

GOST : 11371-78

Title : WASHERS TECHNICAL CONDITIONS

Translated
and edited
by

K.A. Parthasarathy
K.A. PARTHASARATHY
PVR Associates

Date : FEBRUARY 1984.

Checked/ Approved by	
Name:	
Signature	
Date	

Checked by
655hivg
2/84

USSR STATE STANDARD

WASHERS
TECHNICAL CONDITIONS

GOST
11371-78
This supercedes
GOST 11371-68

BY ORDER NO.1674 DATED 26th JUNE 1978 OF THE USSR STATE
COMMITTEE ON STANDARDS THIS STANDARD IS VALID FROM 01.01.1979
TO 01.01.1984

NONOBSERVANCE OF THIS STANDARD IS PUNISHABLE BY LAW

The present standard is applicable to ^{standard} normal washers
for ~~fasteners~~ ^{fastenings} with thread diameter from 1 to 48 mm.

The standard is conformity with the COMECON standards
ST SEV 280-76 and ST SEV 281-76 for diameters from 1 to 48 mm
and with ST SEV 219-75 in respect of maximum permissible
deviations in inside and outside diameters and in respect
of ~~nonconformity~~ ^{conformity} of washers of thickness upto 4 mm and
tolerance classes A and C.

1. Dimensions
1. DIMENSIONS

Washer dimensions must conform to the values given in the
drawing and Table.

OFFICIAL EDITION

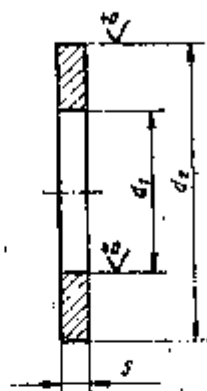
REPRINTING FORBIDDEN

(C) STANDARDS PRESS, 1978

PLAIN WASHER

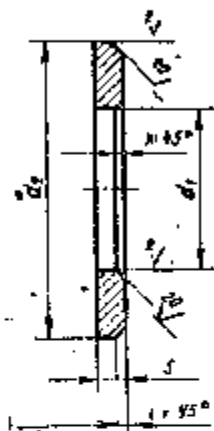
Исполнение 1

Variant 1



Исполнение 2

Variant 2 ▽ (▽)



conventional
Example of ~~national~~ designation of a washer for a fastener of variant 1, diameter 12 mm and standard thickness made of material of group 01 with ~~plating~~ *coating* type 01 of thickness 9 microns:

Washer 12.01.019 GOST 11371-78

Ditto of variant 2

Washer 2.12.01.019 GOST 11371-78

1.2. The following are permitted by mutual agreement between manufacturer and user:

Making washers of other thicknesses;

Using washers with internal diameters 12.5; 14.5 and 16.5 mm

2. TECHNICAL REQUIREMENTS

2.1. Washers must be manufactured in conformity with the requirements of the present standard and GOST 18123-72.

Limit
2.2. ~~Maximum permissible~~ deviations in washer dimensions as per ST SEV 144-75 and ST SEV 145-75;

in hole diameter d_1 - follow H11 for variant 1 and H13 for variant 2;

in outside diameter d_2 - follow h14; in ~~noncoaxiality~~ *misalignment* of hole diameter d_1 with respect to outside diameter d_2

$$\text{for } d_2 \leq 50 - \frac{IT15}{2}$$

$$\text{for } d_2 > 50 - \frac{IT16}{2}$$

2.3. The reference annexure lists theoretical weights of washers.

3. ACCEPTANCE PROCEDURE

3.1. Acceptance procedure for rough class of accuracy washers follows GOST 17769-72.

4. INSPECTION PROCEDURE

4.1. Inspection procedure for washers follows GOST 18123-72.

5. PACKING AND MARKING

Package
5.1. Packing of washers and ~~case~~ markings follow GOST 18160-72.

mm

Thread diameter of fastener	d_1	d_2	s	e		x , not less than
				not more greater than	not less than	
1.0	1.1	3.5				
1.2	1.3					
1.4	1.5	4.0	0.3	0.08	0.15	0.15
1.6	1.7					
2.0	2.2	5.0				
2.5	2.7	6.5	0.5	0.13	0.25	0.25
3.0	3.2	7.0				
4.0	4.3	9.0	0.8	0.20	0.40	0.40
5.0	5.3	10.0	1.0	0.25	0.50	0.50
6.0	6.4	12.5	1.6	0.40	0.80	0.80
8.0	8.4	17.0				
10.0	10.5	21.0	2.0	0.50	1.00	1.00
12.0	13.0	24.0	2.5	0.60	1.25	1.25
14.0	15.0	28.0				
16.0	17.0	30.0				
18.0	19.0	34.0	3.0	0.75	1.50	
20.0	21.0	37.0				
22.0	23.0	39.0				1.50
24.0	25.0	44.0	4.0	1.00	2.00	
27.0	29.0	50.0				
30.0	31.0	56.0				
36.0	37.0	66.0	5.0	1.25	2.50	
42.0	43.0	78.0	7.0	1.75	3.50	2.10
48.0	50.0	92.0	8.0	2.00	4.00	2.40

