

JIS

JAPANESE INDUSTRIAL STANDARD

**Hexagon nuts and
hexagon thin nuts**

Ⓔ **JIS B 1181—1993**

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JAPANESE INDUSTRIAL STANDARD

J I S

Hexagon nuts and hexagon thin nuts

B 1181-1993

1. Scope This Japanese Industrial Standard specifies the hexagon nuts made of steel, stainless steel and nonferrous metal for general purpose.

- Remarks 1. The hexagon nuts made of steel, stainless steel and nonferrous metal are called "steel nuts", "stainless nuts", and "nonferrous metal nuts", and when these are generically called, simply called the "nuts".
2. As regards the part grades of nuts, grades of screw threads and mechanical properties of the nuts, when items other than those specified in the text of this Standard are required, these shall be in accordance with JIS B 1021, JIS B 0209, JIS B 0211, JIS B 1052, JIS B 1054 and JIS B 1057.
3. The hexagon nuts which are not in accordance with the text of this Standard shall be specified in Appendix.
4. The standards cited in this Standard are given in Attached Table 1.
5. The corresponding International Standards of the text of this Standard are given in Attached Table 2.

2. Types The types of the nuts shall be 5 types as given in the following:

- (1) Hexagon nut – Style 1
- (2) Hexagon nut – Style 2
- (3) Hexagon nut
- (4) Hexagon thin nut – Double chamfered
- (5) Hexagon thin nut – Unchamfered

Informative reference: The hexagon nuts of (1) to (3) are those of $0.8 d$ (d : nominal diameter of screw thread) or over in nominal height of nut, and these are called "ordinally height nuts" in JIS B 1052.

The hexagon thin nuts of (4) and (5) are those of $0.5 d$ or over to under $0.8 d$ in nominal height of nut, and these are called the "thin nuts" in JIS B 1052.

The "thin nuts" are read as "HIKUNATTO" in accordance with JIS B 0101.

3. Shapes, dimensions and qualities The shapes, dimensions and qualities ⁽¹⁾ shall be in accordance with Table 1.

The geometrical tolerances and surface conditions of the nuts shall be in accordance with the following:

- (1) The coaxiality of nut side faces in respect to the threaded part, rectangularity of nut bearing-surface and the geometrical tolerances on parallelism of nut side-face shall be in accordance with Fig. 1.20, Fig. 1.30 and Fig. 1.34 of Attached Table 1 in JIS B 1021.
- (2) The criteria of permissible limits for the surface defects of nuts, unless otherwise specified, shall refer to the Informative reference of JIS B 0101.
- (3) The nuts shall generally be not processed with surface treatment. Particularly when the surface treatments of plating and others are required, these shall be as designated by the purchaser.

The steel nuts which have been processed with electroplating shall be subjected to the treatment of brittleness elimination, as required.

Note (1) The qualities mentioned herein mean the parts grades, grades of screw threads, geometrical tolerances and mechanical properties.

4. Materials The materials of the nuts shall be in accordance with the following:

- (1) The material of the steel nut shall be in accordance with 3. (Material) of JIS B 1052. However, the material of the nuts of hexagon thin nut - double chamfered of designation of screw thread under M3 and of hexagon thin nut - unchamfered shall satisfy the hardness specified in Table 1.
- (2) The material of the stainless nut shall be in accordance with 5. (Material) of JIS B 1054.
- (3) The material of the nonferrous metal nuts shall be in accordance with 4. (Material) of JIS B 1057.

Table 1. Shapes, dimensions and qualities of hexagon nut

Type of nut	Part grade (3)	Shapes and dimensions Attached Table	Screw thread			Mechanical properties				(Informative reference) Corresponding International Standard
			Type (3)	Nominal diameter range (mm)	Grade (4)	Material	Steel Stainless steel Nonferrous metal	Strength division Property division Material division	Applicable standard	
Hexagon nut - Style 1	A	Attached Table 3	Coarse threads	1.6 to 16	6H	Steel	$d < 3 \text{ mm}$: As agreed between the parties concerned.	—	—	ISO 4032:1986 ISO 8673:1988
			Fine threads	8 to 16			Coarse screw threads : 6, 8, 10 Fine screw threads : 6, 8, 10	JIS B 1052	JIS B 1052	
			Coarse threads and fine threads	18 to 64		Stainless steel	$d \leq 20 \text{ mm}$: A2-70 $20 \text{ mm} < d \leq 39 \text{ mm}$: A2-50 $d > 39 \text{ mm}$: As agreed between the parties concerned.	—	JIS B 1054	
	B	Attached Table 4	Coarse threads				In accordance with 3. (Mechanical properties) of JIS B 1057.	—	JIS B 1057	
Hexagon nut - Style 2	A	Attached Table 5	Coarse threads	5 to 16	6H	Steel	Coarse screw threads : 9, 12 Fine screw threads : 8, 10, 12	JIS B 1052	JIS B 1052	ISO 4033:1979 ISO 8674:1988
			Fine threads	8 to 16						
			Coarse threads and fine threads	18 to 36			Coarse screw threads : 9, 12 Fine screw thread : 10	JIS B 1052	JIS B 1052	
	B	Attached Table 6	Coarse threads							
Hexagon nut	C	Attached Table 7	Coarse threads	5 to 64	7H	Steel	$d \leq 16 \text{ mm}$: 5 $16 \text{ mm} < d \leq 39 \text{ mm}$: 4, 5 $d > 39 \text{ mm}$: As agreed between the parties concerned.	JIS B 1052	JIS B 1052	ISO 4034:1986

Table 1. Shapes, dimensions and qualities of hexagon nut (continued)

Type of nut	Parts grade (2)	Shapes and dimensions	Screw thread		Mechanical properties				(Informative reference) Corresponding International Standard
			Type (3)	Nominal diameter range (mm)	Grade (4)	Material	Steel Stainless steel Nonferrous metal	Strength division Property division Material division Applicable standard	
Hexagon thin nut – double chamfered	A	Attached Table 8	Coarse threads	1.6 to 16	6H	Steel	$d < 3 \text{ mm}$: Hardness HV 140 to 290	—	ISO 4035:1986 ISO 8675:1988
			Fine threads	8 to 16			$3 \text{ mm} \leq d \leq 39 \text{ mm}$: 04, 05	JIS B 1052	
	B	Attached Table 9	Coarse threads and fine threads	18 to 64		Stainless steel	$d \leq 20 \text{ mm}$: A2-70 $20 \text{ mm} < d \leq 39 \text{ mm}$: A2-50 $d > 39 \text{ mm}$: As agreed between the parties concerned	JIS B 1054	
							In accordance with 3. (Mechanical properties) of JIS B 1057.	JIS B 1057	
Hexagon thin nut – unchamfered	B	Attached Table 10	Coarse threads	1.6 to 10	6H	Steel	Whole sizes : Hardness HV 110 min.		ISO 4036:1979

Notes (2) Parts grades A, B and C shall be in accordance with JIS B 1021.

(3) Types of screw threads shall be in accordance with JIS B 0205 and JIS B 0207.

(4) Grades of screw threads shall be in accordance with JIS B 0209 and JIS B 0211.

For those which have been processed with the electroplating also, these shall be within the permissible range of Table 1.

5. Inspections The inspections shall be in accordance with the following:

- (1) The inspection of the shapes and dimensions, grade of screw thread and geometrical deviations shall be carried out by the measuring methods of JIS B 1071, or by the methods in lieu of these, and the results shall conform to Table 1 and Attached Tables 3 to 10.
- (2) The inspection on mechanical properties shall be carried out by JIS B 1052 for steel nuts, by JIS B 1054 for stainless nuts and JIS B 1057 for nonferrous metal nuts, and the results shall satisfy the mechanical properties of Table 1.
- (3) The inspection on surface conditions shall be as agreed between the parties concerned.
- (4) In the acceptance inspection, unless particularly specified by the purchaser, JIS B 1091 shall be employed.

6. Designation of products The nuts shall be designated by the number of standard ⁽⁵⁾, type, parts grade, designation of screw thread, strength division of mechanical properties (strength division for steel nuts, property division for stainless nuts, and material division for nonferrous metal nuts) and designated items ⁽⁶⁾. However, for the hexagon nuts – unchamfered, strength division shall be omitted.

Notes ⁽⁵⁾ The number of standard, unless otherwise required, may be omitted.

⁽⁶⁾ As regards the designated items, washer faced of hexagon nuts, type of surface treatment, and the like are indicated, as required.

Examples:

(Hexagon nuts, style 1 Coarse threads - steel)	JIS B 1181	Hexagon nuts – style 1	A	M10	–8	Ep-Fe/Zn 5/CM 2
(Hexagon nuts, style 1 Fine threads - stainless steel)	(Omitted)	Hexagon nuts – style 1	B	M20 ×1.5	A2-70	Washer faced
(Hexagon nuts, style 2)	(Omitted)	Hexagon nuts – style 2	A	M8	–12	Ep-Fe/Zn 5/CM 2
(Hexagon nuts, unchamfered).	(Omitted)	Hexagon nuts – unchamfered	B	M6	—	—
	II (No. of stan- dard)	II (Type)	II (Parts grade)	II (Designa- tion of screw thread)	II (Strength division Property division Material division)	II (Designated items)

7. Markings

7.1 Marking on products The marking on products shall be in accordance with the following:

- (1) The steel nuts shall be in accordance with 6.1 (Marking on products) of JIS B 1052.

- (2) The stainless nuts shall be in accordance with 8.1 (Marking on products) of JIS B 1054.
- (3) The nonferrous metal nuts shall be in accordance with 7.1 (Marking on products) of JIS B 1057.

7.2 Marking on package The package of the nuts shall be marked with the following information:

- (1) Type
- (2) Parts grade (grade of screw thread) ⁽⁷⁾
- (3) Designation of screw thread
- (4) Strength division (for steel nuts), property division (for stainless nuts) or material division (for nonferrous metal nuts). However, those of the hexagon thin nuts – unchamfered shall be omitted.
- (5) Quantity
- (6) Designated items
- (7) Manufacturer's name or its abbreviation ⁽⁸⁾

Notes ⁽⁷⁾ The grade of the screw thread is included in the part grade, however, it shall be indicated in parentheses, as required.

⁽⁸⁾ For the abbreviation of the manufacturer's name, the registered trademark should preferably be used.

