0	5,1	—	—	—	—

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		1	2	3	4	5	6	7	8	9
Above 0,44 to 0,50	Rough	0,5	0,5	0,7	0,8	0,9	1,0	1,2	1,4	1,6
	Semi-finished	0,6	0,7	0,8	0,9	1,0	1,1	1,3	1,6	1,8
	Finished	0,7	0,8	0,9	1,0	1,1	1,2	1,4	1,7	1,9
	Fine	0,8	0,9	1,0	1,1	1,2	1,3	1,5	1,8	2,0
Above 0,50 to 0,56	Rough	0,5	0,6	0,7	0,8	0,9	1,0	1,2	1,4	1,6
	Semi-finished	0,7	0,8	0,9	1,0	1,1	1,2	1,4	1,7	1,9
	Finished	0,8	0,9	1,0	1,1	1,2	1,3	1,5	1,8	2,0
	Fine	0,9	1,0	1,1	1,2	1,3	1,4	1,6	1,9	2,1
Above 0,56 to 0,64	Rough	0,5	0,7	0,8	0,9	1,0	1,1	1,3	1,5	1,7
	Semi-finished	0,8	0,9	1,0	1,1	1,2	1,3	1,5	1,8	2,0
	Finished	0,9	1,0	1,1	1,2	1,3	1,4	1,6	1,9	2,1
	Fine	1,0	1,1	1,2	1,3	1,4	1,5	1,7	2,0	2,2
Above 0,64 to 0,70	Rough	0,6	0,7	0,8	0,9	1,0	1,1	1,3	1,5	1,7
	Semi-finished	0,8	0,9	1,1	1,2	1,3	1,4	1,6	1,9	2,1
	Finished	0,9	1,1	1,1	1,3	1,4	1,4	1,6	1,9	2,2
	Fine	1,1	1,1	1,3	1,4	1,4	1,6	1,8	2,1	2,3
Above 0,70 to 0,80	Rough	0,6	0,8	0,8	0,9	1,1	1,1	1,4	1,6	1,8
	Semi-finished	0,9	1,1	1,2	1,3	1,4	1,5	1,7	2,0	2,1
	Finished	1,1	1,2	1,3	1,4	1,5	1,6	1,8	2,1	2,3
	Fine	1,2	1,3	1,4	1,5	1,6	1,7	1,9	2,2	2,4
Above 0,80 to 0,90	Rough	0,7	0,8	0,9	1,0	1,1	1,2	1,4	1,6	1,8
	Semi-finished	1,1	1,2	1,3	1,4	1,5	1,6	1,8	2,1	2,3
	Finished	1,2	1,3	1,4	1,5	1,6	1,7	1,9	2,2	2,4
	Fine	1,4	1,4	1,6	1,6	1,8	1,9	2,1	2,4	2,6
Above 0,90 to 1,00	Rough	0,8	0,9	1,0	1,1	1,2	1,3	1,5	1,7	1,9
	Semi-finished	1,2	1,3	1,4	1,5	1,6	1,7	1,9	2,1	2,4
	Finished	1,3	1,4	1,5	1,6	1,7	1,8	2,0	2,3	2,5
	Fine	1,5	1,6	1,7	1,8	1,9	2,0	2,2	2,5	2,7

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		10	11	12	13	14	15	16	17	18
Above 0,44 to 0,50	Rough	2,0	2,4	2,8	3,4	4,4	5,3	—	—	—
	Semi-finished	2,2	2,6	3,3	3,8	4,8	5,8	—	—	—
	Finished	2,4	2,8	3,5	3,9	5,2	6,2	—	—	—
	Fine	2,5	2,9	3,6	4,1	5,3	6,3	—	—	—
Above 0,50 to 0,56	Rough	2,0	2,4	2,9	3,4	4,4	5,5	—	—	—
	Semi-finished	2,3	2,7	3,3	3,8	4,9	5,8	—	—	—
	Finished	2,5	2,9	3,4	4,0	5,1	6,1	—	—	—
	Fine	2,6	3,0	3,6	4,3	5,5	6,3	—	—	—
Above 0,56 to 0,64	Rough	2,1	2,4	2,9	3,5	4,4	5,5	6,5	—	—
	Semi-finished	2,4	2,8	3,4	3,9	5,0	6,0	7,1	—	—
	Finished	2,6	3,0	3,6	4,1	5,3	6,3	7,3	—	—
	Fine	2,7	3,1	3,8	4,3	5,4	6,5	7,5	—	—
Above 0,64 to 0,70	Rough	2,1	2,5	3,0	3,4	4,5	5,4	6,5	8,5	—
	Semi-finished	2,4	2,8	3,5	3,9	5,0	6,0	7,1	9,3	—
	Finished	2,6	3,1	3,6	4,1	5,3	6,3	7,5	9,8	—
	Fine	2,8	3,1	3,9	4,4	5,6	6,5	7,8	9,8	—
Above 0,70 to 0,80	Rough	2,2	2,6	3,1	3,6	4,6	5,6	6,5	8,5	—
	Semi-finished	2,5	2,9	3,6	4,0	5,2	6,2	7,3	9,3	—
	Finished	2,8	3,1	3,8	4,3	5,4	6,5	7,5	9,8	—
	Fine	2,9	3,4	4,0	4,5	5,8	6,7	7,8	10,0	—
Above 0,80 to 0,90	Rough	2,2	2,6	3,2	3,7	4,6	5,6	6,7	8,5	10,5
	Semi-finished	2,7	3,1	3,7	4,1	5,3	6,3	7,3	9,5	11,5
	Finished	2,9	3,4	3,9	4,4	5,6	6,7	7,8	9,8	12,0
	Fine	3,1	3,4	4,1	4,6	5,8	6,9	8,0	10,5	12,5
Above 0,90 to 1,00	Rough	2,3	2,7	3,1	3,6	4,8	5,6	6,7	8,8	10,5
	Semi-finished	2,7	3,2	3,8	4,3	5,3	6,3	7,5	9,5	11,5
	Finished	3,0	3,5	4,0	4,5	5,8	6,7	7,8	10,0	12,0
	Fine	3,1	3,6	4,3	4,8	6,0	6,9	8,0	10,5	12,5

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		1	2	3	4	5	6	7	8	9
Above 1,00 to 1,10	Rough	0,8	0,9	1,1	1,2	1,3	1,4	1,6	1,8	2,0
	Semi-finished	1,1	1,3	1,4	1,4	1,6	1,6	1,9	2,2	2,4
	Finished	1,4	1,4	1,6	1,6	1,8	1,9	2,1	2,4	2,6
	Fine	1,6	1,7	1,8	1,9	2,0	2,1	2,3	2,5	2,7
Above 1,10 to 1,20	Rough	0,9	1,0	1,1	1,2	1,3	1,4	1,6	1,8	2,0
	Semi-finished	1,3	1,4	1,5	1,6	1,7	1,8	2,0	2,3	2,5
	Finished	1,5	1,6	1,7	1,8	1,9	2,0	2,2	2,5	2,7
	Fine	1,7	1,8	1,9	2,0	2,1	2,1	2,4	2,7	2,8
Above 1,20 to 1,40	Rough	1,1	1,2	1,3	1,4	1,5	1,6	1,8	2,0	2,1
	Semi-finished	1,5	1,6	1,7	1,8	1,9	2,0	2,2	2,5	2,7
	Finished	1,8	1,9	1,9	2,1	2,2	2,3	2,5	2,8	3,0
	Fine	1,9	2,0	2,1	2,2	2,3	2,4	2,6	2,9	3,2
Above 1,40 to 1,60	Rough	1,2	1,3	1,4	1,5	1,6	1,7	1,9	2,1	2,3
	Semi-finished	1,7	1,8	1,9	2,0	2,1	2,2	2,4	2,7	2,9
	Finished	1,9	2,1	2,2	2,3	2,4	2,5	2,6	3,0	3,1
	Fine	2,2	2,3	2,4	2,5	2,6	2,7	2,9	3,1	3,4
Above 1,60 to 1,80	Rough	1,2	1,3	1,4	1,5	1,6	1,7	1,9	2,1	2,3
	Semi-finished	1,8	1,9	2,0	2,1	2,2	2,3	2,5	2,8	3,0
	Finished	2,1	2,2	2,3	2,4	2,5	2,6	2,8	3,1	3,3
	Fine	2,3	2,4	2,5	2,6	2,7	2,8	3,0	3,4	3,6
Above 1,80 to 2,00	Rough	1,3	1,4	1,5	1,6	1,7	1,8	2,0	2,2	2,4
	Semi-finished	1,9	2,1	2,2	2,3	2,4	2,5	2,6	3,0	3,1
	Finished	2,3	2,4	2,5	2,6	2,7	2,8	3,0	3,4	3,6
	Fine	2,6	2,7	2,8	2,9	3,0	3,1	3,3	3,6	3,8
Above 2,00 to 2,20	Rough	1,5	1,6	1,7	1,8	1,9	2,0	2,2	2,4	2,6
	Semi-finished	2,1	2,3	2,4	2,4	2,5	2,7	2,8	3,2	3,4
	Finished	2,5	2,6	2,7	2,8	2,9	3,0	3,3	3,6	3,8
	Fine	2,9	3,0	3,1	3,1	3,3	3,4	3,6	3,9	4,1

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		10	11	12	13	14	15	16	17	18
Above 1,00 to 1,10	Rough	2,4	2,7	3,3	3,8	4,8	5,8	6,7	8,8	10,5
	Semi-finished	2,8	3,1	3,8	4,3	5,3	6,3	7,5	9,5	11,5
	Finished	3,1	3,4	4,1	4,6	5,8	6,7	7,8	10,0	12,5
	Fine	3,3	3,7	4,4	4,9	6,0	7,1	8,3	10,5	12,5
Above 1,10 to 1,20	Rough	2,4	2,8	3,4	3,8	4,8	5,8	6,9	8,8	11,0
	Semi-finished	2,9	3,4	3,9	4,4	5,4	6,5	7,5	9,8	12,0
	Finished	3,1	3,6	4,3	4,8	5,8	6,9	8,0	10,0	12,5
	Fine	3,4	3,8	4,4	4,9	6,2	7,1	8,3	10,5	12,5
Above 1,20 to 1,40	Rough	2,5	2,9	3,5	3,9	4,9	6,0	6,9	9,0	11,0
	Semi-finished	3,1	3,4	4,1	4,6	5,6	6,7	7,8	9,8	12,0
	Finished	3,4	3,9	4,5	5,0	6,1	7,1	8,3	10,5	12,5
	Fine	3,7	4,0	4,8	5,1	6,5	7,5	8,5	11,0	13,0
Above 1,40 to 1,60	Rough	2,7	3,1	3,6	4,0	5,0	6,0	7,1	9,0	11,0
	Semi-finished	3,3	3,6	4,3	4,8	5,8	6,9	8,0	10,0	12,0
	Finished	3,6	4,1	4,6	5,1	6,3	7,3	8,5	10,5	13,0
	Fine	3,9	4,3	5,0	5,4	6,7	7,8	8,8	11,0	13,5
Above 1,60 to 1,80	Rough	2,7	3,2	3,7	4,1	5,2	6,2	7,1	9,0	11,0
	Semi-finished	3,5	3,8	4,4	4,9	6,0	7,1	8,0	10,0	12,5
	Finished	3,8	4,3	4,8	5,3	6,5	7,5	8,5	11,0	13,0
	Fine	4,0	4,4	5,2	5,6	6,9	7,8	9,0	11,0	13,5
Above 1,80 to 2,00	Rough	2,8	3,3	3,8	4,3	5,1	6,1	7,3	9,3	11,0
	Semi-finished	3,6	4,0	4,6	5,0	6,1	7,1	8,3	10,5	12,5
	Finished	4,0	4,4	5,0	5,4	6,7	7,8	8,8	11,0	13,0
	Fine	4,3	4,8	5,5	5,8	7,1	8,0	9,3	11,5	13,5
Above 2,00 to 2,20	Rough	3,0	3,4	3,9	4,4	5,5	6,3	7,3	9,5	11,5
	Semi-finished	3,8	4,1	4,8	5,3	6,3	7,3	8,5	10,5	12,5
	Finished	4,3	4,6	5,1	5,8	6,9	8,0	9,0	11,0	13,5
	Fine	4,6	5,0	5,6	6,1	7,3	8,3	9,5	12,0	14,0

