KES

Weld Nut

KES E-B016

Contents

KIA MOTORS

1. Scope of Application

This standard specifies the weld nut for automobiles (hereinafter referred to as the "nut").

2. Kind

The kind of the nut is as shown in Table 1.

Table 1

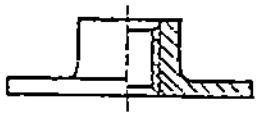
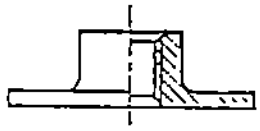
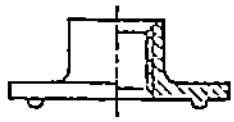
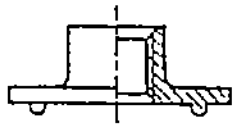
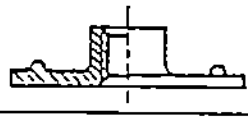
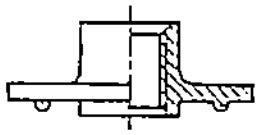
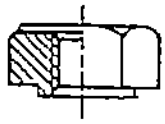
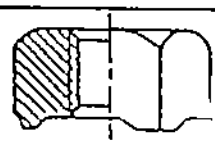
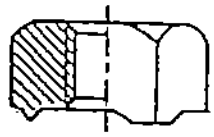
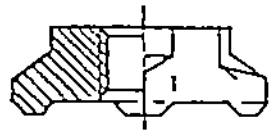
Kind			Type No.	Outlined Figure	Appendix Table Concerned
Classification	Pilot	Welding Method			
T-type	No	Spot welding	99994 (Wide width)		Appendix table 1 page 7
			99914		Appendix table 2 page 8
		Projection welding	99995 (Wide width)		Appendix table 3 page 10
			99918		Appendix table 4 page 11
			99915		Appendix table 5 page 12
	Yes		99998		Appendix table 6 page 13
Hexagon		Arc Welding	99919		Appendix table 7 page 14

Table 1 (Continued)

Kind			Type No.	Outlined Figure	Appendix Table Concerned
Classification	Pilot	Welding Method			
Hexagon	Yes	Projection welding	99917		Appendix table 8 page 16
	No		99916		Appendix table 9 page 18
			99993 (For sealing)		Appendix table 10 page 20
Square			99996		Appendix table 11 page 21

Remarks 1. No. 99996 of square shall not be used for the joint parts of A rank parts defined in the quality assurance standard and for the important points judged by Engineering Department.

2. When No. 99996 is designated in a drawing, it can be substituted by No.99916 of hexagon in consideration of facilities in a working section inside or outside of KIA. In such case, Inspection Department shall treat it in the same manner as square, because of no problem on it.

3. Mechanical Properties

The mechanical properties of the nut shall conform to Appendix Tables 1 to 10 after the tests specified in paragraph 4.

4. Tests

4.1 Classification of tests: The classification of tests to examine the mechanical properties of the nut shall conform to Table 2.

Table 2 Classification of tests

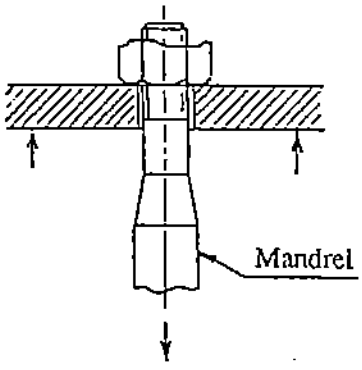
Classification of Tests	Mechanical Properties to be Measured	Specified Items for Testing Method
Proof load test	Proof load stress	4.2.1
Hardness test	Hardness	4.2.2

4.2 Tests of Mechanical Preoperties

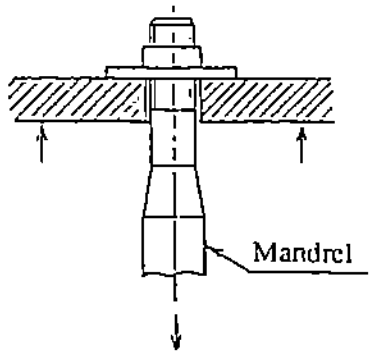
4.2.1 Proof load test: The proof load test shall be carried out in accordanced with KES C-C002. However, the proof load to the nut shall be applied as shown in the following figures.

Figure

Case of sequare and hexagon nuts



Case of T-type nut (1)



Note (1)
As for the one for projection welding, test shall be carried out after cutting-out of welding projection part.

4.2.2 Hardness test: The hardness test shall be carried out according to KES C-C002.

5. Shape and Dimension

The shape and dimension of the nut shall be in accordance with Appendix Tables 1 to 10.

6. Thread

The kind and accuracy of threads of the nut shall be in accordance with Table 3 and 4.