Attached Table 1. Cited standards

JIS B 0101 - Glossary of terms relating to fasteners
 JIS B 0123 - Designation of screw threads
 JIS B 0205 - Metric coarse screw threads
 JIS B 0207 - Metric fine screw threads
 JIS B 0209 - Limits of sizes and tolerances for metric coarse screw threads
 JIS B 0211 - Limits of sizes and tolerances for metric fine screw threads
 JIS B 0251 - Limit gauges for metric coarse screw threads
 JIS B 0252 - Limit gauges for metric fine screw threads
 JIS B 0601 - Definitions and designation of surface roughness
 JIS B 0651 - Instruments for the measurement of surface roughness by the stylus method
 JIS B 0659 - Roughness comparison specimens
 JIS B 1021 - Tolerance system for threaded fasteners
 JIS B 1052 - Mechanical properties of steel nuts
 JIS B 1054 - Specification for corrosion-resistant stainless steel fasteners
 JIS B 1057 - Mechanical properties of non-ferrous metal fasteners
 JIS B 1071 - Method of verification for size and geometry of threaded fasteners
 JIS B 1091 - Fasteners - Acceptance inspection (ISO 3269: 1988)

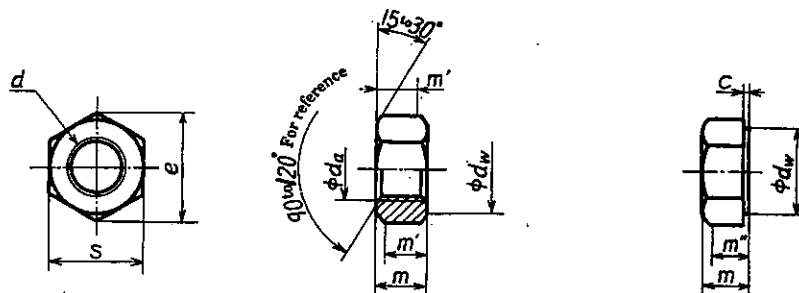
Attached Table 2. Corresponding International Standards

ISO 4032: 1986	Hexagon nuts, style 1 - Product grades A and B
ISO 4033: 1979	Hexagon nuts, style 2 - Product grades A and B
ISO 4034: 1986	Hexagon nuts - Product grade C
ISO 4035: 1986	Hexagon thin nuts (chamfered) - Product grades A and B
ISO 4036: 1979	Hexagon thin nuts - Product grade B (unchamfered)
ISO 8673: 1988	Hexagon nuts, style 1, with metric fine pitch thread - Product grades A and B
ISO 8674: 1988	Hexagon nuts, style 2, with metric fine pitch thread - Product grades A and B
ISO 8675: 1988	Hexagon thin nuts with metric fine pitch thread - Product grades A and B

Attached Table 3. Shapes and dimensions of hexagon nuts
– Style 1 (Parts grade A)

Double chamfered

Washer faced



Unit: mm

Designations of screw threads d	Column I		M1.6	M2	M2.5	M3	—	M4	M5
	Coarse screw threads		—	—	—	—	M3.5	—	—
	Coarse pitch P		0.35	0.4	0.45	0.5	0.6	0.7	0.8
	Fine screw threads		—	—	—	—	—	—	—
	Column II		—	—	—	—	—	—	—
c	max.		0.2	0.2	0.3	0.4	0.4	0.4	0.5
	min.		0.1	0.1	0.1	0.15	0.15	0.15	0.15
d_a	min.		1.6	2	2.5	3	3.5	4	5
	max.		1.84	2.3	2.9	3.45	4	4.6	5.75
d_w	min.		2.27	3.07	4.07	4.57	5.07	5.88	6.88
e	min.		3.41	4.32	5.45	6.01	6.58	7.66	8.79
m	max.		1.3	1.6	2	2.4	2.8	3.2	4.7
	min.		1.05	1.35	1.75	2.15	2.55	2.9	4.4
m'	min.		0.84	1.08	1.4	1.72	2.04	2.32	3.52
m''	min.		0.74	0.95	1.23	1.51	1.79	2.03	3.08
s	Basic dimension = max.		3.2	4	5	5.5	6	7	8
	min.		3.02	3.82	4.82	5.32	5.82	6.78	7.78

Remarks 1. For the designations of screw threads, those given in Column I should be preferred.

The expressing method of the designation of screw thread shall be in accordance with JIS B 0123.

2. The shape of nuts, unless otherwise designated, shall be "double chamfered", and the "washer faced" shall be as designated by the purchaser.

The chamfered dimensions of the upper face of the "washer faced" and threaded part shall be the same dimensions as the "double chamfered".

3. The shapes and dimensions of hexagon nut – style 1 exceeding 16 mm in nominal diameter of thread shall be in accordance with "hexagon nut – style 1 (parts grade B)" of Attached Table 4.

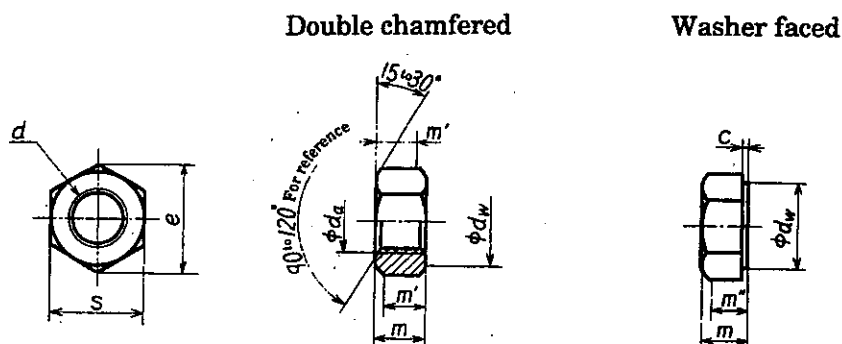
4. The numerical value marked with * agrees with that of ISO 8673: 1988, but it differs from that of ISO 4032: 1986. According to the calculation of JIS B 1021, the numerical value marked with * is right.

5. The minimum values of d_w and m' are those which have been rounded off the calculated values by JIS B 1021 to two places of decimals, and the minimum value of m'' by a calculation formula " m minimum $\times 0.7$ ". These values agree with the numerical values (8 mm or over in nominal diameter) of ISO 8673: 1988, but do not agree with ISO 4032: 1986, since in ISO 4032: 1986, these numerical values have been rounded off to one place of the decimal.

Attached Table 3 (continued)

Unit: mm								
M6	M8	M10	M12	—	M16	Designations of screw threads <i>d</i>	Coarse screw threads	Column I
—	—	—	—	M14	—			Column II
1	1.25	1.5	1.75	2	2		Coarse pitch	<i>P</i>
—	M8×1	M10×1	M12×1.5	—	M16×1.5		Fine screw threads	Column I
—	—	M10×1.25	M12×1.25	M14×1.5	—			Column II
0.5	0.6	0.6	0.6	0.6	0.8	<i>c</i>		max.
0.15	0.15	0.15	0.15	0.15	0.2			min.
6	8	10	12	14	16	<i>d_a</i>		min.
6.75	8.75	10.8	13	15.1	17.3			max.
8.88	11.63	14.63	16.63	19.64	22.49	<i>d_w</i>		min.
11.05	14.38	17.77	20.03	*23.36	26.75	<i>e</i>		min.
5.2	6.8	8.4	10.8	12.8	14.8	<i>m</i>		max.
4.9	6.44	8.04	10.37	12.1	14.1			min.
3.92	5.15	6.43	8.3	9.68	11.28	<i>m'</i>		min.
3.43	4.51	5.63	7.26	8.47	9.87	<i>m''</i>		min.
10	13	16	18	21	24	<i>s</i>	Basic dimension =	max.
9.78	12.73	15.73	17.73	20.67	23.67			

Attached Table 4. Shapes and dimensions of hexagon nut – style 1
(Parts grade B)



Unit: mm

Designations of screw threads d	Column I		—	M20	—	M24	—	M30	—	M36
	Column II		M18	—	M22	—	M27	—	M33	—
	Coarse pitch P		2.5	2.5	2.5	3	3	3.5	3.5	4
	Fine screw threads		Column I	—	M20×1.5	—	M24×2	—	M30×2	—
	Column II		M18×1.5	M20×2	M22×1.5	—	M27×2	—	M33×2	—
c	max.		0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
	min.		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
d_a	min.		18	20	22	24	27	30	33	36
	max.		19.5	21.6	23.7	25.9	29.1	32.4	35.6	38.9
d_w	min.		24.85	27.7	31.35	33.25	38	42.75	46.55	51.11
e	min.		29.56	32.95	37.29	39.55	45.2	50.85	55.37	60.79
m	max.		15.8	18	19.4	21.5	23.8	25.6	28.7	31
	min.		15.1	16.9	18.1	20.2	22.5	24.3	27.4	29.4
m'	min.		12.08	13.52	14.48	16.16	18	19.44	21.92	23.52
m''	min.		10.57	11.83	12.67	14.14	15.75	17.01	19.18	20.58
s	Basic dimension = max.		27	30	34	36	41	46	50	55
	min.		26.16	29.16	33	35	40	45	49	53.8

- Remarks
- For the designations of screw threads, those given in Column I should be preferred.
The expressing method of the designation of screw thread shall be in accordance with JIS B 0123.
 - The shape of nuts, unless otherwise designated, shall be "double chamfered", and the "washer faced" shall be as designated by the purchaser.
The chamfered dimensions of the upper face of the "washer faced" and threaded part shall be the same dimensions as the "double chamfered".
 - The shapes and dimensions of the hexagon nuts – style 1 of which nominal diameters of screw threads are 16 mm or under shall be in accordance with the "hexagon nuts – style 1 (part grade A)" of Attached Table 3.
 - The minimum values of d_w and m' are those which have been rounded off the calculated values by JIS B 1021 to two places of decimals, and the minimum value of m'' by a calculation formula " m minimum $\times 0.7$ ". These values agree with the numerical values of ISO 8673: 1988, but do not agree with ISO 4032: 1986, since in ISO 4032: 1986, these numerical values have been rounded off to one place of the decimal.