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		1	2	3	4	5	6	7	8	9
Above 2,20 to 2,40	Rough	1,6	1,7	1,8	1,9	2,0	2,1	2,3	2,5	2,7
	Semi-finished	2,4	2,5	2,6	2,6	2,8	2,9	3,1	3,4	3,6
	Finished	2,7	2,8	2,9	3,1	3,2	3,3	3,5	3,8	3,9
	Fine	3,1	3,1	3,3	3,4	3,4	3,6	3,8	4,1	4,3
Above 2,40 to 2,80	Rough	1,8	1,9	1,9	2,1	2,2	2,3	2,5	2,6	2,9
	Semi-finished	2,6	2,7	2,8	2,9	3,0	3,1	3,3	3,6	3,8
	Finished	3,0	3,2	3,3	3,4	3,5	3,6	3,8	4,0	4,3
	Fine	3,5	3,6	3,7	3,8	3,8	3,9	4,1	4,4	4,6
Above 2,80 to 3,20	Rough	1,9	2,1	2,2	2,3	2,4	2,5	2,6	2,9	3,1
	Semi-finished	3,0	3,1	3,1	3,3	3,4	3,4	3,6	4,0	4,1
	Finished	3,4	3,6	3,6	3,8	3,9	4,0	4,1	4,5	4,6
	Fine	3,8	3,9	4,0	4,1	4,3	4,3	4,5	4,8	5,0
Above 3,20 to 3,60	Rough	2,2	2,3	2,4	2,5	2,6	2,7	2,9	3,1	3,3
	Semi-finished	3,3	3,4	3,4	3,6	3,6	3,8	4,0	4,3	4,5
	Finished	3,9	4,0	4,1	4,3	4,3	4,4	4,6	4,9	5,2
	Fine	4,3	4,4	4,4	4,5	4,6	4,8	4,9	5,3	5,5
Above 3,60 to 4,00	Rough	2,4	2,5	2,6	2,7	2,8	2,9	3,2	3,4	3,6
	Semi-finished	3,6	3,8	3,9	4,0	4,1	4,3	4,4	4,8	4,9
	Finished	4,3	4,4	4,4	4,5	4,6	4,8	4,9	5,3	5,5
	Fine	4,8	4,9	5,0	5,2	5,1	5,3	5,4	5,8	6,0
Above 4,00 to 4,40	Rough	2,5	2,6	2,7	2,8	2,9	3,0	3,3	3,5	3,7
	Semi-finished	3,8	3,9	4,0	4,1	4,3	4,3	4,5	4,8	5,0
	Finished	4,5	4,6	4,8	4,8	4,9	5,0	5,1	5,4	5,8
	Fine	4,9	5,0	5,2	5,3	5,3	5,5	5,6	6,0	6,2
Above 4,40 to 5,00	Rough	2,9	3,0	3,1	3,1	3,3	3,4	3,6	3,8	4,0
	Semi-finished	4,3	4,4	4,4	4,5	4,6	4,8	4,9	5,3	5,5
	Finished	5,0	5,1	5,3	5,3	5,4	5,6	5,8	6,0	6,3
	Fine	5,6	5,8	5,8	6,0	6,0	6,2	6,3	6,7	6,9

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		10	11	12	13	14	15	16	17	18
Above 2,20 to 2,40	Rough	3,1	3,4	4,0	4,5	5,4	6,5	7,5	9,5	11,5
	Semi-finished	4,0	4,4	5,0	5,4	6,5	7,5	8,8	11,0	13,0
	Finished	4,4	4,9	5,5	6,0	7,1	8,3	9,3	11,5	13,5
	Fine	4,8	5,1	5,8	6,3	7,5	8,5	9,8	12,0	14,0
Above 2,40 to 2,80	Rough	3,3	3,6	4,1	4,6	5,6	6,7	7,8	9,8	11,5
	Semi-finished	4,3	4,6	5,1	5,6	6,7	7,8	9,0	11,0	13,0
	Finished	4,8	5,2	5,8	6,1	7,5	8,5	9,5	11,5	14,0
	Fine	5,2	5,4	6,1	6,7	8,0	9,0	10,0	12,5	14,5
Above 2,80 to 3,20	Rough	3,4	3,9	4,4	4,9	5,8	6,9	7,8	9,8	12,0
	Semi-finished	4,6	5,0	5,6	6,0	7,1	8,3	9,3	11,5	13,5
	Finished	5,1	5,6	6,1	6,7	7,8	8,8	9,8	12,0	14,5
	Fine	5,4	5,8	6,5	7,1	8,3	9,3	10,5	12,5	15,0
Above 3,20 to 3,60	Rough	3,6	4,1	4,6	5,2	6,2	7,1	8,0	10,0	12,0
	Semi-finished	4,9	5,3	5,8	6,3	7,5	8,5	9,5	11,5	14,0
	Finished	5,6	6,0	6,5	7,1	8,3	9,3	10,5	12,5	15,0
	Fine	6,0	6,3	7,1	7,5	8,8	9,8	11,0	13,0	15,5
Above 3,60 to 4,00	Rough	3,9	4,3	4,8	5,3	6,3	7,3	8,3	10,5	12,5
	Semi-finished	5,3	5,6	6,3	6,7	8,0	9,0	9,8	12,0	14,0
	Finished	6,0	6,3	6,9	7,5	8,8	9,8	10,5	13,0	15,0
	Fine	6,5	6,9	7,5	8,0	9,3	10,5	11,5	13,5	16,0
Above 4,00 to 4,40	Rough	4,0	4,4	4,9	5,5	6,5	7,5	8,5	10,5	12,5
	Semi-finished	5,5	5,8	6,3	6,9	8,0	9,0	10,0	12,0	14,5
	Finished	6,1	6,7	7,3	7,8	9,0	9,8	11,0	13,0	15,5
	Fine	6,7	7,1	7,8	8,3	9,5	10,5	11,5	14,0	16,0
Above 4,40 to 5,00	Rough	4,4	4,8	5,3	5,8	6,7	7,8	8,8	11,0	13,0
	Semi-finished	5,8	6,3	6,9	7,3	8,5	9,5	10,5	12,5	14,5
	Finished	6,7	7,1	7,8	8,3	9,5	10,5	11,5	14,0	16,0
	Fine	7,3	7,8	8,5	9,0	10,0	11,0	12,0	14,5	16,5

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		1	2	3	4	5	6	7	8	9
Above 5,00 to 5,60	Rough	—	3,3	3,4	3,4	3,6	3,6	3,9	4,1	4,3
	Semi-finished	—	4,9	5,0	5,2	5,1	5,3	5,4	5,8	6,0
	Finished	—	5,8	5,8	6,0	6,0	6,2	6,3	6,7	6,9
	Fine	—	6,3	6,5	6,5	6,7	6,7	6,9	7,3	7,5
Above 5,60 to 6,40	Rough	—	3,8	3,9	4,0	4,1	4,3	4,4	4,6	4,8
	Semi-finished	—	5,1	5,3	5,3	5,4	5,6	5,8	6,0	6,3
	Finished	—	6,1	6,3	6,3	6,5	6,5	6,7	7,1	7,3
	Fine	—	6,9	7,1	7,1	7,3	7,3	7,5	7,8	8,0
Above 6,40 to 7,00	Rough	—	—	4,3	4,3	4,4	4,5	4,8	4,9	5,2
	Semi-finished	—	—	5,8	6,0	6,0	6,2	6,3	6,7	6,9
	Finished	—	—	6,9	7,1	7,1	7,3	7,5	7,8	8,0
	Fine	—	—	7,8	7,8	7,8	8,0	8,3	8,5	8,8
Above 7,00 to 8,00	Rough	—	—	4,8	4,8	4,9	5,0	5,1	5,5	5,6
	Semi-finished	—	—	6,5	6,5	6,7	6,7	6,9	7,3	7,5
	Finished	—	—	8,0	8,0	8,0	8,3	8,5	8,8	9,0
	Fine	—	—	8,5	8,8	8,8	8,8	9,0	9,3	9,5
Above 8,00 to 9,00	Rough	—	—	—	5,3	5,4	5,6	5,8	6,0	6,1
	Semi-finished	—	—	—	7,3	7,5	7,5	7,8	8,0	8,3
	Finished	—	—	—	9,0	9,0	9,3	9,3	9,8	9,8
	Fine	—	—	—	9,8	9,8	9,8	10,0	10,5	10,5
Above 9,00 to 10,00	Rough	—	—	—	6,0	6,0	6,2	6,3	6,5	6,7
	Semi-finished	—	—	—	8,3	8,3	8,5	8,5	9,0	9,0
	Finished	—	—	—	9,8	9,8	9,8	10,0	10,5	10,5
	Fine	—	—	—	11,0	11,0	11,0	11,5	11,5	12,0
Above 10,00 to 11,00	Rough	—	—	—	—	6,5	6,5	6,7	6,9	7,1
	Semi-finished	—	—	—	—	8,5	8,8	8,8	9,3	9,3
	Finished	—	—	—	—	10,0	10,0	10,5	10,5	11,0
	Fine	—	—	—	—	11,0	11,5	11,5	12,0	12,0

