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USSR STATE STANDARD BOLTS, SCREWS, STUDS AND NUTS TECHNICAL REQ--ETC(U)
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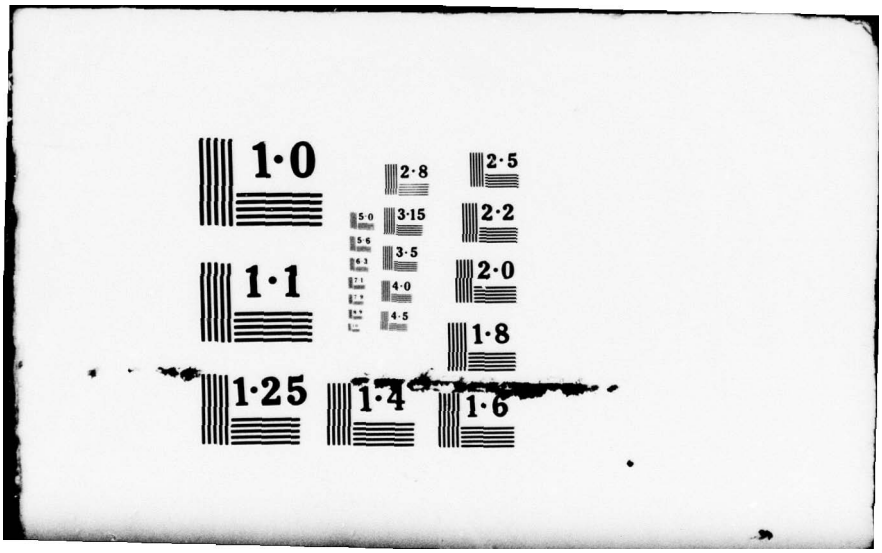
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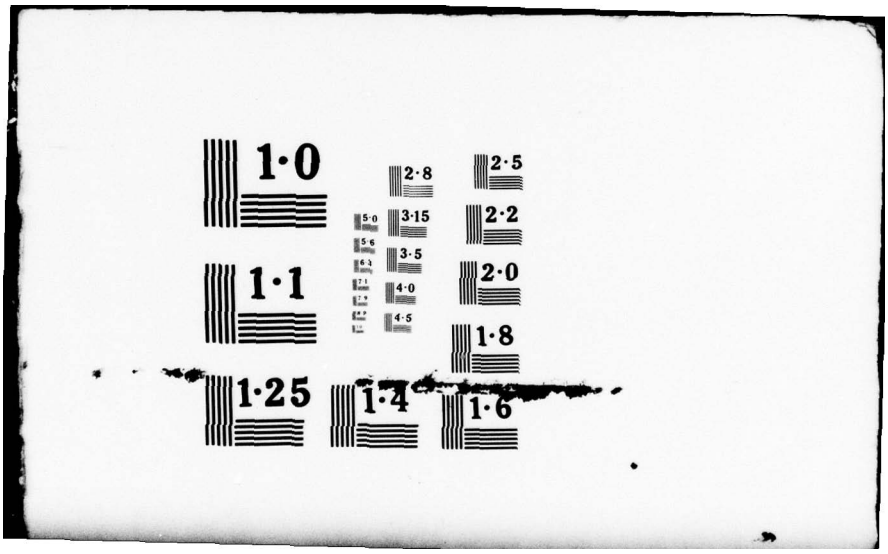
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# FOREIGN TECHNOLOGY DIVISION

USSR STATE STANDARD BOLTS, SCREWS, STUDS AND NUTS
TECHNICAL REQUIREMENTS GOST 1759-70



Approved for public release;
distribution unlimited.

# EDITED TRANSLATION

FTD-ID(RS)T-1609-78 9 November 1978

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## U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

| Block | Italic | Transliteration | Block | Italic | Transliteration |
|---|---|---|---|---|---|
| А а | *А а* | A, a | Р р | *Р р* | R, r |
| Б б | *Б б* | B, b | С с | *С с* | S, s |
| В в | *В в* | V, v | Т т | *Т т* | T, t |
| Г г | *Г г* | G, g | У у | *У у* | U, u |
| Д д | *Д д* | D, d | Ф ф | *Ф ф* | F, f |
| Е е | *Е е* | Ye, ye; E, e* | Х х | *Х х* | Kh, kh |
| Ж ж | *Ж ж* | Zh, zh | Ц ц | *Ц ц* | Ts, ts |
| З з | *З з* | Z, z | Ч ч | *Ч ч* | Ch, ch |
| И и | *И и* | I, i | Ш ш | *Ш ш* | Sh, sh |
| Й й | *Й й* | Y, y | Щ щ | *Щ щ* | Shch, shch |
| К к | *К к* | K, k | Ъ ъ | *Ъ ъ* | " |
| Л л | *Л л* | L, l | Ы ы | *Ы ы* | Y, y |
| М м | *М м* | M, m | Ь ь | *Ь ь* | ' |
| Н н | *Н н* | N, n | Э э | *Э э* | E, e |
| О о | *О о* | O, o | Ю ю | *Ю ю* | Yu, yu |
| П п | *П п* | P, p | Я я | *Я я* | Ya, ya |

*ye initially, after vowels, and after ъ, ь; e elsewhere.
When written as ё in Russian, transliterate as yё or ё.

## RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

| Russian | English | Russian | English | Russian | English |
|---|---|---|---|---|---|
| sin | sin | sh | sinh | arc sh | $\sinh^{-1}$ |
| cos | cos | ch | cosh | arc ch | $\cosh^{-1}$ |
| tg | tan | th | tanh | arc th | $\tanh^{-1}$ |
| ctg | cot | cth | coth | arc cth | $\coth^{-1}$ |
| sec | sec | sch | sech | arc sch | $\operatorname{sech}^{-1}$ |
| cosec | csc | csch | csch | arc csch | $\operatorname{csch}^{-1}$ |

| Russian | English |
|---|---|
| rot | curl |
| lg | log |

USSR

STATE STANDARD

# BOLTS, SCREWS, STUDS AND NUTS

Technical Requirements

GOST 1759-70

ГОСТ 1759-70

Official Publication

State Committee of Standards
USSR Council of Ministers
Moscow

FORMULATED BY

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IMPLEMENTED by Decree of the State Committee of Standards, Measures and Measuring Instruments of the USSR Council of Ministers of 18 February 1970, No 177.

UDK 621.88 (083.74) Group G31

USSR STATE STANDARD

BOLTS, SCREWS, STUDS AND NUTS GOST

Technical Requirements 1759-70*

Replaces
GOST 1759-62**

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By Decree of the Committee of Standards, Measures and Measuring Instruments of the USSR Council of Ministers of 18 Nov 1970 No 177 the period of implementation is established

from 1/1 1972

p. 10 in table 9 from 1/1 1975

Failure to observe the standard is punishable by law

This standard extends to bolts, screws, studs and nuts with a thread diameter of from 1 to 48 mm.

The standard incorporates the requirements of the recommendations of SEV for standardization RS 306-71, RS 307-71, RS 309-65, RS 310-65, RS 792-67.

## 1. Technical Requirements

1.1. In form, dimensions, thread, maximum deviation and surface roughness, bolts, screws, studs and nuts should conform to the requirements established in the measuring standards.

1.2. The mechanical properties of bolts, screws, studs and nuts, made from carbon and alloy steels, and also from brands of steel should conform to those indicated in tables 1 and 2.

Notes:

1. It is not permitted to use acid Bessemer steel for the production of bolts, screws, studs and nuts.

2. Up until 1/1-73 it is permitted to make fastener parts out of steels of the brands standardized in tables 1 and 2 of GOST 380-60 and GOST 4543-61.

** In connection with bolts, screws, studs and nuts with a thread diameter from 1 to 48 mm.

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* Reprint (August 1972) with change No 1 published in March 1972.

Table 1.
Mechanical properties of bolts, screws and studs made from carbon and alloy steel at normal temperature.

| (1) Класс прочности | (2) Временное сопротивление $\sigma_в$, кгс/мм² | | (6) Относительное удлинение $\delta_5$, % | (7) Ударная вязкость $a_н$, кгс·м/см² | (9) Твердость по Бринеллю НВ | | (10) Твердость по Роквеллу | | (13) Напряжение от пробной нагрузки $\sigma_п$, кгс/мм² | (14) Марка стали | (15) Номер стандарта |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | (3) наим. | (4) наиб. (справ.) | (8) не менее | | (3) наим. | (4) наиб. (справ.) | НВ (3) наим. | НВ (4) наиб. (справ.) | | | |
| 3.6 | 34 | 49 | 20 | 25 | (16) Не регламентируется | 90 | 150 | 48 | 80 | 18,8 | Ст3кп3, Ст3сп3 10 | ГОСТ 380—71 ГОСТ 1050—60, ГОСТ 10702—63 |
| | 30 | | | | | | | | | | 10 кп | ГОСТ 1050—60, ГОСТ 10702—63 |
| 4.6 | 40 | 55 | 24 | 25 | 5,6 | 110 | 170 | 62 | 86 | 22,6 | 20 | ГОСТ 1050—60, ГОСТ 10702—63 |
| 4.8 | | | 32 | (11) 14 справ. | Не регламентируется (16) | | | | | 29,1 | 0,10 кп | ГОСТ 1050—60, ГОСТ 10702—63 |
| 5.6 | 50 | 70 | 30 | 20 | 5 | 140 | 215 | 77 | 97 | 28,2 | 30, 35 | ГОСТ 1050—60, ГОСТ 10702—63 |
| 5.8 | | | 40 | (12) 10 справ. | Не регламентируется (16) | | | | | 36,4 | 10** 10кп**, 20, 20кп Ст3сп3, Ст3кп3, | ГОСТ 10702—63, ГОСТ 1050—60 ГОСТ 380—71 |
| 6.6 | 60 | 80 | 36 | 16 | 4 | 170 | 245 | 88 | 102 | 33,9 | 35, 45 40Г | ГОСТ 1050—60, ГОСТ 10702—63 ГОСТ 4543—71 |
| 6.8 | | | 48 | (17) 8 справ. | Не регламентируется (16) | | | | | 43,7 | 30, 20кп | ГОСТ 10702—63, ГОСТ 1050—60 |
| 6.9 | | | 54 | (17) 12 справ. | | | | | | 47,5 | | |
| 8.8 | 80 | 100 | 64 | 12* | 6 | 225 | 300 | (16) Не регламентируется | | 58,2 | 35***, 35Х, 38ХА 45Г | ГОСТ 10702—63, ГОСТ 1050—60 ГОСТ 4543—71 |
| 10.9 | 100 | 120 | 80 | 8 | 4 | 280 | 355 | | | 79,2 | 40Г2, 40Х, 30ХГСА, 16 ХСН | ГОСТ 4543—71, ГОСТ 10702—63 |
| 12.9 | 120 | 140 | 100 | 6 | 4 | 310 | 425 | | | 95,0 | 35ХГСА | ГОСТ 4543—71 |
| 14.9 | 140 | 160 | 126 | 7 | 3 | 390 | Не регламентируется (16) | | | 111,0 | 40ХНМА | ГОСТ 4543—71 |

Key: (1) Strength class*; (2) Tensile strength $\sigma_в$, kgf/mm ; (3) least; (4) greatest ( ? ); (5) Yield point $\sigma_т$, kgf/mm$^2$; (6) Rel. elongation $\delta_5$, %; (7) Impact toughness $a_{н5}$, kgf/cm$^2$; (8) no less than; (9) Brinell hardness HB; (10) Rockwell hardness; (11) HRB; (12) HRC; (13) Stress from test load $\sigma_п$, kgf/mm$^2$; (14) Brand of steel; (15) Number of standard; (16) Not fixed; (17) ? .