Attached Table 4 (continued)

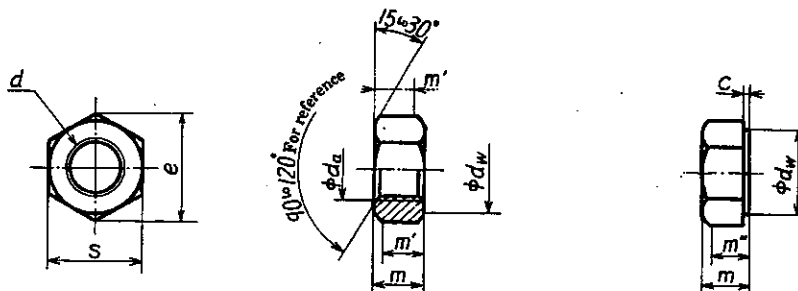
Unit: mm

—	M42	—	M48	—	M56	—	M64	Designations of screw threads <i>d</i>	Column I
M39	—	M45	—	M52	—	M60	—		Coarse screw threads
4	4.5	4.5	5	5	5.5	5.5	6		Column II
—	M42×3	—	M48×3	—	M56×4	—	M64×4		Coarse pitch <i>P</i>
M39×3	—	M45×3	—	M52×4	—	M60×4	—	Designations of screw threads <i>d</i>	Column I
1	1	1	1	1	1	1	1	<i>c</i>	max.
0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3		min.
39	42	45	48	52	56	60	64	<i>d_a</i>	min.
42.1	45.4	48.6	51.8	56.2	60.5	64.8	69.1		max.
55.86	59.95	64.7	69.45	74.2	78.66	83.41	88.16	<i>d_w</i>	min.
66.44	71.3	76.95	82.6	88.25	93.56	99.21	104.86	<i>e</i>	min.
33.4	34	36	38	42	45	48	51	<i>m</i>	max.
31.8	32.4	34.4	36.4	40.4	43.4	46.4	49.1		min.
25.44	25.92	27.52	29.12	32.32	34.72	37.12	39.28	<i>m'</i>	min.
22.26	22.68	24.08	25.48	28.28	30.38	32.48	34.37	<i>m''</i>	min.
60	65	70	75	80	85	90	95	<i>s</i>	Basic dimension = max.
58.8	63.1	68.1	73.1	78.1	82.8	87.8	92.8		min.

Attached Table 5. Shapes and dimensions of hexagon nuts
— style 2 (Parts grade A)

Double chamfered

Washer faced

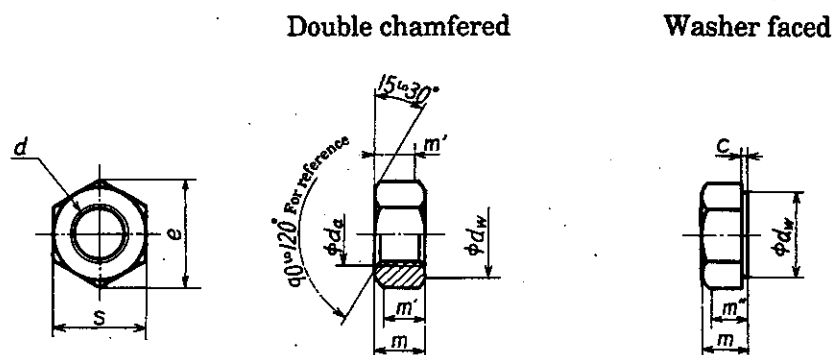


Unit: mm

Designations of screw threads d	Coarse screw threads	Column I	M5	M6	M8	M10	M12	—	M16
		Column II	—	—	—	—	—	M14	—
	Coarse pitch	P	0.8	1	1.25	1.5	1.75	2	2
	Fine screw threads	Column I	—	—	M8×1	M10×1	M12×1.5	—	M16×1.5
		Column II	—	—	—	M10×1.25	M12×1.25	M14×1.5	—
c	max.		0.5	0.5	0.6	0.6	0.6	0.6	0.8
	min.		0.15	0.15	0.15	0.15	0.15	0.15	0.2
d_a	min.		5	6	8	10	12	14	16
	max.		5.75	6.75	8.75	10.8	13	15.1	17.3
d_w	min.		6.88	8.88	11.63	14.63	16.63	19.64	22.49
e	min.		8.79	11.05	14.38	17.77	20.03	*23.36	26.75
m	max.		5.1	5.7	7.5	9.3	12	14.1	16.4
	min.		4.8	5.4	7.14	8.94	11.57	13.4	15.7
m'	min.		3.84	4.32	5.71	7.15	9.26	10.72	12.56
m''	min.		3.36	3.78	5	6.26	8.1	9.38	10.99
s	Basic dimension = max.		8	10	13	16	18	21	24
	min.		7.78	9.78	12.73	15.73	17.73	20.67	23.67

- Remarks
- For the designations of screw threads, those given in Column I should be preferred.
The expressing method of the designation of screw thread shall be in accordance with JIS B 0123.
 - The shape of nuts, unless otherwise designated, shall be "double chamfered", and the "washer faced" shall be as designated by the purchaser.
The chamfered dimensions of the upper face of the "washer faced" and threaded part shall be the same dimensions as the "double chamfered".
 - The shapes and dimensions of the hexagon nuts — style 2 of which nominal diameters of screw threads are exceeding 16 mm, shall be in accordance with the "hexagon nuts — style 2 (parts grade B) of Attached Table 6.
 - The numerical value marked with * agrees with ISO 8674: 1988, but differs from ISO 4033: 1979. According to the calculation by JIS B 1021, the numerical value marked with * is right.
 - The minimum values of d_w and m' are those which have been rounded off the calculated values by JIS B 1021 to two places of decimals. These values agree with the numerical values (8 mm or over in nominal diameter) of ISO 8674: 1988, but those of the nominal diameters of all of the d_w of ISO 4033: 1979 and those of 14 mm or over in nominal diameter of m' do not agree with ISO 4033: 1979, since these numerical values have been rounded off to one place of decimal.
 - The minimum values of m'' shall be those which have been rounded off the calculated values by a calculation formula " m'' minimum $\times 0.7$ " to two places of decimals. These agree with the numerical value of ISO 8674: 1988 (8 mm or over in nominal diameter), but ISO 4033: 1979 has not specified the minimum value of m'' .

Attached Table 6. Shapes and dimensions of hexagon nuts
— style 2 (Parts grade B)

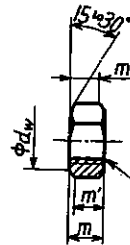
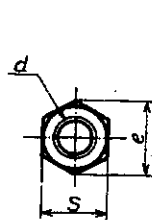


Unit: mm

Designations of screw threads d	Column I		Column II		Column I		Column II		Column I	
	Coarse screw threads		Coarse pitch		Fine screw threads		Fine pitch		Fine pitch	
	—		—		—		—		—	
	—		—		—		—		—	
c	max.	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
	min.	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
d_a	min.	18	20	22	24	27	30	33	36	36
	max.	19.5	21.6	23.7	25.9	29.1	32.4	35.6	38.9	38.9
d_w	min.	24.85	27.7	31.35	33.25	38	42.75	46.55	51.11	51.11
e	min.	29.56	32.95	37.29	39.55	45.2	50.85	55.37	60.79	60.79
m	max.	17.6	20.3	21.8	23.9	26.7	28.6	32.5	34.7	34.7
	min.	16.9	19	20.5	22.6	25.4	27.3	30.9	33.1	33.1
m'	min.	13.52	15.2	16.4	18.08	20.32	21.84	24.72	26.48	26.48
m''	min.	11.83	13.3	14.35	15.82	17.78	19.11	21.63	23.17	23.17
s	Basic dimension = max.	27	30	34	36	41	46	50	55	55
	min.	26.16	29.16	33	35	40	45	49	53.8	53.8

- Remarks
- For the designations of screw threads, those given in Column I should be preferred.
The expressing method of the designation of screw thread shall be in accordance with JIS B 0123.
 - The shape of nuts, unless otherwise designated, shall be "double chamfered", and the "washer faced" shall be as designated by the purchaser.
The chamfered dimensions of the upper face of the "washer faced" and threaded part shall be the same dimensions as the "double chamfered".
 - The shapes and dimensions of the hexagon nuts — style 1 of 16 mm or under in nominal diameter of screw thread shall be in accordance with the "hexagon nuts — style 2 (parts grade A)" of Attached Table 5.
 - Among the designations of screw thread, the sizes which have been processed with half-tone dot mesh () in coarse screw threads Column II and Column of coarse pitch, have not been specified in ISO 4033: 1979. The dimensions of respective parts for these designations agree with ISO 8674: 1988.
 - The minimum values of d_w and m' are those which have been rounded off the calculated values by JIS B 1021 to two places of decimals. These values agree with the numerical values of ISO 8674: 1988, but those of the nominal diameters of all of the d_w of ISO 4033: 1979 and those of 14 mm or over in nominal diameter of m' do not agree with ISO 4033: 1979, since these numerical values have been rounded off to one place of decimal.
 - The minimum values of m'' shall be those which have been rounded off the calculated values by a calculation formula " m minimum $\times 0.7$ " to two places of decimals. These agree with the numerical value of ISO 8674: 1988, but ISO 4033: 1979 has not specified the minimum value of m'' .

Attached Table 7. Shapes and dimensions of hexagon nuts (Parts grade C)



The chamfering at the threaded part may be optional. However, the leading onto the external thread shall be excellent.

Unit: mm

Designations of screw threads d	Coarse screw threads	Column I	M5	M6	M8	M10	M12	—	M16	—
		Column II	—	—	—	—	—	M14	—	M18
	Coarse pitch	P	0.8	1	1.25	1.5	1.75	2	2	2.5
d_w	min.		6.7	8.7	11.5	14.5	16.5	19.2	22	24.9
e	min.		8.63	10.89	14.20	17.59	19.85	22.78	26.17	29.56
m	max.		5.6	6.1	7.9	9.5	12.2	13.9	15.9	16.9
	min.		4.4	4.6	6.4	8	10.4	12.1	14.1	15.1
m'	min.		3.5	3.7	5.1	6.4	8.3	9.7	11.3	12.1
s	Basic dimension = max.		8	10	13	16	18	21	24	27
	min.		7.64	9.64	12.57	15.57	17.57	20.16	23.16	26.16

Unit: mm

Designations of screw threads d	Coarse screw threads	Column I	M42	—	M48	—	M56	—	M64
		Column II	—	M45	—	M52	—	M60	—
	Coarse pitch	P	4.5	4.5	5	5	5.5	5.5	6
d_w	min.		60	64.7	69.5	74.2	78.7	83.4	88.2
e	min.		*71.3	76.95	82.6	88.25	93.56	99.21	104.86
m	max.		34.9	36.9	38.9	42.9	45.9	48.9	52.4
	min.		32.4	34.4	36.4	40.4	43.4	46.4	49.4
m'	min.		25.9	27.5	29.1	32.3	34.7	37.1	39.5
s	Basic dimension = max.		65	70	75	80	85	90	95
	min.		63.1	68.1	73.1	78.1	82.8	87.8	92.8

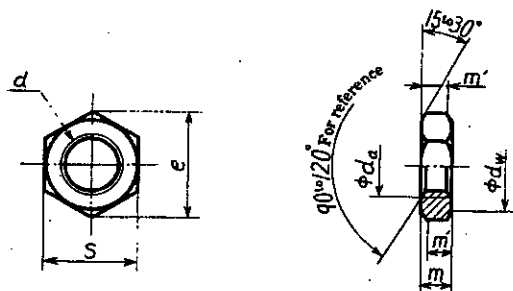
- Remarks
1. For the designation of screw threads, those given in the Column I should be preferable. The method of expression of the designation of screw thread shall be in accordance with JIS B 0123.
 2. The numerical values marked with * are different from ISO 4034: 1986. In the calculation by JIS B 1021, the numerical values marked with * are right.

