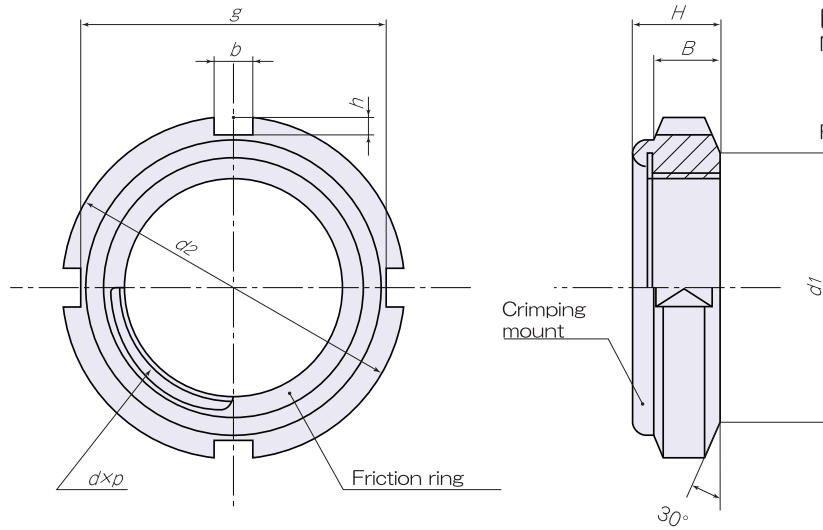


# FINE U-NUT Dimension Table



**Materials (standard items)**  
 Nut body ... S45C-H  
 or equivalent  
 SS 400 or equivalent  
 SUS304 or equivalent  
 Friction ring SUS301

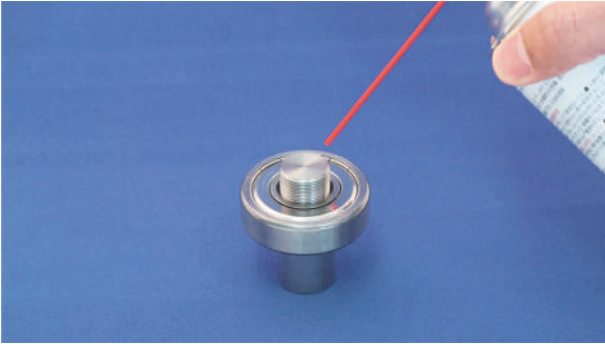
Thread accuracy: ISO6H Unit: mm

Part No.			Designation of Thread <i>d x p</i>	$d_1$		$d_2$		$H$		$B$		$b$		$h$		$g$		Perpendicularity of Bearing Surface (max.)	Unit Weight [g]
SC Series (Material S45C-H)	SS Series (Material SS400)	SUS Series (Material SUS304)																	
-	FUNM8SS	-	M 8x0.75	12		16		5.3		4.3	3		1.5	13				4.1	
FUN00SC	FUN00SS	FUN00SUS	M10x0.75	13.5		18		5.2	±0.3	4	3		1.8	14.4				4.5	
FUN01SC	FUN01SS	FUN01SUS	M12x1	17		22		5.4		4	3		1.8	18.4				8	
FUN02SC	FUN02SS	FUN02SUS	M15x1	21		25		6.5		5	4		1.8	21.4				12	
FUN03SC	FUN03SS	FUN03SUS	M17x1	24		28		6.4	±0.5	5	4		1.9	24.2				13	
FUN04SC	FUN04SS	FUN04SUS	M20x1	26		32		7.7		6	4		1.8	28.4			0.05	23	
FUN05SC	FUN05SS	FUN05SUS	M25x1.5	32		38		9.1		7	5		2	34				36	
FUN06SC	FUN06SS	FUN06SUS	M30x1.5	38		45		9.1		7	5		2	41				45	
FUN07SC	FUN07SS	FUN07SUS	M35x1.5	44	0	52		10.2	±0.8	8	5	±0.2	2	48				70	
FUN08SC	FUN08SS	FUN08SUS	M40x1.5	50	-0.5	58		11.2		9	6		2.5	53				95	
FUN09SC	FUN09SS	FUN09SUS	M45x1.5	56		65		12.5		10	6		2.5	60				130	
FUN10SC	FUN10SS	FUN10SUS	M50x1.5	61		70		13.5	±1.0	11	6		2.5	65				160	
FUN11SC	FUN11SS	FUN11SUS	M55x2	67		75		13.5		11	7		3	69				185	
FUN12SC	FUN12SS	FUN12SUS	M60x2	73		80		13.5		11	7		3	74				190	
FUN13SC	FUN13SS	FUN13SUS	M65x2	79		85		15		12	7		3	79				235	
FUN14SC	FUN14SS	FUN14SUS	M70x2	85		92	0	15		12	8		3.5	85	0			265	
FUN15SC	FUN15SS	FUN15SUS	M75x2	90		98	-0.5	15.8		13	8		3.5	91	-0.5			320	
FUN16SC	FUN16SS	FUN16SUS	M80x2	95		105		18.6		15	8		3.5	98				430	
FUN17SC	FUN17SS	FUN17SUS	M85x2	102		110		19.2		16	8		3.5	103			0.07	495	
FUN18SC	FUN18SS	FUN18SUS	M90x2	108		120		20.3		16	10		4	112				630	
FUN19SC	FUN19SS	FUN19SUS	M95x2	113		125		21.3	±1.5	17	10		4	117				725	
FUN20SC	FUN20SS	FUN20SUS	M100x2	120		130		22.3		18	10		4	122				770	
FUN21SC	-	-	M105x2	126		140		22.3		18	12		5	130				904	
FUN22SC	-	-	M110x2	133		145		23.3		19	12		5	135				954	
FUN23SC	-	-	M115x2	137	0	150		23.3		19	12	±0.3	5	140				1030	
FUN24SC	-	-	M120x2	138	-0.75	155		24.3		20	12		5	145				1080	
FUN25SC	-	-	M125x2	148		160		25.4		21	12		5	150				1170	
FUN26SC	-	-	M130x2	149		165		25.4		21	12		5	155				1250	
FUN27SC	-	-	M135x2	160		175		26.6		22	14		6	163			0.10	1586	
FUN28SC	-	-	M140x2	160		180		26.6	±2.0	22	14		6	168				1748	
FUN29SC	-	-	M145x2	171		190		28.6		24	14		6	178				2000	
FUN30SC	-	-	M150x2	171		195		28.3		24	14		6	183				2050	