* The strength class is designated by two numbers. The first number, multiplied by 10 determines the magnitude of the minimum tensile strength in kgf/mm$^2$, the second number, multiplied by 10, determines the ratio of yield point to tensile strength in percentages; the product of the numbers determines the magnitude of yield point in kgf/mm$^2$ (for the strength class of 3.6 the values are approximate).

** For bolts, screws and studs with a thread diameter up to 12 mm inclusive.

*** For bolts, screws and studs with a thread diameter up to 16 mm inclusive.

Notes:

1. It is permitted to use free-cutting steel in the manufacturing of parts of strength classes 4.8, 5.8 and 6.8.

2. In the supplying of bolts, screws and studs it is permitted to replace parts of lower strength classes by parts of higher strength classes:

strength class 3.6 by 4.6;
strength class 4.8 by 5.8, 6.8, 6.9;
strength class 5.8 by 6.8, 6.9;
strength class 6.8 by 6.9, 8.8;
strength class 6.9 by 8.8.

Table 2

Mechanical properties of nuts made from carbon and alloy steels at normal temperature

| (1) Класс прочности* | (2) Напряжение от испытательной нагрузки $\sigma_F$, кгс/мм², не менее | (3) Твердость по Бринеллю НВ (5) не более | (4) Твердость по Роквеллу HRC (5) не более | (6) Марки стали | (7) Номер стандарта |
|---|---|---|---|---|---|
| 4 | 40 | 302 | 33 | Ст3кп3, Ст3сп3 | ГОСТ 380—71 |
| 5 | 50 | | | 10, 10кп, 20 | ГОСТ 10702—63, ГОСТ 1050—60 |
| 6 | 60 | | | 10, 10кп, 15, 15кп, 35 Ст5 | ГОСТ 10702—63, ГОСТ 1050—60 ГОСТ 380—71 |
| 8 | 80 | | | 20, 20кп 35, 45 | ГОСТ 10702—63 ГОСТ 1050—60 |
| 10 | 100 | 353 | 38 | 35Х, 38ХА | ГОСТ 4543—71 |
| 12 | 120 | | | 40Х, 30ХГСА, 16ХСН | ГОСТ 4543—71 |
| 14 | 140 | 375 | 40 | 35ХГСА, 40ХНМА | ГОСТ 4543—71 |

Key: (1) Strength class*; (2) Stress from test load $\sigma_F$, kgf/mm$^2$ no less than; (3) Brinell hardness HB; (4) Rockwell hardness HRC; (5) no more than; (6) Brands of steel; (7) Number of standard.

* Strength class is designated by a number, which when multiplied by 10 gives the magnitude of stress from a test load in kgf/mm$^2$.

Notes:

1. It is permitted to use phosphorous steel in the manufacture of nuts of strength classes 4 and 5, and free-cutting steel for strength classes 4, 5 and 6.

2. In the supplying of nuts it is permitted to replace nuts of lower strength classes by nuts of higher strength classes (if prohibition of replacement is not stipulated in the order). Here the hardness of the nuts being supplied should not exceed the values indicated for the class being replaced.

(Changed wording - "Inform. index of standards" No 3, 1972).

1.3. The recommended technological processes for the manufacturing of bolts, screws and studs are given in appendix 1, and for nuts - in appendix 2.

5

1.4. Based on the user requirement stipulated in the order, it is not permitted to use rimmed and free-cutting steels for the manufacture of bolts, screws and studs.

1.5. The mechanical properties of bolts, screws, studs and nuts, manufactured from noncorroding, heat-resistant, oxidation--resistant and heatproof steels, and also brands of steel should correspond to those indicated in tables 3 and 4.

Table 3

Mechanical properties of bolts, screws and studs made from noncorroding, heat-resistant, oxidation-resistant and heatproof steels at normal temperature

| (1) Условное обозначение группы | (2) Временное сопротивление $\sigma_в$, кгс/мм² | (3) Предел текучести $\sigma_т$ ($\sigma$0.2), кгс/мм² | (4) Относительное удлинение $\delta_5$, % | (5) Ударная вязкость $a_н$, кгс.м/см² | (7) Напряжение от пробной нагрузки $\sigma_п$, кгс/мм² | (8) Марка стали | (9) Номер стандарта |
|---|---|---|---|---|---|---|---|
| | не менее (6) | | | | | | |
| 21 | 52 | 20 | 40 | — | 18,0 | Х18Н10Т, Х18Н9Т, Х17Н13М2Т | ГОСТ 5632—61 |
| 22 | 70 | 55 | 15 | 6 | 49,5 | 2Х13 | ГОСТ 5632—61 |
| 23 | | 65 | 12 | 6 | 58,5 | 1Х17Н2 | ГОСТ 5632—61 |
| 24 | 90 | 55 | 8 | 3 | 49,5 | Х12Н22Т3МР | ГОСТ 5632—61 |
| 25 | | 75 | 10 | 3 | 67,5 | 1Х12Н2ВМФ 25Х1МФ, 25Х2М1Ф 20Х1М1Ф1ТР* | ГОСТ 5632—61 ГОСТ 10500—63 |
| 26 | 110 | 85 | 10 | 5 | 76,5 | Х16Н6* | — |

Key: (1) Conditional designation of group; (2) Tensile strength $\sigma_в$, kgf/mm$^2$; (3) Yield point $\sigma_т$ ($\sigma$0.2), kgf/mm$^2$; (4) Relative elongation $\delta_5$, %; (5) Impact toughness $a_{н_5}$, kgf/cm$^2$; (7) Stress from test load $\sigma_п$, kgf/mm$^2$; (8) Brands of steel; (9) Number of standard.

* Based on technical conditions, approved in established order.

Table 4

Mechanical properties of nuts made from noncorroding, heat-resistant, oxidation-resistant and heatproof steels at normal temperature

| (1) Условное обозначение группы | (2) Напряжение от испытательной нагрузки $\sigma_F$, кгс/мм², не менее | (3) Марка стали | (4) Номер стандарта |
|---|---|---|---|
| 21 | 52 | Х18Н10Т, Х18Н9Т, Х17Н13М2Т | ГОСТ 5632–61 |
| 22 | 70 | 2Х13 | ГОСТ 5632–61 |
| 23 | | 1Х17Н2 | ГОСТ 5632–61 |
| 25 | 90 | Х12Н22Т3МР, 1Х12Н2ВМФ | ГОСТ 5632–61 |
| | | 25Х1МФ, 25Х2М1Ф | ГОСТ 10500–63 |
| | | 20Х1М1Ф1ТР* | — |
| 26 | 110 | Х16Н6* | — |

Key: (1) Conditional designation of group; (2) Stress from test load $\sigma_F$ kgf/mm$^2$, no less than; (3) Brand of steel; (4) Number of standard.

* Based on technical conditions, approved in established order.

(Changed wording - "Inform. index of standards" No 3, 1972).

1.6. The mechanical properties of bolts, screws, studs and nuts, manufactured from nonferrous alloys, and also brands of material should conform to those indicated in tables 5 and 6.

1.7. The brand of material used for the manufacture of bolts, screws and studs of strength classes 8.8, 10.9 and of nuts of strength classes 10, 12 and 14, should be indicated in the order from those stipulated in tables 1 and 2.

1.8. The brand of carbon steel used for the manufacture of bolts, screws and studs of strength classes 3.6-6.9 and of nuts of strength classes 4-8, and also the brand of the nonferrous alloy are selected by the manufacturer from those stipulated in tables 1, 2, 5 and 6.

1.9. On agreement between the consumer and the manufacturer it is permitted for the manufacture of bolts, screws, studs and nuts out of carbon and alloy steels to use brands of material which are not indicated in tables 1 and 2, but which ensure the obtaining of parts with the mechanical properties of the corresponding strength classes, and also to manufacture bolts, screws, studs and nuts out of nonferrous alloys which are not indicated in tables 5 and 6. In this case the mechanical properties can differ from those stipulated in tables 5 and 6.

Table 5

Mechanical properties of bolts, screws and studs made from non-ferrous alloys at normal temperature

| (1) Условное обозначение группы | (2) Временное сопротивление $\sigma_в$, кгс/мм² | (3) Предел текучести $\sigma_т$ ($\sigma_{0.2}$), кгс/мм² | (4) Относительное удлинение $\delta_5$, % | (5) Твердость по Бринеллю НВ | (6) Марка материала или сплава | (7) Номер стандарта |
|---|---|---|---|---|---|---|
| | не менее (8) | | | | | |
| 31 | 27 | 12 | 15 | (9) Не регламентируется | АМг5П | ГОСТ 4784—65 |
| 32 | 32 | (9) Не регламентируется | 12 | 75 | (10) Латунь ЛС59—1, латунь Л63 | ГОСТ 15527—70 |
| 33 | | | | | (11) Латунь ЛС59—1, латунь Л63 антимагнитные | |
| 34 | 50 | | | (9) Не регламентируется | (12) Бронза Бр. АМц9—2 | ГОСТ 493—54 |
| 35 | 38 | 20 | 10 | | Д1П, Д16П | ГОСТ 4784—65 |

Key: (1) Conditional designation of group; (2) Tensile strength $\sigma_в$, kgf/mm$^2$; (3) Yield point $\sigma_т(\sigma_{0.2})$, kgf/mm$^2$; (4) Relative elongation $\delta_5$, %; (5) Brinell hardness HB; (6) Brand of material or alloy; (7) Number of standard; (8) no less than; (9) Not fixed; (10) Brass LS59-1, brass L63; (11) Brass LS59-1, brass L63 antimagnetic; (12) Bronze Br. AMts9-2.

Table 6

Mechanical properties of nuts made out of nonferrous alloys at normal temperature

| (1) Условное обозначение группы | (2) Напряжение от испытательной нагрузки $\sigma_F$, кгс/мм², не менее | (3) Марка материала или сплава | (4) Номер стандарта |
|---|---|---|---|
| 31 | 27 | АМг5П | ГОСТ 4784—65 |
| 32 | 32 | (5) Латунь ЛС59—1, латунь Л63 | ГОСТ 15527—70 |
| 33 | | (6) Латунь ЛС59—1, латунь Л63 антимагнитные | |
| 34 | 50 | (7) Бронза Бр. АМц9—2 | ГОСТ 493—54 |
| 35 | 38 | Д1П, Д16П | ГОСТ 4784—65 |

Key: (1) Conditional designation of group; (2) Stress from test load $\sigma_F$, kgf/mm$^2$, no less than; (3) Brand of material or alloy; (4) Number of standard; (5) Brass LS59-1, brass L63; (6) Brass LS59-1, brass L63 antimagnetic; (7) Bronze Br. AMts9-2.

