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FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
TAPERED BOLTS (HIGH PRECISION) DESIGN AND DIMENSIONS.(U)
SEP 78

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UNCLASSIFIED

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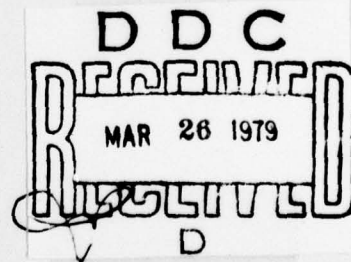
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FOREIGN TECHNOLOGY DIVISION



TAPERED BOLTS (HIGH PRECISION) DESIGN AND DIMENSIONS



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78 12 26 55

Date 13 Sept 1978

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, ы; e elsewhere.
When written as ё in Russian, transliterate as yě or ě.

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	sech ⁻¹
cosec	csc	csch	csch	arc csch	csch ⁻¹

Russian	English
rot	curl
lg	log

TAPERED BOLTS (HIGH PRECISION)
DESIGN AND DIMENSIONS

GOST
15163-69
instead of OST 4151

Developed by the All-Union Scientific-Research Institute
on Standardization in Machine Building (VNIINMASH)

Director V.R. Verchenko

Chief of Section L.Ya. Itskov

Senior Engineer M.P. Zaroslova

Introduced by the All-Union Scientific-Research Institute
on Standardization in Machine Building (VNIINMASH)

Director V.R. Verchenko

Prepared for confirmation by the Administration of General
Technology of the Committee of Standards, Measures and Mea-
suring Instruments attached to the Council of Ministers of
the USSR

Deputy chief of administration N.N. Inozemtsev

Senior Engineer I.V. Klusova

By the Scientific-Research Department of the General Techni-
cal Standards and Fastening Parts of the All-Union Scientif-
ic-Research Institute on the Standardization in Machine
Building (VNIINMASH)

Chief of Section L.Ya. Itskov

Senior Engineer M.P. Zaroslova

Confirmed by the Committee of Standards, Measures and Mea-
suring Instruments attached to the Council of Ministers of
the USSR on 30 October 1969 (proceedings No. 157)

President of the commission A.M. Nikiforenko

Members of the commission V.N. Shakhurin, L.V. Potemkin,

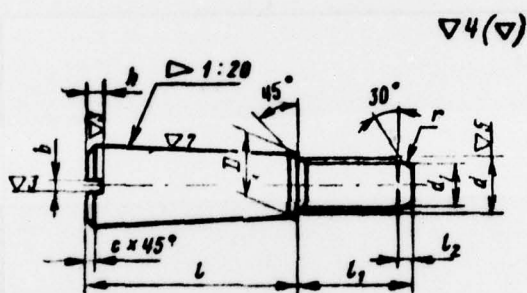
B.N. Lyamin, B.A. Remizov

Put into operation by Decree of the Committee of Standards,
Measures and Measuring Instruments attached to the Council
of Ministers of the USSR from 30 December 1969, No. 1415

By decree of the Committee of Standards, Measures and Measuring
Instruments attached to the Council of Ministers of the USSR from
30 December 1969, No. 1415. Period of introduction is estab-
lished from July 1, 1971.

Non-observance of the standard is punishable by law

1. The design and dimensions of the bolts must correspond
to those indicated on the drawing and in Tables 1 and 2.



Examples of symbols:

bolts with thread diameter $d = 12$ mm, length of the tapered
part $l = 60$ mm, grade of strength 5.8, with a large thread pitch
of grade of fit 3, without a coating:

Bolt M12X60.58 GOST 15163-69

the same, grade of strength 10.9, with a small thread pitch
of grade of fit 2a, with a coating 01:

Bolt M12X1.25.2aX60.109 01 GOST 15163-69

2. Thread - in compliance with GOST 9150-59; tolerances of
threads - in compliance with GOST 9253-59: for threads with large
pitch of the grade of fit 2 or 3, and with small pitches - 2a

or 3.

3. Dimensions of run-outs and under-cuttings of the thread
- in compliance with GOST 10549-63. tches

4. The following are permitted by agreement between the
manufacture and user to be manufactured:

bolts with threads in compliance with GOST 10191-62;

bolts with a spherical end (height of the spherical part
equal to the magnitude of the bevel edge c);

bolts without a slot.

