
**Hexagon Bolts with reduced head,
Product Grade A
Construction and Dimensions**

GOST 7808 - 70

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INTER STATE STANDARDS

Hexagon bolts with reduced head, product grade A

Construction and Dimensions

GOST
7808 - 70

OKII 12 8200

Date of introduction 01.01.72

1. This standard pertains to bolts with hexahedral-reduced head of precision class A with thread diameter from 8 to 48 mm.
(Amended edition, Amendment No.4).
2. Design and sizes of bolts should correspond to those indicated on the drawing and in table 1, 2.
(Amended edition, Amendment No.2 - 6).
3. Threads - as per GOST 24705. Run-outs and under-cuts of threads - as per GOST 27148. Ends of bolts - as per GOST 12414.
(Amended edition, Amendment No.5).
- 3a. Radius for head – as per GOST 24670.
- 3b. Tolerance of dimensions, deviation of forms and location of surfaces not established according to this standard, as per GOST 1759.1.
- 3c. Permissible defects at surfaces of bolts and methods of inspection – as per GOST 1759.2.
- 3a – 3b. **(Introduced additionally, Amendment No.4).**
4. By agreement between manufacturer and customer it is permitted to manufacture:
 - bolts of make 1 and 2 with head thickness, equal to k_1 ;
 - bolts with nominal thread diameter from 36 to 48 mm with 2 mm pitch of thread.**(Amended edition, Amendment No.2, 4).**
5. Version of make of head is set by manufacturer.
- 5a. According to agreement between manufacturer and user, manufacturing bolts with diameter of smooth part of rod d_1 , approximately equal to mean thread diameter, is permitted.
- 5b. For application of signs of marking, it is permitted to manufacturer bolts of make 1 and 2 with hole on face with sizes, with not decreasing strength of head, during this depth of hole should not be more than $0.4 k$.
- 5a, 5b. **(Introduced additionally, Amendment No.5).**
6. Technical requirements – as per GOST 1759.0.
7. **(Deleted, Amendment No.2).**
8. Mass of bolts specified in appendix 1.
9. **(Deleted, Amendment No.4).**

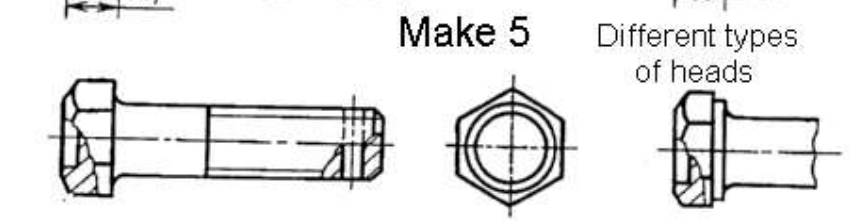
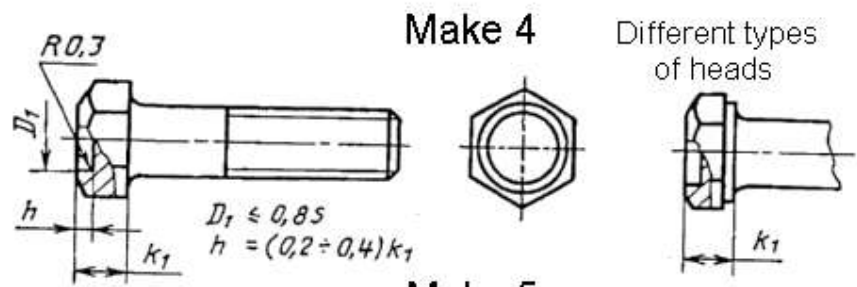
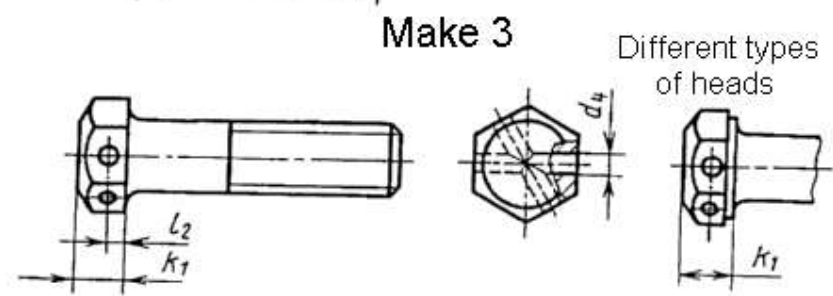
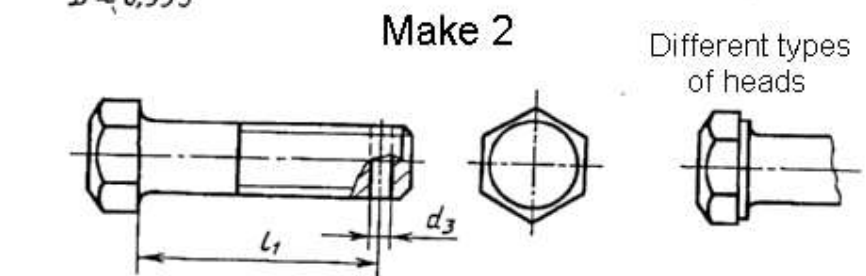
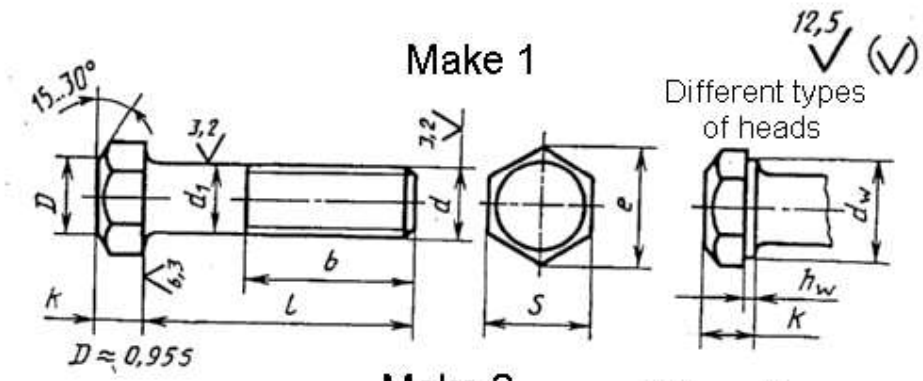