8

(Changed wording - "Inform. index of standards" No 3 1972).

1.10. The brand of the material for the manufacture of parts of groups 21, 23, and 25 should be indicated in the order. It is permitted to order parts made out of brands of material which are not indicated in tables 3 and 4. In this case the mechanical properties can differ from those stipulated in these tables.

1.11. On request of the consumer, fastening parts made out of brass, manufactured by cold heading, should be subjected to heat treatment for the removal of internal stresses.

1.12. On request of the consumer, bolts, screws, studs and nuts should be produced with a coating.*

The types and conditional designations of coatings should conform to those indicated in table 7.

---

* Up until 1/1 1973 the manufacture of bolts, screws, studs and nuts with coatings has been carried out on agreement of the parties.

Table 7

| Designation | Type of coatings |
|---|---|
| 00 | Without a coating |
| 01 | Zinc with chromizing |
| 02 | Cadmium |
| 03 | Nickel |
| 03 | Multilayer - copper-nickel |
| 04 | Multilayer - copper-nickel-chromium |
| 05 | Oxide |
| 06 | Phosphate with oiling |
| 07 | Tin |
| 08 | Copper |
| 09 | Zinc |
| 10 | Oxide anodizing with chromizing |
| 11 | Passive |
| 12 | Silver |

The selection of the type of coating for a specific material is made in accordance with GOST 14623-69. The selection of coating thickness is in accordance with GOST 9791-68.

(Changed wording - "Inform. index of standards" No 3 1972).

1.13. The technical requirements for coatings, the thicknesses of coatings and the dimensions of the thread under the coating are established by agreement between the consumer and the manufacturer.

9

1.14. By agreement between the manufacturer and the consumer it is permitted to use other types of coatings.

1.15. The dimensions of thread run-out, undercuts (underfills) and bevel edges on the end of the thread of bolts, screws and studs are in accordance with GOST 10549-63.

1.16. By agreement between the customer and the manufacture it is permitted to produce:

a) bolts, screws and studs with an elongated or shortened length of the threaded part;

b) studs and nuts with a left-hand twist;

c) bolts with one opening in the head.

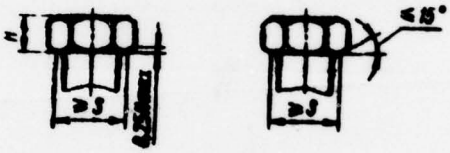
1.17. Deviations from the correct geometric form and defects in the external form are stipulated in tables 8 and 9.

Table 8

| Degree of precision of parts | | |
|---|---|---|
| Coarse | Normal | Higher |
| Not permitted: | | |

1. Cracks.
2. Grooves, bringing the dimensions of parts out beyond the limiting deviations.
3. A bevel edge on the supporting surface of bolts at an angle greater than 15° (drawing 1b).
4. Blunting of the edges of the hexagon or square to the seat of the bolt by more than 0.25 of the height of the head of the bolt or nut (drawing 1a).

a) with heading b) with turning



S - dimension "for a wrench"

Drawing 1.

5. Rounding off of the edges of the hexagon or square, bringing the diameter of the described circumference beyond the maximum deviation.
6. Rounding off of the shoulder of heads on bolts and screws with flat countersunk and raised countersunk heads and edges for bolts and screws with a button head, bringing the diameter of these heads beyond the maximum deviation.
7. Undermolding in the form of a cut in the top of a button head, if the diameter of the area of the cut exceeds:

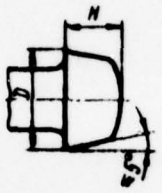
| 40% of the nominal diameter of head | 30% of nominal diameter of head |
|---|---|

Undermolding should not bring the height of the head beyond the maximum limit.

Table 8 (continued)

| Degree of precision of parts | | |
|---|---|---|
| Coarse | Normal | Higher |
| Not permitted: | | |

8. A pitch of the generatrix of the head (drawing 2) of more than 5° and a sphere on the upper face of the head, bringing the height of a cylindrical head beyond the maximum deviation



Drawing 2.

9. A reduction in the rated diameter of the head in the direction of the slot, exceeding:

0.3 mm - for screws with a thread diameter up to 2 mm inclusive;

0.6 mm - for screws with a thread diameter from 2.5 to 5 mm inclusive;

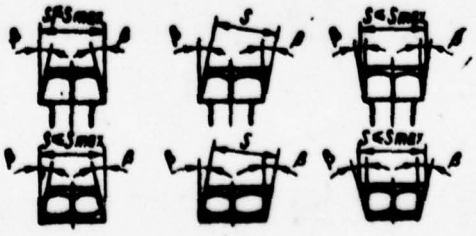
0.7 mm - for screws with a thread diameter from 6 mm and higher.

10. Slope of face (angle β - figure 3) no more than:

| | | |
|---|---|---|
| 2° | 2° | 1° |

Notes:

1. The slope of the faces should not bring the dimensions "for a wrench" beyond the maximum deviations.



Drawing 3.

Table 8 (continued)

| Degree of precision of parts | | |
|---|---|---|
| Coarse | Normal | Higher |
| Not permitted: | | |

2. The requirements of note 1 do not extend to coarse precision bolts produced on friction presses.

11

11. A slope of the faces of the inner hexagon (angle β - drawing 4) greater than:

| | | |
|---|---|---|
| $5^{\circ}$ | | $3^{\circ}$ |

Drawing 4.

| | | |
|---|---|---|
| 12. Cuts (chips) of metal on the faces of a head with a height of 0.25 more than the height of the head extending the dimensions "under the wrench" beyond the limits of 0.9 of the nominal dimension | Cuts (chips) of metal on the faces of a head with a height 0.2 more than the height of the head, extending the dimension "under the wrench" beyond the limits of 0.95 of the nominal dimension | Cuts (chips) of metal on the faces of a head with a height 0.15 more than the height of the head, extending the dimension "under the wrench" beyond the maximum deviation |

13. Deviation from the perpendicularity of the surface of the head (angle γ - drawing 5) relative to the axis of the rod greater than:

| | |
|---|---|
| $2^{\circ}$ - for parts with a thread diameter up to 30 mm inclusive;<br>$1^{\circ}$ - for parts with a thread diameter greater than 30 mm | $1^{\circ}$ - for parts with a thread diameter up to 30 mm inclusive;<br>30' - for parts with a thread diameter greater than 30 mm |

Table 8 (continued)

| Degree of precision of parts | | |
|---|---|---|
| Coarse | Normal | Higher |
| Not permitted: | | |

14. Deviation from perpendicularity of the seat of the nuts (angle γ - drawing 5) relative to the axis of the threads more than:

| | | |
|---|---|---|
| 2° | 1°30' | 1° |

Drawing 5.

12

15. Convexity of seats.

16. Concavity of seats with a magnitude greater than half of the tolerance for the height of the head or the height of the nut.

| | |
|---|---|
| 17. Seams at the site of the mold parting line, increasing the actual diameter of the rod by more than a magnitude of tolerances of the 7th class of precision | Seams at the site of the mold parting line, increasing the actual diameter of the rod by more than a magnitude of tolerances of the 5th class of precision |

18. Tracks from rollers or cutting tools, extending the diameter of the rod or the head beyond the maximum deviations.

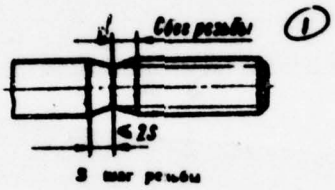
19. Thickening of the diameter of the rod under the head of bolts and screws more than:

| | |
|---|---|
| tolerances of the 7th class of precision on the length of two nominal diameters of the thread | 0.05 mm on a length of 5 mm - for parts with a thread diameter up to 16 mm inclusive;<br>0.1 mm on a length of 8 mm - for parts with a thread diameter from 18 to 27 mm inclusive;<br>0.2 mm on a length of 10 mm - for parts with a thread diameter greater than 30 mm. |

Table 8 (continued)

| Degree of precision of parts | | |
|---|---|---|
| Coarse | Normal | Higher |
| Not permitted: | | |

20. For the rod of a thread which has been reduced under rolling - a smooth conical part between the end of the run-out and the thread-free part of the rod (drawing 6) with a length no greater than two pitches of thread



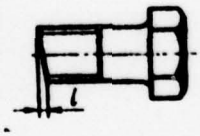

S thread pitch

Drawing 6.

Key: (1) thread run-out.

21. Scarf of rod (1) no more than:

| | |
|---|---|
| magnitude of bevel edge c according to GOST 10549-63 | magnitude of 1/2 of bevel edge c according to GOST 10549-63 |

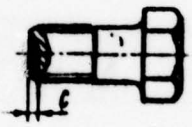


Drawing 7.

Table 8 (continued)

| Degree of precision of parts | | |
|---|---|---|
| Coarse | Normal | Higher |
| Not permitted: | | |
| 13 | | |

22. Hollow on the face of the rod of a rolled part with a depth greater than the dimension of the bevel edge c (drawing 8) according to GOST 10549-63



Drawing 8.

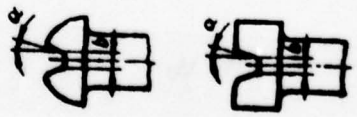
23. Burrs and sharp edges in the openings for the cotter pins.

24. Countersinking of the openings for the cotter pins wih a diameter greater than 1.5 the diameter of the opening or causing a break of the face.

25. Dents and splashes of metal on the base of the slot, extending its depth beyond the maximum deflection.

26. Slanting of the walls of the slot (angle α - drawing 9) greater than:

| $5^{\circ}$ | $3^{\circ}$ |
|---|---|



b - width of slot

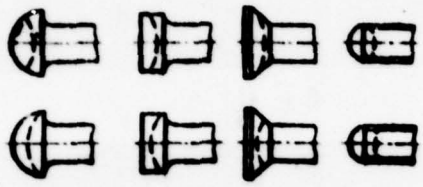
Drawing 9.

27. Burrs from the slot groove.

28. Concavity of the bottom of the slot with a curvature, not corresponding to the radius of the standard slot or grooving cutter, and also a convexity with a radius less than 90 mm - for screws with a thread diameter down to 12 mm and less, and 150 mm - for screws with a thread diameter greater than 12 mm (drawing 10)

Table 8 (continued)

| Degree of precision of parts | | |
|---|---|---|
| Coarse | Normal | Higher |
| Not permitted: | | |



Drawing 10.

14

29. Dents and splashes on the end surface of the head of cross-slotted screws at the point of upsetting of the slot, bringing the height of the head beyond the maximum deviation.

30. Burrs and dents on the thread, preventing the threading of a go-gage.

31. Fissures and chipping of the screw thread of rod parts, if in depth they go beyond the limits of the mean diameter of the thread or their length exceeds:

| | | |
|---|---|---|
| 8% of the overall length of the thread on the screw line, and in one turn 1/3 of its length | 5% of the overall length of the thread on the screw line, and in one turn 1/4 of its length | 2% of the overall length of the thread on the screw line, and in one turn 1/6 of its length |

32. Fissures and chipping of the screw thread of nuts, if in depth they go beyond the limits of the mean diameter of the thread or the length exceeds half a turn.