Table 3

Nominal Designation of Thread	Thread
M4 to M8	Coarse screw threads in *1 KS B 0201
M10, M12	Fine screw threads in *2 KS B 0204

*1 JIS B 0205 *2 JIS B 0207

Table 4

Unit: mm

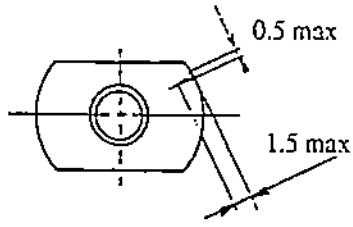
Nominal designation and pitch of thread	Accuracy of Thread				
	Basic dimension of pitch diameter	Tolerance			
		T-type and hexagon		Square	
M4 x 0.7	3.545	+0.140 +0.022	6G in JIS B 0215	+0.118 0	6H in *1 JIS B 0209
M5 x 0.8	4.480	+0.149 +0.024		+0.125 0	
M6 x 1	5.350	+0.144 +0.026	5G in JIS B 0215	+0.150 0	
M8 x 1.25	7.188	+0.153 +0.028		+0.160 0	
M10 x 1.25	9.188	+0.153 +0.028		+0.160 0	
M12 x 1.5	11.026	+0.182 +0.032		+0.190 0	

*1 JIS B 0209

7. External Appearance

No defects such as harmful flaw for the use, burrs, etc. shall exist on the external appearance.
The surface defects of the nut shall conform to Table 5.

Table 5

<table>
<tr><th>Surface Defect</th><th>Permissible Limit</th></tr>
<tr><td>Forging crack</td><td>(a) The one that is located on the top face or bearing surface and that does not reach the threaded part from the side face shall be allowed.
(b) The one that is located between the threaded part inlet and the first thread, that the width is 0.2mm + 0.01d or less and that the number of crack is within 2 shall be allowed.
(c) The one that is located on the intersecting line between the top face or the bearing surface and the side face and that the width is 0.3mm + 0.02d or less shall be allowed.
(d) Only the figure underneath shall be allowed for the one located on the flange of a T-type nut.
 
</td></tr>
<tr><td>Fissure</td><td>The one that is located on the side face and that falls under the following conditions shall be allowed.
<table>
<tr><th>Nominal designation of thread</th><th>M5 or less</th><th>M6-M12</th></tr>
<tr><td>Width (Maximum)</td><td>0.1mm</td><td>0.15mm</td></tr>
<tr><td>Depth (Maximum)</td><td>0.1mm</td><td>0.1mm+0.015d</td></tr>
</table></td></tr>
<tr><td>Nick or gauge</td><td>(a) The one located on the parts excepting the threaded part shall be allowed.
(b) The one on the threaded part that passes the go-thread plug gauge with a torque of 0.8 x nominal diameter kgf · cm or less shall be allowed.
(Example) For M10 of nominal diameter, 0.8x10= 8kgf · cm{78.5 Nm}</td></tr>
</table>

Remarks 1. The meaning of a surface defect shall conform to KES C-C018.
2. In the above table, "d" means the nominal diameter (mm) of a thread.

8. Surface Treatment

In general, the surface treatment of the nut shall not be applied.

9. Inspection

The inspection of the nut shall be carried out as to items 3-7, and conform to the respective prescription.

10. Alteration of Specification

The nut specifications may be altered only by the revision of the standard. This standard is revised following the specified proceedings and according to KMS Proposal System.

11. Part Name

The part name of the nut shall be the weld nut (NUT-WELD).

12. Structure of Part Number

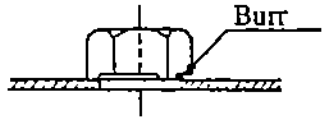
The part number of the nut shall consist of a type number and a size number.

Example:	T-type nut	Nominal of thread M6 x 1
	99914	0600
	(Type number)	(Size number)

13. Hole Diameter of Mating Plate

The mating hole diameter of the nut shall conform to Appendix Table 1 - 10.

Remark: As for the hole of the nut with a pilot, its drilling direction shall be considered so as to secure an easy setting of the nut by remaining the drilling burr on the welding side of the nut.



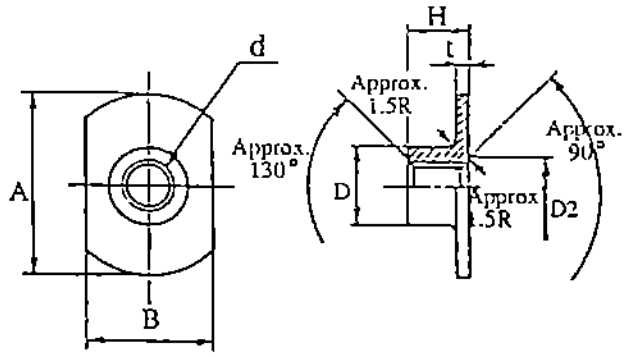
14. Quoted Standard

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 0215	(Tolerance System for Metric Screw Threads)
JIS B 1196	(Weld Nuts)
JIS G 3505	(Low Carbon Steel Wire Rods)
JIS G 3539	(Carbon Steel Wires for Cold Heading and Cold Forging)
KES C-C002	(Mechanical Properties of Nuts)
KES C-C018	(Surface Defects of Screw Thread Parts)

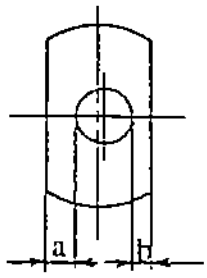
Appendix Table 1. Shape and Dimensions of 99994
(Spot welding, Wide width)