Table 1

MM

Nominal diameter of thread, d		8	10	12	(14)	16	(18)	20	(22)	24	(27)	30	36	42	48
Pitch of threa	thick	1,25	1,5	1,75	2		2,5		3		3,5	4	4,5	5	
	mild	1	1,25		1,5				2		3				
Diameter of rod, d ₁		8	10	12	14	16	18	20	22	24	27	30	36	42	48
Size of spaner, S		12	14	17	19	22	24	27	30	32	36	41	50	60	70
Height of head, k		5	6	7	8	9	10	11	12	13	15	17	20	23	26
Height of head, k ₁		5,3	6,4	7,5	8,8	10,0	12,0	12,5	14,0	15,0	17,0	18,7	22,5	26,0	30,0
Diameter of described circle e, not less than		13,2	15,5	18,9	21,1	24,5	26,8	30,1	33,5	35,7	40,0	45,6	55,8	67,0	78,3
d ₁ , not less than		10,6	12,6	15,6	17,4	20,6	22,5	25,3	28,2	30,0	33,6	38,4	46,9	56,3	65,8
h _w	not less than	0,15				0,20						0,25			
	not more than	0,6				0,8									
Diameter of hole in rod d ₃		2,0	2,5	3,2		4,0		5,0		6,3		8,0			
Diameter of hole in head d ₄ H15		2,5		3,2		4,0					5,0				
Differnce from supporting surface to axis of hole of head l ₂ js15		2,8	3,5	4,0	4,5	5,0	6,0	6,5	7,0	7,5	8,5	9,5	11,5	13,0	15,0

Note. It is not permitted to use bolts of sizes given in brackets.