33. A reduction in the height of the thread profile of rod parts with a reduction of the outer diameter of the thread by more than:

| | |
|---|---|
| three end turns | two end turns |

34. Rounding of the apex of the profile of a rolled thread, bringing the outer diameter of the thread beyond the maximum deviation.

35. Shifting of the axis of the thread relative to the axis of the shank of the rod, exceeding the field of tolerance:

| | |
|---|---|
| of the 7th class of precision | of the 5th class |

The base dimension for calculation of tolerance is the outer diameter of the thread

Table 9

| Degree of precision of parts | | |
|---|---|---|
| Coarse | Normal | Higher |
| Are permitted: | | |
| 1. Surface defects, anticipated by the technical requirements for the wire and bars from which the parts are fabricated. | | |
| 2. Local charring of surface, traces of clamps, traces from feed mechanisms, traces of laps, unseparated scale and rust which is easily washed off with kerosene | Traces of clamps from feeding mechanisms, traces of laps, unseparated scale and rust which is easily separated with on parts which are supplied without a coating | Traces from the mold parting line |
| 3. Centering opening on the face part of the head and the rod. | | |
| 4. Reduction of height of thread profile with an increase in the inner diameter of the thread in the last turn of the thread of a nut. | | |
| 5. Bevel edge at an angle of 90° in the openings of nuts which have coatings. | | |
| 6. Insignificant flakes on the edges of recesses in the heads of bolts and the edges of the inner hexahedron, not going beyond the faces. | | - |
| 7. Insignificant burrs, easily removed by tightening, seams from the mold parting line and a step on the bearing surface of the heads with a height no greater than: | | Traces from trimming of burrs and seams and insignificant burrs in the limits of the height of the bearing disk. |
| 0.3 mm | 0.2 mm | |
| 8. Insignificant flakes and pressed splashes of metal on the support surfaces of nuts in the points of contact with the outer and inner beveled edges | | Insignificant splashes of metal on the support surfaces of nuts. |

15

Table 9 (continued)

| Degree of precision of parts | | |
|---|---|---|
| Coarse | Normal | Higher |
| Are permitted | | |

9. Passing from the neck to the rod of bolts at an angle of 60°.

10. Absence of the end bevel edge on the rods of rolled parts | On agreement between the consumer and the producer - absence of an end bevel edge on the rods of rolled parts *

11. Reduction of thread profile at the opening for the slot.
12. corners of a square neck.
13. Rounding of the upper face of the head in place of the bevel edge in bolts with a recess in the head.

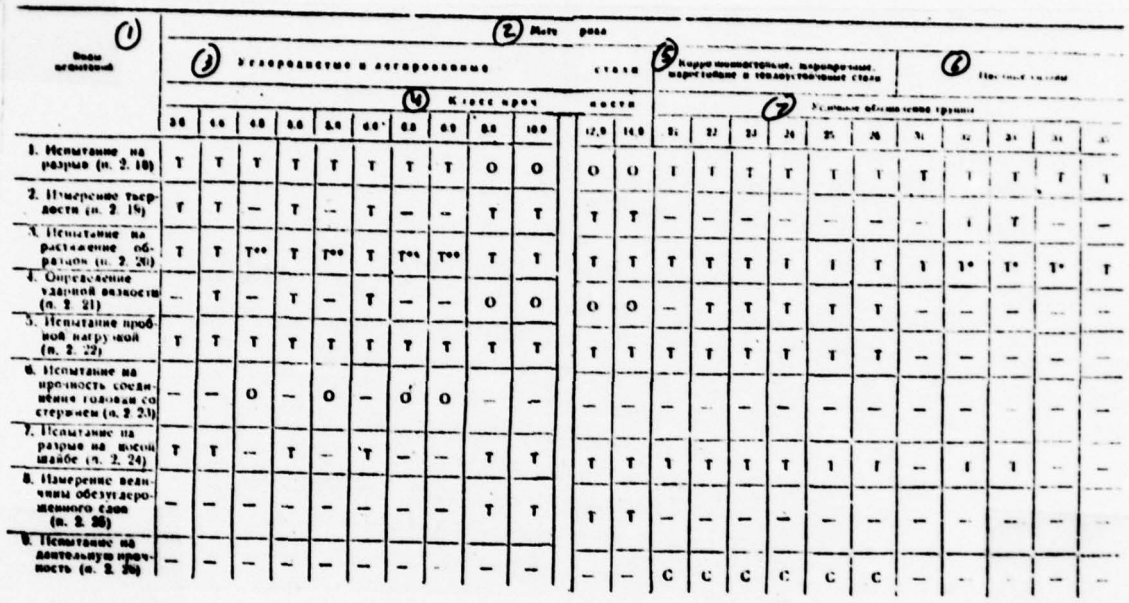
* Until 1/1 1975 it is permitted to produce a thread without an end beveled edge, if the rolling method is used.

(Changed wording - "Inform. index of standards, No 3, 1972).

1.18. *Prepared bolts, screws, studs and nuts should be admitted* for technical testing of the enterprise-manufacturer. The manufacturer should guarentee that the parts produced correspond to the requirements of this standard.

Table 10

List of the types of tests for bolts, screws and studs



Key: (1) Types of tests; (2) Material; (3) Carbon and alloy steels; (4) Strength class; (5) Noncorroding, heat-resistant, oxidation-resistant and heatproof steels; (6) Nonferrous alloys; (7) Conditional designation of group; Numbered tests in column 1; 1. Tensile test (p.2.18); 2. Measurement of hardness (p.2.19); 3. Tensile test of samples (p.2.20); 4. Determination of impact toughness (p.2.21); 5. Testing of check load (p.2.22); 6. Testing for strength of connection of head with the bar (p.2.23); 7. Tensile test on a slanted washer (p.2.24); 8. Measurement of the magnitude of the decarbonized layer (p.2.25); 9. Stress--rupture test (p.2.26):

O - compulsory tests; T - tests on request of the consumer;
C - tests on agreement between the consumer and the manufacturer.
* Only for determination of tensile strength and relative elongation.
** Only for determination of tensile strength and yield point.

Notes:
1. In the manufacturing of bolts, screws, and studs by the cutting method without subsequent heat treatment it is permitted to conduct the testing of mechanical properties according to points 2, 3, 4 on the initial metal or on samples which were turned from it.
2. If testing according to point 7 is conducted, then testing on point 1 is not conducted.
3. If testing according to point 3 is conducted, then testing on point 5 is not conducted.

## 2. Test Methods

2.1. Bolts, screws, studs and nuts should be subjected to the tests indicated in tables 10 and 11.



Table 11

List of the types of tests for nuts

| (1) Виды испытаний | (2) Материал | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (3) Углеродистые и легированные стали | | | | | | | (4) Коррозионностойкие, жаропрочные, жаростойкие и теплоустойчивые стали | | | | | | | (5) Цветные сплавы | |
| | (6) Класс прочности | | | | | | | (7) Условное обозначение группы | | | | | | | | |
| | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 21 | 23 | 25 | 26 | 31 | 32 | 33 | 34 | 35 |
| 1. Контроль на испытательную нагрузку (п. 2.27) | T | T | T | T | O | O | O | T | T | T | T | T | T | T | T | T |
| 2. Измерение твердости (п. 2.19) | T | T | T | T | T | T | T | – | – | – | – | – | – | – | – | – |

Key: (1) Types of tests; (2) Material; (3) Carbon and alloy steels; (4) Noncorroding, heat-resistant, oxidation-resistant and heatproof steels; (5) Nonferrous alloys; (6) Strength class; (7) Conditional designation of group.
1. Check for test load (p.2.27); 2. Measurement of hardness (p.2.27).
O - compulsory tests; T - tests on request of consumer.

(Changed wording - "Inform. index of standards" No 3 1972).

2.2. Inspection of parts should be done without the use of magnification devices.

Surface roughness should be checked by means of a comparison with standard samples.

Notes:

1. It is permitted to check for the presence of cracks by special methods, surface roughness - by instruments.
2. In disputable cases it is permitted to use a magnifier with a 2.5-3-fold amplification.

2.3. The measurements of parts should be checked with difference gages, templates, universal measuring instruments, control dies, etc.

2.4. The thread should be checked with difference gages. For bolts and studs with openings for cotter pins it is permitted to screw on a no-go thread gage until the complete passage of the opening.

2.5. The thickness of a coating layer should be checked on the head of the bolts and screws, on the faces or ends of nuts, on the rod of stud bolts.

The methods of checking the quality and thickness of coatings is GOST 16875-71. The selection of the method of checking the thickness of coatings is at the discretion of the manufacturer.

2.6. The perpendicularity of the seat of the head of a bolt or screw to the axis of the rod should be measured with an angle template or probe based on the clearance between the seat of the head and the end surface of a control matrix. The opening in the matrix should be made according to the 1st series of GOST 11284-65 for bolts and screws of increased normal precision and according to the 2nd series for rough precision.

The perpendicularity of the seat of a nut to the axis of the thread should be checked with a probe based on the gap between the end surfaces of the nut and a control ring, screwed on until contact between them on a threaded bar.

It is permitted to check the perpendicularity of the seat of parts by control of the end play.

2.7. The rectilinearity of the rod of bolts, screws and studs should be checked based on the free entering of the rod into a control matrix. The opening in the matrix should be made according to the 1st series of GOST 11284 - 65 for bolts, screws and studs of increased and normal precision and according to the 2nd series for bolts of rough precision. The depth of the opening in the matrix should be no less than the length of the part being checked.

(Changed wording - "Inform. index of standards" No 3 1972).

2.8. The slant of the faces of the head should be checked with an angle gage.

2.9. Blunting of the corners of a square neck should be checked in a control sleeve or template, made according to the 2nd series of GOST 11284-65. There should be installed under the head of the bolt a plane washer with an opening with a diameter greater than the diameter of the described circumference of the neck and a thickness no less than 0.5 of the height of the neck.

Turning of the neck in the opening of the control sleeve or template is not permitted.

(Changed wording - "Inform. index of standards" No 3 1972).

2.10. The length of the bolt, screw and stud, if the section of the rod is sloping, should be checked on its long side.

2.11. The depth of a straight slot should be checked on the axis of the rod.

2.12. The location of the slots of castellated and slotted nuts should be checked with a gage, the thread of which is made according to the dimensions of a threaded go-gage of the nut being checked, and the diameter of the pin is equal to the diameter of the cotter pin (drawing 11).

20

Drawing 11.

The form of the base of the slot is not checked.

2.13. Cross-shaped slots should be checked according to GOST 10753-64.

2.14. Checking of the diameter of the described circumference of hexagonal nuts, bolts and screws with hexagonal or square heads should be done in the middle part of the height of the nut or the head of the bolt on a sector, equal to half of their height.

2.15. The roughness of the thread should be checked on the lateral surfaces of the profile.

(Changed wording - "Inform. index of standards" No 3, 1972).

2.16. The roughness of the face of rods, except for setting screws, is not checked.

2.17. Dimensions which are not limited by maximum deviations are not checked. Their fulfillment should be guaranteed by the technological process of production.