Attached Table 7 (continued)

Unit: mm

M20	—	M24	—	M30	—	M36	—	Designations of screw threads d	Coarse screw threads	Column I
—	M22	—	M27	—	M33	—	M39			Column II
2.5	2.5	3	3	3.5	3.5	4	4		Coarse pitch	P
27.7	31.4	33.3	38	42.8	46.6	51.1	55.9	d_w		min.
32.95	37.29	39.55	45.2	50.85	55.37	60.79	66.44	e		min.
19	20.2	22.3	24.7	26.4	29.5	31.5	34.3	m		max.
16.9	18.1	20.2	22.6	24.3	27.4	*29	31.8			min.
13.5	14.5	16.2	18.1	*19.4	21.9	*23.2	25.4	m'		min.
30	34	36	41	46	50	55	60	s	Basic dimension =	max.
29.16	33	35	40	45	49	53.8	58.8			min.

Attached Table 8. Shape and dimensions of hexagon thin nuts
— double chamfered (Parts grade A)



Unit: mm

Designations of screw threads d	Coarse screw threads	Column I	M1.6	M2	M2.5	M3	—	M4	M5
		Column II	—	—	—	—	M3.5	—	—
	Coarse pitch	P	0.35	0.4	0.45	0.5	0.6	0.7	0.8
	Fine screw threads	Column I	—	—	—	—	—	—	—
		Column II	—	—	—	—	—	—	—
d_a	min.	1.6	2	2.5	3	3.5	4	5	
	max.	1.84	2.3	2.9	3.45	4	4.6	5.75	
d_w	min.	2.27	3.07	4.07	4.57	5.07	5.88	6.88	
e	min.	3.41	4.32	5.45	6.01	6.58	7.66	8.79	
m	max.	1	1.2	1.6	1.8	2	2.2	2.7	
	min.	0.75	0.95	1.35	1.55	1.75	1.95	2.45	
m'	min.	0.6	0.76	1.08	1.24	1.4	1.56	1.96	
s	Basic dimension = max.	3.2	4	5	5.5	6	7	8	
	min.	3.02	3.82	4.82	5.32	5.82	6.78	7.78	

Remarks 1. For the designation of the screw threads, those of Column I shall be preferred.

The expressing method of the designation of screw threads shall be in accordance with JIS B 0123.

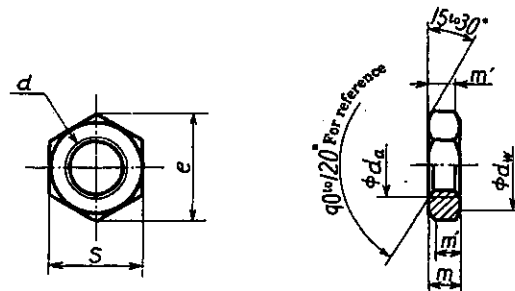
- The shapes and dimensions of the "hexagon thin nuts — double chamfered" of 18 mm or over in nominal diameter of screw threads shall be in accordance with the "hexagon thin nuts — double chamfered (Parts grade B)" of Attached Table 9.
- The numerical value marked with * is different from ISO 4035: 1986. In the calculation in accordance with JIS B 1021, the numerical value marked with * is right.
- The minimum values of d_w and m' shall be those which have been rounded off the calculated values by JIS B 1021 to two places of decimals. These values agree with the numerical values (8 mm or over in nominal diameter) of ISO 8675: 1988, however, as these numerical values have been rounded off to one place of decimal, these shall not agree with ISO 4035: 1986.

Attached Table 8 (continued)

Unit: mm

M6	M8	M10	M12	—	M16	Designations of screw threads d	Column I
—	—	—	—	M14	—		Coarse screw threads
1	1.25	1.5	1.75	2	2		Column II
—	M8×1	M10×1	M12×1.5	—	M16×1.5		Coarse pitch P
—	—	M10×1.25	M12×1.25	M14×1.5	—	Designations of screw threads d	Column I
—	—	M10×1.25	M12×1.25	M14×1.5	—		Fine screw threads
6	8	10	12	14	16	d_a	min.
6.75	8.75	10.8	13	15.1	17.3		max.
8.88	11.63	14.63	16.63	19.64	22.49	d_w	min.
11.05	14.38	17.77	20.03	*23.36	26.75	e	min.
3.2	4	5	6	7	8	m	max.
2.9	3.7	4.7	5.7	6.42	7.42		min.
2.32	2.96	3.76	4.56	5.14	5.94	m'	min.
10	13	16	18	21	24	s	Basic dimension = max.
9.78	12.73	15.73	17.73	20.67	23.67		min.

Attached Table 9. Shapes and dimensions of hexagon thin nuts
- double chamfered (Parts grade B)



Unit: mm

Designations of screw threads d	Column I		M20	—	M24	—	M30	—	M36
	Coarse screw threads		—	M18	—	M22	—	M27	—
	Column II		M18	—	M22	—	M27	—	M33
	Coarse pitch P		2.5	2.5	2.5	3	3	3.5	3.5
Fine screw threads	Column I		—	M20×1.5	—	M24×2	—	M30×2	—
	Column II		M18×1.5	M20×2	M22×1.5	—	M27×2	—	M33×2
d_a	min.		18	20	22	24	27	30	33
	max.		19.5	21.6	23.7	25.9	29.1	32.4	35.6
d_w	min.		24.85	27.7	31.35	33.25	38	42.75	46.55
e	min.		29.56	32.95	37.29	39.55	45.2	50.85	55.37
m	max.		9	10	11	12	13.5	15	16.5
	min.		8.42	9.1	9.9	10.9	12.4	13.9	15.4
m'	min.		6.74	7.28	7.92	8.72	9.92	11.12	12.32
s	Basic dimension = max.		27	30	34	36	41	46	50
	min.		26.16	29.16	33	35	40	45	49

Remarks 1. For the designations of screw threads, those of Column I should be preferred.

The expressing method of the designation of screw threads shall be in accordance with JIS B 0123.

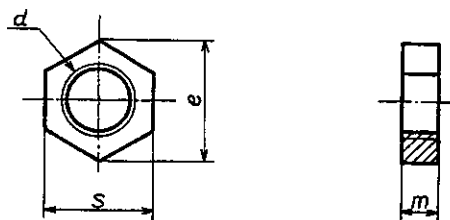
- The shape and dimensions of the "hexagon thin nuts - double chamfered" of 16 mm or under in nominal diameter of screw thread shall be in accordance with the "hexagon thin nuts - double chamfered (Parts grade A)" of Attached Table 8.
- The minimum values of d_w and m' are those which have been rounded off the calculated values in accordance with JIS B 1021 to two places of decimals. These values agree with the numerical values of ISO 8675: 1988, but do not agree with ISO 4035: 1986, since in ISO 4035: 1986 these numerical values have rounded off to one place of the decimal.

Attached Table 9 (continued)

Unit: mm

—	M42	—	M48	—	M56	—	M64	Designations of screw threads <i>d</i>	Coarse screw threads	Column I
M39	—	M45	—	M52	—	M60	—			Column II
4	4.5	4.5	5	5	5.5	5.5	6		Coarse pitch	<i>P</i>
—	M42×3	—	M48×3	—	M56×4	—	M64×4		Fine screw threads	Column I
M39×3	—	M45×3	—	M52×4	—	M60×4	—			Column II
39	42	45	48	52	56	60	64	<i>d_a</i>		min.
42.1	45.4	48.6	51.8	56.2	60.5	64.8	69.1			max.
55.86	59.95	64.7	69.45	74.2	78.66	83.41	88.16	<i>d_w</i>		min.
66.44	71.3	76.95	82.6	88.25	93.56	99.21	104.86	<i>e</i>		min.
19.5	21	22.5	24	26	28	30	32	<i>m</i>		max.
18.2	19.7	21.2	22.7	24.7	26.7	28.7	30.4			min.
14.56	15.76	16.96	18.16	19.76	21.36	22.96	24.32	<i>m'</i>		min.
60	65	70	75	80	85	90	95	<i>s</i>	Basic dimension = max.	
58.8	63.1	68.1	73.1	78.1	82.8	87.8	92.8			min.

Attached Table 10. Shapes and dimensions of hexagon thin nuts
— unchamfered (Parts grade B)



Unit: mm

Designations of screw threads <i>d</i>	Coarse screw threads	Column I	M1.6	M2	M2.5	M3	—	M4	M5	M6	M8	M10
		Column II	—	—	—	—	M3.5	—	—	—	—	—
	Coarse pitch	<i>P</i>	0.35	0.4	0.45	0.5	0.6	0.7	0.8	1	1.25	1.5
<i>e</i>	min.		3.28	4.18	5.31	*5.88	6.44	7.50	8.63	10.89	14.20	17.59
<i>m</i>	max.		1	1.2	1.6	1.8	2	2.2	2.7	3.2	4	5
	min.		0.6	0.8	1.2	1.4	1.6	1.8	2.3	2.72	3.52	4.52
<i>s</i>	max.		3.2	4	5	5.5	6	7	8	10	13	16
	min.		2.9	3.7	4.7	5.2	5.7	6.64	7.64	9.64	12.57	15.57

Remarks 1. For the designations of screw threads, those of Column I should be preferred.

The expressing method of the designation of screw threads shall be in accordance with JIS B 0123.

2. The numerical value marked with * is different from ISO 4036: 1979. In the calculation in accordance with JIS B 1021, the numerical value marked with * is right.

**Appendix Hexagon nuts which are not based on ISO 4032 to 4036
and ISO 8673 to 8675**

1. **Scope** This Appendix specifies the hexagon nuts made of steel (hereafter referred to as the "steel nuts"), hexagon nuts made of stainless steel (hereafter referred to as the "stainless nuts") and hexagon nuts made of nonferrous metal (hereafter referred to as the "nonferrous metal nuts") which are not based on ISO 4032 to 4036 and ISO 8673 to 8675.

Furthermore, the strength division 4T to 12T of mechanical properties specified in this Appendix shall be abolished in the future and the mechanical properties in the text of JIS B 1052 shall be introduced.

Remarks: When the steel nuts, stainless nuts and nonferrous metal nuts are named generically in this Appendix, these are to be called the "nuts" simply.

2. **Types** The types of the nuts shall be classified by the ratios of width across flats (s) to the nominal diameter (d) of screw threads, and further shall be distinguished as given in Appendix Table 1 according to the differences of the shapes.

