

**BOLTS WITH HEXAGONAL HEADS**  
**ACCURACY CLASS A**  
**DESIGN AND DIMENSIONS**

**GOST 7805-70**

**EXTRACT**

**CONTRACT**

**№ PB/835606213601**

**BOLTS WITH HEXAGONAL HEADS**  
**ACCURACY CLASS A**  
**DESIGN AND DIMENSIONS**

**GOST 7805-70**

**EXTRACT**

**Bolts with hexagonal heads**

**GOST 7805-70**

**Accuracy class A**

**EXTRACT**

**Design and dimensions**

1. Present standard deals with bolts with hexagonal heads of accuracy class A with thread diameter ranging from 1.6 to 48 mm.

2. Design and dimensions of bolts should correspond to specified on drawing and in table 1 and 2.

3. Thread – as per GOST 24705-81. Run out and under cut of thread – as per GOST 27148-86. Ends of bolts – as per GOST 12414-66>>.

4. Radius under the head – as per GOST 24670-81.

5. Tolerances for dimensions, deviation of shapes and location of surfaces and methods of checking, not established by present standard, are as per GOST 1759.1-82.

6. Permissible surface defects of bolts and methods of checking – are as per GOST 1759.2-82.

7. Bolts with nominal diameter of thread ranging from 36 to 48 mm with thread pitch 2 mm may be manufactured as per agreement between manufacturer and user.

8. Alternate make of heads is established by manufacturer.

9. Bolts with diameter of smooth part of rod  $d_1$ , approximately equal to mean diameter of thread, may be manufactured.

10. Bolts of make 1 and 2 with rises on end face surface of head with dimensions, not reducing the strength of head, may be manufactured for applying marking symbols, during this depth of rises should be not more than 0.4 k.

11. Technical requirements – as per GOST 1759.0-87.

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Make 1

Alternate make of heads

Make 2

Alternate make of heads

Make 3

Alternate make of heads

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**Table 1**

**mm**

Nominal diameter of thread d		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
Thread pitch	Large	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		3		3.5	4	4.5	5	
	Small	-	-	-	-	-	-	-	-	1	1.25		1.5	1.5			2		3				
Diameter of rod d <sub>1</sub>		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
Dimension <<for wrench>> S		3.2	4	5	5.5	6	7	8	10	13	17	19	22	24	27	30	32	36	41	46	55	65	75
Height of head K		1.1	1.4	1.7	2.0	2.4	2.8	3.5	4.0	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 specified circumference, e. not less than		3.4	4.3	5.5	6.0	6.6	7.7	8.8	11.1	14.4	18.9	21.1	24.5	26.8	30.1	33.5	35.7	40.0	45.6	51.3	61.3	72.6	83.9
d <sub>w</sub> , not less than		2.3	3.1	4.4	4.6	5.1	5.9	6.9	8.9	11.6	15.6	17.4	20.6	22.5	25.3	28.2	30.0	33.6	38.0	42.7	51.1	61.0	70.5
h <sub>w</sub>	Not less than	-	-	-	0.15						0.20						0.25						
	Not more than	-	-	-	0.4		0.5		0.6			0.8											
Diameter of hole in rod d <sub>3</sub>		-	-	-	-	-	1.0	1.2	1.6	2.0	2.5	3.2	4.0		5.0		6.3	8.0					
Diameter of hole in head d <sub>4</sub> (deviation limit H15)		-	-	-	-	-	1.0	1.2	2.0	2.5		3.2	4.0						5.0				
Diameter from supporting surface to axis of hole in head (deviation limit js15)		-	-	-	-	-	1.4	1.8	2.0	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