(Specify Part No. when placing an order.)  
 ※Consult us if left handed screw is needed.

※ Consult us if surface treatment is needed.  
 ※ Materials include equivalent of each materials.  
 ※ Dimensions may change for improvement.

# Installation Procedure



Position nut on shaft. Apply lubricant after checking that the tip of the thread portion of the shaft has a chamfer that is equivalent to the distance of 1 pitch. When the shaft has low hardness, use lubricant with especially high lubricating properties.



Manually screw the nut on until the friction ring touches the tip of the threaded portion of the shaft.

※ The nut cannot be used if the shaft thread is machined with a keyway or other processing.



Use a tightening tool made especially for **FINE U-NUT**.

※ Using a hook wrench is also OK.  
※ High-speed rotation impact wrenches cannot be used.



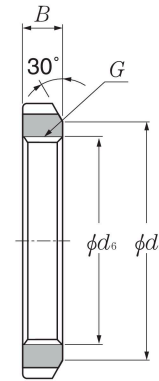
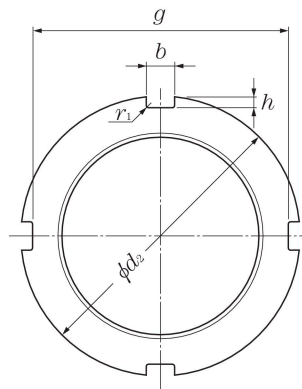
Press down on the axis portion of the ratchet handle and tighten by lightly turning the ratchet.



Check that bearing inner ring and **FINE U-NUT** bearing surface are closely adhered to each other and check that two full shaft threads protrude beyond the friction ring at the top of the nut.

When removing, unscrew the nut with a tightening tool until the friction ring detaches the tip of the threaded portion of the bolt. After that, unscrew the nut manually.

(For adapter sleeve, withdrawal sleeve and shaft)  
Series AN



Bearing numbers	thread	Dimensions							Mass kg (approx.)	Reference		
		mm								r <sub>1</sub> max	bore no. <sup>2)</sup> of adapter	lock- <sup>3)</sup> washer No.
		G <sup>1)</sup>	d <sub>2</sub>	d <sub>1</sub>	g	b	h	d <sub>6</sub>				
AN00	M10×0.75	18	13.5	14	3	2	10.5	4	0.4	0.005	—	AW00
AN01	M12×1	22	17	18	3	2	12.5	4	0.4	0.007	—	AW01
AN02	M15×1	25	21	21	4	2	15.5	5	0.4	0.01	—	AW02
AN03	M17×1	28	24	24	4	2	17.5	5	0.4	0.013	—	AW03
AN04	M20×1	32	26	28	4	2	20.5	6	0.4	0.019	04	AW04
AN05	M25×1.5	38	32	34	5	2	25.8	7	0.4	0.025	05	AW05
AN06	M30×1.5	45	38	41	5	2	30.8	7	0.4	0.043	06	AW06
AN07	M35×1.5	52	44	48	5	2	35.8	8	0.4	0.053	07	AW07
AN08	M40×1.5	58	50	53	6	2.5	40.8	9	0.5	0.085	08	AW08
AN09	M45×1.5	65	56	60	6	2.5	45.8	10	0.5	0.119	09	AW09
AN10	M50×1.5	70	61	65	6	2.5	50.8	11	0.5	0.148	10	AW10
AN11	M55×2	75	67	69	7	3	56	11	0.5	0.158	11	AW11
AN12	M60×2	80	73	74	7	3	61	11	0.5	0.174	12	AW12
AN13	M65×2	85	79	79	7	3	66	12	0.5	0.203	13	AW13
AN14	M70×2	92	85	85	8	3.5	71	12	0.5	0.242	14	AW14
AN15	M75×2	98	90	91	8	3.5	76	13	0.5	0.287	15	AW15
AN16	M80×2	105	95	98	8	3.5	81	15	0.6	0.397	16	AW16
AN17	M85×2	110	102	103	8	3.5	86	16	0.6	0.451	17	AW17
AN18	M90×2	120	108	112	10	4	91	16	0.6	0.556	18	AW18
AN19	M95×2	125	113	117	10	4	96	17	0.6	0.658	19	AW19
AN20	M100×2	130	120	122	10	4	101	18	0.6	0.698	20	AW20
AN21	M105×2	140	126	130	12	5	106	18	0.7	0.845	21	AW21
AN22	M110×2	145	133	135	12	5	111	19	0.7	0.965	22	AW22
AN23	M115×2	150	137	140	12	5	116	19	0.7	1.01	—	AW23
AN24	M120×2	155	138	145	12	5	121	20	0.7	1.08	24	AW24
AN25	M125×2	160	148	150	12	5	126	21	0.7	1.19	—	AW25
AN26	M130×2	165	149	155	12	5	131	21	0.7	1.25	26	AW26
AN27	M135×2	175	160	163	14	6	136	22	0.7	1.55	—	AW27
AN28	M140×2	180	160	168	14	6	141	22	0.7	1.56	28	AW28
AN29	M145×2	190	171	178	14	6	146	24	0.7	2	—	AW29
AN30	M150×2	195	171	183	14	6	151	24	0.7	2.03	30	AW30
AN31	M155×3	200	182	186	16	7	156.5	25	0.7	2.21	—	AW31
AN32	M160×3	210	182	196	16	7	161.5	25	0.7	2.59	32	AW32
AN33	M165×3	210	193	196	16	7	166.5	26	0.7	2.43	—	AW33
AN34	M170×3	220	193	206	16	7	171.5	26	0.7	2.8	34	AW34
AN36	M180×3	230	203	214	18	8	181.5	27	0.7	3.07	36	AW36
AN38	M190×3	240	214	224	18	8	191.5	28	0.7	3.39	38	AW38
AN40	M200×3	250	226	234	18	8	201.5	29	0.7	3.69	40	AW40