Appendix Table 1

Classification	s/d	Distinction by shape
Hexagon nuts ⁽¹⁾	1.45 or over ⁽²⁾	Class 1, Class 2, Class 3, Class 4
Small hexagon nuts	Under 1.45 ⁽³⁾	Class 1, Class 2, Class 3, Class 4

Notes ⁽¹⁾ When required to distinguish from small ones, this is to be called "regular hexagon nut".

⁽²⁾ The hexagon nuts $M76 \times 6$ or over (except $M100 \times 6$) are exceptions and s/d thereof is under 1.45.

⁽³⁾ The small hexagon nuts M8 are exceptions and s/d thereof is 1.45 or over.

3. **Grades** The grades of the nuts shall be those which have combined the degree of finish, grade of screw thread and strength division of mechanical properties given in Appendix Table 2, classified according to the materials of products.

Appendix Table 2

Type	Division by material	Grade		
		Degree of finish	Grade of screw threads ⁽⁴⁾	Strength division of mechanical properties ⁽⁵⁾
Hexagon nut	Steel (For Class 1, Class 2, and Class 4 of 39 mm or under in nominal diameter of screw threads)	Finished	5H	4T, 5T, 6T, 8T, 10T, 12T
	Steel (For Class 3 of 39 mm or under and 42 mm or over in nominal diameter of screw threads)	Semi-finished	6H	—
	Stainless steel	Regular	7H	—
	Nonferrous metal			
Small hexagon nut	Steel (For Class 1, Class 2 and Class 4)	Finished	5H	4T, 5T, 6T, 8T
	Steel (For Class 3)	Semi-finished	6H	—
	Stainless steel		7H	
	Nonferrous metal		7H	

Notes ⁽⁴⁾ The grades of the screw threads shall be in accordance with the text of JIS B 0209 and JIS B 0211.

Unless otherwise specified, 6H shall be taken.

⁽⁵⁾ The strength division shall be in accordance with the Appendix of JIS B 1052.

4. Mechanical properties

4.1 Mechanical properties of steel nuts The mechanical properties of the steel nuts shall be in accordance with the following:

- (1) Mechanical properties of 39 mm or under in nominal diameter of screw thread The mechanical properties for the steel nuts (Except Class 3.) of 39 mm or under in nominal diameter of screw thread shall be in accordance with the strength division of mechanical properties in Appendix of JIS B 1052. However, the strength division for the types of nuts shall be in accordance with Appendix Table 3.

Appendix Table 3

Type	Strength division	Applicable standard
Hexagon nut	4T, 5T, 6T, 8T, 10T, 12T	Appendix of JIS B 1052
Small hexagon nut	4T, 5T, 6T, 8T	

- (2) Mechanical properties of 42 mm or over in nominal diameter of screw thread The mechanical properties for the steel nuts of 42 mm or over in nominal diameter of screw thread shall be as agreed between the parties concerned.
- (3) Mechanical properties of Class 3 steel nuts The mechanical properties of the Class 3 steel nuts shall be as agreed between the parties concerned. In this case, unless particularly impedimental, it should be preferable to apply the strength division of the thin nut of the text of JIS B 1052.

4.2 Mechanical properties of stainless nuts The mechanical properties of the stainless nuts shall be as agreed between the parties concerned.

4.3 Mechanical properties of nonferrous metal nuts The mechanical properties of the nonferrous metal nuts shall be as agreed between the parties concerned.

5. Shapes and dimensions The shapes and dimensions of the nuts shall be in accordance with Appendix Table 4.

Appendix Table 4

Type	Degree of finish ⁽⁶⁾	Shape and dimension	Range of nominal diameter mm
Hexagon nut	Finished	In accordance with Appendix Attached Table 1-1	2 to 130
	Semi-finished	In accordance with Appendix Attached Table 1-2	
	Regular	In accordance with Appendix Attached Table 1-3	
Small hexagon nut	Finished	In accordance with Appendix Attached Table 2-1	8 to 39
	Semi-finished	In accordance with Appendix Attached Table 2-2	

Note ⁽⁶⁾ As for the degree of finish, refer to 9.

6. Screw threads The screw threads of nuts shall comply with Appendix Table 5-1 and their pitches with Appendix Table 5-2.

Further, the electroplated screw thread shall also be within the permissible limit for each grade specified in Appendix Table 5-1. However, the precision of hot-dipped screw thread shall be as agreed between the parties concerned.

Appendix Table 5-1

Type of nut	Screw threads	
	Kind	Grade
Hexagon nut	JIS B 0205	5H, 6H, 7H in the text of JIS B 0209
Small hexagon nut	JIS B 0207	5H, 6H, 7H in the text of JIS B 0211

Appendix Table 5-2

Unit: mm

Nominal diameter of screw thread		2	(2.2)	2.5	3	(3.5)	4	(4.5)	5	6	(7)	8	10	12	(14)	16	(18)	20
Pitches <i>P</i>	Coarse	0.4	0.45	0.45	0.5	0.6	0.7	0.75	0.8	1	1	1.25	1.5	1.75	2	2	2.5	2.5
	Fine	—	—	—	—	—	—	—	—	—	—	1	1.25	1.25	1.5	1.5	1.5	1.5

Nominal diameter of screw thread		(22)	24	(27)	30	(33)	36	(39)	42	(45)	48	(52)	56	(60)	64	(68)	72	(76)
Pitches <i>P</i>	Coarse	2.5	3	3	3.5	3.5	4	4	4.5	4.5	5	5	5.5	5.5	6	6	—	—
	Fine	1.5	2	2	2	2	3	3	—	—	—	—	—	—	—	—	6	6

Nominal diameter of screw thread	80	(85)	90	(95)	100	(105)	110	(115)	(120)	125	(130)
Pitches	Coarse	—	—	—	—	—	—	—	—	—	—
P	Fine	6	6	6	6	6	6	6	6	6	6

Remarks 1. The nominal diameter of screw thread shown in parentheses should, preferably, not be used.

2. When pitches for fine screw thread other than those given in Appendix Table 5-2 are required, the pitches specified in JIS B 0207 may be used.

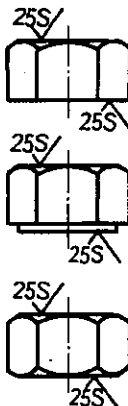
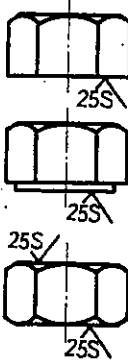
7. Surface defects The standard of the permissible limits for surface defects of the nuts, unless otherwise specified, should be as in the Informative reference of JIS B 0101.

8. Surface treatment The nuts shall generally not be processed with surface treatment. Particularly, when the surface treatment of plating or the like is required, it shall be designated by the purchaser.

Furthermore, the steel nuts processed with electroplating shall be subjected to the brittleness removing treatment, if required.

9. Degree of finish The degree of finish for nuts shall comply with Appendix Table 6.

Appendix Table 6

Division	Degree of finish
Finished	 The surface roughness (7) of upper and bearing surfaces shall be 25S and the shapes and dimensions shall comply with Appendix Attached Table 1-1 or Appendix Attached Table 2-1.
Semi-finished	 The surface roughness (7) of bearing surface (for Class 2 and Class 3, upper surfaces are also included) becomes 25S and the shapes and dimensions shall comply with Appendix Attached Table 1-2 or Appendix Attached Table 2-2.
Regular	 The surface roughness shall not be specified particularly, but the shape and dimensions shall comply with Appendix Attached Table 1-3.

Note (7) The surface roughness shall comply with JIS B 0601.

Further, if the surface roughness complies with Appendix Table 6, the staining colours due to heat treatment on the surface may be allowed to remain.

10. Materials The materials of the nuts shall be in accordance with the following:

- (1) As regards the material for the steel nuts of those of 39 mm or under in nominal diameter of screw thread (Except the steel nuts of Class 3.), the products shall comply with the strength division of the mechanical properties of 4.1 (1).

Furthermore, when the strength division of the thin nuts of the text of JIS B 1052 has been applied to Class 3 steel nuts of 39 mm or under in nominal diameter of screw threads, the material should preferably comply with JIS B 1052.

- (2) The materials of the stainless nuts, nonferrous metal nuts, steel nuts of Class 3 (Except those which have applied the strength division of the thin nuts in the text of JIS B 1052) and the steel nuts of M42 or over shall be as agreed between the parties concerned.

11. Inspection

11.1 Inspection on mechanical properties

11.1.1 Inspection of mechanical properties of steel nuts The inspection on mechanical properties of steel nuts shall be in accordance with the following:

- (1) Inspection on mechanical properties of 39 mm or under in nominal diameter of screw thread Inspection on mechanical properties for the steel nuts of 39 mm or under in nominal diameter of screw thread (Except Class 3) shall be carried out in accordance with Appendix Table 7, and the results shall satisfy the strength division of mechanical properties of 4.1 (1).

Appendix Table 7

Mechanical properties to be inspected	Test method
Guaranteed load stress	In accordance with 4.2 of Appendix of JIS B 1052.
Hardness	In accordance with 4.3 of Appendix of JIS B 1052.

Remarks 1. When the guaranteed load exceeds 343 kN, the guaranteed load test by 4.2 (guaranteed load inspection) of Appendix of JIS B 1052 may be omitted, however, when the minimum hardness has been determined upon agreement between the parties concerned, its value shall be satisfied.

2. The hardness shall either be the Brinell hardness or Rockwell hardness, and when the other hardness is employed, it shall be as agreed between the parties concerned.

- (2) Inspection on mechanical properties of 42 mm or over in nominal diameter of screw thread The inspection on mechanical properties for the steel nuts of 42 mm or over in nominal diameter of screw thread shall be as agreed between the parties concerned.
- (3) Inspection on mechanical properties of Class 3 steel nuts The inspection on mechanical properties of Class 3 steel nuts shall be as agreed between the parties concerned.

Furthermore, the strength division of the thin nuts of the text of JIS B 1052 has been applied to the inspection on mechanical properties of the Class 3 steel nuts, it should be preferable inspect in accordance with the Standard.

11.1.2 Inspection on mechanical properties of stainless nuts The inspection on mechanical properties of the stainless nuts shall be as agreed between the parties concerned.

11.1.3 Inspection on mechanical properties of nonferrous metal nuts The inspection on mechanical properties of the nonferrous metal nuts shall be as agreed between the parties concerned.

11.2 Inspection on shapes and dimensions The inspection on shapes and dimensions shall be carried out by the measuring method of JIS B 1071 or the method instead of this, and the results shall conform to 5.