Mechanical Property	Standard Value
Strength classification	6
Proof load stress kgf/mm² {kPa}	60 {5884.0}
Hardness (HB)	140 to 302
Material	SWRM10 in JIS G 3505 SWCH10R in *1 KS D 3697

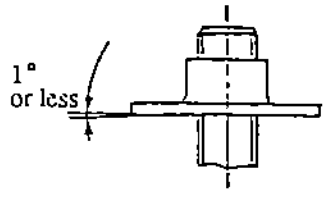
*1 JIS G 3539



Eccentricity of thread hole

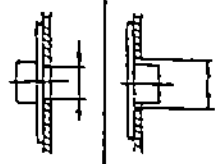


Inclination of bearing surface



a - b = 0.4 mm (Maximum)

Unit: mm

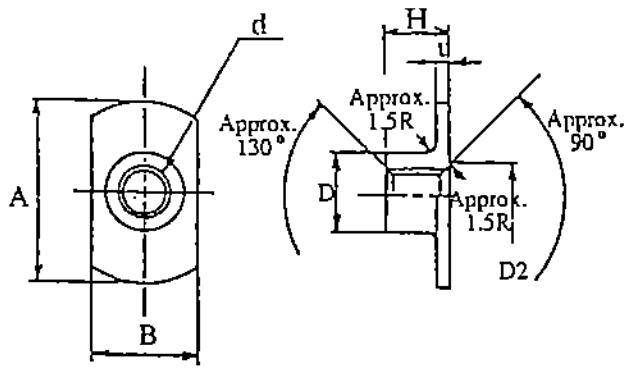
Size No.	Nominal designation of thread (d)	Outer shape										Proof load kgf {kPa}	Mass (g)	Hole diameter of mating plate	
		A		B		D		H		I		D2			
		Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Maximum			
0600	M6 X 1	26	±1	22	±0.5	7.8	+0.5 0	7	±0.5	1.8	±0.25	8.1	1200 {11763.0}	6.6	7 +0.5 0 / 9 +0.5 0
0800	M8 X 1.25	28				9.5	+0.7 0	8.5				10.1	2200 {21574.6}	7.9	10 +0.5 0 / 11 +0.5 0

Remark: The proof load shall be the minimum break load of a combined bolt of a nut.

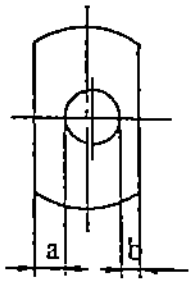
Appendix Table 2. Shape and Dimensions of 99914
(Spot welding)

Mechanical Property	Standard Value
Strength classification	6
Proof load stress kgf/mm² {kPa}	60 {5884.0}
Hardness (HB)	140 to 302
Material	SWRM10 in JIS G 3505 SWCH10R in*1KS D 3697

*1 JIS G 3539

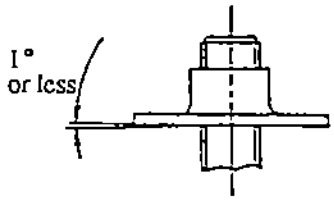


Eccentricity of thread hole

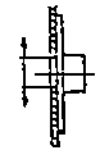
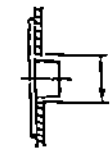


a - b = 0.4 mm (Maximum)

Inclination of bearing surface



Unit: mm

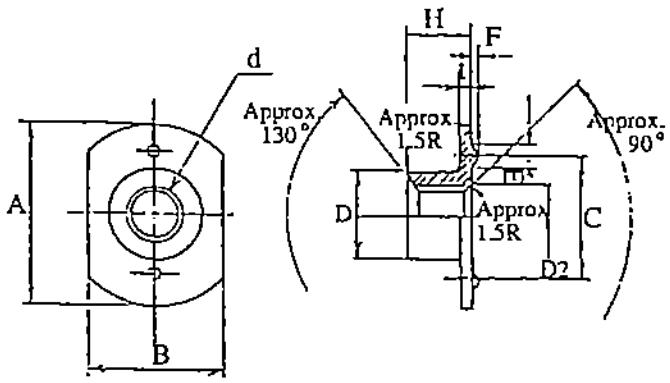
Size No.	Nominal designation of thread (d)	Outer shape										Proof load kgf (kPa)	Mass (g)	Hole diameter of mating plate	
		A		B		D		H		t		D2			
		Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Maximum				
0400	M4 X 0.7	23	±0.7	12	±0.25	6.2	+0.5 0	5.5	±0.4	1.2	±0.2	5.6	530 (5197.5)	3.1	+0.5 5 0	+0.5 7 0
0500	M5 X 0.8	24				6.2		6.5				6.6	850 (8335.7)	3.2		
0600	M6 X 1	26	±1	14	±0.3	7.8		7	±0.5	1.6	±0.25	8.1	1200 (11768.0)	4.5	+0.5 7 0	+0.5 9 0
0800	M8 X 1.25	28				9.5	+0.7 0	8.5				10.1	2200 (21574.6)	6.0	+0.5 10 0	+0.5 11 0

Remark: The proof load shall be the minimum break load of a combined bolt of a nut.