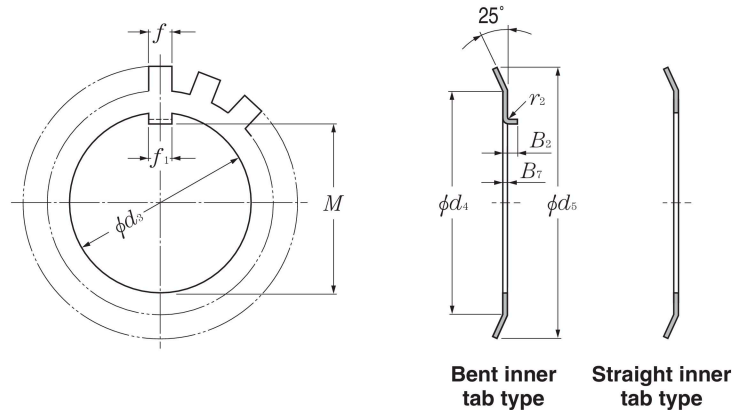
1) Standard thread shapes and dimensions are as per JIS B0207 (metric thread).

2) Uses adapter series H31, H2, and H23

3) Can also use washers with straight inner tabs (code "X").

Reference withdrawal sleeve No.								Shaft
AH30	AH240	AH31	AH241	AH2	AH32	AH3	AH23	mm
								(for shaft)
—	—	—	—	—	—	—	—	10
—	—	—	—	—	—	—	—	12
—	—	—	—	—	—	—	—	15
—	—	—	—	—	—	—	—	17
—	—	—	—	—	—	—	—	20
—	—	—	—	—	—	—	—	25
—	—	—	—	—	—	—	—	30
—	—	—	—	—	—	—	—	35
—	—	—	—	—	—	—	—	40
—	—	—	—	AH208	—	AH 308	AH2308	45
—	—	—	—	AH209	—	AH 309	AH2309	50
—	—	—	—	AH210	—	AHX310	AHX2310	55
—	—	—	—	AH211	—	AHX311	AHX2311	60
—	—	—	—	AH212	—	AHX312	AHX2312	65
—	—	—	—	—	—	—	—	70
—	—	—	—	AH213	—	AH 313	AH2313	75
—	—	—	—	AH214	—	AH 314	AHX2314	80
—	—	—	—	AH215	—	AH 315	AHX2315	85
—	—	—	—	AH216	—	AH 316	AHX2316	90
—	—	—	—	AH217	—	AHX317	AHX2317	95
—	—	—	—	AH218	AHX3218	AHX318	AHX2318	100
—	—	—	—	AH219	—	AHX319	AHX2319	105
—	—	—	—	AH220	AHX3220	AHX320	AHX2320	110
—	—	—	AH24122	AH221	—	AHX321	—	115
—	—	AHX3122	—	AH222	—	AHX322	—	120
—	AH24024	—	—	—	AHX3222	—	AHX2322	125
AHX3024	—	AHX3124	AH24124	AH224	—	AHX324	—	130
—	AH24026	—	—	—	AHX3224	—	AHX2324	135
AHX3026	—	AHX3126	AH24126	AH226	—	AHX326	—	140
—	AH24028	—	—	—	AHX3226	—	AHX2326	145
AHX3028	—	AHX3128	AH24128	AH228	—	AHX328	—	150
—	AH24030	—	—	—	AHX3228	—	AHX2328	155
AHX3030	—	—	AH24130	AH230	—	—	—	160
—	—	AHX3130	—	—	AHX3230	AHX330	AHX2330	165
AH 3032	AH24032	—	AH24132	AH232	—	—	—	170
AH 3034	AH24034	AH3132	AH24134	AH234	AH3232	AH332	AH2332	180
AH 3036	AH24036	AH3134	AH24136	AH236	AH3234	AH334	AH2334	190
—	AH24038	AH 3136	AH24138	—	AH3236	—	AH2336	200