**Table 2**

mm

Length of bolt l	Length of thread b and distance from supporting surface to axis of hole in rod l <sub>1</sub> during nominal diameter of thread of (bolts with thread along the entire length of rod are marked with symbol X)												
	1.6	2	2.5	3	3.5	4		5		6		8	
	b	b	b	b	b	l <sub>1</sub>	b	l <sub>1</sub>	b	l <sub>1</sub>	b	l <sub>1</sub>	b
2	X	-	-	-	-	-	-	-	-	-	-	-	-
3	X	X	X	-	-	-	-	-	-	-	-	-	-
4	X	X	X	X	-	-	-	-	-	-	-	-	-
5	X	X	X	X	X	-	-	-	-	-	-	-	-
6	X	X	X	X	X	-	X	-	X	-	-	-	-
8	X	X	X	X	X	-	X	-	X	-	X	-	X
10	X	X	X	X	X	7.5	X	-	X	-	X	-	X
12	9	X	X	X	X	9.5	X	9.5	X	-	X	-	X
14	9	10	11	12	13	11.5	X	11.5	X	10	X	-	X
16		10	11	12	13	13.5	14	13.5	X	12	X	12	X
(18)	-	10	11	12	13	15.5	14	15.5	16	14	X	14	X
20	-	-	11	12	13	17.5	14	17.5	16	16	X	16	X
(22)	-	-	11	12	13	19.5	14	19.5	16	18	18	18	X
25	-	-	11	12	13	22.5	14	22.5	16	21	18	21	X
(28)	-	-	-	12	13	25.5	14	25.5	16	24	18	24	22
30	-	-	-	12	13	27.5	14	27.5	16	26	18	26	22
(32)	-	-	-	-	-	29.5	14	29.5	16	28	18	28	22
35	-	-	-	-	-	32.5	14	32.5	16	31	18	31	22
(38)	-	-	-	-	-	35.5	14	35.5	16	34	18	34	22
40	-	-	-	-	-	37.5	14	37.5	16	36	18	36	22
45	-	-	-	-	-	42.5	14	42.5	16	41	18	41	22
50	-	-	-	-	-	47.5	14	47.5	16	46	18	46	22
55	-	-	-	-	-	52.5	14	52.5	16	51	18	51	22
60	-	-	-	-	-	57.5	14	57.5	16	56	18	56	22
65	-	-	-	-	-	-	-	62.5	16	61	18	61	22
70	-	-	-	-	-	-	-	67.5	16	66	18	66	22
75	-	-	-	-	-	-	-	72.5	16	71	18	71	22
80	-	-	-	-	-	-	-	77.5	16	76	18	76	22
(85)	-	-	-	-	-	-	-	-	-	81	18	81	22
90	-	-	-	-	-	-	-	-	-	86	18	86	22
(95)	-	-	-	-	-	-	-	-	-	-	-	91	22
100	-	-	-	-	-	-	-	-	-	-	-	96	22

Continuation of table 2

mm

Length of bolt $l_1$	Length of thread $b$ and distance from supporting surface to axis of hole in rod $l_1$ during nominal diameter of thread of (bolts with thread along the entire length of rod are marked with symbol X)											
	10		12		14		16		(18)		20	
	$l_1$	$b$	$l_1$	$b$	$l_1$	$b$	$l_1$	$b$	$l_1$	$b$	$l_1$	$b$
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	X	-	-	-	-	-	-	-	-	-	-
12	-	X	-	-	-	-	-	-	-	-	-	-
14	-	X	-	X	-	-	-	-	-	-	-	-
16	-	X	-	X	-	X	-	-	-	-	-	-
(18)	14	X	-	X	-	X	-	X	-	-	-	-
20	16	X	15	X	-	X	-	X	-	X	-	-
(22)	18	X	17	X	17	X	-	X	-	X	-	-
25	21	X	20	X	20	X	19	X	-	X	-	X
(28)	24	X	23	X	23	X	22	X	22	X	-	X
30	26	X	25	X	25	X	24	X	24	X	24	X
(32)	28	26	27	X	27	X	26	X	26	X	26	X
35	31	26	30	30	30	X	29	X	29	X	29	X
(38)	34	26	33	30	33	X	32	X	32	X	32	X
40	36	26	35	30	35	34	34	X	34	X	34	X
45	41	26	40	30	40	34	39	38	39	X	39	X
50	46	26	45	30	45	34	44	38	44	42	44	X
55	51	26	50	30	50	34	49	38	49	42	49	46
60	56	26	55	30	55	34	54	38	54	42	54	46
65	61	26	60	30	60	34	59	38	59	42	59	46
70	66	26	65	30	65	34	64	38	64	42	64	46
75	71	26	70	30	70	34	69	38	69	42	69	46
80	76	26	75	30	75	34	74	38	74	42	74	46
(85)	81	26	80	30	80	34	79	38	79	42	79	46