Notes:

Washers of variant 2 may be manufactured without chamfer but with the edges rounded off to radius e .

Washers of variant 2 may be manufactured without internal chamfer.

Annexure

Reference

WEIGHTS OF STEEL WASHERS

Thread diameter of fastener in, in mm	Theoretical weight of 1000 nos. in kg in variant		Thread diameter of fastener in, in mm	Theoretical weight of 1000 nos. in, in kg in variant	
	1	2		1	2
1.0	0.021	0.020	12.0	6.270	5.558
1.2	0.026	0.025	14.0	8.620	7.795
1.4	0.025	0.023	16.0	11.300	10.000
1.6	0.024	0.022	18.0	14.700	13.230
2.0	0.037	0.035	20.0	17.160	15.560
2.5	0.109	0.102	22.0	18.350	16.530
3.0	0.119	0.110	24.0	32.330	29.530
4.0	0.308	0.282	27.0	42.310	39.120
5.0	0.450	0.415	30.0	53.640	50.080
6.0	1.139	0.990	36.0	92.080	86.120
8.0	2.150	1.949	42.0	182.770	169.070
10.0	4.080	3.699	48.0	294.170	273.090

Note: The weights given in the table are to be multiplied by the factors given below for determining the weight of washers made out of other materials:

- 0.35 - for aluminium alloy;
- 0.97 - for bronze;
- 1.08 - for brass;
- 1.13 - for copper.

BASE UNITS SI

Quantity	Units	Abbreviations	Name
----------	-------	---------------	------

Russian International

LENGTH	metre	M	m
MASS	kilogram	kg	kg
TIME	second	s	s
ELECTRIC CURRENT	ampere	A	A
Thermodynamic temperature	kelvin	K	K
Amount of substance	mole	mol	mol
Luminous intensity	candela	cd	cd

SUPPLEMENTARY UNITS

Plane angle	radian	rad	rad
Solid angle	steradian	sr	sr

DERIVED UNITS SI HAVING PROPRITORY NAMES

Quantity	Name	Abbreviation	In terms of other units	In terms of base units
----------	------	--------------	-------------------------	------------------------

Frequency	hertz	Hz	-	s^{-1}
Force	newton	N	-	$kg \cdot m \cdot s^{-2}$
Pressure	pascal	Pa	N/m^2	$kg \cdot m^{-1} \cdot s^{-2}$
Energy, work, heat	joule	J	$N \cdot m$	$kg \cdot m^2 \cdot s^{-2}$
Power, Rate of	-	-	-	-
Flow of energy	watt	W	J/s	$kg \cdot m^2 \cdot s^{-3}$
Quantity of electrical charge	coulomb	C	A.s	A.s
Electrical voltage, potential difference	volt	V	W/A	$kg \cdot m^2 \cdot s^{-3} \cdot A^{-1}$
Capacitance	farad	F	C/V	$kg^{-1} \cdot m^{-2} \cdot s^4 \cdot A^2$
Resistance	ohm	Ω	V/A	$kg \cdot m^2 \cdot s^{-3} \cdot A^{-2}$
Conductance	siemens	S	A/V	$kg^{-1} \cdot m^{-2} \cdot s^3 \cdot A^2$
Magnetic flux	weber	Wb	$V \cdot s$	$kg \cdot m^2 \cdot s^{-2} \cdot A^{-1}$
Magnetic flux density	tesla	T	Wb/m^2	$kg \cdot m^{-2} \cdot s^{-2} \cdot A^{-1}$
Inductance	henry	H	Wb/A	$kg \cdot m^2 \cdot s^{-2} \cdot A^{-2}$
Luminous flux	lumen	lm	-	$cd \cdot sr$
Brightness	lux	lx	-	$cd \cdot sr \cdot m^{-2}$
Nucleid activity	becquerel	Bq	-	s^{-1}
Radiation dose	grey	gray	-	$m \cdot s^{-2}$

* The supplementary unit steradian figures in these two expressions along with base units.