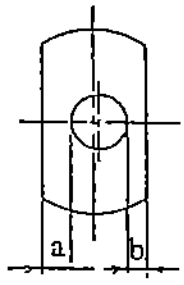
Appendix Table 3. Shape and Dimensions of 99995
(Projection welding, Wide width)

Mechanical Property	Standard Value
Strength classification	6
Proof load stress kgf/mm² {kPa}	60 {5884.0}
Hardness (HB)	140 to 302
Material	SWRM10 in JIS G 3505 SWCH10R in *1 KS D3697

*1 JIS G 3539

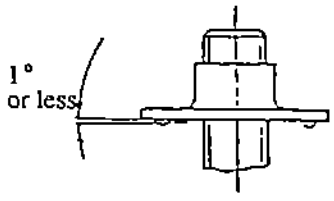


Eccentricity of thread hole



a - b = 0.4 mm (Maximum)

Inclination of bearing surface



Unit: mm

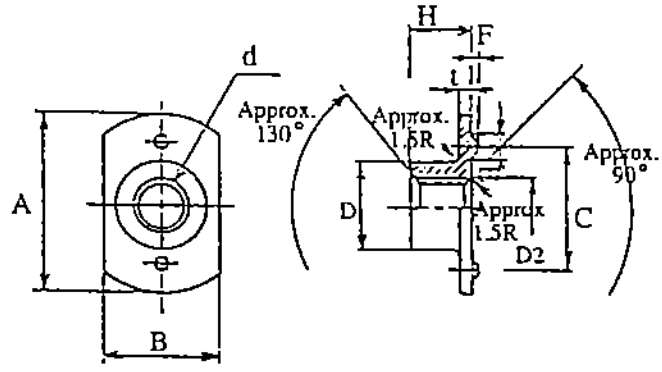
Size No.	Nominal designation of thread (d)	Outer shape										Welding projection part						Proof load	Mass	Hole diameter of mating plate
		A		B		D		H		t	D2	E		F		C				
		Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Maximum	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Maximum	kgf {kPa}	(g)	
0600	M6 x 1	26	±1	22	±0.5	7.8	+0.5 0	7	±0.5	1.6	±0.25	8.1	3	±0.25	0.7	±0.2	17	±0.25	1200 {11768.0}	7.0	+0.5 7 0
0800	M8 x 1.25	28				9.5	+0.7 0	8.5				10.1							2200 {21574.6}	8.2	+0.5 10 0

Remark: The proof load shall be the minimum break load of a combined bolt of a nut.

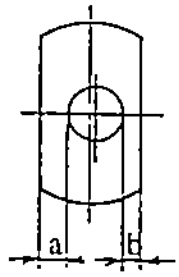
Appendix Table 4. Shape and Dimensions of 99918
(Projection welding)

Mechanical Property	Standard Value
Strength classification	6
Proof load stress kgf/mm² {kPa}	60 {5884.0}
Hardness (HB)	140 to 302
Material	SWRM10 in JIS G 3505 SWCH10R in*1KS D 3697

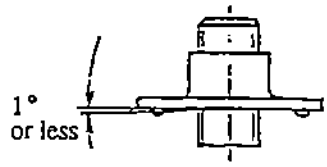
*1 JIS G 3539



Eccentricity of thread hole



Inclination of bearing surface



a - b = 0.4 mm (Maximum)

Unit: mm

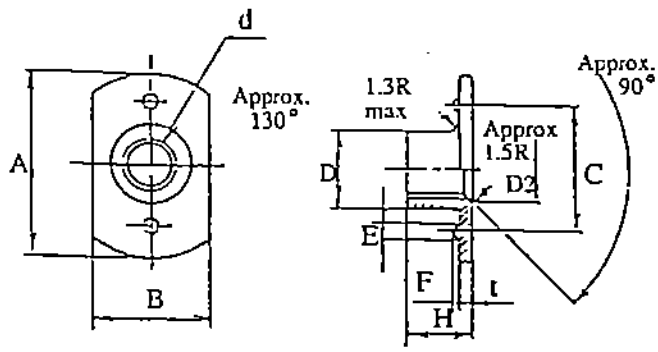
Size No.	Nominal designation of thread (d)	Outer shape A		B		D		H		t		D2	Welding projection part E		F		C		Proof load kgf {kPa}	Mass (g)	Hole diameter of mating plate
		Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Maximum	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Maximum			
0500	M5 x 0.8	21	±0.5	12	±0.25	6.2	+0.5 0	7.2	±0.4	1.2	±0.2	6.8					15	±0.2	850 {8335.7}	3.0	+0.5 8 0
0600	M6 x 1	23	±0.7	14	±0.3	7.8		7.6	±0.5	1.6	±0.25	8.1	3	±0.25	0.7	±0.2	17	±0.25	1200 {11766.6}	4.7	+0.5 9 0
0800	M8 x 1.25					9.5	+0.7 0	8.6				10.1							2200 {21574.6}	5.0	+0.5 10 0

Remark: The proof load shall be the minimum break load of a combined bolt of a nut.