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90	86	26	85	30	85	34	84	38	84	42	84	46
(95)	91	26	90	30	90	34	89	38	89	42	89	46
100	96	26	95	30	95	34	94	38	94	42	94	46

Continuation of table 2

mm

Length of bolt $l_1$	Length of thread $b$ and distance from supporting surface to axis of hole in rod $l_1$ during nominal diameter of thread of (bolts with thread along the entire length of rod are marked with symbol X)													
	(22)		24		(27)		30		38		42		48	
	$l_1$	$b$	$l_1$	$b$	$l_1$	$b$	$l_1$	$b$	$l_1$	$b$	$l_1$	$b$	$l_1$	$b$
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(18)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	X	-	-	-	-	-	-	-	-	-	-	-	-
(32)	25	X	-	X	-	-	-	-	-	-	-	-	-	-
35	28	X	28	X	-	X	-	-	-	-	-	-	-	-
(38)	31	X	31	X	-	X	-	-	-	-	-	-	-	-
40	33	X	33	X	32	X	-	X	-	-	-	-	-	-
45	38	X	38	X	37	X	36	X	-	-	-	-	-	-
50	43	X	43	X	42	X	41	X	40	X	-	-	-	-

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55	48	X	48	X	47	X	46	X	45	X	-	X	-	-
60	53	50	53	X	52	X	51	X	50	X	48	X	-	-
65	58	50	58	54	57	X	56	X	55	X	53	X	-	X
70	63	50	63	54	62	60	61	X	60	X	58	X	58	X
75	68	50	68	54	67	60	66	66	65	X	63	X	63	X
80	73	50	73	54	72	60	71	66	70	X	68	X	68	X
(85)	78	50	78	54	77	60	76	66	75	X	73	X	73	X
90	83	50	83	54	82	60	81	66	80	78	78	X	78	X
(95)	88	50	88	54	87	60	86	66	85	78	83	X	83	X
100	93	50	93	54	92	60	91	66	90	78	88	X	88	X

Continuation of table 2

mm

Length of bolt l	Length of thread b and distance from supporting surface to axis of hole in rod l <sub>1</sub> during nominal diameter of thread of (bolts with thread along the entire length of rod are marked with symbol X)													
	1.6	2	2.5	3	3.5	4		5		6		8		
	b	b	b	b	b	l <sub>1</sub>	b	l <sub>1</sub>	b	l <sub>1</sub>	b	l <sub>1</sub>	b	
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(105)	-	-	-	-	-	-	-	-	-	-	-	-	-	
110	-	-	-	-	-	-	-	-	-	-	-	-	-	
(115)	-	-	-	-	-	-	-	-	-	-	-	-	-	
120	-	-	-	-	-	-	-	-	-	-	-	-	-	
(125)	-	-	-	-	-	-	-	-	-	-	-	-	-	
130	-	-	-	-	-	-	-	-	-	-	-	-	-	
140	-	-	-	-	-	-	-	-	-	-	-	-	-	
150	-	-	-	-	-	-	-	-	-	-	-	-	-	
160	-	-	-	-	-	-	-	-	-	-	-	-	-	
170	-	-	-	-	-	-	-	-	-	-	-	-	-	
180	-	-	-	-	-	-	-	-	-	-	-	-	-	
190	-	-	-	-	-	-	-	-	-	-	-	-	-	
200	-	-	-	-	-	-	-	-	-	-	-	-	-	
220	-	-	-	-	-	-	-	-	-	-	-	-	-	

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240	-	-	-	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-	-	-	-