## Series AW



Bearing numbers		Dimensions							No. of tabs		Mass	
bent inner tab type	straight inner tab type	$d_3$	$M$	$f_1$	$B_7$	$f$	$d_4$	$d_5$	bent inner tab type		kg	
		mm									100 pieces (approx.)	
									$r_2$	$B_2$		
AW00	AW00X	10	8.5	3	1	3	13.5	21	0.5	2	9	0.131
AW01	AW01X	12	10.5	3	1	3	17	25	0.5	2	11	0.192
AW02	AW02X	15	13.5	4	1	4	21	28	1	2.5	13	0.253
AW03	AW03X	17	15.5	4	1	4	24	32	1	2.5	13	0.313
AW04	AW04X	20	18.5	4	1	4	26	36	1	2.5	13	0.35
AW05	AW05X	25	23	5	1.2	5	32	42	1	2.5	13	0.64
AW06	AW06X	30	27.5	5	1.25	5	38	49	1	3.75	13	0.78
AW07	AW07X	35	32.5	6	1.25	5	44	57	1	3.75	15	1.04
AW08	AW08X	40	37.5	6	1.25	6	50	62	1	3.75	15	1.23
AW09	AW09X	45	42.5	6	1.25	6	56	69	1	3.75	17	1.52
AW10	AW10X	50	47.5	6	1.25	6	61	74	1	3.75	17	1.6
AW11	AW11X	55	52.5	8	1.5	7	67	81	1	5.5	17	1.96
AW12	AW12X	60	57.5	8	1.5	7	73	86	1.2	5.5	17	2.53
AW13	AW13X	65	62.5	8	1.5	7	79	92	1.2	5.5	19	2.9
AW14	AW14X	70	66.5	8	1.5	8	85	98	1.2	5.5	19	3.34
AW15	AW15X	75	71.5	8	1.5	8	90	104	1.2	5.5	19	3.56
AW16	AW16X	80	76.5	10	1.8	8	95	112	1.2	5.8	19	4.64
AW17	AW17X	85	81.5	10	1.8	8	102	119	1.2	5.8	19	5.24
AW18	AW18X	90	86.5	10	1.8	10	108	126	1.2	5.8	19	6.23
AW19	AW19X	95	91.5	10	1.8	10	113	133	1.2	5.8	19	6.7
AW20	AW20X	100	96.5	12	1.8	10	120	142	1.2	7.8	19	7.65
AW21	AW21X	105	100.5	12	1.8	12	126	145	1.2	7.8	19	8.26
AW22	AW22X	110	105.5	12	1.8	12	133	154	1.2	7.8	19	9.4
AW23	AW23X	115	110.5	12	2	12	137	159	1.5	7.8	19	10.8
AW24	AW24X	120	115	14	2	12	138	164	1.5	8	19	10.5
AW25	AW25X	125	120	14	2	12	148	170	1.5	8	19	11.8
AW26	AW26X	130	125	14	2	12	149	175	1.5	8	19	11.3
AW27	AW27X	135	130	14	2	14	160	185	1.5	8	19	14.4
AW28	AW28X	140	135	16	2	14	160	192	1.5	10	19	14.2
AW29	AW29X	145	140	16	2	14	171	202	1.5	10	19	16.8
AW30	AW30X	150	145	16	2	14	171	205	1.5	10	19	15.5
AW31	AW31X	155	147.5	16	2.5	16	182	212	1.5	10.5	19	20.9
AW32	AW32X	160	154	18	2.5	16	182	217	1.5	10.5	19	22.2
AW33	AW33X	165	157.5	18	2.5	16	193	222	1.5	10.5	19	24.1
AW34	AW34X	170	164	18	2.5	16	193	232	1.5	10.5	19	24.7
AW36	AW36X	180	174	20	2.5	18	203	242	1.5	10.5	19	26.8
AW38	AW38X	190	184	20	2.5	18	214	252	1.5	10.5	19	27.8
AW40	AW40X	200	194	20	2.5	18	226	262	1.5	10.5	19	29.3

1) Uses adapter series H31, H2, H32, H3, and H23.

bore no. <sup>1)</sup> of adapter	Reference locknut no.	shaft
		mm (for shaft)
—	<b>AN00</b>	10
—	<b>AN01</b>	12
—	<b>AN02</b>	15
—	<b>AN03</b>	17
04	<b>AN04</b>	20
05	<b>AN05</b>	25
06	<b>AN06</b>	30
07	<b>AN07</b>	35
08	<b>AN08</b>	40
09	<b>AN09</b>	45
10	<b>AN10</b>	50
11	<b>AN11</b>	55
12	<b>AN12</b>	60
13	<b>AN13</b>	65
14	<b>AN14</b>	70
15	<b>AN15</b>	75
16	<b>AN16</b>	80
17	<b>AN17</b>	85
18	<b>AN18</b>	90
19	<b>AN19</b>	95
20	<b>AN20</b>	100
21	<b>AN21</b>	105
22	<b>AN22</b>	110
—	<b>AN23</b>	115
24	<b>AN24</b>	120
—	<b>AN25</b>	125
26	<b>AN26</b>	130
—	<b>AN27</b>	135
28	<b>AN28</b>	140
—	<b>AN29</b>	145
30	<b>AN30</b>	150
—	<b>AN31</b>	155
32	<b>AN32</b>	160
—	<b>AN33</b>	165
34	<b>AN34</b>	170
36	<b>AN36</b>	180
38	<b>AN38</b>	190
40	<b>AN40</b>	200

### Allowable washer dimensions Units mm

Nominal bore dia. $d_s$ mm	Dimensional tolerance for distance from inner tab to bore surface $\Delta M$	Dimension tolerance for width of inner tab $\Delta_{J1}$			
		High		Low	
		Over	up to/incl	High	Low
6	50	+0.3	0	+0.2	-0.2
50	80	+0.3	0	+0.5	-0.5
80	120	+0.5	0	+0.7	-0.7
120	200	+0.5	0	+1	-1

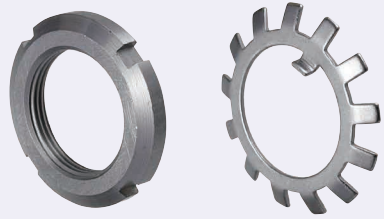
Above table is applicable to AWL series.