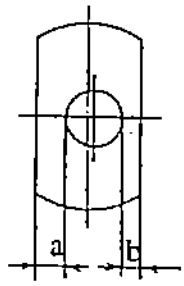
Appendix Table 5. Shape and Dimensions of 99915
(Projection Welding)

Mechanical Property	Standard Value
Strength classification	6
Proof load stress kgf/mm² {kPa}	60 {5884.0}
Hardness (HB)	140 to 302
Material	SWRM10 in JIS G 3505 SWCH10R in*1KS D 3697

*1 JIS G 3539

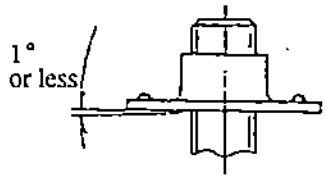


Eccentricity of thread hole



a - b = 0.4 mm (Maximum)

Inclination of bearing surface



Unit: mm

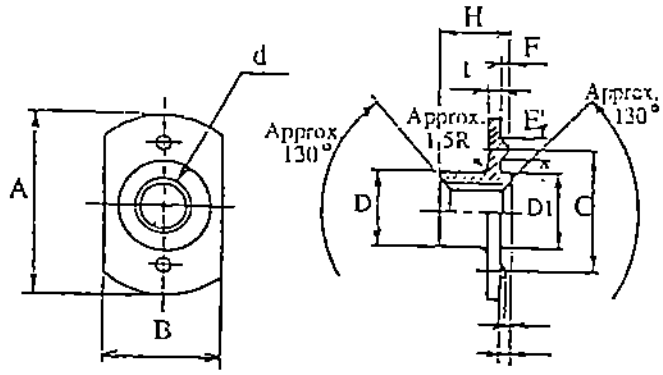
Size No.	Nominal designation of thread (d)	Outer shape										Welding projection part						Proof load	Mass	Hole diameter of mating plate
		A		B		D		H		t		D2	E		F		C				
		Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Maximum	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	kgf {kPa}	g	
0500	M5 x 0.8	21	±0.5	12	±0.25	6.2	+0.5 0	7.2	±0.4	1.2	±0.2	6.6	3	±0.25	0.7	±0.2	15	±0.2	850 {8335.7}	3.0	+0.5 7 0
0600	M6 x 1	23	±0.7	14	±0.3	7.8		7.6	±0.5	1.6	±0.25	8.1					17	±0.25	1200 {11768.6}	4.7	+0.5 9 0
0800	M8 x 1.25					9.5	+0.7 0	8.6				10.1							2200 {21574.6}	5.0	+0.5 11 0

Remark: The proof load shall be the minimum break load of a combined bolt of a nut.

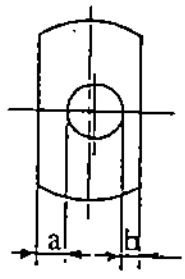
Appendix Table 6. Shape and Dimensions of 99998
(Projection welding)

Mechanical Property	Standard Value
Strength classification	6
Proof load stress kgf/mm² {kPa}	60 {5884.0}
Hardness (HB)	140 to 302
Material	SWRM10 in JIS G 3505 SWCH10R in*1KS D 3697

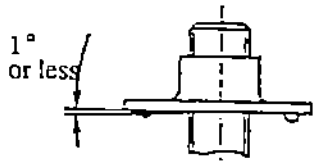
*1 JIS G 3539



Eccentricity of thread hole



Inclination of bearing surface



a - b = 0.4 mm (Maximum)

Unit: mm

Size No.	Nominal designation of thread (d)	Outer shape A		B		D		H		t		Pilot D1		H1		Welding projection part B		F		C		Proof load kgf {kPa}	Mass (g)	Hole diameter of mating plate
		Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance			
0800	M8 x 1.25	23	±0.7	14	±0.3	9.5	+0.7 0	9.6	±0.5	1.6	±0.25	10	-0.1 -0.3	12	+0.2 0	3	±0.25	0.7	±0.2	17	±0.25	11200 {15374.6}	5.5	+0.2 12.2 0

Remarks 1. The chamfer diameter of a threaded part on the bottom face shall be a little larger than the root diameter.

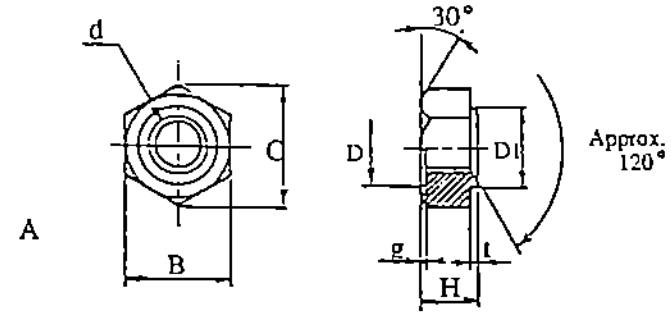
2. The proof load shall be the minimum break load of a combined bolt of a nut.