Continuation of table 2

mm

Length of bolt $l_1$	Length of thread $b$ and distance from supporting surface to axis of hole in rod $l_1$ during nominal diameter of thread of (bolts with thread along the entire length of rod are marked with symbol X)												
	10		12		14		16		(18)		20		
	$l_1$	$b$	$l_1$	$b$	$l_1$	$b$	$l_1$	$b$	$l_1$	$b$	$l_1$	$b$	
(105)	101	26	100	30	100	34	99	38	99	42	99	46	
110	106	26	105	30	105	34	104	38	104	42	104	46	
(115)	111	26	110	30	110	34	109	38	109	42	109	46	
120	116	26	115	30	115	34	114	38	114	42	114	46	
(125)	121	26	120	30	120	34	119	38	119	42	119	46	
130	126	32	125	36	125	40	124	44	124	42	124	52	
140	136	32	135	36	135	40	134	44	134	48	134	52	
150	146	32	145	36	145	40	144	44	144	48	144	52	
160	156	32	155	36	155	40	154	44	154	48	154	52	
170	166	32	165	36	165	40	164	44	164	48	164	52	
180	176	32	175	36	175	40	174	44	174	48	174	52	
190	186	32	185	36	185	40	184	44	184	48	184	52	
200	196	32	195	36	195	40	194	44	194	48	194	52	
220	-	-	215	49	215	53	214	57	214	61	214	65	
240	-	-	235	49	235	53	234	57	234	61	234	65	
260	-	-	255	49	255	53	254	57	254	61	254	65	
280	-	-	-	-	275	53	274	57	274	61	274	65	
300	-	-	-	-	295	53	294	57	294	61	294	65	

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mm

Length of bolt l <sub>1</sub>	Length of thread b and distance from supporting surface to axis of hole in rod l <sub>1</sub> during nominal diameter of thread of (bolts with thread along the entire length of rod are marked with symbol X)													
	(22)		24		(27)		30		38		42		48	
	l <sub>1</sub>	b	l <sub>1</sub>	b	l <sub>1</sub>	b	l <sub>1</sub>	b	l <sub>1</sub>	b	l <sub>1</sub>	b	l <sub>1</sub>	b
(105)	98	50	98	54	97	60	96	66	95	78	93	90	93	X
110	103	50	103	54	102	60	101	66	100	78	98	90	98	X
(115)	108	50	108	54	107	60	106	66	105	78	103	90	103	102
120	113	50	113	54	112	60	111	66	110	78	108	90	108	102
(125)	118	50	118	54	117	60	116	66	115	78	113	90	113	102
130	123	56	123	60	122	66	121	72	120	84	118	96	118	108
140	133	56	133	60	132	66	131	72	130	84	128	96	128	108
150	143	56	143	60	142	66	141	72	140	84	138	96	138	108
160	153	56	153	60	152	66	151	72	150	84	148	96	148	108
170	163	56	163	60	162	66	161	72	160	84	158	96	158	108
180	173	56	173	60	172	66	171	72	170	84	168	96	168	108
190	183	56	183	60	182	66	181	72	180	84	178	96	178	108
200	193	56	193	60	192	66	191	72	190	84	188	96	188	108
220	213	69	213	73	212	79	211	85	210	97	208	109	208	121
240	233	69	233	73	232	79	231	85	230	97	228	109	228	121
260	253	69	253	73	252	79	251	85	250	97	248	109	248	121
280	273	69	273	73	272	79	271	85	270	97	268	109	268	121
300	293	69	293	73	292	79	291	85	290	97	288	109	288	121

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Example. Bolts with dimension of length, specified in brackets, are not recommended to use.

Example of conventional designation of bolt of make 1, with thread diameter  $d=12$  mm, with length  $l=60$  mm, with large thread pitch with tolerance field 6 g, strength class 5.8 with out coating:

Bolt M12-6 gX60.58 GOST 7805-70

Also, make 2, with small thread pitch with tolerance field 6 g, strength class 10.9 make of steel of grade 40X, with coating 01 with thickness 6 mkm:

Bolt 2M12X1.25-6GX60.109.40X.016 GOST 7805-70

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