Table 2

MM

Length of bolt <i>l</i>	Length of thread and distance from supporting surface of head upto axis of hole <i>l</i> 1 at nominal diameter of thread <i>d</i> (signs and marks of bolts with thread an entire length of shaft)																											
	8		10		12		(14)		16		(18)		20		(22)		24		(27)		30		36		42		48	
	<i>l</i> ₁	<i>b</i>	<i>l</i> ₁	<i>b</i>	<i>l</i> ₁	<i>b</i>	<i>l</i> ₁	<i>b</i>	<i>l</i>	<i>b</i>	<i>l</i> ₁	<i>b</i>	<i>l</i> ₁	<i>b</i>	<i>l</i> ₁	<i>b</i>	<i>l</i> ₁	<i>b</i>	<i>l</i>	<i>b</i>	<i>l</i> ₁	<i>b</i>	<i>l</i> ₁	<i>b</i>	<i>l</i> ₁	<i>b</i>	<i>l</i> ₁	<i>b</i>
8	—	x	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10	—	x	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12	—	x	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14	—	x	—	x	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
16	12	x	—	x	—	x	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(18)	14	x	14	x	—	x	—	x	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20	16	x	16	x	15	x	—	x	—	x	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(22)	18	x	18	x	17	x	17	x	—	x	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25	21	x	21	x	20	x	20	x	19	x	—	x	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(28)	24	22	24	x	23	x	23	x	22	x	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
30	26	22	26	x	25	x	25	x	24	x	24	x	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(32)	28	22	28	26	27	x	27	x	26	x	26	x	25	x	—	x	—	—	—	—	—	—	—	—	—	—	—	—
35	31	22	31	26	30	30	30	x	29	x	29	x	29	x	28	x	28	x	—	x	—	—	—	—	—	—	—	—
(38)	34	22	34	26	33	30	33	x	32	x	32	x	32	x	31	x	31	x	—	x	—	—	—	—	—	—	—	—
40	36	22	36	26	35	30	35	34	34	x	34	x	34	x	33	x	33	x	32	x	—	x	—	—	—	—	—	—
45	41	22	41	26	40	30	40	34	39	38	39	x	39	x	38	x	38	x	37	x	36	x	—	—	—	—	—	—
50	46	22	46	26	45	30	45	34	44	38	44	42	44	x	43	x	43	x	42	x	41	x	40	x	—	—	—	—
55	51	22	51	26	50	30	50	34	49	38	49	42	49	46	48	x	48	x	47	x	46	x	45	x	—	x	—	—
60	56	22	56	26	55	30	55	34	54	38	54	42	54	46	53	50	53	x	52	x	51	x	50	x	48	x	—	—
65	61	22	61	26	60	30	60	34	59	38	59	42	59	46	58	50	58	54	57	x	56	x	55	x	53	x	—	x
70	66	22	66	26	65	30	65	34	64	38	64	42	64	46	63	50	63	54	62	60	61	x	60	x	58	x	58	x
75	71	22	71	26	70	30	70	34	69	38	69	42	69	46	68	50	68	54	67	60	66	66	65	x	63	x	63	x
80	76	22	76	26	75	30	75	34	74	38	74	42	74	46	73	50	73	54	72	60	71	66	70	x	68	x	68	x
(85)	81	22	81	26	80	30	80	34	79	38	79	42	79	46	78	50	78	54	77	60	76	66	75	x	73	x	73	x
90	86	22	86	26	85	30	85	34	84	38	84	42	84	46	83	50	83	54	82	60	81	66	80	78	78	x	78	x
(95)	91	22	91	26	90	30	90	34	89	38	89	42	89	46	88	50	88	54	87	60	86	66	85	78	83	x	83	x
100	96	22	96	26	95	30	95	34	94	38	94	42	94	46	93	50	93	54	92	60	91	66	90	78	88	x	88	x
(105)	—	—	101	26	100	30	100	34	99	38	99	42	99	46	98	50	98	54	97	60	96	66	95	78	93	90	93	x
110	—	—	106	26	105	30	105	34	104	38	104	42	104	46	103	50	103	54	102	60	101	66	100	78	98	90	98	x
(115)	—	—	111	26	110	30	110	34	109	38	109	42	109	46	108	50	108	54	107	60	106	66	105	78	103	90	103	102
120	—	—	116	26	115	30	115	34	114	38	114	42	114	46	113	50	113	54	112	60	111	66	110	78	108	90	108	102
(125)	—	—	121	26	120	30	120	34	119	38	119	42	119	46	118	50	118	54	117	60	116	66	115	78	113	90	113	102