3. The distance (K) between the pilot and the top of a welding projection part shall be 0.15mm or more.

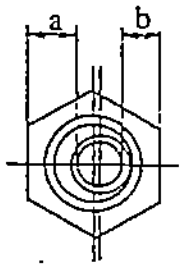
Appendix Table 7. Shape and Dimensions of 99919
(Arc welding)

Mechanical Property	Standard Value
Strength classification	6
Proof load stress kgf/mm^2 {kPa}	60 {5884.0}
Hardness (HB)	140 to 302
Material	SWCH8R to 12R in *1KS D 3697

*1 JIS G 3539

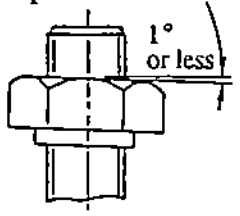


Eccentricity of thread hole



a - b = 0.4 mm (Maximum)

Inclination of top face



Unit: mm

Size No.	Nominal designation of thread (d)	Outer shape					Relief		Pilot				Proof load kgf {kPa}	Mass (g)	Hole diameter of mating plate
		B		C	H		D	g	D1		t				
		Basic dimension	Tolerance	Approximately	Basic dimension	Tolerance	Approximately	Maximum	Basic dimension	Tolerance	Basic dimension	Tolerance			
0600	M6 x 1	13	±0.25	15.0	6.4	±0.15	9.5	0.5	9.5	±0.1	0.7	0 -0.15	1200 {11768.0}	4.8	+0.2 9.8 0
0602					7.2	±0.2		1.5			1.5	0 -0.2			
0800	M8 x 1.25	15		17.5	6.9		12.0	0.8	11.9		0.8		2200 {21574.6}	6.2	+0.2 12.2 0
0802					7.8			1.3			1.7				
1000	M10 x 1.25	17		19.5	8.4		13.5	0.8	13.4		0.8		3700 {36284.6}	10.0	+0.2 13.7 0
1010					8.9			1.3			1.9				
1200	M12 x 1.5	19		21.9	11.0		15.0	0.8	14.8		1.2		5250 {51384.9}	15.9	+0.3 15.0 0

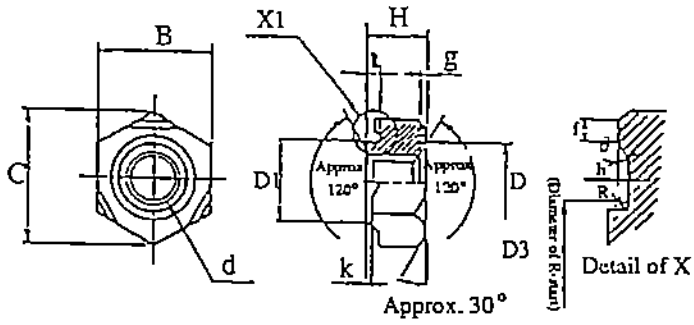
Remarks 1. The chamfer diameter of a threaded part on the bottom face shall be (outside diameter of the external thread +0.5mm) or more, and a plane part on the bottom face shall inevitably exist.

2. The proof load shall be the minimum break load of a combined bolt of a nut.

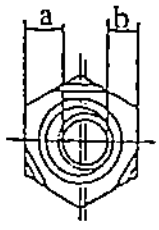
Appendix Table 8. Shape and Dimensions of 99917
(Projection welding)

Mechanical Property	Standard Value
Strength classification	6
Proof load stress kgf/mm^2 {kPa}	60 {5884.0}
Hardness (HB)	140 to 302
Material	SWCH8R to 12R in *1KS D 3697

*1 JIS G 3539

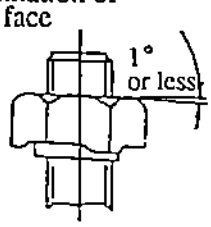


Eccentricity of thread hole



a - b = 0.4 mm (Maximum)

Inclination of top face



Unit: mm

Size No.	Nominal designation of thread (d)	Outer shape B		C	K		Relief		Pilot				Welding projection part				Pilot part		Proof load kgf (kPa)	Mass (g)	Hole diameter of mating plate
		Basic dimension	Tolerance	Approximately	Basic dimension	Tolerance	Approximately	Maximum	Basic dimension	Tolerance	Basic dimension	Tolerance	t	Basic dimension	Tolerance	θ	A Maximum	D3 Maximum			
0400	M4 x 0.7	11	±0.25	13.0	5.0	±0.15	8.0	0.8	8.0	±0.1	0.7	0 -0.2	0.2 to 1	0.5	0 -0.2	25± 5°	0.25		530 (5197.5)	3.1	+0.2 8.3 0
0500	M5 x 0.8																		850 (8335.7)	2.9	
0600	M6 x 1	13		15.0	8.4		9.5		9.5				0.4 to 1.2						1200 (11768.0)	5.0	+0.2 9.8 0
0800	M8 x 1.25	15		17.5	8.9	±0.2	12.0		11.9		0.8		0.8 to 1.4			40± 5°	0.4		2200 (21574.6)	7.2	+0.2 12.2 0
0801					9.0	±0.3													2500 (25439.2)		
1000	M10 x 1.25	17		19.5	8.4	±0.2	13.5	1.3	13.4		1.7		0.8 to 1.8					Maximum value D1 + 0.8	3700 (36284.6)	9.8	+0.2 13.7 0
1010					8.9																
1200	M12 x 1.5	19		21.9	11.0		15.0	0.8	14.8		1.2					30± 5°			5250 (51484.9)	18.0	+0.3 15.0 0

Remarks 1. The chamfer diameter of a threaded part on the bottom face shall be (outside diameter of the thread +0.5mm) or more, and a plane part on the bottom face of pilot shall inevitably exist.