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		10	11	12	13	14	15	16	17	18
Above 5,00 to 5,60	Rough	4,8	5,2	5,6	6,2	7,1	8,0	9,0	11,0	13,0
	Semi-finished	6,3	6,7	7,3	8,0	9,0	9,8	11,0	13,0	15,5
	Finished	7,3	7,8	8,3	8,8	10,0	11,0	12,0	14,5	16,5
	Fine	8,0	8,3	9,0	9,5	11,0	12,0	13,0	15,0	17,5
Above 5,60 to 6,40	Rough	5,1	5,6	6,2	6,5	7,5	8,5	9,5	11,5	13,5
	Semi-finished	6,7	7,1	7,8	8,3	9,3	10,5	11,5	13,5	15,5
	Finished	7,8	8,3	8,8	9,3	10,5	11,5	12,5	15,0	17,0
	Fine	8,5	9,0	9,8	10,0	11,5	12,5	13,5	16,0	18,0
Above 6,40 to 7,00	Rough	5,4	6,0	6,5	6,9	8,0	9,0	9,8	12,0	14,0
	Semi-finished	7,3	7,5	8,3	8,8	9,8	11,0	12,0	14,0	16,0
	Finished	8,5	8,8	9,5	9,8	11,0	12,0	13,0	15,5	17,5
	Fine	9,3	9,5	10,5	11,0	12,0	13,0	14,0	16,5	18,5
Above 7,00 to 8,00	Rough	6,0	6,5	6,9	7,5	8,5	9,5	10,5	12,5	14,5
	Semi-finished	7,8	8,3	8,8	9,3	10,5	11,5	12,5	14,5	17,0
	Finished	9,5	9,8	10,5	11,0	12,0	13,0	14,0	16,5	18,5
	Fine	10,0	10,5	11,0	11,5	13,0	14,0	15,0	17,5	19,5
Above 8,00 to 9,00	Rough	6,5	6,9	7,5	8,0	9,0	9,8	11,0	13,0	15,0
	Semi-finished	8,8	9,0	9,8	10,0	11,0	12,0	13,5	15,5	17,5
	Finished	10,5	10,5	11,5	12,0	13,0	14,0	15,0	17,5	19,5
	Fine	11,0	11,5	12,5	13,0	14,0	15,0	16,0	18,5	20,5
Above 9,00 to 10,00	Rough	7,1	7,5	8,0	8,5	9,5	10,5	11,5	13,5	15,5
	Semi-finished	9,5	9,8	10,5	11,0	12,0	13,0	14,0	16,5	18,5
	Finished	11,0	11,5	12,0	12,5	14,0	15,0	16,0	18,0	20,5
	Fine	12,5	12,5	13,5	14,0	15,0	16,0	17,0	19,5	22,0
Above 10,00 to 11,00	Rough	7,5	8,0	8,5	9,0	9,8	11,0	12,0	14,0	16,0
	Semi-finished	9,8	10,0	10,5	11,0	12,5	13,5	14,5	16,5	18,5
	Finished	11,5	12,0	12,5	13,0	14,0	15,0	16,0	18,5	20,5
	Fine	12,5	13,0	13,5	14,0	15,5	16,5	17,5	19,5	22,0

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		1	2	3	4	5	6	7	8	9
Above 11 to 12,00	Rough	—	—	—	—	7,1	7,3	7,5	7,5	7,8
	Semi-finished	—	—	—	—	9,3	9,5	9,5	9,8	10,0
	Finished	—	—	—	—	11,0	11,0	11,5	11,5	12,0
	Fine	—	—	—	—	12,5	12,5	13,0	13,0	13,5
Above 12,00 to 14,00	Rough	—	—	—	—	—	8,5	8,5	8,8	9,0
	Semi-finished	—	—	—	—	—	11,0	11,5	11,5	12,0
	Finished	—	—	—	—	—	12,5	13,0	13,0	13,5
	Fine	—	—	—	—	—	14,5	14,5	15,0	15,0
Above 14,00 to 16,00	Rough	—	—	—	—	—	9,5	9,5	9,8	10,0
	Semi-finished	—	—	—	—	—	12,0	12,5	12,5	13,0
	Finished	—	—	—	—	—	15,0	15,0	15,5	15,5
	Fine	—	—	—	—	—	16,5	17,0	17,0	17,5
Above 16,00 to 18,00	Rough	—	—	—	—	—	—	10,5	11,0	11,0
	Semi-finished	—	—	—	—	—	—	13,5	14,0	14,0
	Finished	—	—	—	—	—	—	15,5	16,0	16,0
	Fine	—	—	—	—	—	—	18,0	18,0	18,5
Above 18,00 to 20,00	Rough	—	—	—	—	—	—	11,5	11,5	12,0
	Semi-finished	—	—	—	—	—	—	14,5	15,0	15,0
	Finished	—	—	—	—	—	—	17,5	17,5	18,0
	Fine	—	—	—	—	—	—	19,5	20,0	20,0
Above 20,00 to 22,00	Rough	—	—	—	—	—	—	—	13,0	13,5
	Semi-finished	—	—	—	—	—	—	—	16,5	16,5
	Finished	—	—	—	—	—	—	—	19,5	19,5
	Fine	—	—	—	—	—	—	—	21,0	22,0
Above 22,00 to 24,00	Rough	—	—	—	—	—	—	—	14,0	14,5
	Semi-finished	—	—	—	—	—	—	—	17,5	18,0
	Finished	—	—	—	—	—	—	—	21,0	21,0
	Fine	—	—	—	—	—	—	—	23,5	24,0

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		10	11	12	13	14	15	16	17	18
Above 11,00 to 12,00	Rough	8,3	8,5	9,0	9,5	10,5	11,5	12,5	14,5	16,5
	Semi-finished	10,5	11,0	11,5	12,0	13,0	14,0	15,0	17,5	19,5
	Finished	12,5	12,5	13,5	14,0	15,0	16,0	17,0	19,5	21,0
	Fine	14,0	14,5	15,0	15,5	16,5	17,5	19,0	21,0	23,5
Above 12,00 to 14,00	Rough	9,5	9,8	10,5	11,0	12,0	13,0	14,0	16,0	18,0
	Semi-finished	12,0	12,5	13,0	13,5	15,0	16,0	17,0	19,0	21,0
	Finished	14,0	14,5	15,0	15,5	16,5	17,5	18,5	21,0	23,0
	Fine	15,5	16,0	16,5	17,0	18,5	19,5	20,5	23,0	25,0
Above 14,00 to 16,00	Rough	10,5	11,0	11,5	12,0	13,0	14,0	15,0	17,0	19,0
	Semi-finished	13,5	13,5	14,5	15,0	16,0	17,0	18,0	20,0	22,0
	Finished	16,0	16,5	17,0	17,5	19,0	20,0	21,0	23,0	25,0
	Fine	18,0	18,0	19,0	19,5	20,5	22,0	22,5	25,0	27,0
Above 16,00 to 18,00	Rough	11,5	12,0	12,5	13,0	14,0	15,0	16,0	18,0	20,0
	Semi-finished	14,5	15,0	15,5	16,0	17,0	18,0	19,0	21,0	23,5
	Finished	16,5	17,0	17,5	18,0	19,5	20,5	21,0	23,5	26,0
	Fine	19,0	19,5	20,0	20,5	22,0	22,5	24,0	26,0	28,0
Above 18,00 to 20,00	Rough	12,5	12,5	13,0	13,5	14,5	15,5	16,5	18,5	20,5
	Semi-finished	15,5	16,0	16,5	17,0	18,0	19,0	20,0	22,5	24,0
	Finished	18,5	18,5	19,5	20,0	21,0	22,0	23,0	25,0	28,0
	Fine	20,5	21,0	22,0	22,0	23,5	24,0	25,0	28,0	30,0
Above 20,00 to 22,00	Rough	13,5	14,0	14,5	15,0	16,0	17,0	18,0	20,0	22,0
	Semi-finished	17,0	17,5	18,0	18,5	19,5	20,5	22,0	24,0	26,0
	Finished	20,0	20,5	21,0	21,0	22,5	23,5	25,0	27,0	29,0
	Fine	22,0	22,5	23,5	24,0	25,0	26,0	27,0	29,0	31,5
Above 22,00 to 24,00	Rough	15,0	15,0	15,5	16,0	17,0	18,0	19,0	21,0	23,0
	Semi-finished	18,0	18,5	19,0	19,5	21,0	22,0	23,0	25,0	27,0
	Finished	22,0	22,0	22,5	23,0	24,0	25,0	26,5	29,0	30,5
	Fine	24,0	25,0	25,0	26,0	27,0	28,0	29,0	31,5	33,5

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		1	2	3	4	5	6	7	8	9
Above 24,00 to 28,00	Rough	—	—	—	—	—	—	—	—	16,5
	Semi-finished	—	—	—	—	—	—	—	—	20,5
	Finished	—	—	—	—	—	—	—	—	23,5
	Fine	—	—	—	—	—	—	—	—	26,0
Above 28,00 to 32,00	Rough	—	—	—	—	—	—	—	—	19,0
	Semi-finished	—	—	—	—	—	—	—	—	23,5
	Finished	—	—	—	—	—	—	—	—	26,0
	Fine	—	—	—	—	—	—	—	—	30,0
Above 32,00 to 36,00	Rough	—	—	—	—	—	—	—	—	—
	Semi-finished	—	—	—	—	—	—	—	—	—
	Finished	—	—	—	—	—	—	—	—	—
	Fine	—	—	—	—	—	—	—	—	—
Above 36,00 to 40,00	Rough	—	—	—	—	—	—	—	—	—
	Semi-finished	—	—	—	—	—	—	—	—	—
	Finished	—	—	—	—	—	—	—	—	—
	Fine	—	—	—	—	—	—	—	—	—
Above 40,00 to 44,00	Rough	—	—	—	—	—	—	—	—	—
	Semi-finished	—	—	—	—	—	—	—	—	—
	Finished	—	—	—	—	—	—	—	—	—
	Fine	—	—	—	—	—	—	—	—	—
Above 44,00 to 50,00	Rough	—	—	—	—	—	—	—	—	—
	Semi-finished	—	—	—	—	—	—	—	—	—
	Finished	—	—	—	—	—	—	—	—	—
	Fine	—	—	—	—	—	—	—	—	—
Above 50,00 to 56,00	Rough	—	—	—	—	—	—	—	—	—
	Semi-finished	—	—	—	—	—	—	—	—	—
	Finished	—	—	—	—	—	—	—	—	—
	Fine	—	—	—	—	—	—	—	—	—