11.3 Inspection on screw thread The inspection of the screw thread shall be carried out by the limit gauge for screw thread of JIS B 0251 or JIS B 0252 or by screw-thread inspection devices instead of this, and the results shall conform to 6.

11.4 Inspection on surface conditions The inspection on surface conditions shall be carried out by visual inspection, and the results shall conform to 7. and 9. However, the surface roughness shall be inspected using the surface-roughness standard pieces (See JIS B 0659) or surface-roughness measuring instrument (See JIS B 0651).

11.5 Acceptance inspection The sampling inspection system for the lot at the time of acceptance shall be as agreed between the parties concerned.

12. Designation The nuts shall be designated by the number of standard ⁽⁸⁾, type, distinction of shape, degree of finish, designation of screw thread, grade of screw thread, strength division of mechanical properties ⁽⁹⁾, material and designated items ⁽¹⁰⁾. However, the material shall be omitted from those which have applied JIS B 1052 and JIS B 1054, and the strength division of the mechanical properties from those of others.

Notes ⁽⁸⁾ The number of standard may be omitted unless particularly required.

⁽⁹⁾ When the property division of JIS B 1054 is applied to the stainless nuts, this shall be treated in the same manner as the strength division.

⁽¹⁰⁾ As regards the designated items, such as the height of the nut equal to the outer diameter of the screw thread (m), width across flats corresponding to the next larger size (s) and the type of surface treatment shall be indicated as required.

Examples:

(For steel nuts M39 or under except Class 3)	JIS B 1181	Hexagon nuts	Class 2	Finished	M 8	-6 H	-4 T		
(For steel nuts Class 3)	JIS B 1181	Small hexagon nuts	Class 3	Finished	M 8	-6 H		S 12 C	(Ep-Fe/Zn 5/CM 2)
(For steel nuts M42 or over)	(Omitted)	Hexagon nuts	Class 4	Regular	M 42	-7 H		SS 41	(m = 42)
(For stainless nuts applied with JIS B 1054)	(Omitted)	Hexagon nuts	Class 1	Finished	M 10 × 1.25	-6 H	-A1-50		
(For brass nuts)	(Omitted)	Hexagon nuts	Class 2	Finished	M 3	-6 H		C 2700	
	 (JIS No.)	 (Type)	 (Class of shape)	 (Degree of finish)	 (Nominal designation of screw thread)	 (Grade of screw thread)	 (Strength division or property division)	 (Material)	 (Designated items)

13. Marking**13.1 Marking on product** The marking on the products shall be as follows:

- (1) The marking on products of steel nuts of 39 mm or under in nominal diameter of screw thread (Except Class 3) shall be in accordance with 5. of Appendix in JIS B 1052.
- (2) When the strength division of thin nuts in the text of JIS B 1052 is applied to Class 3 steel nuts of 39 mm or under in nominal diameter of screw thread, the marking on the products shall be in accordance with 6.1 in the text of JIS B 1052.
- (3) When the property division of JIS B 1054 is applied to stainless nuts, the marking on the products shall be in accordance with 8.1 of JIS B 1054.

13.2 Marking on package Packages shall be marked following particulars on their outer surfaces.

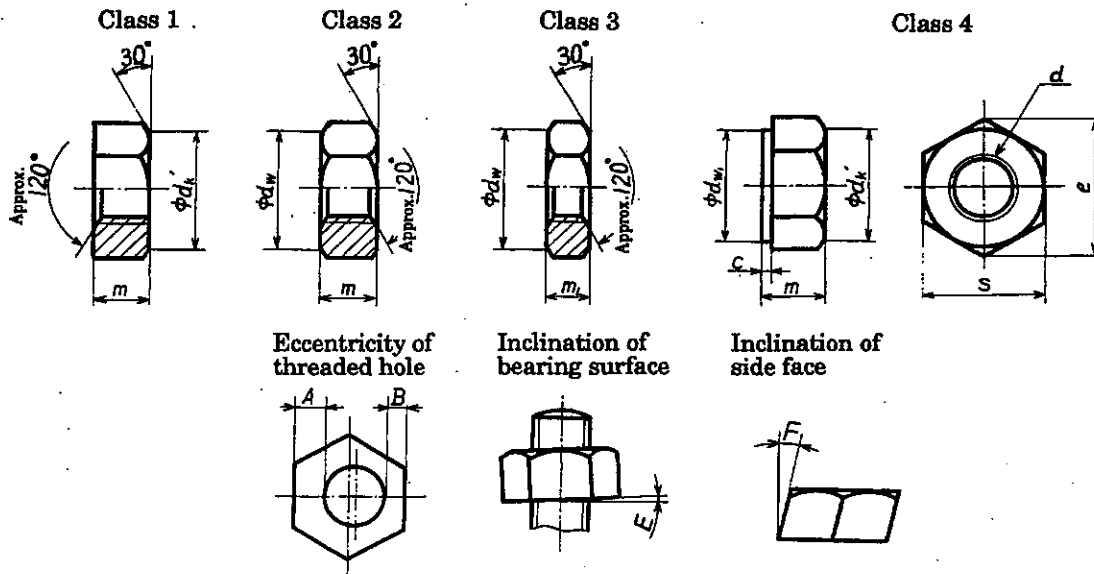
- (1) Type
- (2) Division of shape
- (3) Degree of finish
- (4) Designation of screw thread
- (5) Grade of screw thread
- (6) Strength division (For the steel nuts to which JIS B 1052 has been applied.) or property division (For the stainless nuts to which JIS B 1054 has been applied).
- (7) Material ⁽¹¹⁾
- (8) Quantity and designated items

(9) Manufacturer's name or its abbreviation

Note ⁽¹¹⁾ The marking of the material shall be carried out on the stainless nuts (Except those to which JIS B 1054 has been applied.), nonferrous metal nuts, steel nuts of Class 3 (Except those to which JIS B 1052 has been applied.) and the steel nuts of 42 mm or over in nominal diameter of screw thread, and for other nuts it shall generally be omitted.

The marking of material may also be by the general name of material.

Appendix Attached Table 1-1. Hexagon nuts – finished



Unit: mm

Nominal designation of screw thread (d)		m		m ₁		s		e	d _k ' and d _w	d _{w1}	c	A-B	E and F
Coarse	Fine	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Approx.	Approx.	Min.	Approx.	Max.	Max.
M2	—	1.6	0 -0.25	1.2	0 -0.25	4	0 -0.2	4.6	3.8	—	—	0.2	1°
(M2,2)	—	1.8		1.4		4.5		5.2	4.3			0.2	
M2.5	—	2		1.6		5		5.8	4.7			0.2	
M3	—	2.4		1.8		5.5		6.4	5.3			0.2	
(M3,5)	—	2.8		2		6		6.9	5.8			0.2	
M4	—	3.2	0 -0.30	2.4		7		8.1	6.8			0.2	
(M4,5)	—	3.6		2.8		8		9.2	7.8			0.3	
M5	—	4		3.2	0 -0.3	8		9.2	7.8	7.2	0.4	0.3	
M6	—	5		3.6		10		11.5	9.8	9	0.4	0.3	
(M7)	—	5.5		4.2		11	0 -0.25	12.7	10.8	10	0.4	0.4	
M8	M8×1	6.5	0 -0.36	5		13		15	12.5	11.7	0.4	0.4	
M10	M10×1,25	8		6		17		19.6	16.5	15.8	0.4	0.5	
M12	M12×1,25	10		7	0 -0.36	19	0 -0.35	21.9	18	17.6	0.6	0.5	
(M14)	(M14×1.5)	11	0 -0.43	8		22		25.4	21	20.4	0.6	0.7	
M16	M16×1.5	13		10		24		27.7	23	22.3	0.6	0.8	
(M18)	(M18×1.5)	15		11	0 -0.43	27		31.2	26	25.6	0.6	0.8	
M20	M20×1.5	16		12		30		34.6	29	28.5	0.6	0.9	
(M22)	(M22×1.5)	18		13		32	0 -0.4	37	31	30.4	0.6	0.9	
M24	M24×2	19	0 -0.52	14		36		41.6	34	34.2	0.6	1.1	
(M27)	(M27×2)	22		16		41		47.3	39	—	—	1.3	
M30	M30×2	24		18		46		53.1	44			1.5	
(M33)	(M33×2)	26		20	0 -0.52	50		57.7	48			1.6	

Appendix Attached Table 1-1 (continued)

Unit: mm

Nominal designation of screw thread (d)		m		m ₁		s		e	d _s ' and d _w	d _{w1}	c	A-B	E and F
Coarse	Fine	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Approx.	Approx.	Min.	Approx.	Max.	Max.
M36	M36×3	29	0 -0.52	21	0 -0.52	55	0 -0.45	63.5	53	—	—	1.8	1°
(M39)	(M39×3)	31	0 -0.62	23	0 -0.62	60	0 -0.45	69.3	57	—	—	2	
M42	—	34		25		65		75	62			2.1	
(M45)	—	36		27		70		80.8	67			2.3	
M48	—	38		29		75		86.5	72			2.4	
(M52)	—	42		31		80		92.4	77			2.6	
M56	—	45	0 -0.62	34	0 -0.62	85	0 -0.55	98.1	82	—	—	2.8	
(M60)	—	48		36		90		104	87			2.9	
M64	—	51		38		95		110	92			3	
(M68)	—	54		40		100		115	97			3.2	
—	M72×6	58		42		105		121	102			3.3	
—	(M76×6)	61	0 -0.74	46	0 -0.74	110	0 -0.65	127	107	—	—	3.5	
—	M80×6	64		48		115		133	112			3.5	
—	(M85×6)	68		50		120		139	116			3.5	
—	M90×6	72		54		130		150	126			4	
—	(M95×6)	76		57		135		156	131			4	
—	M100×6	80	0 -0.87	60	0 -0.87	145	0 -0.7	167	141	—	—	4.5	
—	(M105×6)	84		63		150		173	146			4.5	
—	M110×6	88		65		155		179	151			4.5	
—	(M115×6)	92		69		165		191	161			5	
—	(M120×6)	96		72		170		196	166			5.5	
—	M125×6	100	0 -0.87	76	0 -0.87	180	0 -0.7	208	176	—	—	5.5	
—	(M130×6)	104		78		185		214	181			5.5	

Remarks 1. Nominal designation of screw thread shown in parentheses should preferably not be used.

2. For the nuts Class 3 of M5 or under, the hexagon edges and threaded portion shall not be chamfered. However, the hexagon edges may be chamfered to 15°, as required.