2. A variation of the height including welding projection part about one piece of nut, (H - t + h), shall be 0.15mm or less.

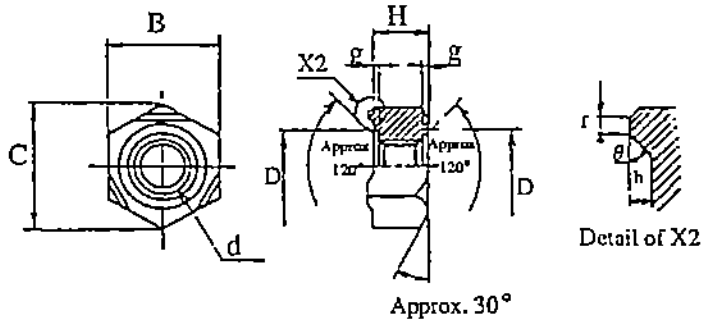
3. The proof load shall be the minimum break load of a combined bolt of a nut.

4. The distance (K) between the pilot and the top of a welding projection part shall be 0.15mm or more.

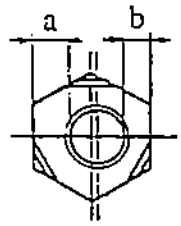
Appendix Table 9. Shape and Dimensions of 99916
(Projection welding)

Mechanical Property	Standard Value
Strength classification	6
Proof load stress kgf/mm^2 {kPa}	60 {5884.0}
Hardness (HB)	140 to 302
Material	SWCH8R to 12R *1KS D 3697

*1 JIS G 3539

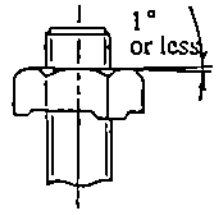


Eccentricity of thread hole



a - b = 0.4 mm

Inclination of top face



Unit: mm

Size No.	Nominal designation of thread (d)	Outer shape B		C	H		Relief D	Relief %	f	Welding projection part h		Welding projection part θ	Proof load kgf {kPa}	Mass (g)	Hole diameter of mating plate *
		Basic dimension	Tolerance	Approximately	Basic dimension	Tolerance	Approximately	Maximum		Basic dimension	Tolerance				
0400	M4 x 0.7	11	±0.25	13.0	5.0	±0.15	7.0	0.5	0.2 to 1.2	0.8	0 -0.2	45±5°	530 {5197.5}	3.6	+0.5 5 0
0500	M5 x 0.8												850 {8335.7}	3.2	+0.5 6 0
0600	M6 x 1	13		15.0	6.0		9.0						1200 {11768.0}	5.0	+0.5 7 0
0800	M8 x 1.25	15		17.5	7.5		11.0						2200 {21574.6}	7.8	+0.5 10 0
													2900 {28439.2}	—	
1000	M10 x 1.25	17		19.5	9.0	±0.2	13.0	0.8		1			3700 {36284.6}	10.0	+0.5 12 0
1200	M12 x 1.5	19		21.9	11.0		15.0		1 to 2			60±5°	5250 {51484.9}	—	+0.5 14 0

Remarks 1. The chamfer diameter of a threaded part on the bottom face shall be (Nominal diameter of the thread + 0.5mm) or more, and a plane part on the bottom face of pilot shall inevitably exist.

2. A variation of the height including welding projection part about one piece of nut, (H+h), shall be 0.15mm or less.

3. The proof load shall be the minimum break load of a combined bolt of a nut.

* Owing to the circumstances of processing facilities, hole diameters of M5 and M6 can be applied as follows. In this case, the feedback from the Production section to the Engineering section shall be made by document.

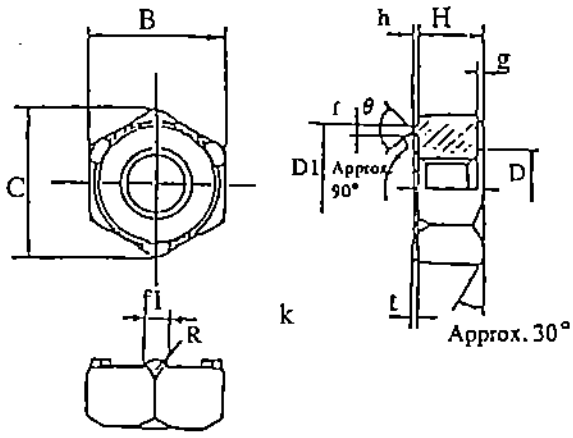
$$M5 \rightarrow \varnothing 7^{+0.5}_{0}$$

$$M6 \rightarrow \varnothing 8^{+0.5}_{0}$$

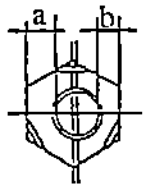
Appendix Table 10. Shape and Dimensions of 99993
(Projection welding)