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		10	11	12	13	14	15	16	17	18
Above 24,00 to 28,00	Rough	17,0	17,5	18,0	18,5	19,5	20,5	21,0	23,5	25,0
	Semi-finished	21,0	21,0	22,0	22,5	23,5	25,0	26,0	28,0	30,0
	Finished	24,0	24,0	25,0	25,0	26,5	28,0	29,0	30,5	33,5
	Fine	26,5	27,0	28,0	28,0	29,0	30,5	31,5	33,5	35,5
Above 28,00 to 32,00	Rough	19,0	19,5	20,0	20,5	22,0	22,5	23,5	26,0	28,0
	Semi-finished	23,5	24,0	25,0	25,0	26,5	27,0	28,0	30,5	32,5
	Finished	26,5	27,0	28,0	28,0	29,0	30,5	31,5	33,5	35,5
	Fine	30,5	30,5	31,5	32,5	33,5	34,5	35,5	37,5	40,0
Above 32,00 to 36,00	Rough	21,0	22,0	22,5	23,0	24,0	25,0	26,0	28,0	30,0
	Semi-finished	26,5	27,0	27,0	28,0	29,0	30,0	31,5	33,5	35,5
	Finished	30,5	30,5	31,5	31,5	33,5	34,5	35,5	37,5	40,0
	Fine	33,5	34,5	34,5	35,5	36,5	37,5	39,0	41,0	42,5
Above 36,00 to 40,00	Rough	23,5	24,0	25,0	25,0	26,0	27,0	28,0	30,0	32,5
	Semi-finished	29,0	30,0	30,0	30,5	31,5	32,5	33,5	36,5	37,5
	Finished	32,5	33,5	33,5	34,5	35,5	36,5	37,5	40,0	42,5
	Fine	37,5	37,5	39,0	39,0	40,0	41,0	42,5	45,0	47,5
Above 40,00 to 44,00	Rough	—	26,0	26,5	27,0	28,0	29,0	30,0	32,5	34,5
	Semi-finished	—	32,5	33,5	34,5	35,5	36,5	37,5	39,0	41,0
	Finished	—	36,5	37,5	37,5	39,0	40,0	41,0	44,0	46,0
	Fine	—	39,0	40,0	40,0	41,0	42,5	44,0	46,0	47,5
Above 44,00 to 50,00	Rough	—	30,0	30,0	30,5	31,5	32,5	33,5	35,5	37,5
	Semi-finished	—	36,5	37,5	37,5	39,0	40,0	41,0	42,5	45,0
	Finished	—	41,0	42,5	42,5	44,0	45,0	46,0	47,5	50,0
	Fine	—	44,0	44,0	45,0	46,0	47,5	47,5	50,0	53,0
Above 50,00 to 56,00	Rough	—	—	33,5	33,5	34,5	35,5	36,5	39,0	41,0
	Semi-finished	—	—	42,5	42,5	44,0	44,0	45,0	47,5	50,0
	Finished	—	—	47,5	47,5	49,0	50,0	50,0	53,0	54,5
	Fine	—	—	50,0	50,0	51,5	53,0	53,0	56,0	58,0

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		1	2	3	4	5	6	7	8	9
Above 56,00 to 64,00	Rough	—	—	—	—	—	—	—	—	—
	Semi-finished	—	—	—	—	—	—	—	—	—
	Finished	—	—	—	—	—	—	—	—	—
	Fine	—	—	—	—	—	—	—	—	—
Above 64,00 to 70,00	Rough	—	—	—	—	—	—	—	—	—
	Semi-finished	—	—	—	—	—	—	—	—	—
	Finished	—	—	—	—	—	—	—	—	—
	Fine	—	—	—	—	—	—	—	—	—
Above 70,00 to 80,00	Rough	—	—	—	—	—	—	—	—	—
	Semi-finished	—	—	—	—	—	—	—	—	—
	Finished	—	—	—	—	—	—	—	—	—
	Fine	—	—	—	—	—	—	—	—	—

Continuation of table 6

Total tolerance of surface elements in mm	Final machining view	Total allowance on sides in mm, maximum for row of allowance of casting								
		10	11	12	13	14	15	16	17	18
Above 56,00 to 64,00	Rough	—	—	39,0	39,0	40,0	41,0	42,5	44,0	46,0
	Semi-finished	—	—	46,0	46,0	47,5	47,5	49,0	51,5	53,0
	Finished	—	—	50,0	50,0	51,5	53,0	53,0	56,0	58,0
	Fine	—	—	53,0	53,0	54,5	54,5	56,0	58,0	60,0
Above 64,00 to 70,00	Rough	—	—	—	42,5	42,5	44,0	45,0	47,5	49,0
	Semi-finished	—	—	—	50,0	51,5	51,5	53,0	56,0	58,0
	Finished	—	—	—	56,0	56,0	58,0	58,0	61,5	63,0
	Fine	—	—	—	58,0	60,0	60,0	61,5	65,0	67,0
Above 70,00 to 80,00	Rough	—	—	—	47,5	47,5	49,0	50,0	51,5	54,5
	Semi-finished	—	—	—	56,0	56,0	58,0	58,0	61,5	63,0
	Finished	—	—	—	61,5	63,0	63,0	65,0	67,0	69,0
	Fine	—	—	—	65,0	67,0	67,0	69,0	71,0	73,0

Note. For each range of tolerance in different points, total value of total allowance are given on all sub-operations of machining: rough; rough and semi- finished; rough; semi- finished and finished; rough, semi- finished, finished and fine.

4.7. For casting of small- scale and unit production, it is permitted to determine the increased values of allowance, which correspond to the range of Total tolerances, given in table 6 on 1 and 2 lines respectively lower than the range of actual tolerance.

4.8. Values of allowances, given in table 6 are maximum for established norms of casting accuracy. According to the agreement with customer and manufacturer, it is permitted to determine the reduced values of allowances in comparison with specification, given in table 6. If necessary, determine the increase value of allowance on the separate casting surface to follow the exact appropriate accuracy norms of machined surfaces: degree of surface accuracy, class of dimensional accuracy from base or degree of warping surface.

4.9. In separate special cases of technological process for machining of castings (multi- stage machining with intermediate heat treatment or intermediate machining of blanks), it is permitted to determine the increased total allowances in comparison with those given in table 6. The corresponding regulation is given in branch standard- technical documents.

Table 7

Dimensional tolerance of casting	Relation between dimensional tolerance of part and casting from machining base to machined surface	Final machining view
Upto 0.5	Above 0.4 Above 0.15 to 0.4 Above 0.10 to 0.15 To 0.10	Rough Semi- finished Finished Fine
Above 0.5 to 1.0	Above 0.3 Above 0.1 to 0.3 Above 0.05 to 0.1 To 0.05	Rough Semi- finished Finished Fine
Above 1.0 to 2.0	Above 0.2 Above 0.1 to 0.2 Above 0.05 to 0.1 To 0.05	Rough Semi- finished Finished Fine
Above 2.0 to 5.0	Above 0.15 Above 0.05 to 0.15 Above 0.02 to 0.05 To 0.02	Rough Semi- finished Finished Fine
Above 5.0	Above 0.10 Above 0.05 to 0.10 Above 0.02 to 0.05 To 0.02	Rough Semi- finished Finished Fine

4.10. It is permitted to set the simplified method for the purpose of machining allowance in the branch standard-technical documents for separate groups of casting under conditions that their values will not exceed the corresponding values of allowance, set by this standard.

Table 8

Dimensional tolerance of casting	Relation between tolerance, forms and position of machined surfaces of part and machined surface of casting	Final machining view
Upto 0.5	Above 0.4 Above 0.10 to 0.4 Above 0.02 to 0.10 To 0.02	Rough Semi- finished Finished Fine
Above 0.5 to 1.0	Above 0.3 Above 0.10 to 0.3 Above 0.02 to 0.10 To 0.02	Rough Semi- finished Finished Fine
Above 1.0 to 2.0	Above 0.20 Above 0.05 to 0.20 Above 0.01 to 0.05 To 0.01	Rough Semi- finished Finished Fine
Above 2.0 to 5.0	Above 0.10 Above 0.02 to 0.10 Above 0.005 to 0.02 To 0.005	Rough Semi- finished Finished Fine
Above 5.0	Above 0.05 Above 0.01 to 0.05 Above 0.002 to 0.01 To 0.002	Rough Semi- finished Finished Fine

Note:

1. For unspecified tolerances of forms and position of surface of casting to be machined and their total values are taken as equal to 25 % of dimensional tolerance from bases upto surfaces of casting to be machined.
2. For unspecified tolerance of forms and position of machined surface of parts, their total values are taken as equal to 50 % of dimensional tolerance from base up to machined surface of part.

5. CODE OF CASTING ACCURACY

5.1. Norms of casting accuracy should be specified in the technical requirements of casting drawing or part with applied dimensions of casting. Organise them in following order: class of dimensional accuracy, degree of warping, degree of surface accuracy, class of weight accuracy and tolerance of displacement of casting.

Example of conventional code of accuracy of casting of 8th class of dimensional accuracy, 5th degree of warping, 4th degree of surface accuracy and 7th class of weight accuracy with tolerance of displacement 0.8 mm:

Casting accuracy 8-5-4-7, displacement 0.8 GOST 26645-85

Non- standardized reading of casting accuracy is replaced by zero and leave the code of displacement. For example:

Casting accuracy 8-0-0-7 GOST 26645-85

It is permitted to specify the abbreviation of nomenclature norms of casting accuracy in the technical requirement of drawing of casting part, in this case the specification of classes of dimensional accuracy of weight of casting is required. For example:

Casting accuracy 8-0-0-7 GOST 26645-85

5.2. In technical requirement of drawing of casting or part with applied dimensions of casting, value of nominal weight of part, machining allowance, technological requirement of surplus metal and weight of casting should be specified in order given below.

Example of code of nominal weight, equal for part- 20.35 kg, for machining allowance- 3.15 kg, for technological surplus metal 1.35 kg, for casting- 24.85 kg:

Weight 20.35-3.15-1.35-24.66 GOST 26645-85

For non- machined castings or in the absence of technological surplus metal in accordance with values, are denoted by <<0>>. For example:

Weight 20.35-0-1.35-20.70 GOST 26645-85

Or

Weight 20.35-0-0-20.35 GOST 26645-85

In the technical requirements of drawing casting of part, indicates only weight of part is specified.

5.3. Non- symmetric position of tolerance range of casting is indicated by position of maximum deviations of dimensions directly, during symmetrical position of tolerance range of maximum deviations of dimension is permitted to not specify.

5.4. Maximum deviation should be specified during the requirements of accuracy of separate dimensions of casting, which differs from code of general inscription.

5.5. During requirement to the accuracy of forms and positions of individual surfaces of casting, which differs from specified general inscriptions, tolerance of forms and position of these surfaces are specified in accordance with GOST 2.308-79.

5.6. Allowance are specified in drawing in accordance with GOST 2.423. Machining allowance and technological surplus metal are specified in drawing separately.

Section 1- 5. **(Amended edition, amendment No. 1)**

6. INSPECTION OF CASTING ACCURACY

6.1. Types (100 %, selective, etc.) and methods of inspection, accurate parameters, dimensions (acceptance) to be checked and range of inspected tolerances and casting allowances are given in the branch scientific- technical documents or in drawing of casting or drawing of part with the casting dimensions specified. Dimensions to be checked should be indicated from the bases.