Continuation of table 1

MM

Length of bolt <i>l</i>	Length of thread and distance from supporting surface of head upto axis of hole l_1 at nominal diameter of thread d (signs and marks of bolts with thread an entire length of shaft)																											
	8		10		12		(14)		16		(18)		20		(22)		24		(27)		30		36		42		48	
	l_1	b	l_1	b	l_1	b	l_1	b	l_1	b	l_1	b	l_1	b	l_1	b	l_1	b	l_1	b	l_1	b	l_1	b	l_1	b	l_1	b
130	—	—	126	32	125	36	125	40	124	44	124	48	124	52	123	56	123	60	122	66	121	72	120	84	118	96	118	108
140	—	—	136	32	135	36	135	40	134	44	134	48	134	52	133	56	133	60	132	66	131	72	130	84	128	96	128	108
150	—	—	146	32	145	36	145	40	144	44	144	48	144	52	143	56	143	60	142	66	141	72	140	84	138	96	138	108
160	—	—	156	32	155	36	155	40	154	44	154	48	154	52	153	56	153	60	152	66	151	72	150	84	148	96	148	108
170	—	—	166	32	165	36	165	40	164	44	164	48	164	52	163	56	163	60	162	66	161	72	160	84	158	96	158	108
180	—	—	176	32	175	36	175	40	174	44	174	48	174	52	173	56	173	60	172	66	171	72	170	84	168	96	168	108
190	—	—	186	32	185	36	185	40	184	44	184	48	184	52	183	56	183	60	182	66	181	72	180	84	178	96	178	108
200	—	—	196	32	195	36	195	40	194	44	194	48	194	52	193	56	193	60	192	66	191	72	190	84	188	96	188	108
220	—	—	—	—	215	49	215	53	214	57	214	61	214	65	213	69	213	73	212	79	211	85	210	97	208	109	208	121
240	—	—	—	—	235	49	235	53	234	57	234	61	234	65	233	69	233	73	232	79	231	85	230	97	228	109	228	121
260	—	—	—	—	255	49	255	53	254	57	254	61	254	65	253	69	253	73	252	79	251	85	250	97	248	109	248	121
280	—	—	—	—	—	—	275	53	274	57	274	61	274	65	273	69	273	73	272	79	271	85	270	97	268	109	268	121
300	—	—	—	—	—	—	295	53	294	57	294	61	294	65	293	69	293	73	292	79	291	85	290	97	288	109	288	121

Note: Use of bolts with sizes of length, given in bracket, is not recommended

Example of conventional code of bolts of make 1 with diameter of thread $d=12$ mm, length $l=60$ mm, with thick pitch of thread with tolerance range 6g, class of strength 5.8, without coating:

Bolts M12-6gx60.58 GOST 7808-70

also, make 2, with mild pitch of thread with tolerance range 6g, class of strength 10.9, from steel grade 40X, with coating 01 thickness of 6 μm :