Note: Narrow slit type adapter sleeves appended with the **H2**, **H3**, and **H23** series code suffix "**X**", use straight inner tab washers (marked with "**X**"); wide slit type adapter sleeves without the suffix "**X**" can either straight or bent inner tab washers.

# Bearing Nuts / Toothed Lock Washers for Bearings

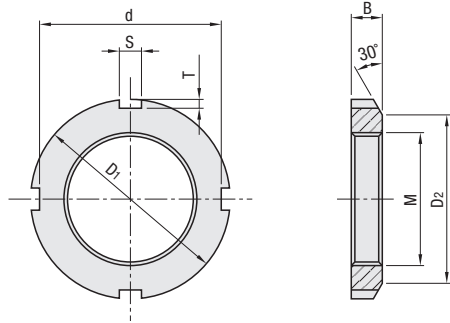
# Hard Locking Bearing Nuts / Fine U Nuts®

■Features: A set of a nut and a special washer, the standard components to secure bearings.

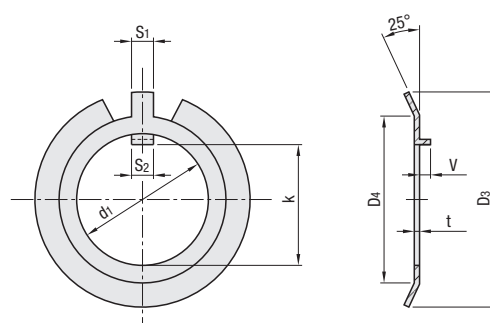


Type	Type		① Bearing Nut		② Tooth Lock Washer for Bearing	
	①+② Set	① Only	Material	Material	Material	Material
Steel	JLNK	JLN	SS400		SPCC	
Stainless Steel	JLNSK	JLNS	No.10-20 SUS303 No.25-50 SUS304		SUS304	

① Bearing Nut



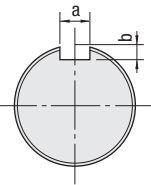
② Tooth Lock Washer for Bearing



Screw Accuracy: JIS B 0211 6H (Class 2)

Part Number	① Bearing Nut								Reference Mass (g)				JLNK	JLNSK	JLN	JLNS	
	Type	No.	MxPitch (Fine)	D1	D2	B	d	S	T	per Set (①+②)		per 1 pc. (① Only)		Unit Price			
①+② Set (Steel) JLNK (Stainless Steel) JLNSK	10	10	10x0.75	18	13	4	14	3	2	5.0	5.3	3.7	4.1				
	12	12	12x1.0	22	17	4	18	3	2	8.3	8.2	6.4	6.6				
	15	15	15x1.0	25	21	5	21	4	2	12.5	12.7	10	10.3				
	17	17	17x1.0	28	24	5	24	4	2	15.5	16.3	12.4	13				
	20	20	20x1.0	32	26	6	28	4	2	21.5	22.8	19	19.5				
	25	25	25x1.5	38	32	6	34	4	2	31.4	36.6	25	31.2				
	30	30	30x1.5	45	38	7	41	5	2	47.8	48.3	40	41.1				
	35	35	35x1.5	52	44	8	48	5	2	63.4	73.7	53	64.3				
	40	40	40x1.5	58	50	9	53	6	2.5	97.3	97.7	85	86.5				
	45	45	45x1.5	65	56	10	60	6	2.5	134.2	135	119	121				
50	50	50x1.5	70	61	11	65	6	2.5	162.5	161.5	146.5	147					

No.	② Tooth Lock Washer for Bearing								Dim. of Tooth Lock Washer Mounting Groove (Reference)		
	d1	k	S1	S2	t	V	D3	D4	Number of Teeth	Slot Width a	Slot Depth b
10	10	8.5	3	3	1.0	2	21	13	9	4	2
12	12	10.5	3	3	1.0	2	25	17	9	4	2
15	15	13.5	4	4	1.0	2	28	21	13	5	2
17	17	15.5	4	4	1.0	2	32	24	13	5	2
20	20	18.5	5	5	1.0	2	36	26	13	5	2
25	25	23	5	5	1.0	2	42	32	13	5	2
30	30	27.5	5	5	1.0	2	49	38	13	5	2
35	35	32.5	6	6	1.2	2.5	57	44	15	7	3
40	40	37.5	6	6	1.2	2.5	62	50	15	7	3
45	45	42.5	6	6	1.2	2.5	69	56	17	7	3
50	50	47.5	6	6	1.2	2.5	74	61	17	7	3

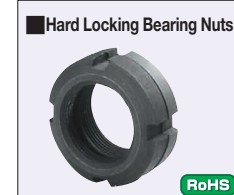


■Bearing Nuts and Toothed Lock Washers  
 \*These 2 items are common parts for securing bearings.  
 \*Nut loosening can be prevented by machining a vertical groove (Keyway) on the thread of a rotary shaft, and by tightening the nut and the shaft with the tooth lock washer.

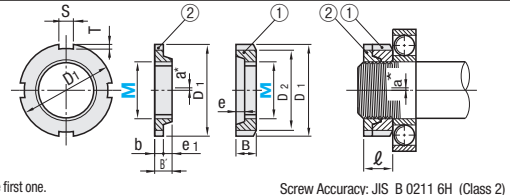
■[Mounting Procedure]

- Assemble a bearing onto a rotary shaft.
- Fit the tooth lock washer tab (S<sub>2</sub>) in the groove of the rotary shaft (a).
- Tighten the bearing nut.
- Fold the tooth lock washer tab (S<sub>1</sub>) to fit the groove of the bearing nut (S).