6.2. In drawing of casting or part with casting dimensions specified, conformity of the tolerance to the norms of casting accuracy, machining allowance – to values of tolerances and norms of casting accuracy, is to be checked.

6.3. The conformity of casting of given class of dimensional accuracy, is determined as per the specified dimension with class of accuracy having maximum deviations from the accuracy class specified for the same. Classes of dimensional accuracy of types 1 and 3 are brought to class of dimensional accuracy for type 2.

6.4. The conformity of casting to the given class of dimensional accuracy, is determined according to the height of unevenness (table 3) and surface finish (table 12, appendix 4), during non-coincidence of obtained dimensions, the maximum of them is taken. The corresponding casting of given degree of accuracy of casting surfaces in total is determined according to the roughest surfaces with the reference of upper evaluations during pouring on lateral surfaces.

6.5. The corresponding casting having assigned degree of warping is determined according to casting element with maximum degree of warping.

6.6. The corresponding casting of assigned class of accuracy of weight is determined according to the value of actual weight of casting.

6.7. According to the agreement of manufacturer and costumer, it is permitted to use the casting with accuracy of characteristics in individual cases, which deviated from specifications on drawing. In this case the actual accuracy of casting is subjected to determinations and specifications in technical documents.

Section 6 **(Introduced additionally, amendment No.1).**

ANNEXURE 1

Recommended

Classes of dimensional accuracy of casting

Table 9

Technological process of casting	Maximum overall dimensions of casting in mm	Type of alloy			
		Non- ferrous, light and non-heat treated alloys	Non- heat-treated, rough and high-melting non-ferrous alloys, and heat-treated, non-ferrous and light alloys.	Heat-treated, cast iron and high-melting non-ferrous alloys	Heat-treated steel alloys
		Class of dimensional accuracy of casting			
Casting at pressure in metallic forms and on burned out models with the application of thermo expanding refractory materials (melted quartz, corundum etc.)	Upto 100 Above 100 to 250 Above 250 to 630	3т – 6 3 – 7т 4 - 7	3 – 7т 4 – 7 5т – 8	4 – 7 5т – 8 5 – 9т	5т – 8 5 – 9т 6 - 9
Casting on burned out models with the application of quartz of refractory materials.	Upto 100 Above 100 to 250 Above 250 to 630	3 – 7 4 – 8 5т – 9т	4 – 8 5т – 9т 5 – 9	5т – 9т 5 – 9 6 – 10	5 – 9 6 - 10 7т –11т
Casting on melt models with the application of quartz of refractory materials.	Upto 100 Above 100 to 250 Above 250 to 630	4 – 8 5т – 9т 5 – 9	5т – 9т 5 – 9 6 – 10	5 –9 6 – 10 7т – 11т	6-10 7т – 11т 7 – 11
Casting at low pressure and in mould without sand cores.	Upto 100 Above 100 to 250 Above 250 to 630 Above 630 to 1600 Above 1600 to 4000	5т – 9т 5 – 9 6 – 10 7т - 11т 7 - 11	5 – 9 6- 10 7т – 11т 7 – 11 8 - 12	6 –10 7т – 11т 7 –11 8- 12 9т – 13т	7т – 11т 7 – 11 8-12 9т – 13т 9 – 13
Casting in sand- clay damp forms from low-moist (upto 2.8 %) and high- strength (more than 160 кPa or 1.6 kg/cm^2) mixture with high and uniform sealing upto hardness minimum 90 units.	Upto 100 Above 100 to 250 Above 250 to 630 Above 630 to 1600 Above 1600 to 4000 Above 4000 to 10000	5 –10 6 - 11т 7т – 11 7 – 12 8 – 13т 9т - 13	6- 11т 7т – 11 7 –12 8 – 13т 9т - 13 9- 13	7т –11 7 - 12 8 - 13т 9т – 13 9 – 13 10 - 14	7 – 12 8 - 13т 9т - 13 9 - 13 10 – 14 11т - 14

Continuation of table 9

Technological process of casting	Maximum overall dimensions of casting in mm	Type of alloy			
		Non- ferrous, light and non-heat treated alloys	Non- heat-treated, rough and high-melting non-ferrous alloys, and heat-treated, non-ferrous and light alloys.	Heat-treated, cast iron and high-melting non-ferrous alloys	Heat-treated steel alloys
		Class of dimensional accuracy of casting			
Casting on gasified models in sand forms Casting in forms, hardened in the contact with chilled mould. Casting at low pressure and in mould sand cores. Casting in faced moulds.	Upto 100	5 –10	6 - 11т	7т –11	7 – 12
	Above 100 to 250	6 - 11т	7т – 11	7 - 12	8 - 13т
	Above 250 to 630	7т – 11	7 – 12	8 - 13т	9т - 13
	Above 630 to 1600	7 – 12	8 – 13т	9т – 13	9 - 13
	Above 1600 to 4000	8 – 13т	9т – 13	9 – 13	10 – 14
	Above 4000 to 10000	9т - 13	9 - 13	10 - 14	11т - 14
Casting in sand- clay damp forms from mixture with humidity from 2.8 to 3.5 % and strength from 120 to 160 кPa (from 1.2 to 1.6 kg/cm^2) from the average level of sealing upto hardness minimum 80 units. Centrifugal casting (internal surface). Casting in forms, hardened in the contact with hot mould. Casting in vacuum- film sand forms.	Upto 100	6 - 11т	7т –11	7 – 12	8 - 13т
	Above 100 to 250	7т – 11	7 - 12	8 - 13т	9т - 13
	Above 250 to 630	7 – 12	8 - 13т	9т - 13	9 - 13
	Above 630 to 1600	8 – 13т	9т – 13	9 - 13	10 – 14
	Above 1600 to 4000	9т – 13	9 – 13	10 – 14	11т - 14
	Above 4000 to 10000	9 - 13	10 - 14	11т - 14	11 - 15

Continuation of table 9

Technological process of casting	Maximum overall dimensions of casting in mm	Type of alloy			
		Non- ferrous, light and non-heat treated alloys	Non- heat-treated, rough and high-melting non-ferrous alloys, and heat-treated, non-ferrous and light alloys.	Heat-treated, cast iron and high-melting non-ferrous alloys	Heat-treated steel alloys
		Class of dimensional accuracy of casting			
Casting in sand- clay damp forms from mixture with humidity from 3.5 to 4.5 % and strength from 60 to 120 кPa (from 0.6 to 1.2 kg/cm^2) with level of sealing upto hardness minimum 70 units. Casting in casing form from thermosetting mixtures. Casting in forms, hardened outside of contacts with tools without heat dryer. Casting in forms from air- hardening liquid mixtures. Casting in sand- clay of flighty dried and dry forms.	Upto 100 Above 100 to 250 Above 250 to 630 Above 630 to 1600 Above 1600 to 4000 Above 4000 to 10000	7т –11 7 - 12 8 - 13т 9т – 13 9 – 13 10 – 14	7 – 12 8 - 13т 9т - 13 9 - 13 10 – 14 11т - 14	8 - 13т 9т - 13 9 - 13 10 – 14 11т - 14 11 - 15	9т - 13 9 - 13 10 – 14 11т - 14 11 – 15 12 -15
Casting in sand- clay damp forms from high – moistured (maximum 4.5 %) low- strength (upto 60 кPa (from 0.6 kg/cm^2) mixture with low level sealing upto hardness minimum 70 units.	Upto 100 Above 100 to 250 Above 250 to 630 Above 630 to 1600 Above 1600 to 4000 Above 4000 to 10000 Above 10000	7 – 12 8 - 13т 9т - 13 9 - 13 10 – 14 11т – 14 11 - 15	8 - 13т 9т - 13 9 - 13 10 – 14 11т - 14 11 – 15 12 - 15	9т - 13 9 - 13 10 – 14 11т - 14 11 – 15 12 –15 13т - 16	9 - 13 10 – 14 11т - 14 11 – 15 12 –15 13т - 16 13 - 16

Note:

1. Range of classes having dimensional accuracy of casting is specified in table, which are ensured by the different technological process of casting.

Their minimum values are related to the simple casting and the condition of automatic weight production, maximum – to the complex casting of units and small- scale production, average- to the casting of average complexity and condition of mechanized series production.

2. In table 9-14 for non-ferrous fusible alloys, alloys are related to melting point lower than 700°C (973 K), to high- melting non-ferrous alloys with melting point higher than 700°C (973 K).
3. In table 9-14 for light alloys with density upto 3.0 gm/cm^3 and to heavy alloys with density higher than 3.0 gm/cm^3.

ANNEXURE 2
Recommended

Degree of warping of casting elements

Table 10

Relation of minimum dimension of casting elements to maximum (thickness or height to the length of casting elements)	Degree of warping of casting elements			
	Multiple forms		Single forms	
	Unheat treated casting	Heat- treated casting after melting	Unheat treated casting	Heat- treated casting after melting
Above 0.200	1-4	2-5	3-6	4-7
Above 0.100 to 0.200	2-5	3-6	4-7	5-8
Above 0.050 to 0.100	3-6	4-7	5-8	6-9
Above 0.025 to 0.050	4-7	5-8	6-9	7-10
To 0.025	5-8	6-9	7-10	8-11

Note:

1. Minimum values from the range of degree of warping are related to the simple casting from light non- ferrous alloys; maximum values to the complex casting from ferrous alloys.
2. Degree of warping of casting, specified on drawing should be taken on its element as the maximum degree of warping.