2.18. Tensile testing of bolts, screws and studs should be done on a tensile impact testing machine. Here the tensile strength should be no lower than that indicated in tables 1, 3, 5. Subject to testing are parts with a thread diameter of 4 mm and more, with a rod length equal to or greater than double the diameter of the thread, but less than 40 mm. Parts for which the required breaking load exceeds 50 t are tested by agreement between the manufacturer and the consumer.

Bolts, screws or studs should be tested with a nut screwed on (or some other attachment which has the corresponding threaded opening); rupture should occur in the rod or in the thread without break-off of the head. The height of the nut which is screwed on should be no less than 0.8 of the nominal diameter of the thread. For bolts, screws and studs, the dimensions of which do not make it possible to test them for tensile strength, the hardness should be measured.

Notes:

1. In the case of rupture of the bolt, screw or stud on the thread the tensile strength should be calculated by using the area of a cross section of a circle with a diameter, equal to

$$\frac{d_1+d_2}{2}$$

where:

$d_2$ - nominal mean diameter of thread:

$$d_2 = d_1 - \frac{H}{6},$$

where:

$d_1$ - nominal inner diameter of thread;

H - theoretical height of profile.

2. A section of thread with a fine pitch is not a defective sign in the case of loads which exceed calculated, obtained from the formula:

$$P = \sigma_{B\,min} \frac{\pi}{4} \left( \frac{d_1 + d_2}{2} \right)$$

21

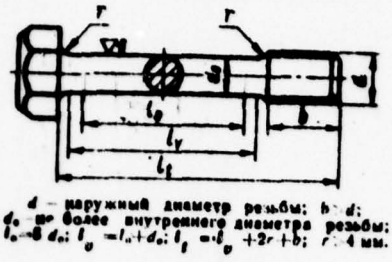
where $\sigma_{B\,min}$ - minimum value of tensile strength according to tables 1, 3. 5.

2.19. Hardness should be determined according to GOST 9012-59 or GOST 9013-59. In this case the hardness numbers should be found within the limits indicated in tables 1, 2, 5.

The hardness of bolts and screws should be checked on the head, of studs - on the smooth part, and of nuts - on the end surface or faces. The method for measuring hardness is selected by the manufacturer.

Note. The hardness of bolts and screws which are produced by the method of cold heading without heat treatment should be measured on the end or on the smooth part of the rod.

2.20. Tensile tests of samples should be conducted on a tensile impact testing machine. The samples subjected to testing are made from bolts, screws and studs with a thread diameter of 4 mm and greater, with a length no less than eight times the diameter of the thread, but no less than 100 mm (drawing 12).



Drawing 12.

d - outer diameter of thread; b  d; $d_0$ - no greater than the inner diameter of the thread; $l_0$=? $d_0$; $l_v=l_0+d_0$; $l_t=l_v+2r+b$; r  4 mm.

In the production of test samples of bolts, screws and studs with a thread diameter greater than 16 mm with mechanical properties of strength classes 8.8, 10.9, 12.9, 14.9 and groups 24, 25, 26 a reduction of rod diameter by no more than 25% is permitted.

The test sample is loaded to rupture, and in this case the tensile strength, yield point (or conditional yield point) and relative elongation should be no lower that indicated in tables 1, 3 and 5. Samples for which the required breaking load exceeds 50 t are tested by agreement with the manufacturer and consumer.

The method for determining the yield point and relative elongation is in GOST 1497-61.

2.21. Impact toughness should be checked on samples of bolts, screws and studs with a thread diameter of 16 mm and more. The values of impact toughness should be no lower than those indicated in tables 1 and 3. The remaining requirements - according to GOST 9454-60.

22

Note. Bolts, screws and studs, in which the length of the thread-free part of the rod is less than 55 mm, are tested with a thread diameter of 18 mm and more.

2.22. Testing of the test load should be carried out on a tensile impact testing machine. Here the residual elongation should not exceed 12 μm. The bolts, screws and studs which are subjected to testing are those with a thread diameter of 4 mm and more, with a length, equal to or greater than four times the diameter of the thread. Parts, for which the required magnitude of test load exceeds 50 t, are tested on agreement of the parties.

The part is subjected to a test load, the magnitude of which is calculated by the formula:

$$P_{\text{п}} = \sigma_{\text{п}} \cdot \frac{\pi}{4}\left(\frac{d_2 + d_3}{2}\right)^2,$$

where:

$\sigma_n$ - stress from test load according to tables 1 and 3;

$d_2$ - nominal mean diameter of thread;

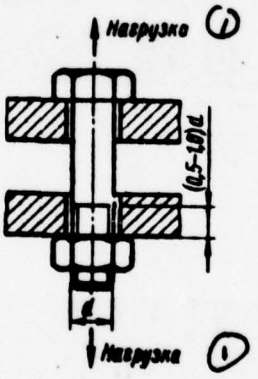
$$d_2 = d_1 - \frac{H}{6},$$

where:

$d_1$ - nominal inner diameter of thread,

H - theoretical height of profile.

The length of the loaded threaded section of the part should comprise 0.5-1.0 of the nominal diameter of the thread (drawing 13).




Drawing 13.

Key: (1) Load.

The thread height of the nut or other attachment which serves for the transmission of force should comprise 0.8 of the nominal diameter of the thread. For determining the residual elongation before and after testing the length of the part is measured with the help of a measuring device equipped with measuring balls.

23

The error of the measuring device should be no greater than ±2 μm. For measurements on the faces of bolts, screws and studs centering openings with a taper of 60° are bored out. During measuring the possibility of thermal elongation of the part should be excluded. Other methods of measuring length are permitted.

Note. The magnitudes of test load are given in appendix 3.

(Changed wording - "Inform. index of standards" No 3, 1972).

2.23. Testing of the strength of connection of the head with the rod should be done by impacts on the head of the bolt or screw up until contact of the supporting surface of the head with the plane of the matrix (drawing 14). Here at the site of transition of the head to the rod there should be no strains or cracks. Bolts and screws with a thread diameter up to 16 mm inclusive are subjected to testing. The opening in the matrix should be beveled at 75°. The dimensions of the opening of the matrix should correspond to those stipulated in GOST 11284-65 on the 1st series for bolts and screws of higher precision and on the 2nd series for bolts and screws of normal precision and bolts of rough precision.


Drawing 14.

Notes:

1. Bolts and screws with countersunk and half countersunk heads are not subjected to the testing.
2. In bolts and screws with thread up to the head cracks are permitted in the first turn of the thread from the head.

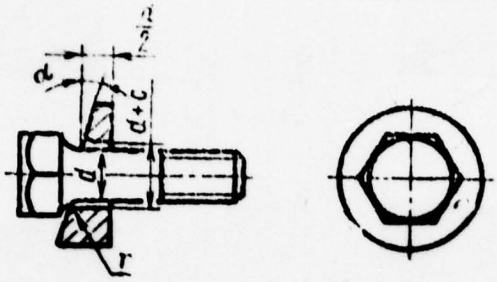
(Changed wording - "Inform. index of standards" No 3, 1972).

2.24. Tensile strength testing on a beveled washer should be carried out on a tensile impact testing machine. In this case rupture should not occur on the sector where the head is connected with the rod, and the values of tensile strength should be no lower than those stipulated in tables 1, 3 and 5. Subject to testing are bolts and screws with a thread diameter of 4 mm and more, with a rod length equal to or greater than four times the diameter of the thread, but no less than 40 mm. Parts for which the required breaking load exceeds 50 t are tested by agreement with the parties.

A hardened washer with the dimensions indicated in Table 12 is used for the testing. It is mounted in such a way that the head of the bolt or screw lies on the bevel of the washer.

24

The distance from the beginning of thread run-out to the nut or to another attachment, which serves for the transfer of force, should be no less than the nominal diameter of the thread. The height of the nut or other attachment should be less than 0.8 of the nominal diameter of the thread.




Drawing 15.

Notes:

1. Bolts and screws with countersunk and half countersunk heads are not subject to testing.

2. For bolts and screws with thread up to the head cracks are permitted in the first turn of the thread from the head.

Table 12

| (1) Номинальный диаметр резьбы болта или винта d, мм | r, мм | c, мм | α (пред. откл. ±30') (2) | | | |
|---|---|---|---|---|---|---|
| | | | для болтов и винтов с резьбой не до головки (3) | | для болтов и винтов с резьбой до головки (4) | |
| | | | для классов прочности с удлинением (5) | | | |
| | | | 10К | 10Т | 10К | 10Т |
| ≤6 | 0,5 | 0,7 | 10° | 6° | 6° | 4° |
| 6–12 | 0,8 | 0,8 | 10° | 6° | 6° | 4° |
| 12–20 | 1,6 | 1,3 | 10° | 6° | 6° | 4° |
| 20–48 | 3,2 | 1,6 | 6° | 4° | 4° | 4° |

Key: (1) Nominal thread diameter of bolt or screw, d, mm; (2) α (max. dev. +30'); (3) for bolts and screws without thread up to the head; (4) for bolts and screws with thread up to the head; (5) for classes of strength with elongation.

2.25. The depth of the decarbonized layer is measured on a microsection. In this case the overall magnitude of decarbonization should not exceed 1/3 the height of the nominal profile of the thread on the apex and 1/10 of the nominal profile of the thread in the root (drawing 16).

The samples are cut out of a bolt, screw and stud in a longitudinal direction, and the plane of the cross section should pass through the axis of the thread and the deviation from the radial direction should not exceed 1/10 of the nominal thread diameter.

For measuring, the average value out of four measurements on the apexes of the thread profile and the average value out of four measurements in the roots are taken.


Drawing 16.

Key: (1) Completely or partially decarbonized zone; (2) Non-decarbonized zone.

The remaining requirements - according to GOST 1763-68.

2.26. The method of testing for stress-rupture strength is by agreement between the consumer and the producer.

2.27. Checking of the nuts for test load should be carried out on a tensile-testing machine. In this case there should be no breakdown of the nut, shearing or breaking off of the thread of the nut when a load equal to $P_F=\sigma_F \cdot F$ is achieved, where:

$\sigma_F$ - stress from test load according to tables 2, 4 and 6;

F - area of cross section of bolt or mandrel based on the diameter

$$\frac{d_2 + d_3}{2};$$

where:

$d_2$ - nominal mean diameter of thread;

$$d_3 = d_1 - \frac{H}{6},$$

where:

$d_1$ - nominal inner diameter of thread;

H - theoretical height of prifile.

Nuts, for which the required test load exceeds 50 t, are tested by agreement between the producer and the consumer.

During testing the nut is screwed onto a hardened bolt or a hardened threaded mandrel, in which the thread is made according to the 2nd class of precision. The hardness of the bolt or mandrel should be no less than HRC 45. After testing the nut should

be unscrewed by hand easily.

Notes:

1. If during testing the thread of the bolt or mandrel is damaged, the test is considered invalid.

2. When unscrewing the nut it is permitted to use a spanner wrench, with which it is permitted to turn the nut no more than 1/2 a turn.

3. The test loads for nuts are given in appendix 4.

2.28. The mechanical properties of a part, the dimensions of which do not make it possible to test it in accordance with tables 10 and 11, should be guaranteed by the material and the technological process of production.

## 3. Marking and Packing

3.1. (Rescinded. - "Inform. index of standards" No 3 1972).