Ordering Example  
 Part Number  
 ①+② Set  
**JLNK10**  
 ① Only  
**JLN25**



Type	Material	Hardness	Surface Treatment
Standard	SS400 Equivalent	-	Parker
Thin	S45C Thermal Refined (22-28HRC)	22-28HRC	Electroless Nickel Plating
HLB	SS400 Equivalent	-	Parker
HLBM	S45C Thermal Refined (22-28HRC)	22-28HRC	Electroless Nickel Plating
HLBC	SUS304	-	-
HLBU	SUS304	-	-



\*Designed Offset (a) is provided between No. 2 Nut boss.  
 \*For Thin Type (HLBU), mount the second nut (upper nut) first, followed by the first one.

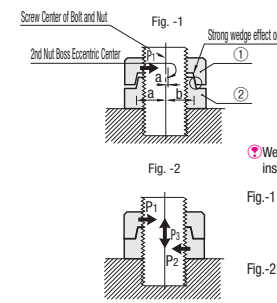
Screw Accuracy: JIS B 0211 6H (Class 2)

Part Number	Type	M	MxPitch (Fine)	① No. 1 Nut (Lower Nut)				② No. 2 Nut (Upper Nut)				Common to No. 1 and 2		Setting Height ℓ				Mass per Set (g)	
				D1	D2	B	e	D1	B	e1	b	S	T	Min	Max	Min	Max	Standard	Thin
<Standard>	10	10	10x0.75	18	13	6	2.7	18	6	2.5	3.5	3	9.5	10.5	15	17	15	17	
	12	12	12x1.0	22	17	7	2.7	22	7	2.5	4.5	4	11.5	12.5	23	29	23	29	
	15	15	15x1.0	25	21	8	2.7	25	8	2.5	5.5	5	13.5	14.5	43	43	43	43	
	17	17	17x1.0	28	24	10	2.7	28	10	2.5	6.5	6	16.0	17.5	72	72	72	72	
	20	20	20x1.0	32	26	11	2.7	32	11	2.5	7.5	7	18.0	19.5	103	103	103	103	
<Thin>	35	35	35x1.5	52	44	8	4.2	52	11	4.0	7	4	17.0	18.5	170	170	170	170	
	40	40	40x1.5	58	50	9	4.2	58	9	4.0	5	5	19.0	20.5	240	240	240	240	
	45	45	45x1.5	65	56	10	4.2	65	10	4.0	6	6	21.0	22.5	285	285	285	285	
	45	45	45x1.5	65	56	13	4.2	65	10	4.0	6	6	21.0	22.5	285	285	285	285	
	50	50	50x1.5	70	61	14	4.2	70	11	4.0	7	7	21.0	22.5	285	285	285	285	

Ordering Example  
 Part Number  
**HLB35**

■Precautions for Use  
 Machine chamfering (C=1 pitch equivalent) on the tip of male thread, whose precision grade is JIS 6g (Class 2).

■Structure and Function of Hard Locking Bearing Nut



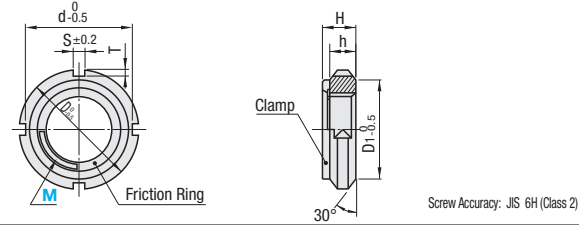
■Comparison with Conventional Products

Unlike standard bearing nut sets, no keyway machining is required for toothed washers and shafts.

Fig.-1 When upper nut is tightened, stress is automatically applied in P1 arrow direction. Horizontal stress continues to increase with tightening until upper nut closely contacts lower nut as shown in Fig.-2. The nuts are fully locked by the wedge effect.  
 Fig.-2 After nuts are tightened, internal stress remains distributed as composite stress of P1 + P2 + P3 to resist external impact.



Type	Material
FUNT	SS400 Equivalent
FUNTC	S45C Thermal Refined (22-28HRC)
FUNTS	SUS304

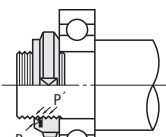


Part Number	Type	M	MxPitch (Fine)	D	D1	d	T	S	H	h	Perpendicularity of End Face (Max.)	Unit Price		
												FUNT	FUNTC	FUNTS
FUNT FUNTC FUNTS	8	8	8x0.75	16	12	13	1.5	3	5.3	4.3	0.05			
	10	10	10x0.75	18	13.5	14.4	1.5	3	5.2	4	0.05			
	12	12	12x1.0	22	17	18.4	1.8	4	5.4	4	0.05			
	15	15	15x1.0	25	21	21.4	1.8	4	6.5	5	0.05			
	17	17	17x1.0	28	24	24.2	1.9	4	6.4	5	0.05			
	20	20	20x1.0	32	26	28.4	1.8	4	7.7	6	0.05			
	25	25	25x1.5	38	32	34	2	5	9.1	7	0.05			
	30	30	30x1.5	45	38	41	2	5	9.1	7	0.05			
	35	35	35x1.5	52	44	48	2	5	10.2	8	0.05			
	40	40	40x1.5	58	50	53	2.5	6	11.2	9	0.05			
45	45	45x1.5	65	56	60	2.5	6	12.5	10	0.05				
50	50	50x1.5	70	61	65	2.5	6	13.5	11	0.05				

Ordering Example  
 Part Number  
**FUNT10**

■Hard Lock Structure

As shown in the figure above, stress P is caused by the spring effect when Friction Ring contacts the thread. The reaction force P' together with P presses hard upon the threads, which creates friction torque (prevailing torque) to prevent any free motion.