Appendix 1 and 2 **(Amended edition, amendment No. 1).**

ANNEXURE 3

Recommended

Degree accuracy of surfaces of casting

Table 11

Technological process of casting	Maximum overall dimensions of casting in mm	Type of alloy			
		Non- ferrous, light and non-heat treated alloys	Non- heat-treated, rough and high-melting non-ferrous alloys, and heat-treated, non-ferrous and light alloys.	Heat-treated, cast iron and high-melting non-ferrous alloys	Heat-treated steel alloys
		Degree of accuracy of surfaces			
Casting at pressure in metallic forms.	Upto 100	2-6	3-7	4-8	5-9
	Above 100 to 250	3-7	4-8	5-9	6-10
	Above 250 to 630	4-8	5-9	6-10	7-11
Casting in ceramic forms, casting on burned and smelted models.	Upto 100	3-8	4-9	5-10	6-11
	Above 100 to 250	4-9	5-10	6-11	7-12
	Above 250 to 630	5-10	6-11	7-12	8-13
Casting at low pressure and in mould without sand cores, and centrifugal casting in metallic forms.	Upto 100	4-9	5-10	7-11	7-12
	Above 100 to 250	5-10	6-11	7-12	8-13
	Above 250 to 630	6-11	7-12	8-13	9-14
Casting in casing forms thermosetting mixtures. Casting in faced moulds, casting in vacuum-film sand forms.	Upto 100	6-12	7-13	8-14	9-15
	Above 100 to 250	7-13	8-14	9-15	10-16
	Above 250 to 630	8-14	9-15	10-16	11-17
Casting on gasified models in sand forms. Casting in sand-clay damp forms from low-humidity (upto 2.8%) and high- strength (maximum 160 κPa or 1.6 kg/cm^2) mixtures with high and uniform sealing upto hardness not lower than 90 units.	Upto 100	7-14	8-15	9-16	10-17
	Above 100 to 250	8-15	9-16	10-17	11-18
	Above 250 to 630	9-16	10-17	11-18	12-19
	Above 630 to 1600	10-17	11-18	12-19	13-19
	Above 1600 to 4000	11-18	12-19	13-19	14-20

Continuation of table 11

Technological process of casting	Maximum overall dimensions of casting in mm	Type of alloy			
		Non- ferrous, light and non-heat treated alloys	Non- heat-treated, rough and high-melting non-ferrous alloys, and heat-treated, non-ferrous and light alloys.	Heat-treated, cast iron and high-melting non-ferrous alloys	Heat-treated steel alloys
		Degree of accuracy of surfaces			
Casting in the sand hardening, dry or slightly dried forms, covered with coating on aqueous base with applied pulverization or dipping. Casting in moulds with sand core.	Upto 100	7-14	8-15	9-16	10-17
	Above 100 to 250	8-15	9-16	10-17	11-18
	Above 250 to 630	9-16	10-17	11-18	12-19
	Above 630 to 1600	10-17	11-18	12-19	13-19
	Above 1600 to 4000	11-18	12-19	13-19	14-20
Casting in sand- clay damp forms from mixture with humidity from 2.8 to 3.5 % and strength from 120 to 160 кPa (from 1.2 to 1.6 kgf/cm^2) from average level of sealing upto hardness minimum 80 units. Casting in sand hardening, dry or slightly dried forms, covered with coating on aqueous base, applied by brush or auto- drying coatings, applied by pulverization or dipping.	Upto 100	8-15	9-16	10-17	11-18
	Above 100 to 250	9-16	10-17	11-18	12-19
	Above 250 to 630	10-17	11-18	12-19	13-19
	Above 630 to 1600	11-18	12-19	13-19	14-20
	Above 1600 to 4000	12-19	13-19	14-20	15-20
	Above 4000 to 10000	13-19	14-20	15-20	16-21
Casting in sand- clay damp forms from mixture with humidity from 3.5 to 4.5 % and strength from 60 to 120 кPa (from 0.6 to 1.2 kgf/cm^2) with level of sealing upto hardness minimum 70 units.	Upto 100	9-16	10-17	11-18	12-19
	Above 100 to 250	10-17	10-17	11-18	12-19
	Above 250 to 630	11-18	12-19	13-19	14-20
	Above 630 to 1600	12-19	13-19	14-20	15-20
	Above 1600 to 4000	13-19	14-20	15-20	16-21
	Above 4000 to 10000	14-20	15-20	16-21	17-21

Continuation of table 11

Technological process of casting	Maximum overall dimensions of casting in mm	Type of alloy			
		Non- ferrous, light and non-heat treated alloys	Non- heat-treated, rough and high-melting non-ferrous alloys, and heat-treated, non-ferrous and light alloys.	Heat-treated, cast iron and high-melting non-ferrous alloys	Heat-treated steel alloys
		Degree of accuracy of surfaces			
Casting in sand hardened, dry or slightly dried forms, painted by auto- drying or auto-hardening coating, applied by brush.	Upto 100	9-16	10-17	11-18	12-19
	Above 100 to 250	10-17	10-17	11-18	12-19
	Above 250 to 630	11-18	12-19	13-19	14-20
	Above 630 to 1600	12-19	13-19	14-20	15-20
	Above 1600 to 4000	13-19	14-20	15-20	16-21
	Above 4000 to 10000	14-20	15-20	16-21	17-21
Casting in sand-clay damp forms high moisture (higher than 4.5 %) and low-strength (upto 60 кPa or 0.6 kgf/cm^2) mixture with low level of sealing upto hardness minimum 70 units. Casting in sand-hardened, dry or slightly dried unpainted forms. Casting in forms from liquid air- hardening mixtures.	Upto 100	10-17	11-18	12-19	13-19
	Above 100 to 250	11-18	12-19	13-19	14-20
	Above 250 to 630	12-19	13-19	14-20	15-20
	Above 630 to 1600	13-19	14-20	15-20	16-21
	Above 1600 to 4000	14-20	15-20	16-21	17-21
	Above 4000 to 10000	15-20	16-21	17-21	18-22
	Above 10000	16-21	17-21	18-22	19-22

Note. Table shows the ranges of degrees of accuracy of surface of casting, ensured by different technological casting process. Minimum of the values are related to the simple casting and condition of automatic mass production, maximum to the complex casting units and small-scale production and average-to the casting of average complexity and conditions of the mechanized series production.

ANNEXURE 4

Reference

SURFACE FINISH OF CASTING

Correspondence between surface finish and degree of accuracy of surfaces of casting is given in table 12.

Table 12

Surface finish	Value of surface finish for degree of accuracy of casting surfaces										
	1	2	3	4	5	6	7	8	9	10	11
Average arithmetic deviations of profile *Ra*, in mkm maximum	2.0	2.5	3.2	4.0	5.0	6.3	8.0	10.0	12.5	16.0	20.0
Height of unevenness of profile *Rz*, in mkm, maximum	-	-	-	-	-	-	-	-	-	-	-

Continuation of table 12

Surface finish	Value of surface finish for degree of accuracy of casting surfaces										
	12	13	14	15	16	17	18	19	20	21	22
Average arithmetic deviations of profile *Ra*, in mkm maximum	25.0	32.0	40.0	50.0	63.0	80.0	100.0	-	-	-	-
Height of unevenness of profile *Rz*, in mkm, maximum	-	-	-	-	-	-	-	500	630	800	1000

ANNEXURE 5

Recommended

Classes of accuracy of weight of casting

Table 13

Technological process of casting	Nominal weight of casting in kg	Type of alloys			
		Non- ferrous, light and non-heat treated alloys	Non- heat-treated, rough and high-melting non-ferrous alloys, and heat-treated, non-ferrous and light alloys.	Heat-treated, cast iron and high-melting non-ferrous alloys	Heat-treated steel alloys
		Class of accuracy of weight of casting			
Casting at pressure in metallic forms and on burned out models with the application of small thermal expanding of refectory materials (melted quartz, corundum etc.)	Upto 1.0 Above 1.0 to 10 Above 10 to 100	1-7 2-8 3т-9т	2-8 3т-9т 3-9	3т-9т 3-9 4-10	3-9 4-10 5т-11т
Casting on burned models with the application of quartz refractory materials.	Upto 10 Above 1.0 to 10 Above 10 to 100	2-9т 3т-9 3-10	3т-9 3-10 4-11т	3-10 4-11т 5т-11	4-11т 5т-11 5-12
Casting on melt models with the application of quartz refractory materials.	Upto 1.0 Above 1.0 to 10 Above 10 to 100	3т-9 3-10 4-11т	3-10 4-11т 5т-11	4-11т 5т-11 5-12	5т-11 5-12 6-13т
Casting at low pressure and in chill mould without sand cores.	Upto 1.0 Above 1.0 to 10 Above 10 to 100 Above 100 to 1000 Above 1000 to 10000	3-10 4-11т 5т-11 5-12 6-13т	4-11т 5т-11 5-12 6-13т 7т-13	5т-11 5-12 6-13т 7т-13 7-14	5-12 6-13т 7т-13 7-14 8-15
Casting in sand- clay damp forms from low-moisture (upto 2.8 %) and high- strength (maximum 160 кPa or 1.6 kgf/cm^2) mixture with high and uniform sealing upto hardness minimum 90 units.	Upto 1.0 Above 1.0 to 10 Above 10 to 100 Above 100 to 1000 Above 1000 to 10000 Above 10000 to 100000	4-11 5т-12 5-13т 6-13 7т-14 7-15	5т-12 5-13т 6-13 7т-14 7-15 8-15	5-13т 6-13 7т-14 7-15 8-15 9т-16	6-13 7т-14 7-15 8-15 9т-16 9-16

Continuation of table 13

Technological process of casting	Nominal weight of casting in kg	Type of alloys			
		Non- ferrous, light and non-heat treated alloys	Non- heat-treated, rough and high-melting non-ferrous alloys, and heat-treated, non-ferrous and light alloys.	Heat-treated, cast iron and high-melting non-ferrous alloys	Heat-treated steel alloys
		Class of accuracy of weight of casting			
Casting on gasified models in sand forms Casting in forms, hardened in the contact with cold moulds. Casting at low pressure and in chill mould with sand cores. Casting in faced moulds.	Upto 1.0	4-11	5т-12	5-13т	6-13
	Above 1.0 to 10	5т-12	5-13т	6-13	7т-14
	Above 10 to 100	5-13т	6-13	7т-14	7-15
	Above 100 to 1000	6-13	7т-14	7-15	8-15
	Above 1000 to 10000	7т-14	7-15	8-15	9т-16
	Above 10000 to 100000	7-15	8-15	9т-16	9-16
Casting in sand- clay damp forms from mixture with humidity from 2.8 to 3.5 % and strength from 120 to 160 кPa (from 1.2- 1.6 kg/cm^2) with average level of sealing upto hardness minimum 80 units. Centrifugal casting (internal surfaces): Casting in forms, hardened in the contact with hot mould. Casting in casing forms. Casting in vacuum-film sand forms.	Upto 1.0	5т-12	5-13т	6-13	7т-14
	Above 1.0 to 10	5-13т	6-13	7т-14	7-15
	Above 10 to 100	6-13	7т-14	7-15	8-15
	Above 100 to 1000	7т-14	7-15	8-15	9т-16
	Above 1000 to 10000	7-15	8-15	9т-16	9-16
	Above 10000 to 100000	8-15	9т-16	9-16	10-16

Continuation of table 13

Technological process of casting	Nominal weight of casting in kg	Type of alloys			
		Non- ferrous, light and non-heat treated alloys	Non- heat-treated, rough and high-melting non-ferrous alloys, and heat-treated, non-ferrous and light alloys.	Heat-treated, cast iron and high-melting non-ferrous alloys	Heat-treated steel alloys
		Class of accuracy of weight of casting			
Casting in sand- clay damp forms from mixture with humidity from 3.5 to 4.5 % and strength from 60 to 120 кPa (from 0.6 to 1.2 kg/cm^2) with level of sealing upto hardness minimum 70 units. Casting in casing on forms from thermosetting mixtures. Casting in forms, hardened outside of contact with tool without heat dryer. Casting in sand- clay, slightly dried and dry forms. Casting in mould from liquid self- hardening mixtures.	Upto 1.0	5-13т	6-13	7т-14	7-15
	Above 1.0 to 10	6-13	7т-14	7-15	8-15
	Above 10 to 100	7т-14	7-15	8-15	9т-16
	Above 100 to 1000	7-15	8-15	9т-16	9-16
	Above 1000 to 10000	8-15	9т-16	9-16	10-16
	Above 10000 to 100000	9т-16	9-16	10-16	11т-16
Casting in sand- clay damp forms from high-moisture (maximum 4.5 %) and low- strength (upto 60 кPa or 0.6 kg/cm^2) mixture with low level of sealing upto hardness minimum 70 units	Upto 1.0	6-13	7т-14	7-15	8-15
	Above 1.0 to 10	7т-14	7-15	8-15	9т-16
	Above 10 to 100	7-15	8-15	9т-16	9-16
	Above 100 to 1000	8-15	9т-16	9-16	10-16
	Above 1000 to 10000	9т-16	9-16	10-16	11т-16
	Above 10000 to 100000	9-16	10-16	11т-16	11-16
	Above 100000	10-16	11т-16	11-16	12-16

Note. Table shows the ranges of classes of weight accuracy of casting, ensured by different technological casting process. Minimum of their values are related to the simple compact casting and conditions of automatic mass production, maximum- to the complex large dimension castings of unit and small- scale production and average- to the casting of average complexity and condition of mechanized series production.