3.2. Bolts with a hexagonal head with a thread diameter $\geqslant$ 5 m and studs with a thread diameter $\geqslant$ 12 mm should have the stamp of the producing enterprise and a marking which designates the strength class or a conditional designation of group according to tables 1-6.

The dimensions of the letters on the stamp and the marking are established by the producer.

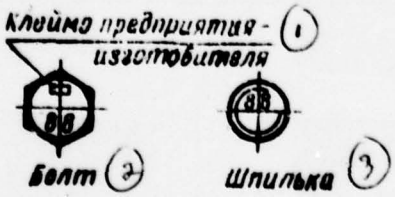
Note. Parts of strength classes 3.6, 4.6, 4.8, 5.6, 5.8, 6.6, 6.8 and 6.9, and also parts produced by the method of turning, are stamped and marked by agreement between the consumer and the producer.

(Changed wording - "Inform. index of standards" No 3 1972).

3.3. The stamping and marking of parts, not indicated in p. 3.3, is carried out by agreement with the consumer and the producer.

(Changed wording - "Inform. index of standards" No 3 1972).

3.4. The stamp of the enterprise and the marking signs should be be applied on the head of the bolt and on the end of the female portion of the stud (drawing 17).




Drawing 17.

Key: (1) Stamp of producing enterprise; (2) Bolt; (3) Stud.

(Changed wording - "Inform. index of standards" No 3 1972).

3.5. The marking of bolts and studs can be raised or sunken.

In the case of raised marking it is permitted to have an increase in the maximum permissible height of the bolt head;

for parts with a thread diameter up to 8 mm by 0.1 mm;

for parts with a thread diameter in excess of 8 mm up to 12 mm by 0.2 mm;

for parts with a thread diameter in excess of 12 mm by 0.3 mm.

(Changed wording - "Inform. index of standards" No 3 1972).

3.6. The lettering of the marking should be clearly evident with the naked eye regardless of the quality of treatment of the surface of the part.

3.7. The marking on parts with a left-hand thread - according to GOST 2904-45.

3.8. The rules for acceptance, packing of parts, and marking of packaging - according to GOST 1471-54.

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Substitution

GOST 16875-71 introduced in place of GOST 3003-58, GOST 3247-46 and GOST 3265-46.

APPENDIX 1 to GOST 1759-70
Recommended

Technological processes for the production of bolts, screws and studs out of carbon and alloy steels

| (1) Класс прочности | (2) Марка стали | (3) Рекомендуемые технологические процессы изготовления |
|---|---|---|
| 3.6 | Ст3кп3, Ст3сп3 10, 10кп | (4) 1. Горячая высадка<br>2. Холодная высадка с последующей смягчающей термообработкой |
| 4.6 | 20 | (5) Процесс 1<br>3. Холодная высадка с последующей нормализацией |
| 4.8 | 10, 10 кп | (6) 4. Холодная высадка |
| 5.6 | 30, 35 | (7) Процессы 1 и 3 |
| 5.8 | 10, 10 кп, 20, 20 кп, Ст3кп3, Ст3сп3 | (8) Процесс 4 |
| 6.6 | 35 | (9) 5. Горячая высадка с последующими закалкой и отпуском<br>6. Холодная высадка с последующими закалкой и отпуском |
| | 45, 40 Г | (10) Процесс 1 |
| 6.8<br>6.9 | 20, 20 кп | (11) 7. Холодная высадка с редуцированием стержня |
| 8.8—14.9 | (13) Стали по табл. 1 | (12) Процессы 5 и 6<br>8. Точение с последующими закалкой и отпуском |

(Changed wording - "Inform. index of standards" No 3 1972).

Key: (1) Strength class; (2) Brand of steel; (3) Recommended technological processes of production; (4) 1. Hot heading. 2. Cold heading with subsequent thermoplastic treatment; (5) Process 1. 3. Cold heading with subsequent normalizing; (6) 4. Cold heading; (7) Processes 1 and 3; (8) Process 4; (9) 5. Hot heading with subsequent hardening and tempering; (10) Process 1; (11) 7. Cold heading with reduction of rod; (12) Processes 5 and 6. 8. Turning with subsequent hardening and tempering; (13) Steels according to Table 1.

APPENDIX 2 to GOST 1759-70

Technological processes for the production of nuts out of carbon and alloy steels

| (1) Класс прочности | (2) Марка стали | (3) Рекомендуемые технологические процессы изготовления |
|---|---|---|
| 4 | Ст3кп3<br>Ст3сп3 | (4) 1. Горячая высадка или вырубка |
| 5 | 10, 10кп | (5) 2. Холодная высадка |
| | 20 | (6) Процесс 1 |
| 6 | Ст5, 35 | (6) Процесс 1 |
| | 10, 10кп, 15, 15кп | (7) Процесс 2 |
| 8 | 20, 20кп | (7) Процесс 2 |
| | 45 | (6) Процесс 1 |
| | 35 | (8) 3. Горячая высадка с последующими закалкой и отпуском<br>Процесс 2 |
| 10—14 | Стали по табл. 2 (10) | (9) Процесс 3<br>4. Холодная высадка с последующими закалкой и отпуском<br>5. Точение с последующими закалкой и отпуском |

(Changed wording - "Inform. index of standards" No 3 1972).

Key: (1) Strength class; (2) Brand of steel; (3) Recommended technological processes of production; (4) 1. Hot heading or punching out; (5) 2. Cold heading: (6) Process 1; (7) Process 2; (8) Hot heading with subsequent hardening and tempering. Process 2; (9) Process 3. 4. Cold heading with subsequent hardening and tempering. 5. Turning with subsequent hardening and tempering; (10) Steels according to Table 2.

APPENDIX 3 to GOST 1759-70

Table 1

## Test Loads for Bolts

### Coarse thread
kgf

| (1) Номинальный диаметр резьбы d, мм | 1,6 | 2 | 2,5 | 3 | 3,5 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 27 | 30 | 36 | 42 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (2) Шаг резьбы S, мм | 0,35 | 0,4 | 0,45 | 0,5 | 0,6 | 0,7 | 0,8 | 1 | 1,25 | 1,5 | 1,75 | 2 | 2 | 2,5 | 2,5 | 2,5 | 3 | 3 | 3,5 | 4 | 4,5 | 5 |
| (3) Класс прочности и условное обозначение группы | | | | | | | | | | | | | | | | | | | | | | |
| 3.6 | 23,9 | 38,9 | 63,7 | 94,6 | 127 | 168 | 267 | 378 | 690 | 1080 | 1580 | 2160 | 2850 | 3610 | 4610 | 5700 | 6650 | 8650 | 10900 | 15400 | 21100 | 27700 |
| 4.6 | 28,7 | 46,8 | 76,6 | 116 | 153 | 198 | 321 | 454 | 825 | 1310 | 1900 | 2600 | 3550 | 4340 | 5550 | 6850 | 8000 | 10400 | 12700 | 18500 | 25300 | 33300 |
| 4.8 | 37 | 60,2 | 98,6 | 146 | 197 | 255 | 413 | 585 | 1060 | 1680 | 2450 | 3350 | 4570 | 5600 | 7150 | 8800 | 10300 | 13400 | 16300 | 23800 | 32600 | 42800 |
| 5.6 | 35,8 | 58,4 | 95,6 | 142 | 191 | 248 | 404 | 570 | 1040 | 1640 | 2390 | 3240 | 4430 | 5400 | 6900 | 8550 | 9950 | 12900 | 15800 | 23000 | 31600 | 41500 |
| 5.8 | 46,2 | 75,3 | 124 | 183 | 247 | 320 | 515 | 730 | 1340 | 2110 | 3070 | 4190 | 5700 | 7000 | 8900 | 11000 | 12800 | 16700 | 20400 | 29700 | 40800 | 53600 |
| 6.6 | 43 | 70,2 | 115 | 170 | 230 | 296 | 481 | 680 | 1240 | 1970 | 2860 | 3900 | 5300 | 6500 | 8300 | 10300 | 12000 | 15600 | 19000 | 27700 | 38000 | 49900 |
| 6.8 | 55,5 | 90,5 | 148 | 220 | 296 | 384 | 620 | 880 | 1600 | 2530 | 3680 | 5050 | 6850 | 8400 | 10700 | 13200 | 15400 | 20100 | 24500 | 35700 | 48900 | 64300 |
| 6.9 | 60,3 | 98,3 | 161 | 239 | 322 | 417 | 675 | 955 | 1740 | 2750 | 4000 | 5450 | 7450 | 9100 | 11600 | 14400 | 16800 | 21800 | 26600 | 38800 | 53200 | 69900 |
| 8.8 | 73,9 | 120 | 197 | 291 | 395 | 510 | 825 | 1170 | 2130 | 3380 | 4910 | 6700 | 9130 | 11200 | 14300 | 17600 | 20500 | 26700 | 32600 | 47500 | 65200 | 85700 |
| 10.9 | 101 | 164 | 268 | 398 | 535 | 696 | 1130 | 1580 | 2900 | 4590 | 6700 | 9100 | 12400 | 15200 | 19400 | 24000 | 28000 | 36300 | 44400 | 64700 | 88700 | 116400 |
| 12.9 | 121 | 197 | 323 | 478 | 645 | 835 | 1350 | 1910 | 3480 | 5500 | 8100 | 10900 | 14900 | 18200 | 23300 | 28800 | 33500 | 43600 | 53300 | 77600 | 106500 | 140000 |
| 14.9 | 141 | 230 | 376 | 560 | 755 | 975 | 1580 | 2230 | 4060 | 6440 | 9450 | 12800 | 17400 | 21400 | 27200 | 33600 | 39200 | 50900 | 62300 | 90700 | 124500 | 163500 |
| 21 | 22,9 | 37,1 | 61,0 | 90,5 | 122 | 158 | 256 | 362 | 660 | 1040 | 1520 | 2070 | 2810 | 3460 | 4410 | 5450 | 6350 | 8250 | 10100 | 14700 | 20200 | 26500 |
| 22 | 62,9 | 102 | 168 | 249 | 336 | 435 | 705 | 995 | 1810 | 2870 | 4170 | 5700 | 7750 | 9500 | 12100 | 15000 | 17500 | 22800 | 27500 | 40400 | 55400 | 72900 |
| 23 | 74,3 | 121 | 199 | 294 | 397 | 515 | 830 | 1180 | 2140 | 3390 | 4930 | 6750 | 9200 | 11200 | 14300 | 17700 | 20800 | 26800 | 32800 | 47800 | 65500 | 86100 |
| 24 | 68,9 | 102 | 168 | 249 | 336 | 435 | 705 | 995 | 1810 | 2870 | 4170 | 5700 | 7750 | 9500 | 12100 | 15000 | 17500 | 22800 | 27500 | 40400 | 55400 | 72900 |
| 25 | 85,7 | 140 | 229 | 339 | 458 | 593 | 960 | 1360 | 2470 | 3910 | 5700 | 7750 | 10600 | 13000 | 16500 | 20400 | 23800 | 31000 | 37800 | 55100 | 75400 | 99400 |
| 26 | 97,5 | 159 | 259 | 385 | 520 | 670 | 1090 | 1540 | 2800 | 4410 | 6450 | 8800 | 12000 | 14700 | 18700 | 23100 | 27000 | 35100 | 42900 | 62500 | 85700 | 112500 |

Key: (1) Nominal diameter of thread d, mm; (2) Pitch of thread S, mm; (3) Strength class and conditional designation of group.