5. Tolerances for angular dimensions of the tapered part
of the bolt - in compliance with the 6th degree of precision
GOST 8908-58.

6. The mechanical properties must correspond to grades of
strength 5.8-12.9 for bolts from carbon and alloy steels and to
groups 23-26 for bolts from stainless and corrosion-resistant
steels.

7. Specifications - in compliance with GOST 1759-70.

Table 1

		1) мм						
2) Номинальный диаметр резьбы d		4	5	6	8	10	12	16
3) Шаг резьбы	Крупный 4)	0,7	0,8	1	1,25	1,5	1,75	2
	Мелкий 5)	—	—	—	1	1,25	1,25	1,5
	Номинал. 6)	5	6	8	10	12	14	20
	Пред. откл. 7)	-0,048		-0,058		-0,070		-0,084
D	Номинал.	12	14	16	18	20	25	30
	Пред. откл.	±0,35				±0,40		
d ₁	Номинал.	2,5	3,5	4,5	6,0	7,0	9,0	12,0
	Пред. откл.	-0,25	-0,30			-0,36		0,43
l ₂	Номинал.	1,5			2,0	3,0		4,0
	Пред. откл.	±0,40						±0,48
b	Номинал.	1,0	1,2	1,6	2,0	2,5	3,0	4,0
	Пред. откл.	±0,25						±0,30
h	Номинал.	1,4	1,7	2,0	2,5	3,0	3,5	4,0
	Пред. откл.	±0,20					±0,25	
c		0,8	1,0	1,2	1,6			2,0
r		0,3		0,4		0,5	0,6	0,8
8) Предельное смещение оси стержня относительно оси конусной части		0,20		0,25				0,30
9) Предельное смещение оси шлица относительно оси конусной части		0,35		0,45				0,50

KEY to Table 1: 1) mm; 2) Rated diameter of thread d; 3) Thread pitch; 4) Large; 5) Small; 7) Limit deviation [tolerance]; 8) Maximum shift of axis of shank relative to axis of tapered part; 9) Maximum shift of axis of slot relative to axis of tapered part.

Table 2

Dimensions in mm

1		1) Теоретическая масса 1000 шт. болтов в кг при номинальных диаметрах резьбы d						
2) Номинал	3) Предел отклонения	4	5	6	8	10	12	16
20	+0,84	4,54	6,80	—	—	—	—	—
(22)		4,97	7,41	—	—	—	—	—
25		5,70	8,36	14,00	—	—	—	—
(28)		6,44	9,35	15,60	—	—	—	—
30	+1,0	6,95	10,04	16,70	26,50	39,21	56,86	—
(32)		7,48	10,74	17,82	28,14	41,47	59,83	—
36	+1,0	8,37	11,90	19,65	30,77	45,07	64,53	—
40		9,75	13,74	22,55	34,99	50,85	72,12	145,2
45		11,32	15,77	25,70	39,51	56,09	80,12	160,3
50		12,99	17,93	29,02	44,22	63,35	88,38	175,7
55		14,78	20,22	32,49	49,13	69,94	96,88	191,4
60		16,69	22,64	36,13	54,23	76,75	105,64	207,6
65		18,72	25,21	39,94	59,53	83,79	114,67	224,0
70		—	27,92	43,92	65,03	91,07	123,96	240,8
80		—	—	52,42	76,67	106,34	143,36	275,6
90		—	—	—	—	122,60	163,87	311,8
100	+1,4	—	—	—	—	—	—	349,5

KEY to Table 2: 1) Theoretical weight of 1000 pieces of bolts in kg at rated diameters of the thread d; 2) Rated; 3) Tolerance.

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C043 USAMIIA	1	E404 AEDC	1
C509 BALLISTIC RES LABS	1	E408 AFWL	1
C510 AIR MOBILITY R&D	1	E410 ADTC	1
LAB/FIO		E413 ESD	2
C513 PICATINNY ARSENAL	1	FTD	
C535 AVIATION SYS COMD	1	CCN	1
C591 FSTC	5	ASD/FTD/NIIS	3
C619 MIA REDSTONE	1	NIA/PHS	1
D008 NISC	1	NIIS	2
H300 USAICE (USAREUR)	1		
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