3. If particularly required, the height (m) may be made equal to the major diameter of external thread by designation.

In this case, the permissible deviation of m shall be as follows:

Unit: mm

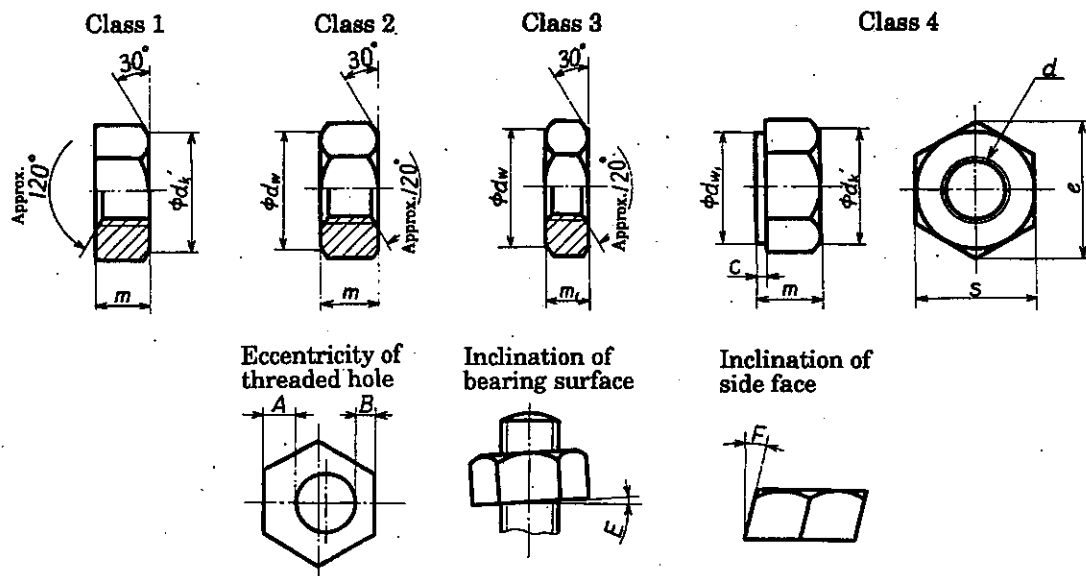
Division of <i>m</i>	3 or under	Over 3 to 6 incl.	Over 6 to 10 incl.	Over 10 to 18 incl.	Over 18 to 30 incl.	Over 30 to 50 incl.	Over 50 to 80 incl.	Over 80 to 120 incl.	Over 120
Permissible deviation	0 -0.25	0 -0.30	0 -0.36	0 -0.43	0 -0.52	0 -0.62	0 -0.74	0 -0.87	0 -1.0

4. The threaded portion shall be chamfered so that its edge diameter may be a little larger than the major diameter of internal thread. However, by designation this chamfering may be omitted.

Further, for Classes 1 and 4 the upper side of threaded portion may be slightly chamfered.

5. For check nuts, the nuts Class 3 shall be usually used.
6. When a large bearing surface is particularly required, the next larger dimensions of *s* and *e* may be used.

Appendix Attached Table 1-2. Hexagon nuts – semi-finished



Unit: mm

Nominal designation of screw thread (d)		m		m ₁		s		e	d _k ' and d _w	d _{w1}	c	A-B	E	F
Coarse	Fine	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Approx.	Approx.	Min.	Approx.	Max.	Max.	Max.
M6	—	5	0 -0.48	3.6	0 -0.48	10	0 -0.6	11.5	9.8	9	0.4	0.3	1 *	2 *
(M7)	—	5.5		4.2		11	0 -0.7	12.7	10.8	10	0.4	0.4		
M8	M8×1	6.5	0 -0.58	5		13		15	12.5	11.7	0.4	0.4		
M10	M10×1.25	8		6		17		19.6	16.5	15.8	0.4	0.5		
M12	M12×1.25	10		7	0 -0.58	19	0 -0.8	21.9	18	17.6	0.6	0.5		
(M14)	(M14×1.5)	11	0 -0.70	8		22		25.4	21	20.4	0.6	0.7		
M16	M16×1.5	13		10		24		27.7	23	22.3	0.6	0.8		
(M18)	(M18×1.5)	15		11	0 -0.70	27		31.2	26	25.6	0.6	0.8		
M20	M20×1.5	16		12		30		34.6	29	28.5	0.6	0.9		
(M22)	(M22×1.5)	18		13		32	0 -1.0	37	31	30.4	0.6	0.9		
M24	M24×2	19	0 -0.84	14		36		41.6	34	34.2	0.6	1.1		
(M27)	(M27×2)	22		16		41		47.3	39	—	—	1.3		
M30	M30×2	24		18		46		53.1	44	—	—	1.5		
(M33)	(M33×2)	26		20	0 -0.84	50		57.7	48	—	—	1.6		
M36	M36×3	29		21		55	0 -1.2	63.5	53	—	—	1.8		
(M39)	(M39×3)	31	0 -1.0	23		60		69.3	57	—	—	2		
M42	—	34		25		65		75	62	—	—	2.1		
(M45)	—	36		27		70		80.8	67	—	—	2.3		
M48	—	38		29		75		86.5	72	—	—	2.4		
(M52)	—	42		31	0 -1.0	80		92.4	77	—	—	2.6		
M56	—	45		34		85	0 -1.4	98.1	82	—	—	2.8		
(M60)	—	48		36		90		104	87	—	—	2.9		

Appendix Attached Table 1-2 (continued)

Unit: mm

Nominal designation of screw thread (d)		m		m ₁		s		e	d _s ' and d _w	d _{w1}	c	A-B	E	F
Coarse	Fine	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Approx.	Approx.	Min.	Approx.	Max.	Max.	Max.
M64	—	51	0 -1.2	38	0 -1.0	95	0 -1.4	110	92	—	—	3	1	2
(M68)	—	54		40		100		115	97	—	—	3.2		
—	M72×6	58		42		105		121	102			3.3		
—	(M76×6)	61		46		110		127	107			3.5		
—	M80×6	64		48		115		133	112	—	—	3.5		
—	(M85×6)	68		50		120		139	116			3.5		
—	M90×6	72		54	0 -1.2	130	0 -1.6	150	126			4		
—	(M95×6)	76		57		135		156	131	—	—	4		
—	M100×6	80		60		145		167	141			4.5		
—	(M105×6)	84	0 -1.4	63		150		173	146			4.5		
—	M110×6	88		65		155		179	151	—	—	4.5		
—	(M115×6)	92		69		165		191	161			5		
—	(M120×6)	96		72		170		196	166			5.5		
—	M125×6	100		76		180		208	176	—	—	5.5		
—	(M130×6)	104		78		185	0 -1.8	214	181			5.5		

Remarks 1. The nominal designation of screw thread shown in parentheses should, preferably, not be used.

2. If particularly required, the height (m) may be made equal to the major diameter of external thread by designation.

Further, in this case, the permissible deviations of m shall be as follows:

Unit: mm

Division of m	6 or under	Over 6 to 10 incl.	Over 10 to 18 incl.	Over 18 to 30 incl.	Over 30 to 50 incl.	Over 50 to 80 incl.	Over 80 to 120 incl.	Over 120
Permissible deviation	0 -0.48	0 -0.58	0 -0.70	0 -0.84	0 -1.0	0 -1.2	0 -1.4	0 -1.6

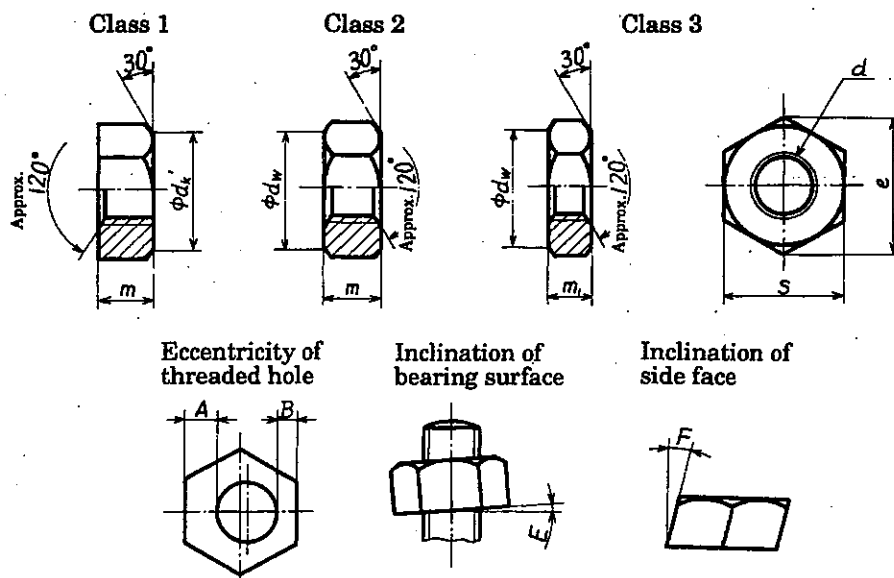
3. The threaded portion shall be chamfered so that its edge diameter may be a little larger than the major diameter of internal thread. However, by designation this chamfering may be omitted.

Further, for Classes 1 and 4 the upper side of threaded portion may be slightly chamfered.

4. For check nuts, the nuts Class 3 shall be usually used.

5. When a large bearing surface is particularly required, the next larger dimensions of s and e may be used.

Appendix Attached Table 1-3. Hexagon nuts - regular



Unit: mm

Nominal designation of screw thread (d)		m		m ₁		s		e	d _s ' and d _w	A - B	E and F
Coarse	Fine	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Approx.	Approx.	Max.	Max.
M6	—	5	±0.6	3.6	±0.6	10	0 -0.6	11.5	9.8	0.5	2°
(M7)	—	5.5		4.2		11	0 -0.7	12.7	10.8	0.5	
M8	M8×1	6.5	±0.8	5		13		15	12.5	0.6	
M10	M10×1.25	8		6		17		19.6	16.5	0.7	
M12	M12×1.25	10		7	±0.8	19	0 -0.8	21.9	18	0.8	
(M14)	(M14×1.5)	11	±0.9	8		22		25.4	21	1	
M16	M16×1.5	13		10		24		27.7	23	1.1	
(M18)	(M18×1.5)	15		11	±0.9	27		31.2	26	1.2	
M20	M20×1.5	16		12		30		34.6	29	1.4	
(M22)	(M22×1.5)	18		13		32	0 -1.0	37	31	1.5	
M24	M24×2	19	±1.0	14		36		41.6	34	1.6	
(M27)	(M27×2)	22		16		41		47.3	39	2	
M30	M30×2	24		18		46		53.1	44	2.2	
(M33)	(M33×2)	26		20	±1.0	50		57.7	48	2.4	
M36	M36×3	29		21		55	0 -1.2	63.5	53	2.6	
(M39)	(M39×3)	31	±1.2	23		60		69.3	57	2.8	
M42	—	34		25		65		75	62	3.1	
(M45)	—	36		27		70		80.8	67	3.3	
M48	—	38		29		75		86.5	72	3.6	
(M52)	—	42		31	±1.2	80		92.4	77	3.8	
M56	—	45		34		85	0 -1.4	98.1	82	4.1	
(M60)	—	48		36		90		104	87	4.3	