Table 2

Test Loads for Bolts

Fine thread

kgf

| (1) Номинальный диаметр резьбы d, мм | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 27 | 30 | 36 | 42 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (2) Шаг резьбы S, мм | 0,5 | 0,5 | 0,75 | 1 | 1,25 | 1,25 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 2 | 2 | 2 | 3 | 3 | 3 |
| (3) 3,6 | 184 | 303 | 414 | 735 | 1150 | 1710 | 2360 | 3140 | 4060 | 5100 | 6250 | 7200 | 9300 | 11700 | 16300 | 22700 | 30200 |
| 4,6 | 221 | 361 | 497 | 885 | 1380 | 2060 | 2820 | 3770 | 4890 | 6150 | 7550 | 8700 | 11200 | 14100 | 19500 | 27200 | 36300 |
| 4,8 | 285 | 468 | 648 | 1140 | 1780 | 2680 | 3640 | 4860 | 6300 | 7900 | 9700 | 11200 | 14400 | 18100 | 25200 | 35000 | 46700 |
| 5,6 | 276 | 454 | 629 | 1103 | 1730 | 2600 | 3520 | 4710 | 6100 | 7650 | 9400 | 10800 | 14000 | 17500 | 24400 | 34000 | 45300 |
| 5,8 | 357 | 585 | 810 | 1430 | 2230 | 3350 | 4550 | 6100 | 7850 | 9900 | 12100 | 14000 | 18000 | 22600 | 31500 | 43900 | 58400 |
| 6,6 | 332 | 550 | 745 | 1330 | 2070 | 3120 | 4240 | 5650 | 7300 | 9200 | 11300 | 13000 | 16800 | 21000 | 29300 | 40800 | 54400 |
| 6,8 | 429 | 705 | 960 | 1710 | 2670 | 4020 | 5450 | 7300 | 9450 | 11900 | 14500 | 16800 | 21700 | 27100 | 37800 | 52700 | 70100 |
| 8,8 | 465 | 765 | 1040 | 1860 | 2910 | 4370 | 5950 | 7950 | 10300 | 12900 | 15800 | 18200 | 23600 | 29500 | 41100 | 57200 | 76200 |
| 9,8 | 578 | 938 | 1280 | 2280 | 3560 | 5350 | 7280 | 9700 | 12600 | 15800 | 19400 | 22300 | 28900 | 36100 | 50300 | 70100 | 93100 |
| 10,9 | 775 | 1270 | 1740 | 3100 | 4850 | 7300 | 9900 | 13200 | 17100 | 21500 | 26400 | 30400 | 39300 | 49200 | 68400 | 95400 | 127000 |
| 12,9 | 930 | 1530 | 2080 | 3720 | 5800 | 8780 | 11900 | 15980 | 20700 | 25800 | 31600 | 36500 | 47100 | 59000 | 82200 | 114500 | 152500 |
| 14,9 | 1080 | 1790 | 2440 | 4350 | 6800 | 10300 | 13900 | 18530 | 24000 | 30200 | 37000 | 42600 | 55100 | 68900 | 96000 | 134000 | 178000 |
| 21 | 176 | 290 | 398 | 708 | 1100 | 1680 | 2250 | 3010 | 3890 | 4900 | 6010 | 6905 | 8950 | 11200 | 15600 | 21700 | 28900 |
| 22 | 485 | 795 | 1090 | 1940 | 3030 | 4560 | 6200 | 8250 | 10700 | 13500 | 16500 | 19010 | 24800 | 30700 | 42800 | 59300 | 79100 |
| 23 | 575 | 940 | 1290 | 2290 | 3580 | 5400 | 7300 | 9750 | 12600 | 15900 | 19500 | 21500 | 29000 | 36300 | 50600 | 70500 | 93990 |
| 24 | 485 | 795 | 1090 | 1940 | 3030 | 4560 | 6200 | 8250 | 10700 | 13500 | 16500 | 19000 | 24500 | 30700 | 42800 | 59600 | 79400 |
| 25 | 860 | 1080 | 1480 | 2650 | 4130 | 6200 | 8450 | 11300 | 14600 | 18400 | 22500 | 25900 | 33400 | 41900 | 58400 | 81300 | 108700 |
| 26 | 750 | 1230 | 1680 | 3000 | 4680 | 7050 | 9550 | 12800 | 16500 | 20800 | 25500 | 29400 | 37900 | 47500 | 66200 | 92200 | 123400 |

(5) Класс прочности и условное обозначение группы

Key: (1) Nominal diameter of thread d, mm; (2) Pitch of thread S, mm; (3) Strength class and conditional designation of group.

Test Loads for Nuts

Table 1

Coarse thread

kgf

| (1) Nominal diameter of thread d, mm | 1,6 | 2 | 2,5 | 3 | 3,5 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 27 | 30 | 36 | 42 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (2) Pitch of thread S, mm | 0,35 | 0,4 | 0,45 | 0,5 | 0,6 | 0,7 | 0,8 | 1 | 1,25 | 1,5 | 1,75 | 2 | 2 | 2,5 | 2,5 | 2,5 | 3 | 3 | 3,5 | 4 | 4,5 | 5 |
| (3) Класс прочности и условное обозначение группы 4 | 40,6 | 63 | 106 | 160 | 200 | 270 | 350 | 570 | 805 | 1460 | 2320 | 3370 | 4600 | 6300 | 7700 | 9800 | 12100 | 14100 | 18400 | 22400 | 32700 | 44800 | 58900 |
| 5 | 63,5 | 103 | 170 | 250 | 340 | 440 | 710 | 1030 | 1830 | 2900 | 4210 | 5750 | 7850 | 9600 | 12200 | 15100 | 17600 | 23000 | 28100 | 40800 | 56000 | 73600 |
| 6 | 76,2 | 124 | 203 | 302 | 407 | 525 | 850 | 1210 | 2200 | 3480 | 5060 | 6900 | 9400 | 11500 | 14700 | 18200 | 21200 | 27500 | 33700 | 49000 | 67200 | 88100 |
| 8 | 102 | 166 | 270 | 402 | 540 | 700 | 1140 | 1610 | 2930 | 4640 | 6750 | 9200 | 12600 | 15400 | 19600 | 24200 | 28200 | 36700 | 44900 | 65400 | 89600 | 118000 |
| 10 | 127 | 207 | 340 | 500 | 680 | 880 | 1420 | 2000 | 3670 | 5800 | 8400 | 11500 | 15700 | 19200 | 24500 | 30300 | 35300 | 45900 | 56100 | 81700 | 112000 | 147000 |
| 12 | 152 | 248 | 407 | 605 | 810 | 1050 | 1700 | 2410 | 4400 | 6950 | 10100 | 13800 | 18800 | 23000 | 29100 | 36400 | 42400 | 55100 | 67300 | 98000 | 134500 | 176500 |
| 14 | 178 | 290 | 475 | 705 | 950 | 1230 | 1990 | 2810 | 5100 | 8100 | 11800 | 16100 | 22000 | 26900 | 34300 | 42400 | 49400 | 64300 | 78500 | 114500 | 156500 | 206000 |
| 21 | 68 | 108 | 178 | 262 | 353 | 457 | 740 | 1060 | 1900 | 3020 | 4380 | 6000 | 8150 | 10000 | 12700 | 15700 | 18400 | 23900 | 29200 | 42500 | 58200 | 76500 |
| 23 | 83 | 145 | 237 | 352 | 475 | 615 | 990 | 1410 | 2560 | 4080 | 5900 | 8060 | 11000 | 13400 | 17100 | 21200 | 24700 | 32100 | 39300 | 57200 | 78400 | 103000 |
| 25 | 114 | 186 | 305 | 453 | 610 | 790 | 1280 | 1810 | 3290 | 5200 | 7600 | 10400 | 14100 | 17300 | 22000 | 27300 | 31800 | 41300 | 50500 | 73500 | 101000 | 132500 |
| 26 | 140 | 228 | 373 | 558 | 745 | 968 | 1560 | 2210 | 4030 | 6400 | 9250 | 12700 | 17300 | 21100 | 26900 | 33300 | 38800 | 50500 | 61700 | 89900 | 123000 | 162000 |
| 31 | 34,3 | 55,9 | 92 | 136 | 183 | 237 | 383 | 540 | 980 | 1570 | 2280 | 3100 | 4210 | 5200 | 6600 | 8200 | 9560 | 12400 | 15100 | 22100 | 30200 | 39700 |
| 32 | 40,6 | 66,2 | 108 | 161 | 217 | 281 | 454 | 645 | 1170 | 1860 | 2700 | 3680 | 5000 | 6150 | 7850 | 9700 | 11300 | 14700 | 17900 | 26100 | 35800 | 47100 |
| 33 | | | | | | | | | | | | | | | | | | | | | | |
| 34 | 63,5 | 103 | 170 | 250 | 340 | 440 | 710 | 1000 | 1830 | 2900 | 4210 | 5750 | 7850 | 9600 | 12200 | 15100 | 17600 | 23000 | 28100 | 40800 | 56000 | 73600 |
| 35 | 68,3 | 78,7 | 129 | 191 | 258 | 334 | 540 | 765 | 1390 | 2200 | 3200 | 4370 | 5950 | 7300 | 9300 | 11500 | 13400 | 17400 | 21300 | 31000 | 42600 | 55900 |

Key: (1) Nominal diameter of thread d, mm; (2) Pitch of thread S, mm; (3) Strength class and conditional designation of group.