ANNEXURE 6

Recommended

Row of allowance for machining of casting

Table 14

Degree of surface accuracy	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15	16
Rows of allowances	1-2	1-3	1-4	2-5	3-6	4-7	5-8	6-9	7-10

Continuation of table 14

Degree of surface accuracy	17	18	19	20	21	22
Rows of allowance	8-11	9-12	10-13	11-17	12-15	13-16

Note:

1. Minimum values of rows of allowances from the ranges of their values should be taken for the heat- treated castings from non- ferrous fusible alloys, maximum values-for malleable iron casting, average – for casting from gray and high- strength cast iron, heat- treated casting made of steel and non- ferrous high-melting alloys.
2. It is permitted to increase 1 – 3 unit values of row of allowances for upper surfaces of casting unit and small – scale production manufactured in single forms during pouring.

ANNEXURE 7

Compulsory

MACHINING ACCURACY AND CASTING ALLOWANCES

1. Level of machining accuracy, achieved depending on the technical level of technological machining is given in table 15.

Table 15

Characteristic of metal machining equipment	Level of machining accuracy at degree of accuracy of machine	
	Normal	High
Automated equipment, equipped with device for stabilization and control of machining accuracy.	-	High
Automated equipment (group of machines and CNC machines, automatic lines made of group of CNC machines and flexible industrial models etc.)	Average	Increased
Non- automated equipment (machine with manual control).	Reduced	Average

Note. Machines of normal accuracy according to GOST 8-82 should be categorized as normal accuracy of machines.

Machines of increased, high, special high accuracy according to GOST 8-82 should be categorized as machines of high degree of accuracy.

2. Values of allowances, given in table 6 of standard should be used on average level of machining accuracy (table 15).

During the increase or high level of machining accuracy values of allowances, which corresponds to range of total tolerances, given in table 6 should be higher by 1 or 2 lines units respectively higher than the range of actual tolerance, and during reduced level of machining accuracy- by 1 line lower than the range of actual tolerance.

ANNEXURE 8

Compulsory

Total tolerance of casting elements

Table 16

mm

Dimensional tolerance from surface to base	Tolerance of forms and position of surface	Total tolerance of casting elements, maximum
Upto 0,01	Upto 0,01	0,02
	Above 0,01 » 0,02	0,03
Above 0,01 to 0,02	Upto 0,01	0,02
	Above 0,01 » 0,02	0,03
	» 0,02 » 0,03	0,04
	» 0,03 » 0,04	0,05
Above 0,02 to 0,03	Upto 0,01	0,03
	Above 0,01 » 0,02	0,04
	» 0,02 » 0,03	0,05
	» 0,03 » 0,04	0,06
	» 0,04 » 0,05	0,07
	» 0,05 » 0,06	0,08
Above 0,03 to 0,04	Upto 0,01	0,04
	Above 0,01 » 0,03	0,05
	» 0,03 » 0,04	0,06
	» 0,04 » 0,05	0,07
	» 0,05 » 0,06	0,08
	» 0,06 » 0,08	0,11
Above 0,04 to 0,05	Upto 0,01	0,05
	Above 0,01 » 0,03	0,06
	» 0,03 » 0,04	0,07
	» 0,04 » 0,05	0,08
	» 0,05 » 0,06	0,09
	» 0,06 » 0,08	0,11
	» 0,08 » 0,10	0,14
Above 0,05 to 0,06	Upto 0,02	0,06
	Above 0,02 » 0,03	0,07
	» 0,03 » 0,04	0,08
	» 0,04 » 0,05	0,09
	» 0,05 » 0,06	0,10
	» 0,06 » 0,08	0,12
	» 0,08 » 0,10	0,14
	» 0,10 » 0,12	0,16
Above 0,06 to 0,08	Upto 0,02	0,08
	Above 0,02 » 0,04	0,09
	» 0,04 » 0,05	0,10
	» 0,05 » 0,06	0,11
	» 0,06 » 0,08	0,14
	» 0,08 » 0,10	0,16
	» 0,10 » 0,12	0,18
	» 0,12 » 0,16	0,22

Continuation of table 16

MM

Dimensional tolerance from surface to base	Tolerance of forms and position of surface	Total tolerance of casting elements, maximum
Above 0,08 to 0,10	Upto 0,02	0,10
	Above 0,02 » 0,04	0,11
	» 0,04 » 0,06	0,12
	» 0,06 » 0,08	0,14
	» 0,08 » 0,10	0,16
	» 0,10 » 0,12	0,18
	» 0,12 » 0,16	0,22
	» 0,16 » 0,20	0,28
Above 0,10 to 0,12	Upto 0,02	0,12
	Above 0,02 » 0,06	0,14
	» 0,06 » 0,08	0,16
	» 0,08 » 0,10	0,18
	» 0,10 » 0,12	0,20
	» 0,12 » 0,16	0,24
	» 0,16 » 0,20	0,28
	» 0,20 » 0,24	0,32
Above 0,12 to 0,16	Upto 0,03	0,16
	Above 0,03 » 0,06	0,18
	» 0,06 » 0,10	0,20
	» 0,10 » 0,12	0,22
	» 0,12 » 0,16	0,28
	» 0,16 » 0,20	0,32
	» 0,20 » 0,24	0,36
	» 0,24 » 0,32	0,44
Above 0,16 to 0,20	Upto 0,03	0,20
	Above 0,03 » 0,08	0,22
	» 0,08 » 0,12	0,24
	» 0,12 » 0,16	0,28
	» 0,16 » 0,20	0,32
	» 0,20 » 0,24	0,36
	» 0,24 » 0,32	0,44
	» 0,32 » 0,40	0,56
Above 0,20 to 0,24	Upto 0,06	0,24
	Above 0,06 » 0,12	0,28
	» 0,12 » 0,16	0,32
	» 0,16 » 0,20	0,36
	» 0,20 » 0,24	0,40
	» 0,24 » 0,32	0,50
	» 0,32 » 0,40	0,56
	» 0,40 » 0,48	0,64

Continuation of table 16

MM

Dimensional tolerance from surface to base	Tolerance of forms and position of surface	Total tolerance of casting elements, maximum
Above 0,24 to 0,32	Upto 0,06	0,32
	Above 0,06 » 0,12	0,36
	» 0,12 » 0,20	0,40
	» 0,20 » 0,24	0,44
	» 0,24 » 0,32	0,50
	» 0,32 » 0,40	0,56
	» 0,40 » 0,50	0,70
	» 0,50 » 0,64	0,90
Above 0,32 to 0,40	Upto 0,08	0,40
	Above 0,08 » 0,16	0,44
	» 0,16 » 0,24	0,50
	» 0,24 » 0,32	0,56
	» 0,32 » 0,40	0,64
	» 0,40 » 0,50	0,70
	» 0,50 » 0,64	0,90
	» 0,64 » 0,80	1,10
Above 0,40 to 0,50	Upto 0,12	0,50
	Above 0,12 » 0,24	0,56
	» 0,24 » 0,32	0,64
	» 0,32 » 0,40	0,70
	» 0,40 » 0,50	0,80
	» 0,50 » 0,64	0,90
	» 0,64 » 0,80	1,10
	» 0,80 » 1,00	1,40
Above 0,50 to 0,64	Upto 0,12	0,64
	Above 0,12 » 0,24	0,70
	» 0,24 » 0,40	0,80
	» 0,40 » 0,50	0,90
	» 0,50 » 0,64	1,00
	» 0,64 » 0,80	1,20
	» 0,80 » 1,00	1,40
	» 1,00 » 1,20	1,60
	» 1,20 » 1,28	1,80
Above 0,64 to 0,80	Upto 0,20	0,80
	Above 0,20 » 0,40	0,90
	» 0,40 » 0,50	1,00
	» 0,50 » 0,64	1,10
	» 0,64 » 0,80	1,20
	» 0,80 » 1,00	1,40
	» 1,00 » 1,20	1,80
	» 1,20 » 1,60	2,20

Continuation of table 16

MM

Dimensional tolerance from surface to base	Tolerance of forms and position of surface	Total tolerance of casting elements, maximum
Above 0,80 to 1,00	Upto 0,24	1,00
	Above 0,24 » 0,40	1,10
	» 0,40 » 0,64	1,20
	» 0,64 » 0,80	1,40
	» 0,80 » 1,00	1,60
	» 1,00 » 1,20	1,80
	» 1,20 » 1,60	2,20
	» 1,60 » 2,00	2,80
Above 1,00 to 1,20	Upto 0,32	1,20
	Above 0,32 » 0,64	1,40
	» 0,64 » 0,80	1,60
	» 0,80 » 1,00	1,80
	» 1,00 » 1,20	2,00
	» 1,20 » 1,60	2,40
	» 1,60 » 2,00	2,80
	» 2,00 » 2,40	3,20
Above 1,20 to 1,60	Upto 0,40	1,60
	Above 0,40 » 0,80	1,80
	» 0,80 » 1,00	2,00
	» 1,00 » 1,20	2,20
	» 1,20 » 1,60	2,40
	» 1,60 » 2,00	2,80
	» 2,00 » 2,40	3,60
	» 2,40 » 3,20	4,40
Above 1,60 to 2,00	Upto 0,40	2,00
	Above 0,40 » 0,80	2,20
	» 0,80 » 1,20	2,40
	» 1,20 » 1,60	2,80
	» 1,60 » 2,00	3,20
	» 2,00 » 2,40	3,60
	» 2,40 » 3,20	4,40
	» 3,20 » 4,00	5,60
Above 2,00 to 2,40	Upto 0,64	2,40
	Above 0,64 » 1,20	2,80
	» 1,20 » 1,60	3,20
	» 1,60 » 2,00	3,60
	» 2,00 » 2,40	4,00
	» 2,40 » 3,20	4,40
	» 3,20 » 4,00	5,60
	» 4,00 » 4,80	6,40