Appendix Attached Table 1-3 (continued)

Unit: mm

Nominal designation of screw thread (d)		m		m ₁		s		e	d _k ' and d _w	A-B	E and F
Coarse	Fine	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Approx.	Approx.	Max.	Max.
M64	—	51	±1.5	38	±1.2	95	0 -1.4	110	92	4.6	2°
(M68)	—	54		40		100		115	97	4.8	
—	M72×6	58		42		105		121	102	5	
—	(M76×6)	61		46		110		127	107	5.3	
—	M80×6	64		48		115		133	112	5.5	
—	(M85×6)	68		50		120		139	116	5.8	
—	M90×6	72	±1.8	54	±1.5	130	0 -1.6	150	126	6.2	
—	(M95×6)	76		57		135		156	131	6.5	
—	M100×6	80		60		145		167	141	6.8	
—	(M105×6)	84		63		150		173	146	7.2	
—	M110×6	88		65		155		179	151	7.4	
—	(M115×6)	92		69		165		191	161	7.9	
—	(M120×6)	96		72		170		196	166	8.4	
—	M125×6	100		76		180		208	176	8.7	
—	(M130×6)	104		78		185	0 -1.8	214	181	8.9	

Remarks 1. The nominal designation of screw thread shown in parentheses should, preferably, not be used.

2. If particularly required, the height (m) may be made equal to the major diameter of external thread by designation.

Further, in this case, the permissible deviation of m shall be as follows:

Unit: mm

Division of m	6 or under	Over 6 to 10 incl.	Over 10 to 18 incl.	Over 18 to 30 incl.	Over 30 to 50 incl.	Over 50 to 80 incl.	Over 80 to 120 incl.	Over 120
Permissible deviation	±0.6	±0.8	±0.9	±1.0	±1.2	±1.5	±0.8	±2.0

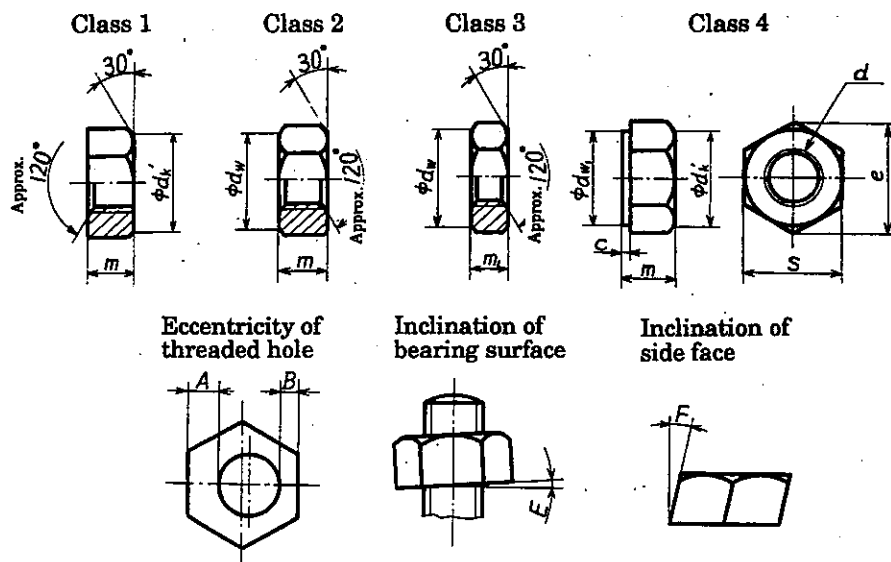
3. The threaded portion shall be chamfered so that its edge diameter may be a little larger than the major diameter of internal thread. However, by designation, this chamfering may be omitted.

Further, for Class 1 the upper side of threaded portion may be slightly chamfered.

4. For check nuts, the nuts Class 3 shall be usually used.

5. When a large bearing surface is particularly required, the next larger dimensions of s and e may be used.

Appendix Attached Table 2-1. Small hexagon nuts - finished



Unit: mm

Nominal designation of screw thread (d)		m		m ₁		s		e	d _k ' and d _w	d _{w1}	c	A-B	E and F
Coarse	Fine	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Approx.	Approx.	Min.	Approx.	Max.	Max.
M8	M8×1	6.5	0 -0.36	5	0 -0.3	12	0 -0.25	13.9	11.5	10.8	0.4	0.4	1 *
M10	M10×1.25	8		6		14		16.2	13.5	12.6	0.4	0.4	
M12	M12×1.25	10		7	0 -0.36	17		19.6	16.5	15.8	0.6	0.5	
(M14)	(M14×1.5)	11	0 -0.43	8		19	0 -0.35	21.9	18	17.6	0.6	0.5	
M16	M16×1.5	13		10		22		25.4	21	20.4	0.6	0.7	
(M18)	(M18×1.5)	15		11	0 -0.43	24		27.7	23	22.3	0.6	0.8	
M20	M20×1.5	16		12		27		31.2	26	25.6	0.6	0.8	
(M22)	(M22×1.5)	18		13		30		34.6	29	28.5	0.6	0.9	
M24	M24×2	19	0 -0.52	14		32	0 -0.4	37.0	31	30.4	0.6	0.9	
(M27)	(M27×2)	22		16		36		41.6	34	—	—	1.1	
M30	M30×2	24		18		41		47.3	39			1.3	
(M33)	(M33×2)	26		20	0 -0.52	46		53.1	44			1.5	
M36	M36×3	29		21		50		57.7	48	—	—	1.6	
(M39)	(M39×3)	31	0 -0.62	23		55	0 -0.45	63.5	53			1.8	

- Remarks 1. The nominal designation of screw thread shown in parentheses should, preferably, not be used.
2. If particularly required, the height (m) may be made equal to the major diameter of external thread by designation.
- In this case, the permissible deviation of m shall be as follows:

Unit: mm

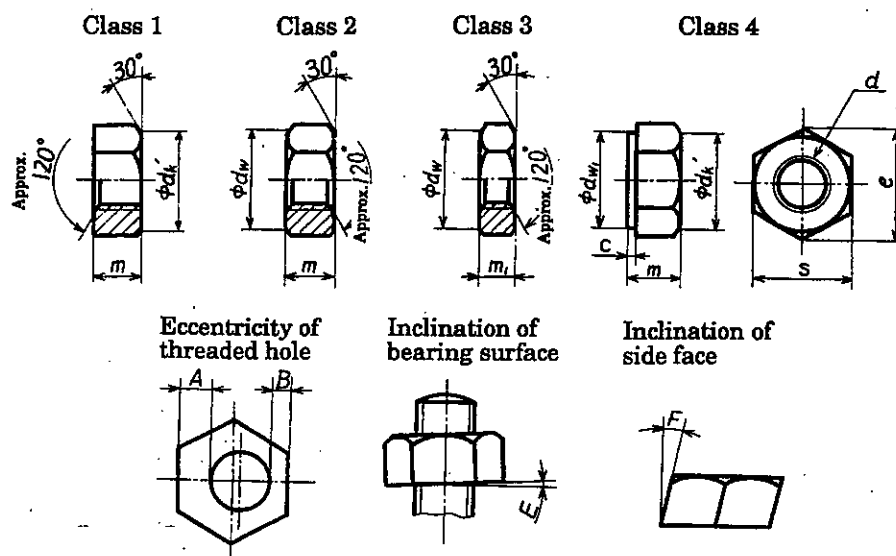
Division of 72	10 or under	Over 10 to 18 incl.	Over 18 to 30 incl.	Over 30
Permissible deviation	0 -0.36	0 -0.43	0 -0.52	0 -0.62

3. The threaded portion shall be chamfered so that its edge diameter may be a little larger than the major diameter of internal thread. However, this chamfering may be omitted by designation.

Further, for Classes 1 and 4 the upper side of threaded portion may be slightly chamfered.

4. For check nuts, the nuts Class 3 shall be usually used.

Appendix Attached Table 2-2. Small hexagon nuts - semi-finished



Unit: mm

Nominal designation of screw thread (d)		m		m ₁		s		e	d _s ' and d _w	d _{w1}	c	A-B	E	F
Coarse	Fine	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Basic dimension	Permissible deviation	Approx.	Approx.	Min.	Approx.	Max.	Max.	Max.
M8	M8×1	6.5	0	5	0	12	0	13.9	11.5	10.8	0.4	0.4	1°	2°
M10	M10×1.25	8	-0.58	6	-0.48	14	-0.7	16.2	13.5	12.6	0.4	0.4		
M12	M12×1.25	10		7	0	17		19.6	16.5	15.8	0.6	0.5		
(M14)	(M14×1.5)	11	0	8	-0.58	19	0	21.9	18	17.6	0.6	0.5		
M16	M16×1.5	13	-0.70	10		22	-0.8	25.4	21	20.4	0.6	0.7		
(M18)	(M18×1.5)	15		11	0	24		27.7	23	22.3	0.6	0.8		
M20	M20×1.5	16		12	-0.70	27		31.2	26	25.6	0.6	0.8		
(M22)	(M22×1.5)	18		13		30		34.6	29	28.5	0.6	0.9		
M24	M24×2	19	0	14		32	0	37.0	31	30.4	0.6	0.9		
(M27)	(M27×2)	22	-0.84	16		36	-1.0	41.6	34	—	—	1.1		
M30	M30×2	24		18		41		47.3	39	—	—	1.3		
(M33)	(M33×2)	26		20	0	46		53.1	44	—	—	1.5		
M36	M36×3	29		21	-0.84	50		57.7	48	—	—	1.6		
(M39)	(M39×3)	31	0	23	-1.0	55	0	63.5	53	—	—	1.8		

Remarks 1. The nominal designation of screw thread shown in parentheses should, preferably, not be used.

2. If particularly required, the height (m) may be made equal to the major diameter of external thread by designation.

In this case, the permissible deviation of m shall be as follows:

Unit: mm

Division of <i>m</i>	10 or under	Over 10 to 18 incl.	Over 18 to 30 incl.	Over 30
Permis- sible deviation	0 -0.58	0 -0.70	0 -0.84	0 -1.0

3. The threaded portion shall be chamfered so that its edge diameter may be a little larger than the major diameter of internal thread. However, this chamfering may be omitted by designation.

Further, for Classes 1 and 4 the upper side of threaded portion may be slightly chamfered.

4. For check nuts, Class 3 shall be usually used.

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