Table 2

Test Loads for Nuts

Fine thread

kgf

| (1) Номинальный диаметр резьбы d, мм | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 27 | 30 | 33 | 42 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (2) Шаг резьбы S, мм | 0,5 | 0,5 | 0,75 | 1 | 1,25 | 1,25 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 2 | 2 | 2 | 3 | 3 | 3 |
| (3) Класс прочности и условное обозначение группы 4 | 392 | 645 | 880 | 1570 | 2450 | 3680 | 5000 | 6700 | 8650 | 10900 | 13300 | 15400 | 19800 | 24800 | 34600 | 48200 | 64200 |
| 5 | 490 | 805 | 1100 | 1960 | 3060 | 4600 | 6250 | 8350 | 10800 | 13600 | 16600 | 19200 | 24800 | 31000 | 43200 | 60200 | 80200 |
| 6 | 590 | 965 | 1320 | 2350 | 3670 | 5550 | 7500 | 10000 | 13000 | 16300 | 20000 | 23000 | 29800 | 37300 | 51900 | 72300 | 96300 |
| 8 | 785 | 1290 | 1760 | 3140 | 4910 | 7350 | 10000 | 13400 | 17300 | 21800 | 26600 | 30700 | 39700 | 49700 | 69200 | 96400 | 12800 |
| 10 | 980 | 1610 | 2200 | 3920 | 6100 | 9200 | 12500 | 16700 | 21600 | 27200 | 33300 | 38400 | 49600 | 62100 | 86500 | 120500 | 160500 |
| 12 | 1180 | 1930 | 2640 | 4700 | 7350 | 11000 | 15000 | 20000 | 25900 | 32600 | 40000 | 46000 | 59500 | 74500 | 103800 | 144500 | 192500 |
| 14 | 1370 | 2250 | 3080 | 5500 | 8550 | 12900 | 17500 | 23400 | 30200 | 38000 | 46600 | 53800 | 69400 | 86900 | 121000 | 168500 | 225000 |
| 16 | 1570 | 2570 | 3520 | 6280 | 9800 | 14700 | 20000 | 26700 | 34500 | 43400 | 53200 | 61500 | 79300 | 99300 | 138400 | 192500 | 257000 |
| 18 | 1760 | 2890 | 3960 | 7050 | 11000 | 16500 | 22500 | 30000 | 38800 | 48900 | 59900 | 69200 | 89200 | 112000 | 155700 | 216500 | 289000 |
| 20 | 1960 | 3210 | 4400 | 7840 | 12200 | 18400 | 25000 | 33400 | 43200 | 54300 | 66500 | 76900 | 99100 | 124000 | 173000 | 240500 | 321000 |
| 22 | 2160 | 3540 | 4840 | 8630 | 13500 | 20200 | 27500 | 36700 | 47500 | 59800 | 73200 | 84600 | 109000 | 136500 | 190400 | 264500 | 353000 |
| 24 | 2350 | 3860 | 5280 | 9420 | 14700 | 22100 | 30000 | 40100 | 51900 | 65200 | 79900 | 92300 | 119000 | 149000 | 207700 | 288500 | 385000 |
| 27 | 2750 | 4500 | 6160 | 11000 | 17200 | 25800 | 35000 | 46800 | 60500 | 76100 | 93200 | 108000 | 139000 | 173000 | 242000 | 337000 | 449000 |
| 30 | 3140 | 5150 | 7040 | 12600 | 19600 | 29500 | 40000 | 53500 | 69200 | 87000 | 106500 | 123000 | 159000 | 198000 | 277000 | 385000 | 513000 |
| 33 | 3530 | 5790 | 7920 | 14100 | 22100 | 33200 | 45000 | 60200 | 77900 | 97900 | 120000 | 138500 | 178500 | 223000 | 311500 | 433000 | 577000 |
| 36 | 3920 | 6430 | 8800 | 15700 | 24500 | 36900 | 50000 | 66900 | 86500 | 109000 | 133000 | 154000 | 198000 | 248000 | 346000 | 481000 | 641000 |
| 39 | 4310 | 7070 | 9680 | 17300 | 26900 | 40600 | 55000 | 73600 | 95200 | 119500 | 146500 | 169500 | 218000 | 272000 | 381000 | 529000 | 705000 |
| 42 | 4710 | 7720 | 10600 | 18800 | 29400 | 44300 | 60000 | 80300 | 104000 | 130500 | 159500 | 185000 | 238000 | 297000 | 415000 | 577000 | 769000 |
| 45 | 5100 | 8360 | 11400 | 20400 | 31800 | 48000 | 65000 | 87000 | 112500 | 141500 | 173000 | 200000 | 257500 | 322000 | 450000 | 625000 | 833000 |
| 48 | 5490 | 9000 | 12300 | 22000 | 34300 | 51700 | 70000 | 93700 | 121000 | 152000 | 186000 | 215000 | 277000 | 346000 | 484000 | 673000 | 897000 |
| 52 | 6280 | 10300 | 14100 | 25100 | 39200 | 59100 | 80000 | 107000 | 138500 | 174000 | 213000 | 246000 | 317000 | 396000 | 554000 | 770000 | 1026000 |
| 56 | 7060 | 11600 | 15800 | 28200 | 44100 | 66400 | 90000 | 120000 | 155500 | 195500 | 239500 | 277000 | 356000 | 445000 | 623000 | 865000 | 1154000 |
| 60 | 7850 | 12900 | 17600 | 31400 | 49000 | 73800 | 100000 | 134000 | 173000 | 217000 | 266000 | 307000 | 396000 | 495000 | 692000 | 962000 | 1282000 |
| 64 | 8640 | 14200 | 19400 | 34500 | 53900 | 81200 | 110000 | 147000 | 190000 | 239000 | 293000 | 338000 | 436000 | 544000 | 762000 | 1058000 | 1410000 |
| 68 | 9420 | 15500 | 21100 | 37700 | 58800 | 88600 | 120000 | 160000 | 207000 | 261000 | 319000 | 369000 | 476000 | 594000 | 831000 | 1154000 | 1539000 |
| 72 | 10200 | 16800 | 22900 | 40800 | 63700 | 96000 | 130000 | 174000 | 225000 | 282000 | 346000 | 400000 | 515000 | 643000 | 900000 | 1250000 | 1666000 |
| 76 | 11000 | 18100 | 24700 | 44000 | 68600 | 103000 | 140000 | 187000 | 242000 | 304000 | 372000 | 430000 | 555000 | 693000 | 969000 | 1346000 | 1794000 |
| 80 | 11800 | 19400 | 26500 | 47100 | 73500 | 111000 | 150000 | 201000 | 259000 | 326000 | 399000 | 461000 | 594000 | 742000 | 1038000 | 1442000 | 1923000 |

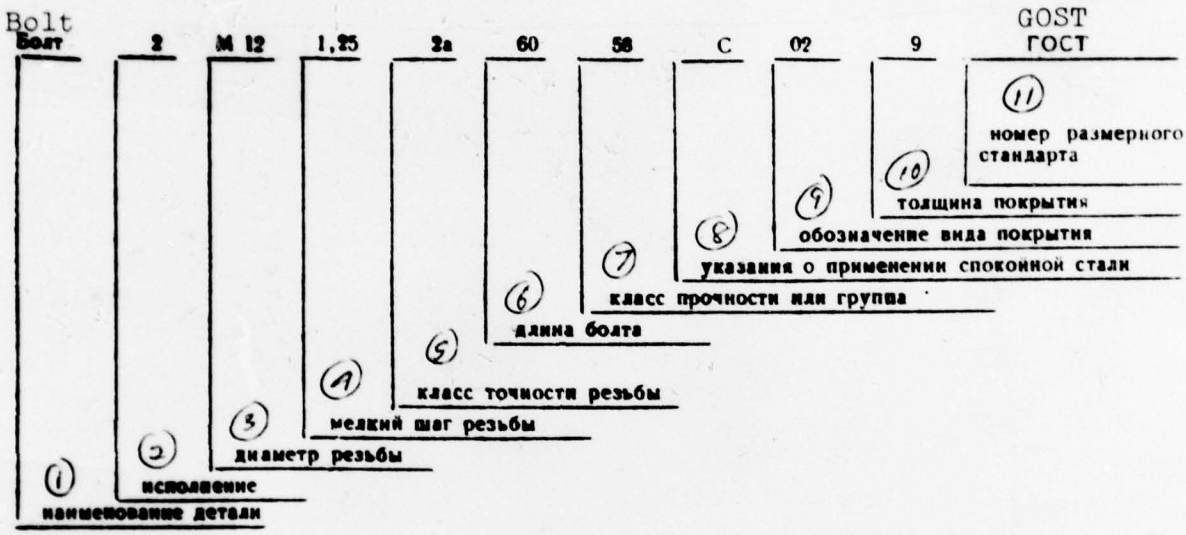
Key: (1) Nominal diameter of thread d, mm; (2) Pitch of thread S, mm; (3) Strength class and conditional designation of group.

APPENDIX 5 to GOST 1759-70

Conditional Designations of Bolts, Screws, Studs and Nuts

1. Bolts, screws and studs made out of carbon steels of strength classes 3.6-6.9, nuts made out of carbon steels of strength classes 4-8, and parts made out of nonferrous alloys should be designated in the following manner:

Bolt 2M12x1.25.2ax60.58.C.029 ГОСТ

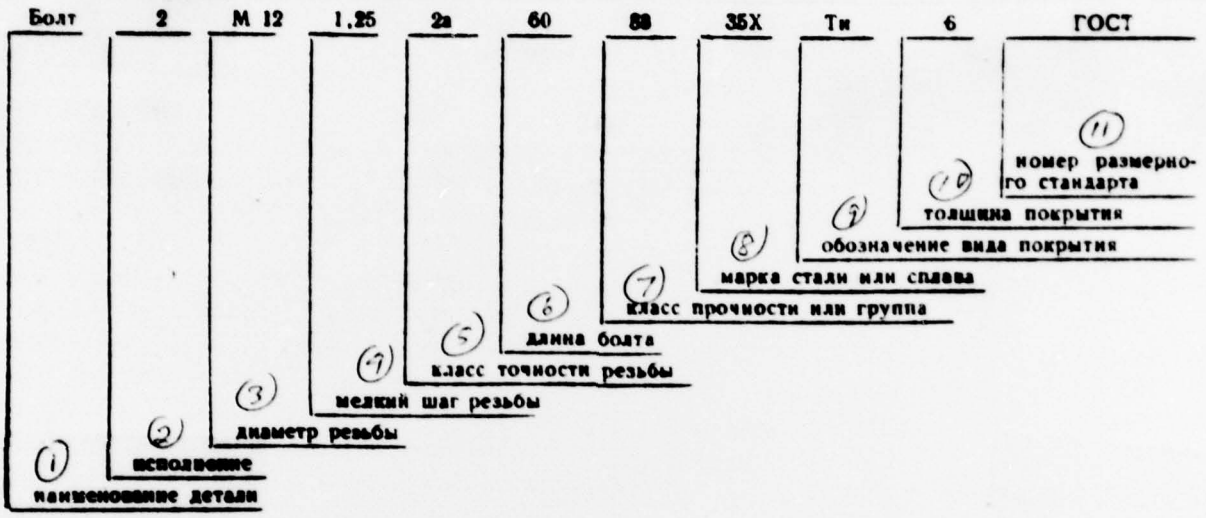



Note. When designating parts made out of free-cutting steel, after the number which designates the strength class the letter A is indicated.
(Changed wording - "Inform. index of standards" No 3 1972).

Key: (1) Name of part; (2) Modification; (3) Thread diameter; (4) Fine pitch of thread; (5) Class of precision of thread; (6) Length of bolt; (7) Strength class or group; (8) Indication on the use of killed steel; (9) Designation of type of coating; (10) Thickness of coating; (11) Number of measuring standard.

2. Bolts, screws and studs of strength classes 8.8, 10.9 and nuts of strength classes 10, 12, 14, parts made out of corrosion-resisting, oxidation-resistant, heat-resistant and heatproof steels, and also parts, the material or coating of which are not provided for by the present standard, should be designated in the following manner:

Bolt 2M12x1.25.2ax60.88.35X.Ти6 ГОСТ




(Changed wording - "Inform. index of standards" No 3 1972).

3. Class of precision of thread 3, major pitch of thread, use 1, type of coating 00 (without coating) are not indicated in the designation.

4. Thickness of a multilayer coating in conventional designation is indicated as general, total for all components for example: coating M3N3Khl is designated - 0.47.

(Introduced additionally - "Inform. index of standards" No 3 1972).

Key: Same as the preceding chart, with the exception of No 8 - (8) Brand of steel or alloy.

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