Bolts 2M12x1,25-6gx60.109 40X.016 GOST7808-70

Mass of steel bolt (make 1) with thick pitch of thread

Appendix 1
Reference

Length of bolt <i>l</i> , mm	Theoretical mass of 1000 piece of bolts, kg=, at nominal diameter of thread <i>d</i> , mm													
	8	10	12	14	16	18	20	22	24	27	30	36	42	48
8	7,732	—	—	—	—	—	—	—	—	—	—	—	—	—
10	8,458	13,57	—	—	—	—	—	—	—	—	—	—	—	—
12	9,184	14,71	—	—	—	—	—	—	—	—	—	—	—	—
14	9,910	15,85	25,09	—	—	—	—	—	—	—	—	—	—	—
16	10,640	16,99	26,73	35,04	—	—	—	—	—	—	—	—	—	—
18	11,360	18,12	28,37	37,28	55,80	—	—	—	—	—	—	—	—	—
20	12,090	19,26	30,01	39,52	58,75	75,63	—	—	—	—	—	—	—	—
22	12,810	20,40	31,65	41,76	61,70	79,39	—	—	—	—	—	—	—	—
25	13,900	22,11	34,11	45,11	66,12	84,95	111,5	—	—	—	—	—	—	—
28	15,150	23,81	36,57	48,47	70,54	90,51	118,4	—	—	—	—	—	—	—
30	15,940	24,95	38,21	50,71	73,49	94,21	123,0	156,5	—	—	—	—	—	—
32	16,720	26,32	39,85	52,95	76,44	97,92	127,6	162,1	195,6	—	—	—	—	—
35	17,910	28,17	42,59	56,30	80,86	103,50	134,6	170,5	205,6	279,0	—	—	—	—
38	19,090	30,02	45,26	59,66	85,28	109,00	141,5	178,9	215,6	291,7	—	—	—	—
40	19,880	31,25	47,03	64,56	88,23	112,70	146,1	184,5	222,2	300,2	400,7	—	—	—
45	21,860	34,34	51,48	70,60	96,26	122,00	157,7	198,5	238,8	321,3	426,8	—	—	—
50	23,830	37,42	55,92	76,65	104,20	132,20	169,2	212,6	255,4	342,5	452,8	712,6	—	—
55	25,810	40,51	60,36	82,70	112,10	142,20	181,9	226,6	272,0	363,7	478,9	750,3	1124	—
60	27,780	43,59	64,80	88,74	120,00	152,20	194,3	242,6	288,6	384,9	504,9	787,9	1175	—
65	29,760	46,68	69,25	94,79	127,80	162,20	206,6	257,5	307,4	406,0	531,0	825,5	1226	1729
70	31,730	49,76	73,69	100,80	135,80	172,20	218,9	272,4	325,2	429,5	557,0	863,2	1278	1796
75	33,710	52,85	78,13	106,90	143,70	182,20	231,3	287,4	342,9	452,0	585,6	900,8	1329	1863
80	35,680	55,93	82,57	112,90	151,60	192,20	243,6	302,3	360,7	474,4	613,4	938,4	1380	1930
85	37,650	56,02	87,02	119,00	159,40	202,20	256,0	317,2	378,5	496,9	641,1	976,0	1432	1998
90	39,630	62,10	91,46	125,00	167,40	212,20	268,3	332,2	396,2	519,4	668,9	1018,0	1483	2065
95	41,600	65,19	95,90	131,10	175,20	222,20	280,6	347,1	414,0	541,9	696,7	1059,0	1534	2132
100	43,580	68,27	100,30	137,10	183,10	232,20	293,0	362,0	431,8	564,4	724,4	1098,0	1586	2199
105	—	71,36	104,80	143,20	191,00	242,10	305,3	377,0	449,6	586,9	752,2	1138,0	1645	2266
110	—	74,44	109,20	149,20	198,90	252,10	317,7	391,9	467,3	609,4	780,0	1178,0	1699	2332
115	—	77,52	113,70	155,30	206,80	262,10	330,0	406,8	485,1	631,9	807,7	1218,0	1753	2409
120	—	80,61	118,10	161,30	214,70	272,10	342,3	421,8	502,9	654,4	835,5	1258,0	1808	2480
125	—	83,70	122,60	167,40	222,60	282,10	354,7	436,7	520,6	676,8	863,3	1298,0	1863	2550
130	—	86,78	127,00	173,40	230,50	292,10	367,0	451,6	538,4	699,3	891,0	1338,0	1917	2623
140	—	92,94	135,90	185,50	246,30	312,10	391,7	481,5	574,0	744,3	946,6	1418,0	2026	2765
150	—	99,11	144,80	197,60	262,10	332,10	416,4	511,3	609,5	789,3	1002,0	1498,0	2135	2907
160	—	105,30	153,60	207,70	277,90	352,10	441,1	541,2	645,0	834,3	1058,0	1578,0	2244	3049
170	—	111,40	162,50	221,80	293,70	372,10	465,7	571,0	680,6	879,3	1113,0	1658,0	2353	3191
180	—	117,60	171,40	233,90	309,50	392,10	490,4	600,9	716,1	924,3	1169,0	1738,0	2461	3333
190	—	123,80	180,30	246,00	325,30	412,10	515,1	630,8	751,6	969,2	1224,0	1818,0	2570	3475
200	—	130,00	189,20	258,00	341,10	432,10	539,8	660,7	787,2	1014,0	1280,0	1898,0	2679	3618
220	—	—	207,00	282,20	372,70	472,00	589,1	720,4	858,2	1104,0	1391,0	2058,0	2897	3902
240	—	—	224,00	306,40	404,30	512,00	638,5	780,1	929,4	1194,0	1502,0	2218,0	3115	4186
260	—	—	245,50	330,60	435,90	552,00	687,6	839,9	1000,0	1284,0	1613,0	2378,0	3332	4471
280	—	—	—	354,80	467,50	592,00	737,2	899,5	1072,0	1374,0	1724,0	2538,0	3550	4755
300	—	—	—	378,00	499,00	632,00	786,6	959,3	1143,0	1464,0	1835,0	2698,0	3768	5039

For determination of mass of bolts from other materials of mass value, specified in table, should be Multiplied with coefficient : 0.356 – for aluminum alloy; 1.080 – for brasses.

Appendix 1. (Amended edition, Amendment No. 5, 6).

Appendix 2. (Deleted, Amendment No.6).

SUPERSEDES GOST 7808-62**REFERENCE NORMATIVE-TECHNICAL DOCUMENTS**

Description of НТД, where reference are given	Number of Point	Description of НТД, where reference are given	Number of Point
GOST 1759.0-87	6	GOST 24670-81	3a
GOST 1759.1-82	3б	GOST 24705-81	3
GOST 1759.2-82	3в	GOST 27148-86	3
GOST 12414-94	3		

Reprinted with Amendment No. 2, 3, 4, 5, 6, approved in February 1974, March 1981, May 1985, March 1989, June 1995 (ИYC 3 – 74, 6 – 81, 8 – 85, 6 – 89, 9 - 95)