■Precautions for Use

- Machine chamfering (C=1 pitch equivalent) on the tip of male thread, whose precision grade is JIS 6g (Class 2).
- Use lubricant when threading in and out. (Use extra high performance lubricant when shaft hardness is low.)
- For optimal performance, ensure that the complete thread portion is to extrude by 2 pitches or more from friction ring side.
- The perpendicularity of the plane end in the above table is effective only when tightened with twice or more than prevailing torque.
- Not usable with high speed impact wrenches.
- Not usable on machined thread portion of shafts (keyway, etc.).
- Screwing in from the friction ring side is impossible.
- Do not use when the deflection of friction rings or clamp part occurs.

\*Fine U Nut® is a registered trademark of FUJISEIMITSU CO., LTD.

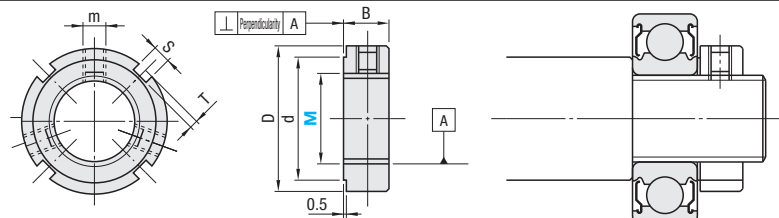
# Precision Lock Nuts / Hook Spanners for Bearing Nuts

# Bearing Lock Nuts Square / Hexagon

## Precision Lock Nuts



RoHS



Type	Perpendicularity
PLNY (Standard)	$\perp 0.005$ A
PLN (High-Grade)	$\perp 0.002$ A

Component	Material	Hardness	Surface Treatment	Screw Accuracy
Main Body	SCM440	28~32HRC	Black Oxide	ISO Class 4H
Set Screw	SCM435	35~40HRC	Black Oxide	
Locking Metal (*)	Phosphor Bronze	-	-	

\* Locking metal is the metal at the tip portion of set screw.

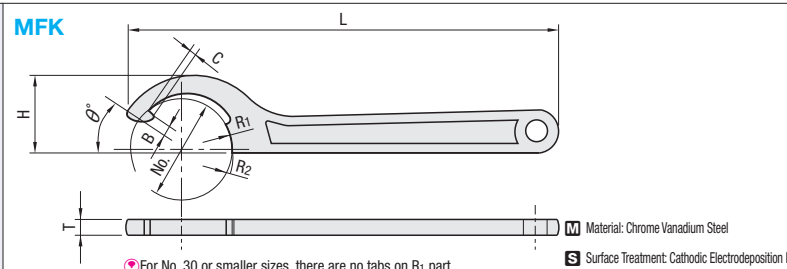
Part Number Type	M	MxPitch (Fine)	D	d	B	S	T	m	Perpendicularity of End Face (Max.)	Max. Tightening Torque (N·m) Set Screw	Unit Price	
											PLNY	PLN
(Standard) PLNY	8	8x0.75	16	11	8	3	2	2xM4	-PLNY 0.005	3.5		
	10	10x1.0	18	13								
	12	12x1.0	20	16								
	15	15x1.0	25	21								
	17	17x1.0	28	23								
	20	20x1.0	32	27								
	(High-Grade) PLN	25	25x1.5	38	33	10	4	3xM5	-PLN 0.002	8.0		
		30	30x1.5	45	40							
		35	35x1.5	52	47							
		40	40x1.5	58	52							
		45	45x1.5	65	59							
		50	50x1.5	70	64							
	55	55x2.0	75	68	14	6	2.5	3xM6	18.0			
	60	60x2.0	80	73						16	7	3

Ordering Example Part Number **PLNY8**

## Hook Spanners for Bearing Nuts



RoHS



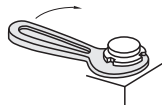
Part Number Type	No.	R1	R2	B	C	$\theta$	T	H	L	Shaft Dia.	Round Nut / Bearing Nut	Unit Price	Volume Discount Rate	
												1 ~ 9 pc(s)	10 ~ 50 pcs.	
MFK	16	8	10	1.5	2	30°	4	11	108	Ø16, Ø18	M8, M10			
	20	10	11											
	25	12.5	14											
	30	15	16											
	34	17	19											
	45	22.5	24									2.5	2.5	35°
	52	26	27.5											
	58	29	32.5											
	65	32.5	35											
	70	35	37.5											
				3.5	3		7	46	232	Ø58, Ø65	M40, M45			
												52	247	Ø70, Ø75

\* For orders larger than indicated quantity, please request a quotation.

Ordering Example Part Number **MFK25**



- Use a wrench matching the diameter of the nut.
- Do not hit the stem with a hammer, etc.
- Do not insert a pipe when using.



## Square



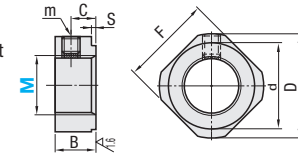
Type		Material	Hardness	Surface Treatment	Accessory	
Coarse	BNG	SS400	-	Black Oxide	Set Piece (Copper Alloy)	Set Screw (SCM435)
Fine	BNR	S45C Thermal Refined	22~28HRC	-	-	Set Screw (SUS304)
	BNGC	SUS304	-	-	-	-
	BNRC	-	-	-	-	-
	BNGS	-	-	-	-	-
	BNRS	-	-	-	-	-

⚠ BNGC and BNRC have identification mark "C" on the side of nut.