Continuation of table 16

MM

Dimensional tolerance from surface to base	Tolerance of forms and position of surface	Total tolerance of casting elements, maximum
Above 2,40 to 3,20	Upto 0,80	3,20
	Above 0,80 » 1,60	3,60
	» 1,60 » 2,00	4,00
	» 2,00 » 2,40	4,40
	» 2,40 » 3,20	5,00
	» 3,20 » 4,00	5,60
	» 4,00 » 5,00	7,00
	» 5,00 » 6 40	9,00
Above 3,20 to 4,00	Upto 1,00	4,00
	Above 1,00 » 1,60	4,40
	» 1,60 » 2,40	5,00
	» 2,40 » 3,20	5,60
	» 3,20 » 4,00	6,40
	» 4,00 » 5,00	7,00
	» 5,00 » 6,40	9,00
	» 6,40 » 8,00	11,00
Above 4,00 to 5,00	Upto 1,20	5,00
	Above 1,20 » 2,40	5,60
	» 2,40 » 3,20	6,40
	» 3,20 » 4,00	7,00
	» 4,00 » 5,00	8,00
	» 5,00 » 6,40	9,00
	» 6,40 » 8,00	11,00
	» 8,00 » 10,00	14,00
Above 5,00 to 6,40	Upto 1,20	6,40
	Above 1,20 » 2,40	7,00
	» 2,40 » 4,00	8,00
	» 4,00 » 5,00	9,00
	» 5,00 » 6,40	10,00
	» 6,40 » 8,00	12,00
	» 8,00 » 10,00	14,00
	» 10,00 » 12,00	16,00
	» 12,00 » 12,80	18,00
Above 6,40 to 8,00	Upto 2,00	8,00
	Above 2,00 » 4,00	9,00
	» 4,00 » 5,00	10,00
	» 5,00 » 6,40	11,00
	» 6,40 » 8,00	12,00
	» 8,00 » 10,00	14,00
	» 10,00 » 12,00	18,00
	» 12,00 » 16,00	22,00

Continuation of table 16

MM

Dimensional tolerance from surface to base	Tolerance of forms and position of surface	Total tolerance of casting elements, maximum
Above 8,00 to 10,00	Upto 2,40	10,00
	Above 2,40 » 4,00	11,00
	» 4,00 » 6,40	12,00
	» 6,40 » 8,00	14,00
	» 8,00 » 10,00	16,00
	» 10,00 » 12,00	18,00
	» 12,00 » 16,00	22,00
	» 16,00 » 20,00	28,00
Above 10,00 to 12,00	Upto 3,20	12,00
	Above 3,20 » 6,40	14,00
	» 6,40 » 8,00	16,00
	» 8,00 » 10,00	18,00
	» 10,00 » 12,00	20,00
	» 12,00 » 16,00	24,00
	» 16,00 » 20,00	28,00
	» 20,00 » 24,00	32,00
Above 12,00 to 16,00	Upto 4,00	16,00
	Above 4,00 » 8,00	18,00
	» 8,00 » 10,00	20,00
	» 10,00 » 12,00	22,00
	» 12,00 » 16,00	24,00
	» 16,00 » 20,00	28,00
	» 20,00 » 24,00	36,00
	» 24,00 » 32,00	44,00
Above 16,00 to 20,00	Upto 5,00	20,00
	Above 5,00 » 8,00	22,00
	» 8,00 » 12,00	24,00
	» 12,00 » 16,00	28,00
	» 16,00 » 20,00	32,00
	» 20,00 » 24,00	36,00
	» 24,00 » 32,00	44,00
	» 32,00 » 40,00	56,00
Above 20,00 to 24,00	Upto 6,40	24,00
	Above 6,40 » 12,00	28,00
	» 12,00 » 16,00	32,00
	» 16,00 » 20,00	36,00
	» 20,00 » 24,00	40,00
	» 24,00 » 32,00	44,00
	» 32,00 » 40,00	56,00
	» 40,00 » 48,00	64,00

Continuation of table 16

MM

Dimensional tolerance from surface to base	Tolerance of forms and position of surface	Total tolerance of casting elements, maximum
Above 24,00 to 32,00	Upto 8,00	32,00
	Above 8,00 » 16,00	36,00
	» 16,00 » 20,00	40,00
	» 20,00 » 24,00	44,00
	» 24,00 » 32,00	50,00
	» 32,00 » 40,00	56,00
	» 40,00 » 50,00	70,00
	» 50,00 » 64,00	90,00
Above 32,00 to 40,00	Upto 10,00	40,00
	Above 10,00 » 16,00	44,00
	» 16,00 » 24,00	50,00
	» 24,00 » 32,00	56,00
	» 32,00 » 40,00	64,00
	» 40,00 » 50,00	70,00
	» 50,00 » 64,00	90,00
	» 64,00 » 80,00	110,00
Above 40,00 to 50,00	Upto 12,00	50,00
	Above 12,00 » 24,00	56,00
	» 24,00 » 32,00	64,00
	» 32,00 » 40,00	70,00
	» 40,00 » 50,00	80,00
	» 50,00 » 64,00	90,00
	» 64,00 » 80,00	110,00
	» 80,00 » 100,00	140,00
Above 50,00 to 64,00	Upto 12,00	64,00
	Above 12,00 » 24,00	70,00
	» 24,00 » 40,00	80,00
	» 40,00 » 50,00	90,00
	» 50,00 » 64,00	100,00
	» 64,00 » 80,00	120,00
	» 80,00 » 100,00	140,00
	» 100,00 » 120,00	160,00
	» 120,00 » 128,00	180,00
Above 64,00 to 80,00	Upto 20,00	80,00
	Above 20,00 » 40,00	90,00
	» 40,00 » 50,00	100,00
	» 50,00 » 64,00	110,00
	» 64,00 » 80,00	120,00
	» 80,00 » 100,00	140,00
	» 100,00 » 120,00	180,00
	» 120,00 » 160,00	220,00

ANNEXURE 9

Reference

TERMS, USED IN THIS STANDARD AND THEIR DEFINITIONS

1. Nominal dimensions of part (casting)- dimension, specified in drawing of part (casting).
2. Average dimension of part-dimension of part, which corresponds to the middle range of its tolerance.
3. Type of dimensions of casting- totality of dimensions of casting, which are characterized by similar design and technological conditions for formation of their accuracy.
   Dimensions of type 1- dimensions of casting elements, formed by one part of casting forms or by one core.
   Dimensions of type 2- dimensions of casting elements, formed by two half forms or half forms and core (including dimensions, which emerge on the parting plane of casting or intersecting it).
   Dimension of form3 – dimensions of casting elements, formed by three and more parts of casting form and by several cores or by the moving elements of form and also the wall thickness, formed by two and more parts of form or by form and core.
4. Actual dimension of casting- actual local dimension, measured by two-points method.
5. Tolerance of displacement of casting elements on split plane difference in the maximum deviations of positions of part of casting elements, formed in the different half forms.
6. Total tolerance of casting element- complex tolerance, which includes the dimensional tolerance from surface to base and independently assigned tolerance of forms and position of standardized section of surface.
7. Unevenness of casting surface- totality of alternating projections and hollows on the casting surface.
   Unevenness of casting surface is subdivided on surface finish (micro-roughness) and undulation (meso- unevenness).
8. Surface finish- according to GOST 2789-73 and GOST 25142-82.
   Surface finish- totality of the repetitive unevenness of low values (micro-roughness).
   The centerline of the micro-profile of surface serves as base line for determination of surface finish parameters. Accepted code: *Ra* in mkm- average arithmetic deviation of micro- profile of surfaces; *Rz* in mkm – height of unevenness profile (on ten points).
9. Waviness of surfaces- according to СЭВ 3951-73.
   Waviness of surfaces- totality of repetitive unevenness of average values (meso-unevenness) i.e. uneven surface with pitch, which exceeds reference length, at which the surface finish of the given surface is measured.
   The average line of profile of surfaces serves as base line for determination of the values of waviness parameters.
   Base of length for measuring the waviness of casting surfaces are used as equal to 4-10 base of lengths for measurement of surface finish, but not less than five pitches of waviness and not more than 100 mm.
   Waviness occupies the intermediate position between the surface finish and deviations of forms of surfaces.
10. Tolerance of unevenness casting surface- maximum height of meso-unevenness of casting surface.
11. Machining allowance- thickness layer of metal, removed from the casting surface during its machining in total for ensuring the specified dimensions, forms, positions, waviness and surface finish of parts.

12. Total allowance- total allowance on all sub- operations of machining, which corresponds the average range of tolerance of part and casting.
13. Minimum casting allowance- allowance, necessary for ensuring the assigned requirements for quality (surface finish, waviness and without defects) of surface of part and depending on the thickness, removed during machining of surface layer, surface finish and waviness of casting surface. Surface defects of casting should not exceed the limit of minimum casting allowance.
14. Surface layer of casting (part)- layer of metal with modification (during formation or preceding machining) with composition, micro- structure and properties, which posses the increased resistance to the edge- cutting process.
15. Technological surplus metal- local or un- uniform increase in casting body in comparison with drawing of casting with drawing of casting part with standard machining allowance, required by the special features of casting technology. Technological surplus includes: additional metal, which ensures the direction of crystallization of casting; completions additional metal, which smooth out the local deepening and projections; additional metal and tie cores, which compensate for the distortion of the configuration of casting under the effect of cooling stresses; non-spillable holes; shrinkage edges; forming drafts.
16. Parameters of casting accuracy- generalized characteristics of dimensional accuracy, surfaces or casting in total.

    Parameters of dimensional accuracy and casting surface includes the class of dimensional accuracy, degree of warping of casting elements, degree of surface accuracy as well as displacement of casting element and series of allowance of casting surface.

    Parameters of casting accuracy in total includes the class having dimensional accuracy, degree of warping, degree of surface accuracy and class of weight accuracy as well as the displacement of casting.
17. Norms of accuracy of casting – requirements to the level of values of parameters of casting accuracy.

    The norms of accuracy are set depending on the purpose, design-technological special features, operating conditions and manufacturing of casting.
18. Types of machining: rough, semi- finished, finished and fine- distinguished according to ensured accuracy and surface finish of machined surface.

    Number of technological sub-operations, necessary for carrying out each type of machining, depends on the conditions of machining and special features of casting and machined surface.

Annexure 3-9. **(Introduced additionally, amendment No.1).**

REFERENCE OF NORMATIVE- TECHNICAL DOCUMENTS

Code of НТД on which reference is given	Point Number, annexure
GOST 2.308-79	5.5
GOST 2.423-73	5.6
GOST 8-82	Annexure 7
GOST 2789-73	Annexure 9
GOST 3212-80	2.5
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