Mechanical Property	Standard Value
Strength classification	6
Proof load stress kgf/mm^2 {kPa}	60 {5884.0}
Hardness (HB)	140 to 302
Material	SWCH8R to 10R in *1KS D 3697

*1 JIS G 3539

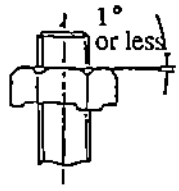


Eccentricity of thread hole



a - b = 0.4 mm

Inclination of top face



Unit: mm

Size No.	Nominal designation of thread (d)	Outer shape					Relief		Ring welding projection part					3-point welding projection part				Proof load kgf {kPa}	Mass (g)
		B		C	H		D	g	D1	f	h		θ	f1	t		R		
		Basic dimension	Tolerance		Basic dimension	Tolerance					Basic dimension	Tolerance			Basic dimension	Tolerance			
0600	M6 x 1	13	±0.25	15.0	6.0	±0.15	8.2	0.5	12	0.6	0.3	±0.1	90°	2.4	0.7	±0.1	1.5	1200 {11768.0}	5.5
0800	M8 x 1.25	15		17.5	7.5	±0.2	10.2	0.5	14									2200 {21574}	8.0

Remarks 1. The chamfer diameter of a threaded part on the bottom face shall be (Nominal diameter of the thread +0.5mm) or more, and a plane part on the bottom face of pilot shall inevitably exist.

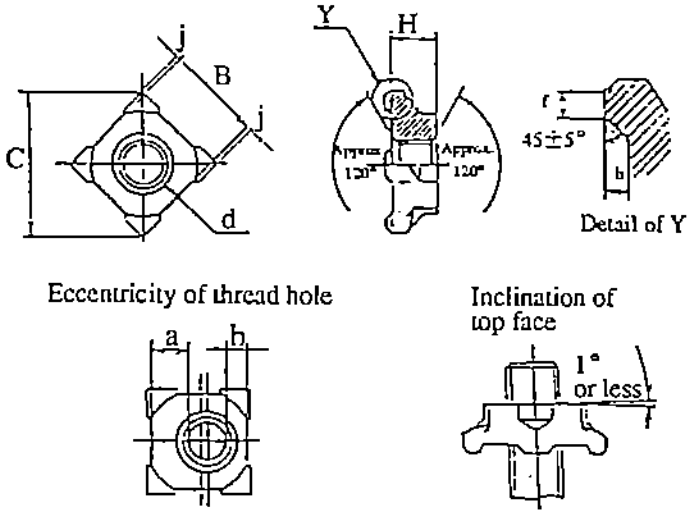
2. The variation in the height including welding projection part of 1 nut (H+h) shall be 0.15mm or less.

3. The proof load shall be the minimum break load of a bolt combined with the nut.

Appendix Table 11. Shape and Dimensions of 99996
(Projection welding)

Mechanical Property	Standard Value
Strength classification	(5*) 6
Proof load stress kgf/mm^2 {kPa}	60 {5884.0}
Hardness (HB)	140 to 302
Material	SWCH8R to 12R in *1KS D 3697

*1 JIS G 3539



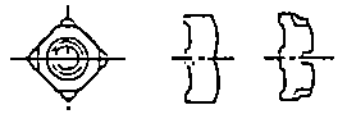
* Strength classification "5" shall be applied to M5 or less.

Unit: mm

Size No.	Nominal designation of thread (d)	Outer shape					Welding projection part				Proof load kgf {kPa}	Mass (g)	Hole diameter of mating plate *1
		B		H		C	h		f	j			
		Basic dimension	Tolerance	Basic dimension	Tolerance	Tolerance	Basic dimension	Tolerance					
0400	M4 x 0.7	8	±0.25	3.2	0 -0.3	11.2	1.0	0 -0.2	0.3 to 1.5	0.3 to 0.5	440 {4314.9}	1.2	+0.5 5 0
0500	M5 x 0.8	9		4.0		12.6					710 {6962.7}	1.8	+0.5 6 0
0600	M6 x 1	10		5.0		13.9					1200 {11768.0}	2.7	+0.5 7 0
0800	M6 x 1.25	12		6.0	0 -0.36	17.1				0.5 to 1.0	2200 {21574.6}	4.3	+0.5 10 0

Remarks 1. The chamfer diameter of a threaded part on the bottom face shall be approximately (Nominal diameter of the thread + 1mm).

2. A variation of the height including welding projection part about one piece of nut, (H+h), shall be 0.15mm or less.
3. A variation of the width (f) of the welding projection part about one piece of nut shall be 0.7mm or less.
4. The proof load shall be the minimum break load of a combined bolt of a nut.
5. For the shape of a nut, the following shapes can be used.



* 1 Owing to the circumstances of processing facilities, hold diameters of M5 and M6 can be applied as follows. In this case, the feedback from the Production section to the Engineering section shall be made by document.

$$M5 \rightarrow \phi 7\ ^{+0.5}_{0}$$

$$M6 \rightarrow \phi 8\ ^{+0.5}_{0}$$