⚠ Tighten the set screw after inserting the set piece.

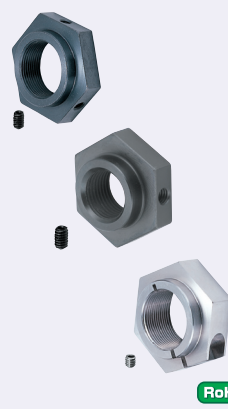
⚠ For Set Piece (SEPNS) Specifications, see PZ-212

⚠ S45C Thermal Refined excels in durability.



Part Number Type	M	MxPitch		D	d	F	B	C	S	m	Coarse Thread Unit Price		Fine Thread Unit Price	
		Coarse	Fine								BNG	BNGC	BNGS	BNR
(Coarse) BNG, BNGC, BNGS	3	M3x0.5	M3x0.35	11.5	4	10	5.5	3	0.5	M3x3 (With Set Piece)				
	4	M4x0.7	M4x0.5											
	5	M5x0.8	M5x0.5	13.5	9	11	8	5	1	M4x4 (With Set Piece)				
	6	M6x1.0	M6x0.75											
	8	M8x1.25	M8x1.0	17	13	14	15	10	2	M5x5 (With Set Piece)				
	10	M10x1.5	M10x1.0											
	12	M12x1.75	M12x1.0	22	17	19	25	16	6	M6x6 (With Set Piece)				
	15	-	M15x1.0											
	16	M16x2.0	-	25	21	22	30	13	8	30				
	17	-	M17x1.0											
	20	M20x2.5	M20x1.0	35	26	30	35	15	10	43				
	24	M24x3.0	-											
25	-	M25x1.5	43	33	35	40	20	14	43					
30	M30x3.5	M30x1.5												
35	-	M35x1.5	48	39	40	45	25	16	49					
40	-	M40x1.5												
50	-	M50x1.5	66	61	63									

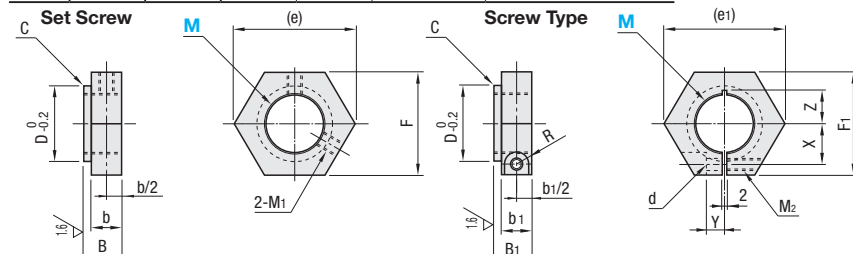
## Hex Type



Type	Coarse	Fine	Material	Hardness	Surface Treatment	Accessory		
						Set Screw Type	BNSC	BNSC
			BNSCC	S45C Thermal Refined	20~24HRC	-	-	Set Screw (SUS304)
			BNSCS	SUS303	-	-	-	-
			BNSBS	SS400	-	-	-	-
Screw Type			BNBSC	S45C Thermal Refined	20~24HRC	Black Oxide	Hex Socket Screw (SCM435)	
			BNBSS	SUS303	-	-	Hex Socket Screw (SUS304)	

⚠ BNSCC, BNBMC and BNSBC have a round identification groove in front.

⚠ S45C Thermal Refined excels in durability.



Part Number Type	M	MxPitch		D	C	Set Screw		Screw Type												Unit Price						
		Coarse	Fine			(e)	F	B	b	M1	(e1)	F1	B1	b1	M2	X	Y	Z	d	R	BNSC	BNSCC	BNSCS	BNBMC	BNBSC	BNBSS
(Coarse Set Screw) BNCM, BNSCM	*5	M5x0.8	M5x0.5	9	19.6	17	9	5	M3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	*6	M6x1.0	M6x0.75							10	13	27.7	24	13	9	M4	7	4	7 (8.5)	4.5	3.75					
(Coarse Screw) BNCM, BNSCM	8	M8x1.25	M8x1.0	10	21.9	19	10	6	M4	13	9	M4	9	4	7 (10)	4.5	3.75									
	10	M10x1.5	M10x1.0							16	25.4	22	10	31.2	27	16	12	M5	9.5	4.5	9 (11)	5.5	4.5			
(Fine Set Screw) BNSC, BNSCC, BNSCS	12	M12x1.75	M12x1.0	17	27.7	24	10	6	M4	16	12	M5	9.5	4.5	9 (11)	5.5	4.5									
	15	-	M15x1.0							21	31.2	27	11	41.6	36	12.5	5	9.5 (11)	9.5 (12)							
(Fine Screw) BNBS, BNSBS, BNBS	20	M20x2.5	M20x1.0	26	37.0	32	11	14	M6	19	15	6.5	12 (15)	7	5.5											
	24	M24x3.0	-							33	47.3	41	13	8	M5	53.1	46	17	7.5	15						
	30	M30x3.5	M30x1.5	39	0.5	57.7	50	16	10	M6	57.7	50	20	19.5	8.5	18										

\* End Face M5 and M6 are available for Set Screw only. ⚠ Z dimensions in ( ) are for Stainless Steel Type.

Ordering Example Part Number **BNR12**